



## Research article

## Corporate governance mechanisms, royal family ownership and corporate performance: evidence in gulf cooperation council (GCC) market

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## ABSTRACT

This research is motivated by the increasing importance of the Gulf Cooperation Council (GCC) economies within the world economy and the lack of research on corporate governance mechanisms in these countries. This study examines the relationship between corporate governance mechanisms and firm performance in GCC countries, focusing on the uniqueness of royal family ownership. We further investigate whether corporate governance mechanisms affect the royal family ownership–firm performance relationship. The data sample of the study includes 266 company-year observations over the period of 2009–2017. Results demonstrate that board size with less than nine members on board and audit quality (AUQ) are effective corporate governance mechanisms because their monitoring functions can enhance firm performance. However, our result demonstrates that firm performance significantly deteriorates with institutional ownership, chief executive officer duality (CEODU) and local auditors (AUQL). The result also shows that royal ownership has a significant positive effect on firm performance. In line with the resource dependency theory, this finding indicates that royal members who have a link with the external environment are more likely to have easy access to vital resources to aid in business performance improvement. Further analysis found that the big four international audit firms (AUQ) and AUQL positively moderate the relationship between royal ownership and firm performance. The finding suggests that AUQL and the big four international auditors play a complementary role in the governance system by strategising with royal members who own shares in the firm to further enhance firm performance. With the existence of royal family ownership, which is common amongst corporations in monarchy countries, the results of our study should help corporations in the GCC region to establish the best governance mechanisms to enhance firm performance.

## 1. Introduction

Although no generally accepted definition of corporate governance (CG) is available, CG may refer to the systems, mechanisms, processes and structures by which companies are controlled and directed towards their objectives in serving the needs of shareholders and other stakeholders (Fama and Jensen, 1983; Cadbury report, 1992; Lin and Hwang, 2010). A good CG system creates an infrastructure for sound business practices and prudent management often associated with the effective and efficient allocation of its resources, lower cost of capital to achieve high firm performance, competitiveness and ultimately, shareholders' sustainable wealth creation (Agyemang et al., 2013; Shleifer and Vishny, 1997).

Hence, our first research objective is to investigate whether CG mechanisms affect firm performance amongst public listed companies in Gulf

Cooperation Council (GCC) countries during the period 2009 to 2017. Specifically, we aim to examine the effects of internal mechanisms (independent non-executive directors [BINDs], board size [BIZE] and chief executive officer duality [CEODU]) and external mechanisms (institutional ownership [INSOW] and audit quality [AUQ]) on firm performance. Secondly, we aim to examine the influence of royal family shareholdings on firm performance. Our third research objective is to investigate whether CG mechanisms moderate the effect of royal shareholdings on firm performance. From the perspective of a series of governance mechanisms (Abdul Wahab et al., 2017; Misangyi and Acharya 2014; Ward et al., 2009), we examine whether multiple governance mechanisms act as complements or substitutes in enhancing firm performance. Substitute governance mechanisms will solely resolve the agency problem created by royal family ownership (RYLOW). Complementary governance mechanisms should

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either enhance the positive effect of RYLOW on firm performance or mitigate the negative effects of the RYLOW–firm performance relationship.

This research is motivated by the increasing importance of GCC economies within the world economy and the lack of research on CG mechanisms and RYLOW in these countries. GCC countries offer an environment where more effective and stronger governance mechanisms are required if they need to participate actively in the global financial marketplace. Baydoun et al. (2013) and Al Nasser (2019) claimed that these oil-rich countries had experienced a period of high financial market growth in the last two decades, which has attracted local, regional and foreign direct investments. PWTC (2018) reported that at the end of March 2018, foreign ownership of GCC equities stood at about \$60 billion, representing approximately 6% of market capitalisation (MCPV). Despite this small market size, Mansur and Delgado (2008) indicated that foreign investors are gaining interest in investing in this promising region. Hence, a good CG practice in the GCC region is necessary to enhance investor confidence.

Secondly, the limited attention in exploring the CG–firm performance relationship in the GCC region (Baydoun et al., 2013) has motivated us to examine whether CG (CG) mechanisms affect firm performance in this region. The CG in emerging markets differs not only in some key aspects from developed countries but also in some of these features across emerging markets. Bhasa (2004), Tsamenyi and Uddin (2008), Baydoun et al. (2013) and Pillai and Al-Malkawi (2018) suggested the need for more studies on CG in emerging markets, particularly the GCC countries because of the uniqueness of its institutional setting. Previous studies on this issue focused mainly on a single developing country-specific (e.g. Boshnak, 2021, Husnain et al., 2021; Puni and Anlesinya 2020; Ali Al-smadi et al., 2014; Alsmady 2018; Che Haat et al., 2008). Furthermore, the results of empirical research to date in developed (e.g. Kyere and Ausloos, 2020; Akbar et al., 2016; Fama and Jensen, 1983; Jensen and Meckling, 1976) and developing economies (e.g. Martinez-Garcia et al., 2022; Husnain et al., 2021; Puni and Anlesinya 2020; Akbar et al., 2016, Abdullah & Ismail 2017) provide inconclusive evidence on the effects of CG mechanisms in maximising firm performance. In line with agency theory, studies (e.g. Abdullah & Ismail 2017, Bozec et al., 2010; Fama and Jensen 1983; Jensen and Meckling, 1976) that found a positive effect of CG on firm performance argued that better governance reduces the chances of principal–agent conflict of interests and enhances efficiency in the monitoring of managerial activities, which in turn leads to improvements in firm performance. By contrast, the insignificant relationship between CG and firm performance found by Akbar et al. (2016) suggests that compliance with CG regulations is not a determinant of firm performance.

Thirdly, another new perspective in this study is to examine the influence of royal family shareholdings on firm performance. In monarchy countries, it is not surprising to find royal family members involved in business, holding positions in key ministries and directors on company boards, including the existence of RYLOW or royal family–controlled companies (Halawi et al., 2008; Crystal, 1995; Kamrava et al., 2016). According to Thomson Reuters, the royal families in the Arab world directly control more than US\$240 billion of investments in publicly listed firms; therefore, they have a direct effect on the economy and access to governmental resources (Zawya, 2013). Therefore, the existence of ruling family ownership may improve management effectiveness, which positively affects firm performance. In line with resource dependency theory, royal members who have a link with outsiders are more likely to achieve access to external resources that may help reduce firm uncertainty, lower transaction costs (Su and Fung 2013; Williamson 1984) and ultimately aid in enhancing firm performance (Faccio 2006; Johnson et al., 1996). However, a negative relationship between the ruling members with shareholdings and firm performance can occur if the royal family members obtain private benefits in maximising their interests at the expense of their firms' other shareholders. Advocates of agency theory stated that the power of royal members who own shares in the company might trigger the agency conflict between the board and management (Alazzani et al., 2021; Al-Hadi et al., 2016; Shleifer and Vishny 1997). The limitation from previous literature in this

area has led this study to its second research objective, which is to examine the association between RYLOW and firm performance in the GCC region.

This study contributes to the existing literature in several ways. Firstly, the study has important sample companies of the royal GCC region, which have high contributions to the Middle East and the world economy. Secondly, we test the internal and external mechanisms that mitigate the agency problem in enhancing firm performance. In particular, we compare unique governance practices, such as local and big audit firms. Thirdly, we enrich the scarce literature on royal families in GCC countries by providing evidence on the relationship between royal members' shareholdings and firm performance. Previous studies examined royal members on the board, royal shareholdings and firm performance in Saudi Arabia (Alzahrani and Che-Ahmad 2015; Al Nasser 2019), royal board directors and corporate disclosure in Saudi Arabia (Habtoor and Ahmad 2017) and royal family directors' moderating effect on the relationship between environmental, social and governance (ESG) reporting and analysts' recommendations in GCC (Alazzani et al., 2021). However, none of these studies examined the influence of royal family members' shareholdings as a potential determinant of firm performance in the GCC region. Fourthly, we explore the moderating effect of CG mechanisms on the relationship between royalty members' shareholdings and firm performance in GCC countries, which is a factor that has been given limited focus in prior research. Hence, our present study builds that gap.

We review the CG mechanisms–firm performance relationship amongst public listed companies in the GCC region during the period 2009–2017. However, the analysis of results excludes Kuwait and Bahrain because comparable data on royal family shareholdings are not available. We found that INSOW, CEODU and local auditors (AUQL) negatively affect firm performance, indicating failure in their monitoring role. Our results further show that amongst CG mechanisms, BIZE with less than nine members on board and AUQ have a significant positive effect on firm performance amongst firms in the GCC region. This finding suggests that firms with a BIZE of less than nine and those with big four international audit firms rather than local audit firms have a check-and-balance mechanism to enhance management effectiveness in increasing firm value. The significant positive association between RYLOW and firm performance found in our second empirical analysis indicates that RYLOW improves management effectiveness, which positively affects firm performance. Further analysis showed that the big four international audit firms (AUQ) and local audit firms (AUDL) positively moderate the relationship between royal members' ownership and firm performance. We provide new evidence that having higher AUQ from the big four international and AUQL, through their independence, plays a complementary role in CG. In other words, the effective auditor monitoring role and incentive alignment and resource provision role of RYLOW, as a bundle, enhances firm performance in a synergistic fashion.

The practical implication of these findings is that royal family–controlled firms seeking to solve the owner–manager agency problem must ensure that an effective CG mechanism is in place. Our results also offer new insights to investors in understanding GCC CG practices and their effects on firm performance when deciding to invest in the GCC region. These results may also assist the standard-setters and policy-makers in the region in improving CG and firm performance.

The rest of the paper proceeds as follows. Section 2 provides a brief overview of CG in the GCC, followed by Section 3, presenting the related literature and hypothesis development. Section 4 describes the data sample and research design. Section 5 discusses the descriptive results and findings from the regression analyses. Finally, Section 6 concludes with a summary and recommendation for future research.

## 2. Corporate Governance in the Gulf Cooperation Council (GCC) Region

This section provides a brief background on the development of CG in the GCC region. The GCC, established in 1981, is an economic union of six countries in the Arab Gulf region: the Kingdom of Saudi Arabia (KSA),

Oman, Bahrain, Kuwait, Qatar, and the United Arab Emirates (UAE). The GCC countries share a common religion (Islam), ethnicity (Arab), political regime (monarchy), and economic structure in terms of their heavily dependent on oil exports as the main source of fiscal revenues and culture and traditions (Salman and Nobanee, 2019; Shehata, 2015; Al-Muhammadi and Matthews, 2009).

Awareness of good governance and improved disclosure became a major and controversial issue in the GCC region only at the beginning of the 21st century (Zeitun 2014). With encouragement from the International Finance Corporation, the Organisation for Economic Cooperation and Development and other international and independent bodies, Gulf authorities began to introduce and implement a series of CG reforms (Abdallah and Ismail 2017; Al-Malkawi et al., 2014). As a result, the first wave of CG practices in the GCC region began when Oman released its CG code in 2002, followed by the UAE in 2004, the KSA in 2006, Qatar in 2009 and ending with Bahrain in 2010 and Kuwait in 2013 (Salman and Nobanee 2019; Shehata 2015). These reforms are aimed at strengthening CG in addition to amending the Company Law, the Securities and Exchange Law and other related regulations. In ascertaining the extent of governance amongst publicly listed companies in the GCC in 2012, Al-Malkawi et al. (2014) provided evidence that GCC companies adhere to only 69% of the attributes addressed in the CG index. The study further indicates that the UAE share market exhibits the best adherence to the CG attributes, followed by Oman, Saudi Arabia, Qatar and Kuwait. The full adoption of governance practices and transparency measures continues to face challenges as a result of the region's conservative investment culture, which is manifested by poor information disclosure and the unwillingness to give up royalty and control by large bloc owners (Alghamdi 2012).

As a result, the GCC region witnessed the second wave of CG development in 2014. This wave was driven mainly by the need to diversify its economic resources and attract FDI inflows, particularly on the development of financial markets owing to globalisation. Oman and Kuwait updated their CG code in 2015, the KSA amended it in 2009 and 2017 and UAE and Qatar in 2016 (Salman and Nobanee 2019). Hence, all GCC states except for Bahrain have made intensive efforts to improve and update their corporate legislation and national CG code in line with recent international development in the CG field and best practices worldwide.

Since the update of CG codes in the CG region, many countries have shifted from a voluntary basis to either a “comply-or-explain” or mandatory basis. The UAE, Saudi Arabia and Oman opted for mandatory compliance, whereas the codes in Bahrain and Qatar are based on the “comply-or-explain” principle (Salman and Nobanee 2019; Abdallah and Ismail 2017). That is, companies are required to disclose the extent to which they comply with a code's provision or explain the reasons behind their non-compliance.

The effects of the revised CG codes are likely to be significant in its effort to improve transparency and disclosure, the independent role and functions of the board of directors and its committees, the basic rights of the shareholders and the role of external and internal auditors. However, according to S&P Global Ratings, the improved governance system of GCC countries still falls short of global best practices because of a weak enforcement system (Trade Arabia News 2021). Hence, the main challenge in the GCC region is not only to adopt CG codes but also to implement CG principles (Salman and Nobanee 2019). A high degree of subjectivity is involved in the implementation of the codes in the GCC countries, and thus, strict enforcement standards for CG regulations should be available.

### 3. Literature review and hypothesis development

From the viewpoint of shareholders being the residual claimants of the firm, CG can be viewed as a process of regulating and managing business affairs towards enhancing business prosperity to ensure a satisfactory return on their investment (Pietrasinski 2014; Shleifer and Vishny 1997). Hence, CG has an important role in mitigating agency

problems that arise from the separation of ownership and control in a company. Alsmady (2018), Jakpar et al. (2019), Aydin and Ozcan (2015), Ali Al-smadi et al. (2014) and Che Haat et al. (2008) are amongst studies that provided evidence that governance helps increase the efficiency of companies, gains the confidence of investors and creditors and in return, has a significant effect on economic growth and corporate performance in the long run.

An effective, economic and productive CG structure refers to the integrated set of internal and external mechanisms (Baysinger and Hoskisson 1990). Internal mechanisms are a set of internal controls that monitor the progress and activities of the organisation, and corrective actions must be taken when the business goes off track. In this study, we examined internal mechanisms that include oversight of management and structure of the board of directors, which are the composition of board independence, BIZE and CEODU. Meanwhile, external mechanisms examined in this study are the monitoring control by those outside an organisation, such as INSOW and an independent external audit.

The theoretical concepts and previous empirical evidence on the association of CG mechanisms and firm performance are discussed in the next sub-section. We also discuss the effects of RYLOW on firm performance and the moderating effect of governance mechanisms on the RYLOW–firm performance relationship.

#### 3.1. Corporate governance mechanisms and firm performance

Board composition is one of the CG internal mechanisms that ensure that the presence of independent directors has the mandate of bringing objectivity to the oversight function of the board in promoting better firm performance. Agency theory suggests that boards dominated by independent and outside directors are essential to generating effective monitoring of executives to pursue shareholders rather than self-interests (Fama 1980). Alternatively, resource dependency theory indicates that the outside independent directors with access to critical information and external resources and who have important connections will potentially bring valuable expertise essential for growing the firm (Pearce and Zahra 1992). A higher percentage of independent directors on the board leads to a more effective supervisory and monitoring role, thereby reducing the opportunistic role of management that leads to enhancing the economic and financial performance of the company (Kao et al., 2018; Merendino and Melville 2019; Al Farooque et al., 2020; Queiri et al., 2021).

The size of the board of directors is another key internal CG mechanism that can affect firm performance because of the board's ability as a monitoring function to mitigate agency costs and as a supervisory function to the CEO to solve the problem of communication and coordination (Al Farooque et al., 2020; Aguilera et al., 2015; Kumar and Singh, 2013; Coles et al., 2008; Jensen 1993). Agency theory claims that a larger BIZE has the potential to provide more monitoring services that may enhance firm performance. Similarly, Goodstein et al. (1994) and Pfeffer and Salancik (1978) argued from the resource dependency theory that larger boards not only provide an increased pool of expertise but also form effective external linkage and secure critical resources beneficial to the firm. However, Lipton and Lorsch (1992) and Jensen (1993) recommended that the number of directors should be limited to seven or eight to engender greater focus, participation and genuine interaction and debate amongst board members. Haniffa and Hudaib (2006), Zahra et al. (2000) and Habtoor and Ahmad (2017) also argued that boards with more than seven or eight members are less effective because they are associated with weak oversight, more difficult communications, slow decision-making and more vulnerable to being controlled by the CEO or any other controlling group.

Another CG internal control mechanism is the CEODU, wherein the CEO is also the chairman of the board of directors of the firm. On the theoretical level, two conflicting opinions on the effects of CEODU on firm performance have been posited. Agency theory claims that CEODU is likely to harm board independence and create abuse of power because the CEO will be powerful without effective checks and balances from the

board. Based on the agency theory, the CEO and board chairperson should be different people so that the board is impartial and has a higher responsibility to monitor, discipline and remove ineffective CEO that does not pursue the interests of shareholders (Fama and Jensen, 1983; Jensen, 1993). Consequently, agency theory predicts that firms with CEO DU will have poor firm performance than firms with non-CEO DU that separate the CEO and board chair (Alves, 2020; Mubeen et al., 2020; Elitas et al., 2013). Meanwhile, the stewardship theory supports CEO DU in the governance structure because it facilitates more focused, strong and flexible leadership that enhances managerial efficiency in enhancing firm performance (Dahya et al., 1996; Rhoades et al., 2001; Peng et al., 2007; Al Farooque et al., 2020).

Large institutional investors are regarded as an effective external monitoring mechanism because the substantial fractions of shares they invest can influence the direction taken by firms and steer managers into making decisions beneficial to their contributors. More precisely, institutional investors have an incentive to proactively mitigate opportunistic management behaviour and ensure that they make choices that maximise the firm's value over the long term (Shleifer and Vishny, 1997). In addition, institutional investors may assist independent managers in their monitoring of management and thus contribute to improving the performance of the company (Queiri et al., 2021; Martinez-Garcia et al., 2022; Alabdullah, 2018; Lin and Fu, 2017; Fauzi and Locke 2012; Filatotchev et al., 2005).

The quality of audit services is another important external mechanism in mitigating agency problems and ensuring greater transparency to address the problems of information asymmetry that are crucial if shareholders are to influence the decision-making process in their companies for their benefit. The independent role of external auditors is paramount for assuring the credibility and validity of a company's financial statement presented by management (Pillai and Al-Malkawi 2018; Abdul Wahab et al., 2017; Fan and Wong 2005). Both large international (i.e. big four) and local audit firms are professionals and can have a positive impact on firm performance. Large international firms also have more experience in international development and more up-to-date practice that can control opportunistic management behaviours, reduce agency costs and improve firm performance. By contrast, large audit firms are more likely to promote better transparency and fairness within an organisation by providing more reliable and quality audit financial statements. Hence, firms that are audited by large firms (big four firms) that have a higher degree of auditor independence are more likely to have higher profitability.

From the perspective of agency theory, resource dependency and stewardship theory, the internal and external mechanisms can generate effective monitoring of executives, reduce agency costs and enhance firm performance in the GCC region. Amongst the requirements of the CG code in all six countries requires the majority (at least 50%) of the directors to be non-executives, with separate roles for the CEO and chairman (Shehata 2015). However, in examining the CG practices in the region, Al-Malkawi et al. (2014) revealed that GCC companies do not adhere to high levels of board effectiveness and composition and that only 61% of the board consists mainly of non-executive directors forming one-third of the BIZE. Further analysis shows that 85% do not have CEO DU and that all companies maintain a BIZE between 5 and 11. Furthermore, no convincing conclusion can be drawn from prior empirical studies on the effects of CG mechanisms on firm performance. Some studies reported significantly negative relationships, others significantly positive ones and others insignificant results. For example, Pillai and Al-Malkawi (2018), Abdallah and Ismail (2017), Naushad and Abdul Malik (2015) and Srairi (2015) provided supporting evidence for the positive association between governance and firm performance in the GCC countries. Habtoor and Ahmad (2017) found a significant positive relationship between CG mechanisms and firm performance amongst Saudi firms. Aktan et al. (2018) found that BIZE and the reputation of the external auditor for financial companies in the Kingdom of Bahrain have a positive and significant effect on firm performance. However, Farhan

et al. (2017), Aktan et al. (2018) and Al Nasser (2019) found that the independence of the board negatively affects firm performance. Boshnak, (2021) also provided evidence that CEO role duality, BIZE and independence in Saudi Arabia deteriorate firm performance. Martinez-Garcia et al. (2022) and Zeitun (2014) found no significant relationship between INSOW and firm performance in the GCC. Similarly, Bajaher et al. (2021) provided evidence that board governance mechanisms and ownership structure have not played an effective role in attracting foreign investors to the Saudi capital market. In line with the view that CG mechanisms can have an effect on firm performance, but empirical findings are inconclusive, we proposed the following hypothesis:

**H1.** *There is a significant relationship between corporate governance mechanisms and firm performance.*

### 3.2. Royal family ownership and firm performance

Countries with monarchies, such as the GCC, have a high percentage of family shareholdings, mainly amongst royal members who have a high social status and royal authority (Martinez-Garcia et al., 2022; Habtoor and Ahmad 2017; Al-Malkawi et al., 2014). Alazzani et al. (2021), Al-Hadi et al. (2016) and Kamrava et al. (2016) stated that royal families in GCC countries are normally involved in business activities, holding key positions in state rule ministries, owners of corporations and directors on company boards. Dissenting views on the association of RYLOW and firm performance can also be found. As advocated by the resource dependency theory, royal shareholders who have a link with the external environment are more likely to access vital resources to achieve business performance improvements (Zahra and Pearce 1989; Baysinger and Butler 1985; Pfeffer and Salancik 1978). Al-Hadi et al. (2016) further postulated that royal members might look for reputational norms. With their reputation, power, privilege and social connections, royals with share ownership are involved in a corporate strategy and provide counsel and advice that can influence the board and management to make decisions in maximising firm performance. As they have shared ownership in the firm, royal shareholders care about enhancing firm performance for their interest and other shareholders' interest to protect their reputation. Al Nasser (2019) provided empirical evidence that royal family members who hold significant ownership have a positive influence on the firm performance of publicly listed companies in Saudi Arabia. Hence, RYLOW can provide the needed monitoring process in aligning the interest of management with shareholders and assist in accessing critical resources to the firm, which would have a positive influence on firm performance.

The agency theory claims that the existence of family shareholding may trigger the agency conflict between the board and management (Alazzani et al., 2021; Al-Hadi et al., 2016; Shleifer and Vishny 1997), where most of the time, they will not interfere with the royalties' decisions (Al Nasser, 2019). Clark (2004) argued that there might be situations where more influential and powerful people than others can affect the actions and views of others in getting things done. Al Nasser (2019), Al-Hadi et al. (2016) and Kamrava et al. (2016) claimed that royal family members in the GCC region are involved in policy debate, which to the extent tends to be more government rent-seeking through their shareholdings and political connections. They tend to protect their interest at the expense of other shareholders, which may be detrimental to firm performance.

Most of the studies in the GCC countries on royal families examined the existence of royal family members on the board of directors. For example, Alazzani et al. (2021) supported the findings that the presence of royal family members on corporate boards of directors in the GCC improves corporate social responsibility reports. Studies found that the presence of royal family members on the board of directors of Saudi companies positively affects firm performance (Alzahrani and Che-Ahmad 2015; Al Nasser 2019) and improves corporate risk disclosure (Habtoor and Ahmad, 2017). This finding therefore confirms the argument that royal family members on



board reduce agency conflict and information asymmetries. Al Nasser (2019) further found that royal family members on board who hold share ownership have a positive effect on firm performance in Saudi Arabia. However, Al Nasser (2019) and Saeed et al. (2016) found that the presence of royal family members at board meetings and having royal members on board negatively affect firm performance, respectively. Al Ghamdi (2012) revealed a negative relationship between the presence of royals on the board of directors and earnings quality.

In summary, RYLOW may positively affect firm performance because of the advantages of strong leadership and unity of command (stewardship theory) or negatively because of the disadvantages of weaker monitoring and controlling (agency theory). As a result of the conflicting theories and inconclusive empirical evidence on the association between RYLOW and firm performance, we hypothesised the following:

**H2.** *There is a significant relationship between royal ownership and firm performance.*

### 3.3. Corporate governance, royal family ownership and firm performance

Our study further examines the role of governance mechanisms and royal shareholding in enhancing firm performance amongst firms in the GCC region. We explore the moderating role of governance mechanisms from the substitutability and complementary role perspectives, similar to that used by Abdul Wahab et al. (2017) and Misangyi and Acharya (2014).

From the substitutability perspective, CG mechanisms are substitutes for RYLOW. In other words, the increase (decrease) in governance mechanisms to a more favourable (less favourable) level only replaces the increase (decrease) in firm performance that arises from RYLOW. Consequently, no difference between the association between RYLOW and firm performance can be observed amongst firms with effective governance mechanisms and those with less effective governance mechanisms (Abdul Wahab et al., 2017).

Meanwhile, the perspective of the complementary role indicates that CG complements the role of RYLOW. Ward et al. (2009) stated that the presence of one mechanism strengthens the other and leads to more effective governance in enhancing firm performance. Specifically, governance mechanisms and royals that own shares in the firms contribute to a common goal, that is, to minimise agency costs. However, each governance practice has distinct characteristics, roles and functions. For example, RYLOW ties the value of their investment to a firm share market performance, thereby serving as an incentive alignment mechanism. Moreover, in line with the resource provision role, royals have a link with outsiders and are more likely to have access to external resources that aid in enhancing firm performance. Other governance mechanisms, such as independent board composition or external auditors, serve as monitoring mechanisms. Following this "bundle of governance mechanisms notion," Ward et al. (2009) and Yoshikawa et al. (2014) noted that firm performance is determined by the monitoring functions, incentive alignments and resource provision role interaction with each other. Hence, governance mechanisms' effectiveness may positively affect the existence of ruling family ownership and firm performance.

Few prior studies focused on the moderating role of CG mechanisms, even more so in examining their effect on the RYLOW–firm performance relationship. Abdul Wahab et al. (2017) found no evidence to support the view that CG mechanisms mitigate the effect of politically connected firms in promoting tax aggressiveness in Malaysia. Their finding suggests that political connections are detrimental to the presence of good governance in a firm. Furthermore, Alazzani et al. (2021) provided evidence that the presence of royal family directors negatively moderates the relationship between analysts' recommendations and ESG disclosures in GCC countries. Al-Hadi et al. (2016) also concluded that the royal family in GCC exacerbates information asymmetry and increases agency costs in firms.

Using the substitutability and complementary roles perspective, we postulate that governance mechanisms moderate the association

between RYLOW and firm performance. Depending on whether the effect of the governance mechanism is positive or negative, this moderating effect is expected to be positive or negative accordingly. From the complementary role perspective, we expect that effective governance mechanisms' participative strategy-making with royal members who own shares in the firm will further enhance firm performance. Alternatively, we also expect that effective CG mechanisms will reduce agency costs that arise from RYLOW and eventually improve firm performance. However, in a relationship-based economy, such as GCC countries, we posit that CG mechanisms will not make any difference in the link between RYLOW and firm performance. Thus, from the substitutability role perspective, we anticipate that any governance mechanisms will not interfere with royals' decisions because of the prestige and power amongst royal family members. Hence, we hypothesised the following:

**H3.** *Corporate governance mechanisms affect the relationship between royal ownership and firm performance.*

## 4. Research methodology

### 4.1. Data sample and data source

The initial target population of the study includes all non-financial companies in the GCC countries, such as Saudi Arabia, Oman, Qatar, the UAE, Bahrain and Kuwait. The sample covers eight years period from 2009 to 2017, before the COVID-19 pandemic started in the Gulf countries. The market downturn brought on by the COVID-19 pandemic may significantly impact firms' performance in the years after 2017. As shown in Table 1, the initial target companies were 120 non-financial firms, made up of 30 companies in each country. A total of 74 insurance and financial services companies were then excluded from the sample. Companies that do not have RYLOW are also excluded, which gives a final sample of 33 companies with RYLOW. As a rule of thumb, having 33 companies with a total of 613 firm-year observations is acceptable for performing the regression modelling.

The unbalanced, unstructured type data were obtained from the "Gulfbase" database and the companies' websites. Banks, insurance companies and financial services companies are excluded because they are subject to different regulations from other entities in those countries. In addition, foreign companies listed on the stock exchange have been excluded because of the possibility that they are subject to other jurisdictions or additional requirements, such as un-royalty involvement. Moreover, suspended companies in the stock markets are excluded.

Considering that RYLOW is a fundamental variable in this research and to enhance the quality and reliability of the results, the sample selected is based on companies that have RYLOW. Therefore, the study was limited to only four countries, Saudi Arabia, the UAE, Oman and Qatar. Kuwait and Bahrain were excluded because companies in these two countries have no data on RYLOW. As shown in Table 1, the final sample in our study consists of 613 firm-year observations, which are acceptable to the general rule of thumb for running regression modelling that set 10–20 observations per parameter.

Table 1 further demonstrates that Saudi Arabia represents 50.24% of the total observations, followed by Oman 16%, whereas Qatar only has 7.34% of the total observations of companies with RYLOW.

### 4.2. Empirical models and variable definitions

To validate our first and second research objectives, we applied the ordinary least squares (OLS) and the following regression Eq. [1] to examine (1) the association between CG mechanisms and firm performance ( $H_1$ ) and (2) the effect of RYLOW on firm performance ( $H_2$ ):

$$TQ_{it} = \beta_0 + \beta_1 RYLOW_{it} + \beta_2 CG_{it} + \beta_3 LOG(ASS)_{it} + \beta_4 LOG(DEBT)_{it} + \beta_5 MCPV_{it} + \beta_6 INF_{it} + \gamma_t + \varepsilon_{it}$$

Eq 1

**Table 1.** Sample collection procedure and distribution.

Country	1 Target	2 Insurance_Finance Companies	3 Non-Royal	Final population Total	Total observation	Percentage
Saudi Arabia	30	9	5	16	308	50%
Oman	30	11	16	3	98	16%
Qatar	30	13	14	3	162	27%
United Arab Emirates	30	13	6	11	45	7%
<b>Total</b>	<b>120</b>	<b>46</b>	<b>41</b>	<b>33</b>	<b>613</b>	<b>100%</b>

The study further applied moderated multiple regression recommended by Van Iddekinge et al. (2021) to investigate our third objective and Hypothesis H<sub>3</sub>. An adjustment is made to the regression model in Eq. [2] by inserting (RYLOW<sub>it</sub> × CG<sub>it</sub>) to test the substitute or complementary role of CG mechanisms in moderating the relationship between RYLOW and firm performance. Thus, Model 2 tests the moderating effect of CG:

$$TQ_{it} = \beta_0 + \beta_1 RYLOW_{it} + \beta_2 CG_{it} + \beta_3 (RYLOW_{it} \times CG_{it}) + \beta_4 LOG(ASS)_{it} + \beta_5 LOG(DEBT)_{it} + \beta_6 MCPV_{it} + \beta_7 INF_{it} + \gamma_t + \epsilon_{it} \tag{Eq 2}$$

Table 2 shows the measurement and symbols of each variable used in the models.

**4.2.1. Dependent variable (firm performance)**

Following previous studies (Anderson and Gupta 2009; Brown and Caylor, 2006; Buallay 2019; Srivastava et al., 2018; Wang 2014), we use Tobin's Q (TQ) to measure firm performance. TQ is a market-based measurement that represents the ratio of the market value of equity plus the book value of liabilities to the book value of total assets. Unlike accounting-based measures of profitability, such as return on assets and return on equity, TQ indicates the perception of the current market value concerning firm performance.

**4.2.2. Royal family ownership and governance mechanisms**

RYLOW is measured as the percentage of ownership owned by the royal family members collectively in the firm, similar to that used by Al Nasser (2019).

The CG variables consist of internal and external governance mechanisms variables. Internal governance mechanisms include BIND, BIZE and CEODU. BIND is measured by the number of BINDs on board, similar to the measurement used by many previous studies, such as Fuzi et al. (2016) and Weir and Laing (2001).

BIZE is the number of directors on the board (Ali Al-smadi et al., 2014; Alsmady 2018). We further created several variables to determine the optimal BIZE for best practices that included D<sub>1</sub>, D<sub>2</sub> and D<sub>3</sub> mainly less than eight, less than nine and less than 10, respectively. In addition, CEODU is a dummy variable that takes a value of 1 if the CEO is also the chairperson/vice-chairperson of the board of directors and a value of zero (0) when the two functions are separated.

The external governance mechanisms include INSOW and audit quality (AUQ and AUQL). INSOW represents the percentage of shareholdings by institutional investors in a firm. The audit quality big four audit firm (AUQ) is represented by a value of 1 if the firm is audited by big four audit firms and a value of 0 if they are audited by local and other audit firms (Al-Matari et al., 2017; Lai 2009; Priyanti and Uswati Dewi 2019). Audit quality (AUQL) is represented by a value of 1 if the firm is audited by the local audit firm and a value of 0 if they are audited by

**Table 2.** Variables and measurements.

Construct	Variable	Symbol	Measurement
<b>Panel A: Dependent variable</b>			
	Tobin's Q	<b>TQ</b>	(Market value of equity + book value of liabilities)/book value of total assets.
<b>Panel B: Independent and moderator</b>			
<b>Independent:</b>	Royal ownership	<b>RYLOW</b>	Percentage of royal ownership.
<b>Moderator:</b>	Independent non-executive director	<b>BIND</b>	Number of independent non-executive directors on board.
<b>Corporate governance (CG, it)</b>			
<b>Internal mechanisms:</b>			
	Board size (BIZE <sub>it</sub> × D <sub>n,it</sub> )	<b>D<sub>1</sub></b> <b>D<sub>2</sub></b> <b>D<sub>3</sub></b>	$where, D_{1,it} = \begin{cases} 1 = if, Less than 8 \\ 0 = otherwise \end{cases}$ $where, D_{2,it} = \begin{cases} 1 = if, Less than 9 \\ 0 = otherwise \end{cases}$ $where, D_{3,it} = \begin{cases} 1 = if, Less than 10 \\ 0 = otherwise \end{cases}$
	CEO duality	<b>CEODU</b>	Dummy variable 1 if CEO is also the chairperson/vice-chairperson of the board and 0 if otherwise.
<b>External mechanisms:</b>			
	Institutional ownership	<b>INSOW</b>	The percentage of Institutional Ownership.
	Audit quality	<b>AUQ</b> <b>AUQL</b>	AUQ: Dummy variable 1 if appointed big 4 audit firms, 0 if local and other firms. AUQL: Dummy variable 1 if appointed local audit firms, and 0 if big 4 and other firms.
<b>Panel C: Firm control variables</b>			
	Natural logarithm of total assets	<b>LOG(ASS)</b>	Natural logarithm of total assets.
	Natural logarithm of debt	<b>LOG(DEBT)</b>	Log (total liabilities and total equity).
<b>Panel D: Country control variables</b>			
	Market capitalisation	<b>MCPV</b>	Stock Price * Number of outstanding shares.
	Industry affiliation	<b>INF</b>	Dummies 1 if services companies and 0 otherwise.

foreign and other audit firms (Al-Matari et al., 2017; Lai 2009; Priyanti and Uswati Dewi 2019).

#### 4.2.3. Control variables

Other factors can influence the association between CG and firm performance. Accordingly, based on previous literature, we include control variables, such as firm control and country control variables. Firm control variables include firm size and leverage. The natural logarithm of total assets, LOG (ASS), is used to measure firm size. Firm size is used as the control variable because of the likelihood that larger firms perform better because of their ability to diversify risk (Abdul Wahab et al., 2017; De Meyere et al., 2018; Ha and Feng, 2020). Leverage, LOG (DEBT), measured by the natural logarithm of total liabilities and total equity, is used to control financial risk. Firms with a high financial burden are vulnerable to loss of market share and experiencing lower profitability (Abdul Wahab et al., 2017; Alazzani et al., 2021).

Country control variables include MCPV and industry affiliation (INF). MCPV is measured by multiplying the stock price by the number of outstanding shares (Abdul Wahab et al., 2017; Ha and Feng, 2020). We include INF to control for the variation in firm performance across industries. INF is a dummy variable that takes a value of 1 if it is a service company and 0 if otherwise (Ali Al-smadi et al., 2014; De Meyere et al., 2018; Joni et al., 2020).

## 5. Results

### 5.1. Diagnostics test

Initial investigation shows that the data have no outliers. The intercept term,  $E(\mathbf{ut}) = \mathbf{0}$ , was included in all models. We run several residual diagnostics tests. Firstly, we test the residual diagnostics test, such as homoscedasticity,  $var(ut) = \sigma^2 < \infty$ . Using the Breusch-Pagan-Godfrey test, the result of Prob. Chi-Square (11) is highly significant, thereby indicating that the data have high variability and heteroscedasticity problem. Thus, we use the Huber-White covariance method to fix the coefficient covariance.

Secondly, no auto-correlation  $cov, (u_i, u_j) = 0$ , residual diagnostics test has been examined. The serial correlation, Breusch-Godfrey test and two lags were included: resid (-1), then resid (-1) and resid (-2), respectively. The result of resid (-1) shows a high probability significance with a chi-square (1) 0.0 level. Then, the two lags were included in the LMS test of resid (-1) and resid (-2). The results show a high probability significance with a chi-square (1) 0.0 level. The  $R^2$  of the model was (.44) with the serial correlation. Thirdly, the model stability diagnostics (*CUSUM and CUSUM of Squares Test*) were conducted. The recursive estimates the model line out of 5% critical lines, which proved that the residual variance is not stable. Hence, one lag of the dependent variable was included in all models to fix the serial correlation. The same test was again conducted and showed better  $R^2$  with (.68). Moreover, the Breusch-Pagan-Godfrey test of resid (-1) and resid (-2) shows non-significant probability value and Chi-Square (1) more than 0.05 with.

Moreover, several previous studies widely argued that the endogeneity nature of ownership would have an effect on the OLS estimation results (Pillai and Al-Malkawi 2018; Alsmady 2018; Boubakri et al., 2005; Ali Al-smadi et al., 2014). In this study, the first model has two ownership variables, namely RYLOW and INSOW. It is argued that the potential of endogeneity may come from another omitted variable and the simultaneous relationship (inverse causality) between ownership and the value of the company. Thus, the correlation between the ownership and  $e_{it}$  (error term) will exist through i.e.  $(x_{it}, u_{it}) \neq 0$  (Wooldridge 2003). Therefore, our study follows other researchers (Boubakri et al., 2005; Ali Al-smadi et al., 2014; Alsmady 2018) to examine and validate the uncorrelation assumption i.e.  $(x_{it}, u_{it}) = 0$  as follows:

Firstly, the study runs the OLS model for ownership types RYLOW and INSOW as the dependent variables in the first-stage Eq. [a.,b.] and second

lagged in time  $t-1$  and  $t-2$  for MCAP as instrumental variables  $MCPV_{it-1}$ ,  $MCPV_{it-2}$ , respectively, in the following equations:

$$\begin{aligned} RYLOW_{it} = & \beta_0 + \beta_1 CG_{it} + \beta_2 LOG (ASS)_{it} + \beta_3 LOG (DEBT)_{it} \\ & + \beta_4 MCPV_{it} + \beta_5 INF_{it} + \beta_6 MCPV_{it-1} + \beta_7 MCPV_{it-2} \\ & + \gamma_t + \varepsilon_{it} \end{aligned} \quad \text{Eq. [a]}$$

$$\begin{aligned} INSOW_{it} = & \beta_0 + \beta_1 CG_{it} + \beta_2 LOG (ASS)_{it} + \beta_3 LOG (DEBT)_{it} \\ & + \beta_4 MCPV_{it} + \beta_5 INF_{it} + \beta_6 MCPV_{it-1} \\ & + \beta_7 MCPV_{it-2} + \gamma_t + \varepsilon_{it} \end{aligned} \quad \text{Eq. [b]}$$

where is  $\gamma_t$  the fixed year effect (to control or year-specific effects), and  $\beta_1 CG_{it}$  in equation (b.) does not include INSOW.

Secondly, the fitted value of  $\widehat{RYLOW}_{it}$  and  $\widehat{INSOW}_{it}$  without the instrumental variables was replaced in the second-stage Eq. [1] separately. This step examined the Wald test for the endogenous variables (i.e. the coefficient of fitted value of the first stage) and validated that no correlation exists between RYLOW and INSOW and the  $e_{it}$  (error term). The results show that the  $t$ -statistic for the coefficient on the residuals from the first step regression (a. and b.) is (0.530) and (0.522), respectively. The  $p$ -value of this test is clearly not significant at any level. Thus, this test cannot reject the null hypothesis of no correlation between ownership concentration and the error term and validated the assumption of i.e.  $(x_{it}, u_{it}) = 0$ . Thus, the endogeneity problem does not exist in our OLS model.

Using the variance inflation factor (VIF), the result must be less than 10 to show that no severe multicollinearity exists in the model, and they are reported in the results Tables 5 and 6. Using the Jarque-Bera test, the result shows a probability of more than 0.10%, indicating that the residual is normally distributed.

### 5.2. Descriptive analysis

Table 3 presents the descriptive statistics of the variables under study. The skewness values range between -1.9 and 1.920, whereas the kurtosis values between 1.00 and 6.907 provide evidence of a normally distributed sample (Hair et al., 2010; Byrne 2010). The average (median) TQ is 1.158 (0.818), which is quite consistent with the results found in the GCC region (Buallay et al., 2017; Naushad and Abdul Malik, 2015). On average, RYLOW members directly own 18.2% of shares in the firm. There is a possibility that royal family members in GCC own higher shares in the firm through indirect ownership or in private companies, but the information is not publicly disclosed (Henry and Springborg 2010).

In analysing the internal mechanisms, companies in the GCC on average have five BINDs on a board of eight members (BIZE). The number of non-executive directors comprising more than one-third of the BIZE is consistent with all the GCC countries' code of CG that requires the board to consist mainly of non-executive directors (Malkawi et al., 2014). Additionally, only 5% of the sample companies combine the CEO and chairman functions (CEODU), whereas 95% of the companies separate the two roles. All the GCC countries' codes require companies to separate the two functions (Malkawi et al., 2014).

As regards the external mechanisms, institutional investors (INSOW) on average owned 12.9% of shares in the sample firm, with a maximum of 98%. Finally, on average, 85.6% of the companies are audited by big four auditors (AUQ), whereas 14.3% are audited by AUQL. The results indicate that companies in the GCC prefer to appoint the big four international audit firms, which have the possibility of enhancing firm performance.

Panels C and D of Table 3 show the descriptive analyses of firm control and country control variables, respectively. The mean (median) for the natural logarithm of total assets LOG (ASS) is 8.716 (8.780), whereas the mean (median) for leverage LOG (DEBT) is 19.909 (20.128).

Table 3. Descriptive statistics.

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Obs.
<b>Panel-A: Dependent variable</b>								
TQ	1.158	0.818	5.064	0.0222	1.002	1.359	4.928	274
<b>Panel-B: Independent and moderator</b>								
RYLOW	0.182	0.076	0.800	0.000	0.196	1.386	4.205	297
<b>Corporate governance (CG, <math>i_t</math>)</b>								
<b>Internal mechanisms:</b>								
BIND	5.137	5.000	11.000	0.000	2.202	-0.173	2.668	291
BIZE	8.207	9.000	12.000	4.000	1.784	-0.069	2.496	299
CEODU	0.050	0.000	1.000	0.000	0.220	1.890	6.720	295
<b>External mechanisms:</b>								
INSOW	0.129	0.0000	0.980	0.000	0.194	1.909	6.484	279
AUQ	0.856	1.000	1.000	0.000	0.350	-1.900	5.144	300
AUQL	0.143	0.000	1.000	0.000	0.350	1.890	5.144	300
<b>Panel-C: Firms control variables</b>								
LOG(ASS)	8.716	8.780	10.609	7.100	0.711	0.068	3.254	300
LOG(DEBT)	19.909	20.128	24.225	16.287	1.616	0.021	3.256	299
<b>Panel-D: Countries' variables</b>								
MCPV	1052.606	466.000	8484.100	1.990	1312.958	1.920	6.907	275
INF	0.510	1.000	1.000	0.000	0.500	-0.04	1.0016	300

**Notes:** TQ is the dependent variable equal to the market value of a company divided by its assets' replacement cost. RYLOW is the percentage of royal ownership. BIND is the number of independent non-executive directors on the board. BIZE is the number of the member on the board of directors. CEODU is a dummy variable with a value of 1 if the CEO is also the chairperson/vice-chairperson of the board and 0 if otherwise. INSOW is the percentage of institutional ownership. AUQ is a dummy variable with a value of 1 if appointed big four audit firms and 0 if otherwise. AUQL is a dummy variable with a value of 1 if appoint local audit firms and 0 if otherwise. LOG (ASS) is the natural logarithm of total assets. LOG (DEBT) is Log (total liabilities and total equity). MCPV is stock price \* the number of outstanding shares. INF is a dummy variable with a value of 1 if services companies and 0 if otherwise.

The average (mean) for the MCPV is 1052.60 (466.0), and 51% of the sample are service companies.

Table 4 shows the correlation matrix that stipulates the strength of the linear relationship between the dependent and independent variables in the study. The significant correlation coefficient amongst all independent variables is below the threshold of 8, indicating that multicollinearity is not a problem in the estimation (Asteriou and Hall, 2007). The results show that RYLOW has a significant positive correlation with firm performance (TQ). Moreover, institution ownership (INSOW), LOG (ASS) and LOG (DEBT) have a significant negative correlation with firm performance (TQ). The study also found a positive significant correlation between MCPV and firm performance (TQ). Other independent variables do not show any significant correlation with firm performance and thus require further analysis.

### 5.3. Regression analysis

Table 5 provides the regression analysis between CG mechanisms and RYLOW on firm performance. The pseudo  $R^2$  for all models had a good fit of 68%, similar to Kim (2008), who had a pseudo  $R^2$  of 71%.

Column 1 presents the main regression Eq. [1]. In addition, regression analyses that include optimal BIZE ( $D_1$ ,  $D_2$  and  $D_3$ ) and AUQL are provided in Columns 2 and 3, respectively. Furthermore, Columns 4 and 5 provide the regression analysis that includes the non-linearity test of RYLOW ( $RYLOW^2$ ) and INSOW ( $INSOW^2$ ), respectively.

In testing Hypothesis ( $H_1$ ) on the relationship between CG mechanisms (internal and external) and firm performance, the result in Column 1 shows a negative significant coefficient for CEODU ( $-0.179$ ,  $p < 0.05$ ). The negative relationship between CEODU and firm performance amongst firms in GCC countries found in our study supports the agency theory that duality strengthens CEO power, increase agency problem and decrease firm performance. A CEO who is also the chairman of the board of directors of the firm (CEODU) is likely to harm board independence because the CEO will be powerful without effective checks and balances on the board. Our result is similar to the evidence provided by Elsayed

(2007) and Mubeen et al. (2020) that CEODU has a significant negative effect on firm performance. Al Farooque et al. (2020) revealed that CEODU creates a strong monitoring function to mitigate agency costs and improve the firm performance.

Previous studies, such as Abdallah and Ismail (2017), Naushad and Abdul Malik (2015) and Srairi (2015), provided evidence that effective governance improves firm performance in the GCC region. Puni and Anlesinya (2020) and Al Farooque et al. (2020) also found that governance mechanisms improved Ghanian and Thai companies' performance, respectively. However, our study (Column 1 of Table 5) shows that internal CG mechanisms, such as board composition (BIND) and BIZE, have no significant effect on firm performance amongst companies in the GCC region. Similar to the findings by Buallay (2019) in Saudi Arabia, the results in our study indicate that the board has not been carrying out its independent role in looking out for the well-being of the company and the shareholders' interest. Queiri et al. (2021) and Boshnak (2021) found that non-executive directors are powerless in board discussions, leading to a reduction in Saudi Arabian and Oman companies' performance, respectively. Consistent with our study, Bajaher et al. (2021) also found that governance mechanisms do not play an effective role in attracting foreign investment in the Saudi capital market.

Further analysis of optimal BIZE in Column 2 (Table 5) reveals that only BIZE less than 9 ( $D_2$ ) is found to have a positive and significant association with a firm performance at the 5% level (coefficient = 0.184). However, BIZES less than 8 ( $D_1$ ) and less than 10 ( $D_3$ ,  $i_t$ ) are not significant with firm performance (the results are not shown in Table 5). Similarly, Ali Al-smadi et al. (2014) found that BIZES of fewer than nine members have a significant positive effect on Jordanian firm performance. Our results are consistent with the argument that large boards (more than nine) create a free-rider agency problem and are less effective because they are associated with engendering greater focus, ineffective communication and vulnerable to being controlled by the CEO or dominant group (Zahra et al., 2000; Habtoor and Ahmad 2017). Consistent with our result, the negative and statistically significant board-firm performance relationship in the study of Pillai and



Table 4. Correlation.

Probability	AUQ	AUQL	BIZE	CEODU	INF	INSOW	LOG(DEBT)	TQ	MCPV	RYLOW	BIND	LOG(ASS)
<b>AUQ</b>	1.000000											
<b>AUQL</b>	-1.000000	1.000000										
<b>BIZE</b>	-0.007030 (-0.110047)	0.007030 (0.110047)	1.000000									
<b>CEODU</b>	0.026762 (0.419047)	-0.026762 (-0.419047)	0.028985 (0.453877)	1.000000								
<b>INF</b>	-0.220662*** (-3.541196)	0.220662*** (3.541196)	-0.356119*** (-5.965219)	-0.062988 (-0.987879)	1.000000							
<b>INSOW</b>	0.233911*** (3.765751)	-0.233911*** (-3.765751)	0.002444*** (0.038252)	-0.006916 (-0.108249)	0.130784** (2.064835)	1.000000						
<b>LOG(DEBT)</b>	0.321549*** (5.315320)	-0.321549*** (-5.315320)	0.121813** (1.920982)	-0.007364 (-0.115268)	-0.395543*** (-6.740980)	-0.033027 (-0.517240)	1.000000					
<b>TQ</b>	0.028630 (0.448317)	-0.028630 (-0.448317)	0.046134 (0.722883)	-0.054890 (-0.860460)	-0.091813 (-1.443191)	-0.146835** (-2.323520)	-0.200814*** (-3.208596)	1.000000				
<b>MCPV</b>	0.106715* (1.679944)	-0.106715* (-1.679944)	0.092871 (1.459978)	-0.040045 (-0.627301)	-0.320226*** (-5.290954)	-0.059646 (-0.935270)	0.561415*** (10.61894)	0.351948*** (5.885413)	1.000000			
<b>RYLOW</b>	0.040342 (0.631967)	-0.040342 (-0.631967)	-0.308922*** (5.084068)	0.099212 (1.560615)	0.173137*** (2.751584)	-0.237618*** (-3.828970)	0.032684 (0.511858)	0.177851*** (2.828908)	0.067579 (1.060197)	1.000000		
<b>BIND</b>	-0.143573** (-2.270806)	0.143573** (2.270806)	0.493086*** (8.871488)	0.052391 (0.821180)	-0.083684 (-1.314470)	0.183012*** (2.913807)	-0.285220*** (-4.657886)	-0.052587 (-0.824253)	-0.313274*** (-5.163434)	-0.346420*** (-5.780243)	1.000000	
<b>LOG(ASS)</b>	0.319523*** (5.278001)	-0.319523*** (-5.278001)	0.122268*** (1.928265)	-0.000216*** (-0.003380)	-0.395582*** (-6.741762)	-0.028064*** (-0.439443)	0.595741*** (169.0623)	-0.202716*** (-3.240285)	0.567580*** (10.79051)	0.028958*** (0.453447)	-0.276801*** (-4.508796)	1.000000

**Notes:** *TQ* is the dependent variable equal to the market value of a company divided by its assets' replacement cost. *RYLOW* is the percentage of royal ownership. *BIND* is the number of independent non-executive directors on board. *BIZE* is the number of the member on board of directors. *CEODU* is a dummy variable with a value of 1 if CEO is also the chairperson/vice-chairperson of the board and 0 if otherwise. *INSOW* is the percentage of institutional ownership. *AUQ* is a dummy variable with a value of 1 if appoint big four audit firms and 0 if otherwise. *AUQL* is a dummy variable with a value of 1 if appoint local audit firms and 0 if otherwise. *LOG (ASS)* is the natural logarithm of total assets. *LOG (DEBT)* is Log (total liabilities and total equity). *MCPV* is stock price \* the number of outstanding shares. *INF* is a dummy variable with a value of 1 if services companies and 0 if otherwise.

\*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

Table 5. Dependent variable (TQ).

	(1) Baseline regression	(2) Optimal BIZE: $D_{1,it}$ , $D_{2,it}$ and $D_{3,it}$	(3) Audit local: $AUQL$	(4) Linearity: Royal ownership ( $RYLOW^2$ )	(5) Linearity: Institutional ownership ( $INSOW^2$ )
<b>CONC</b>	5.901*** (4.973)	5.363*** (4.975)	5.671*** (4.848)	5.355*** (4.953)	5.358*** (5.122)
<b>RYLOW</b>	0.805*** (3.36)	0.846*** (3.443)	0.846*** (3.443)	0.532 (0.698)	0.850*** (3.466)
<b>RYLOW<sup>2</sup></b>				0.496 (0.425)	
<b>INSOW</b>	-0.661*** (-2.857)	-0.675*** (-2.945)	-0.675*** (-2.945)	-0.668*** (-2.848)	-1.559** (-2.361)
<b>INSOW<sup>2</sup></b>					1.345 (1.571)
<b>BIND</b>	0.016 (0.805)	0.025 (1.248)	0.025 (1.248)	0.023 (1.097)	0.028 (1.396)
<b>BIZE</b>	(0.023) (-1.037)				
<b>D2(Less9)</b>		0.184** (1.975)	0.184** (1.975)	0.181*** (1.899)	0.159 (1.583)
<b>CEODU</b>	-0.179** (-1.844)	-0.07 (-0.567)	-0.07 (-0.567)	-0.066 (-0.541)	-0.056 (-0.456)
<b>AUQ</b>	0.357** (2.301)	0.308** (2.101)		0.308** (2.097)	0.345** (2.414)
<b>AUQL</b>			-0.308** (-2.101)		
<b>MCPV</b>	0.000*** (5.483)	0.000*** (5.562)	0.000*** (5.562)	0.000*** (5.207)	0.000*** (5.817)
<b>INF</b>	0.123 (1.424)	0.150* (1.715)	0.150* (1.715)	0.16* (1.777)	0.153* (1.757)
<b>LOG(DEBT)</b>	0.347 (1.59)	0.401* (1.809)	0.401* (1.809)	0.410* (1.873)	0.381* (1.739)
<b>LOG(ASS)</b>	-1.447*** (-2.921)	-1.543*** (-3.04)	-1.543*** (-3.04)	-1.566*** (-3.108)	-1.497*** (-2.96)
<b>obs.</b>	226	226	226	226	226
<b>R<sup>2</sup></b>	0.682	0.687	0.687	0.686	0.689
<b>F-statistic</b>	44.853***	45.823***	45.823***	41.874***	42.596***
<b>Durbin-Watson</b>	1.728	1.725	1.725	1.736	1.738
<b>Ind.V</b>	<b>RYLOW</b>	<b>BIND</b>	<b>BIZE</b>	<b>MCPV</b>	<b>INF</b>
<b>VIF</b>	1.413	1.943	1.675	1.981	1.54
<b>Ind.V</b>	<b>INSOW</b>	<b>AUQ</b>	<b>CEODU</b>	<b>LOG(DEBT)</b>	
<b>VIF</b>	1.298	1.338	1.042	1.967	

$$TQ_{it} = \beta_0 + \beta_1 POLOW_{sit} + \beta_2 CG_{it} + \beta_3 LOG(ASS)_{it} + \beta_4 LOG(DEBT)_{it} + \beta_5 MCPV_{it} + \beta_6 INF_{it} + \varepsilon_{it} \text{ Eq [1]}$$

**Notes:** TQ is the dependent variable equal to the market value of a company divided by its assets' replacement cost. RYLOW is the percentage of royal ownership. BIND is the number of independent non-executive directors on board. BIZE is the number of members on the board of directors. CEODU is a dummy variable with a value of 1 if CEO is also the chairperson/vice-chairperson of the board and 0 if otherwise. INSOW is the percentage of institutional ownership. AUQ is a dummy variable with a value of 1 if appointed by big four audit firms and 0 if otherwise. AUQL is a dummy variable with a value of 1 if appoint local audit firms and 0 if otherwise. LOG(ASS) is the natural logarithm of total assets. LOG(DEBT) is Log (total liabilities and total equity). MCPV is stock price \* the number of outstanding shares. INF is a dummy variable of 1 if services companies and 0 otherwise.

Numbers between parentheses are t-statistics.

\*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

Al-Malkawi (2018) indicates that a large board leads to overall inefficiency in operation. Habtoor and Ahmad (2017) also found that large boards in Saudi Arabia are less effective and result in a negative influence on corporate disclosure. By contrast, Abdul Wahab et al. (2017), Puni and Anlesinya (2020) and Al Farooque et al. (2020) are examples of studies that found larger BIZES act as a better monitoring mechanism in mitigating tax aggressiveness in Malaysia and improved Ghana firm performance.

In examining the external governance mechanisms, the result in Column 1 (Table 5) posits a negative and significant association between

INSOW and firm performance (-0.661,  $p < 0.01$ ). Further analysis to include the non-linearity test of institutional investors (INSOW<sup>2</sup>) in Column 5 also indicates that institutional investor ownership (INSOW) has a significant negative effect on firm performance (-0.850,  $p < 0.01$ ). However, we find that an increase in institutional investor ownership (INSOW<sup>2</sup>), shown in Column 5, has no effect on firm performance. The result indicates that institutional investors in GCC countries are not playing an effective governance role in mitigating opportunistic management behaviour, thereby leading to a deterioration of firm performance. Our result is supported by Almudehki and Zeitun (2012), who

Table 6. Dependent variable (TQ).

Moderating effect CG* (POLOW)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Moderate Effect:							
	INSOW	INSOW <sup>2</sup>	INSOW/INSOW <sup>2</sup>	BIND	D <sub>2,it</sub> (Less 9)	CEODU	AUQ	AUQL
<b>CONC</b>	5.3123*** (4.8757)	5.3112*** (4.8511)	5.277273*** (4.837077)	5.742152*** (5.103871)	5.725056*** (4.991077)	5.358*** (5.1219)	6.4229*** (5.4086)	6.422869*** (5.408622)
<b>RYLOW</b>	0.664*** (2.692)	0.681*** (2.926)	0.7706*** (2.65001)	0.94971*** (3.0289)	0.76142*** (3.19946)	0.85*** (3.466)	2.755*** (4.956)	0.493109** (2.34479)
<b>INSOW</b>				-1.48128** (-2.24882)	-1.68538*** (-2.64055)	-1.559*** (-2.361)	-1.711*** (-2.635)	-1.710567*** (-2.635474)
<b>INSOW<sup>2</sup></b>				1.29933 (1.502747)	1.573578** (1.962659)	1.3454 (1.5706)	1.6206** (1.8861)	1.620579** (1.886076)
<b>RYLOW*INSOW</b>	-0.698 (-0.570)		3.125545 (-0.923431)					
<b>RYLOW*INSOW<sup>2</sup></b>		-3.78 (-1.518)	-9.78815 (-1.44143)					
<b>BIND</b>	0.0138 (0.7056)	0.0156 (0.7864)	0.01622 (0.806835)		0.0120 (0.6935)	0.0278 (1.3963)	0.0349* (1.7656)	0.034922* (1.765619)
<b>BIND*RYLOW</b>				0.014378 (0.250956)				
<b>RYLOW*CEODU</b>						-0.111 (-0.456)		
<b>D2(Less9)*RYLOW</b>					0.0643 (0.23355)			
<b>AUQ*RYLOW</b>							2.2617 (4.4441***)	
<b>AUQL*RYLOW</b>								2.261738*** (4.444083)
<b>D2(Less9)</b>	0.1667* (1.7564)	0.1717* (1.8246)	0.183273* (1.81881)	0.122216 (1.375587)		0.1593 (1.5832)	0.0797 (0.8183)	0.079669 (0.818263)
<b>CEODU</b>	-0.095 (-0.807)	-0.108 (-0.873)	-0.16403 (-1.49595)	-0.05708 (-0.39399)	-0.15805 (-1.58791)		-0.253** (-2.179)	-0.252582** (-2.17888)
<b>AUQ</b>	0.2052 (1.5856)	0.2175 (1.622)	0.202149 (1.564246)	0.338198*** (2.403122)	0.392629*** (2.605439)	0.3446*** (2.4141)		
<b>MCPV</b>	0.0004*** (5.2136)	0.0004*** (5.2541)	0.000375*** (4.984228)	0.000377*** (5.601607)	0.000375*** (5.542867)	0.0004*** (5.8166)	0.0004*** (6.2026)	0.000396*** (6.202635)
<b>INF</b>	0.0836 (1.0537)	0.0963 (1.1744)	0.115086 (1.291075)	0.129326 (1.565681)	0.151013* (1.755237)	0.153* (1.7572)	0.1153 (1.5555)	0.115323 (1.555462)
<b>LOG(DEBT)</b>	0.4363** (1.9347)	0.4302** (1.9133)	0.441183** (1.959072)	0.336167 (1.573078)	0.321711 (1.492871)	0.3814* (1.7392)	0.2879 (1.3199)	0.287873 (1.319937)
<b>LOG(ASS)</b>	-1.611*** (-3.099)	-1.599*** (-3.097)	-1.62214*** (-3.11521)	-1.41571*** (-2.88206)	-1.38854*** (-2.82164)	-1.497*** (-2.96)	-1.366*** (-2.736)	-1.365712*** (-2.736238)
<b>obs.</b>	266	266	266	266	266	266	266	266
<b>R<sup>2</sup></b>	0.6746	0.6759	0.675697	0.687323	0.685136	0.6893	0.7015	0.701481
<b>F-statistic</b>	43.415***	43.662***	40.06626***	42.2161***	41.79943***	42.596***	45.06***	45.0601***
<b>Durbin-Watson</b>	1.7207	1.7248	1.729844	1.733625	1.745043	1.7378	1.7311	1.731068
<b>Ind.V</b>	<b>RYLOW</b>	<b>RYLOW*INSOW</b>	<b>BIND</b>	<b>D2(Less9)</b>	<b>CEODU</b>	<b>AUQ</b>	<b>MCPV</b>	<b>INF</b>
<b>VIF</b>	9.5231	4.4767	4.424559	5.293719	2.1.38292	3.6156	7.8943	3.855412
<b>Ind.V</b>	<b>LOG(DEBT)</b>	<b>LOG(ASS)</b>						
<b>VIF</b>	1.7.4132	1.41.9512						

$$TQ_{it} = \beta_0 + \beta_1 POLOW_{it} + \beta_2 CG_{it} + \beta_3 (POLOW_{it} \times CG_{it}) + \beta_4 LOG(ASS)_{it} + \beta_5 LOG(DEBT)_{it} + \beta_6 MCPV_{it} + \beta_7 INF_{it} + \epsilon_{it} \text{Eq [2]}$$

**Notes:** TQ is the dependent variable equal to the market value of a company divided by its assets' replacement cost. RYLOW is the percentage of royal ownership. BIND is the number of independent non-executive directors on board. BIZE is the number of members on the board of directors. CEODU is a dummy variable with a value of 1 if CEO is also the chairperson/vice-chairperson of the board and 0 if otherwise. INSOW is the percentage of institutional ownership. AUQ is a dummy variable with a value of 1 if they appoint big four audit firms and 0 if otherwise. AUQL is a dummy variable with a value of 1 if appoint local audit firms and 0 if otherwise. LOG(ASS) is the natural logarithm of total assets. LOG(DEBT) is Log (total liabilities and total equity). MCPV is stock price \* the number of outstanding shares. INF is a dummy variable with a value of 1 if services companies and 0 if otherwise.

Numbers between parentheses are t-statistics. \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

found that INSOW in Qatar has a negative effect on firm performance. In Martinez-Garcia et al. (2022) and Zeitun (2014), institutional investors are found to have no significance for GCC companies' performance. However, Queiri et al. (2021) and Abdul Wahab et al. (2017) found that the institutional investors monitoring role improve firm performance as its ownership increases.

The result in Column 1 (Table 5) shows a significant positive coefficient for AUQ (0.357,  $p < 0.05$ ). Nevertheless, further analysis in Column 3 (Table 5) shows that AUQL has a negative significant effect on firm performance ( $-0.308, p < 0.05$ ). Pillai and Al-Malkawi (2018) also found that auditors have a negative effect on firm performance in all GCC countries. Our results further indicate that big four international audit firms, rather than local audit firms have better check-and-balance mechanisms to mitigate agency problems, thereby inducing higher firm performance. This result is in line with the findings in previous studies, such as Phan et al. (2020) and Sayyar (2015), who recommended firms appoint international big four auditors.

The results in Columns 1, 2 and 3 of Table 5 show significant positive coefficients for RYLOW, and thus, Hypothesis (H<sub>2</sub>), which states that a significant relationship between RYLOW and firm performance (0.805,  $p < 0.01$ ) exists, is accepted. Similarly, Al Nasser (2019) and Alzahrani and Che-Ahmad (2015) found that royal family members who hold ownership and family members on board have a positive effect on firm performance in Saudi Arabia. In line with the resource dependency theory, royal shareholders have easy access to external resources, such as financing, contacts and obtaining state revenue and contracts that may help to reduce firm uncertainty, lower transaction costs and ultimately sustain in enhancing firm performance (Su and Fung, 2013; Faccio, 2006; Johnson et al., 1996). Similar to our findings, Halawi et al. (2008) provided evidence that the public listed companies in the GCC region have at least one royal family on the board of directors and that entrepreneurial decision-making is strongly driven by royal members' presence on boards. With their reputation, power and social connections, the royal family, with share ownership, can influence the board and management to make strategic decisions in maximising firm performance. From the incentive alignment mechanism, Al-Hadi et al. (2016) argued that royal shareholders care about enhancing firm performance for their own interest and other shareholders' interest as the value of their investment is directly tied to the firm's share market performance.

Running the regression analysis further to include the non-linearity test of RYLOW (RYLOW<sup>2</sup>), the results in Column 4 show that RYLOW and RYLOW square (RYLOW<sup>2</sup>) have no significant association with firm performance (TQ). Our findings provide evidence that an increase in RYLOW has no impact on firm performance in the GCC countries.

Amongst the control variables, the coefficient for the MCPV is positive and has a highly significant association at the 1% level with firm performance (TQ). However, INF and leverage (Log DEBT) have no significant effect on firm performance (TQ). Firm size (Log ASS) has a significant negative association at the 1% level with firm performance (TQ).

#### 5.4. Moderating effect of CG mechanisms

Table 6 outlines the regression results for hypothesis H<sub>3</sub> in examining the interaction effect of CG mechanisms and RYLOW on GCC companies' performance. We run the interaction terms of RYLOW and CG. The results in Table 6 highlight that the pseudo R<sup>2</sup> for all models had a good fit of 67%, 68% and 70%, respectively, which represent an excellent fit of the models Eq. [2] (McFadden 1977). Similar to our earlier results, RYLOW has a significant positive effect on firm performance (TQ). However, we do not find evidence that any of the internal CG mechanisms, namely, board independence (BIND), BIZE (D1, D2 and D3) and CEODU, has any significant effect on the relationship between RYLOW and GCC companies' performance (TQ). Similarly, the external CG mechanism, namely

INSOW and INSOW<sup>2</sup>, has no significant effect on the association between RYLOW and firm performance. We could not find any evidence to suggest that CG variables have any effect on the positive relationship between RYLOW and firm performance. Hence, these findings support the substitutability argument that there is no difference in the relationship between RYLOW and firm performance between firms with more effective CG mechanisms as compared with firms with less effective governance mechanisms (Ward et al., 2009). In explaining substitutability, Ward et al. (2009) claimed that "an increase in the second mechanism directly replaces a portion of the first mechanism while the overall functionality of the system remains the same." Abdul Wahab et al. (2017) also found that CG does not mitigate the negative effect of political connections on corporate tax aggressiveness in Malaysia.

However, we found that the external CG mechanisms, international big four audit firms (AUQ) and local audit firms (AUQL), have a significant positive effect on the relationship between RYLOW and firm performance (2.2617,  $p < 0.01$ ). This finding suggests that the effective external governance mechanisms, mainly the international big four and local audit firms, complement the role of RYLOW in a synergistic fashion. That is, the auditors' participative strategy-making with royal members who own shares in the firm will enhance firm performance. From the complementary perspective, both effective monitoring by the auditors and incentive alignment schemes and the resource provision role of the RYLOW are exercised simultaneously in maximising shareholders' wealth. Similar to the explanation by Ward et al. (2009), the cumulative mechanisms for monitoring by external auditors and incentive alignment and resource provision role of royals that own shares in the firm induce synergistic effects amongst governance practices that enhance firm performance. In contrast to our findings, Alazzani et al. (2021) found that ESG disclosures in GCC companies with a royal family on board are perceived negatively by financial analysts.

Table 7 presents the summary of the results for Eq. [1] and [2] and their respective hypotheses.

Table 7. Summary of results.

Political measurement:		POLOW (Royal Ownership)			
Relation direction with hypotheses		Direct effect Eq. [1]	H:	Moderating effect Eq. [2]	H:
Moderate variables	RYLOW	Positive	H <sub>2</sub>		
Governance variables	INSOW	Negative	H <sub>1</sub>	No	H <sub>3</sub>
	BIND	No	H <sub>1</sub>	No	H <sub>3</sub>
	BIZE	No	H <sub>1</sub>		
	D2(less 9)	Positive	H <sub>1</sub>	No	H <sub>3</sub>
	CEODU	Negative	H <sub>1</sub>	No	H <sub>3</sub>
	AUQ	Positive	H <sub>1</sub>	Positive	H <sub>3</sub>
	AUQL	Negative	H <sub>1</sub>	Positive	H <sub>3</sub>
Control variables	MCPV	Positive			
	INF	Positive			
	Log(Debt)	Positive			
	Log(ass)	Negative			

Notes: TQ is the dependent variable equal to the market value of a company divided by its assets' replacement cost. RYLOW is the percentage of royal ownership. BIND is the number of independent non-executive directors on board. BIZE is the number of members on board. CEODU is a dummy variable with a value of 1 if the CEO is also the chairperson/vice-chairperson of the board and 0 if otherwise. INSOW is the percentage of institutional ownership. AUQ is a dummy variable with a value of 1 if appointed big four audit firms and 0 if otherwise. AUQL is a dummy variable with a value of 1 if appointed local audit firms and 0 if otherwise. LOG (ASS) is the natural logarithm of total assets. LOG (DEBT) is Log (total liabilities and total equity). MCPV is stock price \* the number of outstanding shares. INF is dummy variable with a value of 1 if services companies and 0 if otherwise.



## 6. Conclusion

This study examines the effects of CG mechanisms on GCC royal-linked companies' performance for the period 2009 to 2017. We also examine the association between RYLOW and firm performance. We further investigate whether CG mechanisms affect the RYLOW–firm performance relationship. The data sample of the study includes 266 company-year observations from Saudi Arabia, UAE, Oman and Qatar. We exclude Kuwait and Bahrain because comparable data on RYLOW are not available. The CG mechanism is represented by internal and external mechanisms, namely board independence, BIZE, CEODU, INSOW and AUQ.

The limited findings on the role of governance mechanisms except for BIZE of less than nine members on board and international big four audit firms indicate the weakness of CG mechanisms in enhancing GCC companies' performance. However, we find that RYLOW has a significant positive effect on firm performance. In a relationship-based economy, such as in GCC, the personal dimension of RYLOW may improve management effectiveness, which positively affects firm performance. Our results further show that internal governance mechanisms in GCC companies are not effective in influencing the RYLOW–firm performance relationship. However, the international big four audit firm and local audit firm as an external mechanisms have a significant positive effect on the association between RYLOW and firm performance. The external auditors complement the role of RYLOW in enhancing firm performance. In other words, an effective governance structure that enhances GCC firm performance is characterised by cumulative mechanisms for monitoring the function of independent external auditors and incentive alignment and resource provision role of RYLOW, thereby inducing synergistic effects amongst governance practices. From the incentive alignment incentive, RYLOW is more effective in strengthening firm performance as the value of their investment is tied to a firm's share market performance. Royals who have a link with outsiders are also more devoted to providing valuable resources that ultimately contribute to the firm's financial goals. In addition, independent external auditors can effectively engage in their monitoring role in aligning the interest of management with royal owners and other shareholders, particularly minority shareholders.

Policymakers, stock market, companies and accounting and auditing regulators can gain useful insights from the present study in terms of understanding the determinants of firm performance in GCC royal-linked companies. They could use the findings as a basis to revamp and improve the full adoption of governance and transparency practices amongst companies in GCC if the region is to enhance its competitiveness and become a regional financial and commercial centre. In ensuring effective monitoring, policymakers and investors in the GCC region are advised to play key roles by enforcing firms to implement governance mechanisms, particularly in areas, such as disclosure of affiliate and royal family relationships, and a culture of independence in its board.

This study is the first of its type in the context of GCC royal-linked companies. However, our study has a few limitations that might be considered in future studies. Firstly, our study focuses only on a small sample size in GCC countries. Future research may increase the sample size by applying to other emerging capital markets, particularly other Arab countries that have similar social, economic, institutional and cultural issues related to political ties and royal family involvement. Secondly, the period of the study (2009–2017) may be extended to the COVID-19 pandemic period to examine the possibility that the pandemic may have an impact on firm performance. Comparative studies on the relationship between governance and performance may also be conducted in other non-royal-linked companies in the GCC region. Thirdly, our study is also limited in examining the moderating role of CG on RYLOW and company performance. Hence, future research may analyse whether CG mechanisms moderate the effect of investment efficiency on firm performance. The findings of the study also open up further areas of research on CG mechanisms in GCC royal-linked companies by undertaking qualitative research to examine the intensity of

different mechanisms affecting the determinants of firm performance, particularly in the examination of the effectiveness of independent and diverse boards when faced with tightly controlled RYLOW structures that practice limited transparency.

## Declarations

### Author contribution statement

Ahnaf Ali Alsmady: (writing the original manuscript, methodology, review, and data analysis). Omar Iqbal Tawfik (writing the literature review and review). Rashidah Abdul Rahman (supervision, writing, review, and editing). Maha Faisal Alsayegh (writing style, review references, and editing).

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### Additional information

No additional information is available for this paper.

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