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Does disclosure of CSR activities improve corporate value? Moderating role of intellectual capital and COVID-19 pandemic

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This paper investigates the effect of CSR on corporate value in conjunction with knowledge-based resources (i.e., intellectual capital - IC) and COVID-19 in the context of an emerging market in the Middle East. It also explores the moderating effects of IC and the COVID-19 pandemic on the nexus between CSR and firm value. Employing a 6-year longitudinal dataset of Saudi nonfinancial firms listed on the Stock Exchange (Tadawul) from 2016 to 2021 and applying a feasible generalised least squares estimation method, our results show a significant inverse relation between CSR and corporate value measures, while a positive (negative) relation between IC (COVID-19) and corporate value. We also find that both IC and COVID-19 have complementary moderating roles in amplifying the inverse nexus between CSR and corporate value. These findings are robust with alternative measures of CSR and IC, and endogeneity/simultaneity concerns, and provide valuable insights for companies, regulators, investors and stakeholders.

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Introduction

Within the sustainability literature, in recent decades, Corporate Social Responsibility (CSR) has gained significant attention from scholars, regulators, and stakeholders due to the growing importance of climate change, global warming, and contemporary social and economic issues (AL Ani 2021; Hou et al. 2016; Martinez-Conesa et al. 2017; Maswadi and Amran 2023). It emerged as a broad set of environmental, economic and social practices that bridge an organisation's strategy and operations with its responsibilities to stakeholders (Freeman 2010). In today's world, companies have come to realise that it is essential for them to participate in CSR activities to thrive (Du et al. 2022). Stakeholders now place increased emphasis on the environmental, social, and economic dimensions, making it imperative for organisations to establish trust, transparency, accountability, reputation, and legitimacy to meet these evolving requirements (Axjonow et al. 2018; Gerged et al. 2021; Katmon et al. 2019; Platonova et al. 2018). Beyond financial considerations, stakeholders are also concerned with the impact of companies on the economy, society, and the environment (Oskoue 2019; Saeed et al. 2022). Consequently, the integration of CSR has become a strategic tool for companies to attract investors, engage with stakeholders and meet their expectations (Yang et al. 2019). Despite the growing awareness of CSR best practices within companies and the imperative of CSR as a competitive reality of organisations, the implementation of CSR remains highly variable (McWilliams et al. 2006). In particular, in developing economies, growing awareness and recognition of comprehensive CSR standards (e.g. Global Reporting Initiative) has created pressure for companies to perform accordingly. As such, firms face challenges in achieving CSR expectations.

While the role of organisations in socio-environmental sustainability has been occupying a growing space in the economic debate, some prior studies have explored how CSR activities affect corporate value and the long-term sustainability of business (Barnett et al. 2020) and others highlighted the costs associated with the CSR activities that could influence a firm's value (Du and Yu 2021). Because of widespread concerns about environmental pollution and ecological degradation, companies increasingly recognise their social responsibility and strive to incorporate CSR into their business strategy, and they often disclose CSR initiatives and activities undertaken to create a responsible image to stakeholders (Ho et al. 2022). The argument follows that heightened CSR efforts can benefit shareholders and stakeholders by reducing risks and enhancing reputation. Consequently, diligent attention to CSR activities is crucial for companies and their stakeholders. Nevertheless, awareness remains relatively low in Arab countries, including the Kingdom of Saudi Arabia (KSA) (Al-Abdin et al. 2018). Furthermore, the debate continues regarding whether increased CSR activities positively influence a firm's financial performance and value. It still remains uncertain whether engaging in CSR activities can enhance a firm's value through these initiatives (Ali and Kaur 2021). This is because CSR activities can be categorised in different dimensions to meet the expectations, often conflicting, of diverse stakeholders. As such, extant literature is divided about firms' CSR involvement regarding enhancing financial performance or economic benefit without necessarily increasing expenses (Hernández et al. 2020). For example, Ogachi and Zoltan (2020) suggest that a firm's CSR strategy involves costs and reduces profits due to investments in CSR activities. In contrast, Hernández et al. (2020) and Li et al. (2020) posit that CSR activities can enhance firm value. Thus, given extant literature remains inconclusive on whether CSR activities can improve corporate value (Gupta and Das 2022) in developing countries, further research is warranted in this context.

In the contemporary business landscape, a knowledge-based economy is crucial for corporate success, emphasising the significance of intellectual capital (IC) encompassing knowledge, skills, experience, organisational technology, customer relations, and professional skills (Buallay et al. 2020; Tran and Vo 2020; Allameh 2018). The resource-based view (RBV) theory asserts that effective utilisation of IC is pivotal in creating value and sustaining long-term growth for companies (Zambon and Dumay 2016). While companies increasingly rely on IC resources for sustainable growth, the COVID-19 pandemic has posed a significant threat to corporate survival, impacting CSR agendas and overall firm performance and value. This global crisis, beyond its public health implications, has led to severe financial and economic challenges worldwide. The vulnerable impact of COVID-19 on corporate value over the past two to three years has drawn attention from researchers. Despite this, companies are expected to strategise, innovate, and optimise their IC and other resources to mitigate the financial vulnerabilities caused by the pandemic, positioning IC as a crucial asset for navigating and overcoming the crisis.

Earlier empirical research reached mixed findings on the impact of CSR on the corporate value, meaning there is no consensus on CSR-firm value relationship. Thus, a systematic review of literature along with an empirical analysis is highly needed. Moreover, most prior studies examining either the effect of CSR on the firm value or the effect of IC on the firm value have been limited to exploring the direct link between these two components without considering the moderating effect. To fill this gap, this study attempts to examine the extent to which CSR activities promotes firm value in conjunction with IC and COVID-19 as distinct moderators. In particular, the main purpose of the present paper is to investigate the direct effects of CSR, IC and COVID-19 on corporate value in the context of an emerging market - KSA - first, and then the moderating effect of IC and COVID-19 on the relationship between CSR and corporate value. Specifically, we concentrate on Saudi-listed companies, analysing the simultaneous impact of investments in CSR, as well as IC and COVID-19, on corporate value. Our study aims to determine if socially responsible firms operating with extensive IC demonstrate higher financial sustainability. Additionally, we empirically explore whether the association between CSR and corporate value is influenced by the levels of IC and the presence of COVID-19, thus examining their moderating effects.

A few studies close to our study, Shahzad et al. (2022), Mutuc and Cabrilo 2022 and Ari et al. (2024), have investigated the interplay of CSR and IC on firm performance. Shahzad et al.'s study on US companies shows a significant positive impact of CSR on firm performance, partially mediated by IC. Ari et al. (2024) study also find that IC mediates the inverse relation between CSR and firm performance in 24 emerging countries, suggesting that market reactions to CSR are not always positive. Mutuc and Cabrilo 2022 research, conducted across five developed and six developing Asian countries, explores the moderating effect of IC on the CSR-financial performance relationship. Their findings reveal a positive association between CSR and financial performance in developing countries, while in developed countries, the relationship is negative. Notably, IC has a moderating effect on the relationship between CSR and financial performance in developing countries, but not in developed countries.

Our study on Saudi companies distinguishes itself from previous research by Shahzad et al. (2022), Mutuc and Cabrilo 2022 and Ari et al. (2024) in several key areas. First of all, we employ a unique 37-item checklist to assess CSR activities disclosure directly, rather than relying solely on ESG metrics. Second, we utilise both the Value-Added Intellectual Coefficient (VAIC) and

the Modified Value-Added Intellectual Coefficient (MVAIC) to measure IC, expanding upon the single VAIC proxy used in prior studies. Finally, our analysis encompasses a broader range of financial performance proxies, including ROA, Tobin's Q, and additional measures compared to the more limited set used in previous research. Additionally, our data period and methodology diverge from theirs as well as the use of COVID-19 variable and the overall findings of the study. Furthermore, our focus on Saudi Arabia, a country situated between developed and developing nations in the Middle East along with unique institutional settings, provides a distinct perspective that complements existing knowledge on CSR, IC, and COVID-19.

Our study makes significant contributions to the existing body of literature in several key aspects. Firstly, it stands out as one of the pioneering endeavours to explore the interconnectedness among CSR, IC, COVID-19 and firm value in Saudi companies, leveraging the perspectives of stakeholder, legitimacy and institutional theories and resource-based view. Secondly, the paper devises a comprehensive research framework by positioning IC and COVID-19 as moderators between CSR and firm value. It further integrates alternative measures of the main variables of interest and advanced econometric methods to explore the relationship between CSR and corporate value and considering the moderating influence of IC and the impact of COVID-19. Through this comprehensive framework, the study enriches the existing research landscape and offers empirical validation. Thirdly, the study holds potential for deepening our understanding of these dynamics within firms situated in developing countries, offering a valuable reference for regulators, practitioners, and researchers. The findings contribute new perspectives on these complex relationships within the KSA, providing practical guidance for companies to safeguard their reputation, legitimacy, and financial stability during the COVID-19 era through effective CSR practices and leveraging IC. The study's outcomes present fresh insights for policymakers, regulators, and investors, opening avenues for future research in academia and practical application for business professionals.

The subsequent sections of this paper are structured as follows. Section "Theory, literature and hypotheses" provides a short theoretical foundation, a survey of the literature, and hypotheses development. The study methodology and data used are explained in Section "Methodology and data", the empirical findings are shown in Section "Empirical results", and the robustness test results are shown in Section "Robustness check". Finally, Section "Discussion and concluding remarks" offers a brief discussion and concluding remarks including policy implications, limitations and suggested future research directions.

Theory, literature and hypotheses

Theoretical views of CSR activities disclosure and intellectual capital. The concept of CSR has gained momentum recently, garnering increased attention from business leaders, investors, and policymakers. While some argue that companies have moral and ethical obligations to society (Carroll 2004), CSR encompasses wealth creation, social power, social demand, and ethical values (Garriga and Mele 2004). Existing literature notes that CSR involves a trade-off between stakeholders, balancing moral and economic interests. Despite the absence of a universal theory, many scholars connect CSR to integrated theories like stakeholder and legitimacy theories. Some argue that legitimacy theory is grounded in stakeholder theory where CSR represents a strategy that can be used by firms to create their value (Garriga and Mele 2004; Tanimoto 2019). These theories play a crucial role in guiding businesses to develop and implement environmental and social reporting to fulfil their social contract and gain recognition

from stakeholders (Burlea Schiopoiu and Popa 2013). In this context, Li et al. (2016) contend that CSR activities lead to improve relationships between firms and their diverse stakeholders, which in turn increase firm value. Other scholars argue that external pressure exerted on firms motivate them to participate in CSR initiatives. Institutional theory explores how external pressures drive firms towards CSR. It posits that in order to gain legitimacy, companies need to adjust to the external pressures and institutional frameworks, addressing social and environmental issues raised by stakeholders through CSR. Because, attaining legitimacy is critical as firms face different types of attention, such as financial performance, CSR engagement and innovation outcomes. Thus, CSR disclosure aligns with stakeholder, legitimacy and institutional theories.

The CSR and firm performance relationship, i.e. whether CSR activities of the firm is value increasing or not, have been a subject of extensive academic debate in the literature, with various theories and empirical studies offering diverse perspectives. From a theoretical perspective, a blend between CSR and stakeholder theory has been validated in numerous literature (Brown and Forster 2013) documenting CSR as an important dimension for value-added to the company (Margolis and Walsh 2003) as well as obtaining legitimacy from different stakeholders suggested by the legitimacy theory (Burlea Schiopoiu and Popa 2013; Tanimoto 2019). While the direct causal link between CSR and financial performance is debated, stakeholder theory provides a valuable lens for understanding this complex interplay. The theory posits that a company's success depends on its ability to satisfy the needs and expectations of various stakeholders. The advocates for CSR argue that it can be used for creating firm value. Within the context of stakeholder theory, companies can leverage CSR as a strategic tool to enhance firm performance and value by balancing competing interests and priorities of different stakeholders. Similarly, CSR can be viewed as a strategy to achieve and maintain legitimacy in the eyes of their stakeholders, which is essential for the firm's success and survival. Legitimacy theory offers a valuable framework for understanding the relationship between CSR and firm performance. By engaging in socially responsible practices, firms can enhance their legitimacy, improve reputation, reduce risks and achieve better financial outcomes. CSR can be seen as a mechanism through which companies usually adapt to external pressures and expectations, and improve their overall performance. Again, institutional theory can also be used to explain the consequences of CSR on firm performance. From this theory perspective, firms engage in CSR activities, expected within their industry-wide institutionalised practice, to avoid negative publicity, and improve their public image and long-term business performance. In summary, these theoretical perspectives emphasis on how CSR activities can impact firm financial performance, not just why firms engage in CSR initiatives.

Contrary to the above discussion, prior studies also argue that CSR activities create agency costs. According to the agency theory, firm resources are expected to be invested in projects that add value to the firms or are distributed among the shareholders (Hafez 2016). This theory suggests that increased costs in higher levels of CSR activities may be considered a waste of resources for not improving financial performance and firm value. Managers may prioritise CSR initiatives that serve their own interests rather than maximising firm value. Agency theory on CSR argues that managers can deliberately use corporate resources to pursue their own utility or uphold firm reputation that are detrimental to corporate value. Consistent with these arguments, prior studies indicate that some firms resort heavily to CSR activities with the purpose of hiding their manipulating reported earnings (Prior et al. 2008; Chih et al. 2008). Also, to hide managerial self-serving

behaviour and other opportunistic motivation (such as earnings management), managers may create a veil through increased CSR activities to create a good public image for the firms by misusing resources, putting the firms at an economic disadvantage and sacrificing long-term profitability (Prior et al. 2008). This refers to CSR washing where managers engage in superficial CSR activities without making meaningful changes to create value for shareholders.

Finally, IC encompasses knowledge, experience, and practical competencies, contributing to increased corporate value (Dumay 2016). The resource-based view (RBV) theory highlights a company's resources and competencies as crucial drivers for long-term performance and competitive advantage (Kraaijenbrink et al. 2010). The theory suggests that firms possess unique resources and capabilities that can provide them with a competitive lead to improve financial performance. Allameh (2018) argues that IC serves as a valuable strategic resource by offering both tangible and intangible knowledge resources for businesses to extract and generate value. According to the RBV theory, IC forms the foundation for value creation (Daou et al. 2013), with corporate performance depending on a firm's effective and efficient utilisation of both tangible and intangible assets (Ismail and Al-Musali 2011).

CSR activities disclosure, intellectual capital, COVID-19 and corporate value. The increasing global emphasis on CSR initiatives stems from a rise in environmental accidents, heightening public awareness of climate change and its multifaceted repercussions—spanning adverse social and environmental effects and substantial economic consequences. Noteworthy research, such as that by Peters and Romi (2015) and Weber et al. (2014), has highlighted the profound economic impacts associated with climate change. Stakeholders across various sectors, including investors, corporations, regulators, and policymakers, have exhibited a growing awareness of the importance of environmental and climate issues, as evidenced by studies conducted by Han et al. (2023) and Haque (2017). These pressures extend beyond traditional corporate management considerations, reflecting an increasing emphasis from stakeholders on social and environmental concerns, particularly climate change, as indicated by research from Chang et al. (2017) and Choi and Lee (2018). In a similar vein, the social dimensions of CSR (such as employment, human rights, health and safety, food safety, customer satisfaction, community wellbeing) have also become a focal point for businesses seeking to demonstrate their commitment to ethical practices and integrate social responsibility into their core business model. By prioritising social initiatives, companies can cultivate a positive and responsible public image and build trust with various stakeholders that contribute their overall business performance. Nguyen and Nguyen (2021) indicate that the employee orientation subcomponent of CSR positively correlated with a firm's financial performance in Vietnamese listed companies. Again, Saeed et al. (2023) investigate the role of firms' social and environmental dimensions in the financial performance in eight emerging Asian markets. They report that the social dimension is more effective in increasing firm performance relative to the environmental dimension, supporting the view that socially responsible firms have a competitive edge over their rivals that leads to higher profitability. Eledum and Elmahgop (2024) reveal that CSR significantly improves corporate performance and competitive advantage in Saudi food industry primarily when focused on innovation, indicating the need for integrating CSR into core business strategies to strengthen stakeholder relationships and profitability. Saeed et al. (2024) also document a negative association between CSR dimensions relating to

diversity, and employee relations and firm leverage, implying easier access to equity financing. Thus, it can be argued that by actively addressing the social concerns, companies can not only contribute to positive social change but also strengthen their relationships with employees, customers, investors, and the broader community.

The global financial and health crises have prompted a call for improved CSR practices across organisations of varying sizes, beyond the traditional focus on large enterprises (Young and Marais 2012). Debates arise regarding the impact of environmental investments on firm value, with some arguing for value enhancement (Jones 1995; Albuquerque et al. 2020; Anginer et al. 2018; Ferrell et al. 2016), while others contend it may divert limited resources from profit-centric objectives (Freeman, 1984; Stout 2012). Notably, studies present conflicting results (Chen and Lee 2017). Advocates suggest that CSR investments contribute to long-term business performance and stakeholder support (Guenster et al. 2011). However, opponents posit that such expenditures may be viewed as detrimental to shareholder value, with concerns about managerial motivation and potential self-serving behaviour (Dang et al. 2021; Krueger 2015). Building on diverse theoretical perspectives discussed above, this literature explores the tension between the perceived benefits and drawbacks of CSR initiatives in terms of financial outcomes and managerial motivations.

Considering the divergent opinions, an extensive literature analysis indicates that CSR initiatives generally enhance company success (Chang and Shen 2014; Saeidi et al. 2015) and value (Qureshi et al. 2020). Studies by Sheikh (2018), Yoon et al. (2018), and Hu et al. (2018) in the US, Korea, and China, respectively, suggest a positive link between CSR engagement and corporate performance. Kurniasari et al. (2017) and Socoliuc et al. (2018) also indicate a positive effect of CSR on firm value including banks and real estate companies. Conversely, Ahsan et al. (2022), Badayi et al. (2021), and Jyoti and Khanna (2021) report a negative significant association between environmental sustainability and corporate performance. D'Amato and Falivena (2019), Guo et al. (2020), Mukhtariddin et al. (2019) and Nekhili et al. (2017) also demonstrate a negative effect of CSR on firm value including banks, suggesting that CSR increases the costs that do not generate profit, thus leading to decrease firm value. Additionally, some other studies find no direct relationship or significant link between CSR and firm value (Hafiz 2016; Nuryana and Bhebe 2019; Surroca et al. 2010; Worokinasih and Zaini 2020). Thus, despite the positive aspects of CSR across environmental, social, and economic dimensions, companies sometimes engage in CSR activities for greenwashing/blue-washing or to safeguard their corporate image. By prioritising CSR initiatives over financial performance, managers may also use CSR activities to hide self-serving behaviour and create agency costs.

Apart from the above, a considerable body of research has explored the influence of IC on corporate performance. One research strand examines IC measured by the VAIC, while another investigates IC measured by the MVAIC. Both groups identify a positive and significant effect of IC on firm performance (Maji and Goswami 2017; Nadeem et al. 2018; Sardo and Serrasqueiro 2017; Tran and Vo 2020; Xu and Li 2019).

Further, the COVID-19 pandemic caused significant turbulence in the global economy. Numerous research have extensively documented the profound impact of the COVID-19 pandemic in global financial markets, particularly emerging markets, substantially declining equity returns of listed firms and exacerbating market risks (Jiang et al. 2022). As a result, with the advent of the COVID-19 pandemic, CSR related activities have been severely affected because of additional costs associated with CSR activities that could influence a firm's value (Ogachi and Zoltan 2020).

Given the above explanations and findings of the studies in the existing literature, the first hypothesis is articulated as follows:

H1a: CSR activities disclosure is significantly associated (either positive or negative) with corporate value in Saudi listed companies.

H1b: Intellectual Capital is positively associated with corporate value in Saudi listed companies.

H1c: COVID-19 is negatively associated with corporate value in Saudi listed companies.

Moderating or contingent roles of intellectual capital and COVID-19 on CSR activities disclosure and corporate value nexus

Intellectual capital. The concept of moderation refers to any variable influencing the association between two or more variables, indicating the moderator's effect on this association. In a moderating test, a statistically significant interaction term suggests that the relationship between dependent and independent variables depends on the levels of the moderation variable. In our study, despite the direct effect of CSR on corporate value being significant, as hypothesised (H1), the impact of the interaction term of CSR and IC (VAIC or MVAIC) on corporate value determines the dependency of the direct effect on the levels of IC (VAIC or MVAIC).

While the literature extensively explores the direct effect of IC on corporate value, no existing study examines the interactive effect of IC (VAIC, MVAIC) on the CSR-corporate value relationship. This means whether IC acts as an amplifier or attenuator (i.e., moderating effect) in the association between CSR disclosure and corporate value remains unexplored in current literature. To address this gap, our second hypothesis is formulated as follows:

H2: Intellectual Capital has a moderating/interactive effect on the relationship between CSR activities disclosure and corporate value in Saudi listed companies.

COVID-19. The COVID-19 pandemic has profoundly impacted the global economy, with numerous studies exploring its economic effects. It surpassed previous pandemics in its devastating consequences on worldwide economies (Padhan and Prabheesh 2021). COVID-19 significantly influenced economic activity, leading to sharp spikes in unemployment (Campello et al. 2020), substantial declines in stock prices and revenues (Fahlenbrach et al. 2021), and disruptions in trade across sectors (Bapuji et al. 2020). In specific industries, Mazur et al. (2020) noted substantial market capitalisation declines exceeding 70% in crude petroleum, real estate, entertainment, and hospitality. Shen et al. (2020) identified a negative correlation between confirmed coronavirus cases and industry performance, while Topcu and Gulal (2020) found the most adverse effects in Asian emerging markets.

Continuing with the moderation concept, if the interaction term between CSR and COVID-19 significantly impacts corporate value, the direct effect of CSR depends on the level of COVID-19. Despite various studies exploring COVID-19's influence on economic activities, none have investigated its interactive effect on the association between CSR and corporate value – whether COVID-19 amplifies or attenuates (i.e., moderates) the CSR disclosure and corporate value link. Given the Saudi economy's oil sector focus and the significant decline in oil prices during the coronavirus crisis, it is plausible that KSA-listed companies were severely affected. To address this gap, we formulate the third hypothesis as follows:

H3: COVID-19 has a moderating/interactive effect on the relationship between CSR activities disclosure and corporate value in Saudi listed companies.

Table 1 Sample selection.

Description	No. of firms-years	
Panel A		
Firms listed in the Saudi stock market (Tadawul) from 2011 to 2021	1189	
Less: Financial and insurance firms	323	
Less: Missing Data	34	
Final Sample	832	
Panel B		
Sector	Observations	Percentage
Materials	244	29.33
Consumer Discretionary	142	17.07
Industrials	118	14.18
Consumer Staples	95	11.42
Real Estate	63	7.57
Health Care	50	6.01
Communication Services	36	4.33
Diversified Financials	34	4.09
Energy	27	3.25
Utilities	14	1.68
Information Technology	9	1.08
Total	832	100

Source(s): Table created by authors.

Methodology and data

Data collection and sample. To evaluate the aforementioned hypotheses, this study focuses on nonfinancial firms listed on the Saudi Stock Exchange (Tadawul) between 2016 and 2021. The choice of 2016 as the starting point aligns with the announcement of the Saudi Vision 2030 by the Saudi government in 2016, a plan emphasising social development sustainability (Bamahros et al. 2022; Qasem et al. 2022). This initiative may have prompted increased CSR activities among Saudi companies, as indicated by Alharbi's (2021) research on improved CSR disclosures after the Saudi Vision 2030 declaration. The study's timeframe (2016–2021) is significant, encompassing key institutional developments: the modified Saudi Corporate Governance Code (CGC) introduction in 2017, the Saudi Vision 2030, and the Covid-19 pandemic. In the sample selection process, firms operating in the financial sector such as banks, insurance and other financial institutions were excluded due to their distinct disclosure regulations and corporate governance structures established by the Saudi Central Bank (SAMA), rendering them inappropriate for inclusion in the study sample (Boshnak 2022; Ebaid 2022; Habbash and Haddad 2020). As a result, a final sample comprises of 154 companies (832 company-year observations) across Tadawul's 11 sectors, is detailed in Table 1. CSR and non-financial data, including COVID-19 information, were extracted from sampled firms' annual reports, while financial data, IC, and control variables were sourced from the Thomson Reuters DataStream database.

Variables

Dependent variable. The dependent variable in this study is corporate value represented through four key measurements, encompassing both market-based and accounting-based perspectives. Corporate value refers to investors' perception of a company's success, closely linked to its share price and representing its market value. Enhancing corporate value stands as a primary objective for companies, serving as a critical benchmark for investors. Tobin's Q (TQ) serves as the market-based indicator, gaining prominence in business research, particularly in examining the link between CSR disclosures and firm value (Nirino et al. 2022; Wang and Sarkis

2017). Tobin's q ratio represents the market's valuation of a firm's current assets and is frequently used as a proxy for assessing firm value and performance (Ari et al. 2024). Previous research by Godfrey (2005) and Godfrey et al. (2009) indicates that corporate engagement in CSR can reduce the potential impact of negative events on stock prices, achieving an insurance-like effect. Pelozo (2005) and Pelozo (2006) contend that the reputation generated by companies through CSR investment is equivalent to purchasing insurance for the company, making it a wise choice for managers to implement CSR, not only for its insurance function but also to maintain competitive advantage. CSR reputation can protect firms and reduce the impact of negative events, decreasing losses and lowering the probability of financial crises (Schnietz and Epstein 2005). When firms are willing to participate in more environmental conservation, social welfare, and community care activities, and achieve good CSR ratings, they can enhance their image and reputation, thereby improving their financial performance (El Ghoul et al. 2019). According to Hu and Yin (2024), companies with higher CSR ratings achieve superior stock returns compared to those with lower ratings, especially during times of political uncertainty. Previous studies have commonly regarded Tobin's Q as a more suitable measure in evaluating a firm's potential future performance as well as connecting between CSR disclosure and company value. Tobin's Q is widely employed as a more appropriate measure for firm worth which is forward-looking nature compared to other financial metrics (Tahmid et al. 2022). Additionally, accounting-based measurements include Return on Assets (ROA), Return on Equity (ROE), and Return on Invested Capital (ROIC), widely utilised in prior studies (Ghardallou and Alessa 2022; Jyoti and Khanna 2021; Khan and Qasem 2024; Saeed et al. 2023).

Independent variable. The CSR disclosure score serves as the primary explanatory variable in this research. To calculate the CSR score, we developed a self-constructed disclosure index. This index is based on a 37-item checklist covering six key categories: community, employees, environment, energy, customer, and products and services. The checklist was designed in accordance with the Global Reporting Initiative (GRI-G4) framework, ISO 26000, and the CMA ESG disclosure guidelines 2022, which emphasise environmental, social, and economic considerations. Appendix A provides a mapping matrix that illustrates the alignment of each checklist item with these frameworks. Additionally, the items in this checklist align with those analysed in prior studies focused on the Saudi market (Alotaibi and Hussainey 2016; Boshnak 2022; Ebaid 2022; Habbash and Haddad 2020; Mahjoub 2019; Qasem et al. 2023, 2024) and in other emerging markets with similar contexts (Alkayed and Omar 2022; Ananzeh et al. 2022; Badru and Qasem 2024; Dakhli 2021).

While this index incorporates globally recognised CSR elements, it also includes items unique to the Saudi context. Some CSR themes, such as ongoing charity (WAGFF), Quran memorisation programs, and Islamic charity, reflect the country's cultural and religious practices, which may not be fully covered by ISO 26000, GRI-G4, or CMA frameworks (see Appendix A). These Saudi-specific items are consistent with prior studies emphasising the importance of integrating local cultural and religious elements into CSR reporting (Alotaibi and Hussainey 2016; Mahjoub 2019). This approach aligns with recommendations from Al-Abdin et al. (2018) and Eduardo et al. (2019) for incorporating country-specific CSR items to provide a culturally reflective and comprehensive view of CSR practices. Some items from the ISO 26000, GRI-G4, or CMA frameworks were excluded from our CSR index as they are not commonly addressed in previous Saudi studies, reflecting their limited relevance in local CSR practices.

We employ manual content analysis, a reliable method for evaluating disclosure quality, based on predetermined criteria (Ebaid 2022), assessing the importance of CSR items to reporting firms (Ullah et al. 2019). This technique, widely used for quality and quantity assessments of disclosures (Boshnak 2022), assures repeatability and validity in extracting references from data (Krippendorff 2013). The analysis rates each checklist item on a scale of 0 to 3 (refer to Appendix A) according to CSR activities disclosed in the firms' annual reports or CSR reports, with a score of zero assigned to firms providing no CSR data for a specific index item. A score of 3 is assigned for quantitative data, 2 for qualitative but specific disclosures, 1 for general qualitative disclosures, and 0 for no disclosure. This scoring system allows for a nuanced evaluation of disclosure quality, differentiating between levels of detail provided by firms.

To clarify the scoring process, we provide examples that differentiate between ratings of 3, 2, and 1, based on sample disclosures from annual reports:

- **Quantitative disclosure (Score of 3):** This indicates the highest level of specificity, where the CSR disclosure includes numerical data or financial information. For example, under the community theme for social activities support, Sahara International Petrochemical Company (Sipchem) reported: *"In 2021, Sipchem allocated a total of about SAR 9 million for community service activities, as the contributions and initiatives varied according to Sipchem's policy in community service. Sipchem focused on implementing sustainable programs aimed at increasing the pace in line with social change and has focused on areas of concern"* (Board Annual Report of Sipchem Company 2021, p. 30).
- **Qualitative Specific Disclosure (Score of 2):** This level reflects non-quantitative but detailed information that clearly describes CSR initiatives. For instance, for sponsoring environmental activities under the environment theme, National Agricultural Development Co. reported: *"Sponsorship and participation in international events and days in cooperation with strategic partners, most notably the World Diabetes Day event with the King Abdulaziz City for Science and Technology and the World Earth Day event by participating in an accompanying exhibition under the supervision of the Ministry of Environment, Water and Agriculture"* (Annual Report of National Agricultural Development Co. (2020, p. 62).
- **Qualitative Generic Disclosure (Score of 1):** This rating is for broad, non-specific descriptions that indicate CSR involvement without detailed information. For example, under the customer theme for customer service and meeting customers' needs, Bawan Co. disclosed: *"Safe-guarding customer interests is of paramount importance to the Company. Bawan's commitment is to professionalism, and they constantly aim towards an improved customer journey and experience. The knowledge base system is very straightforward, and it leads customers to understand their needs and employees to serve them in the simplest way possible, thus, leading employees to assist clients in making the most suitable decisions"* (Annual Report of Bawan Co. (2020, p. 60).

The CSR index for each firm is calculated by determining the ratio of actual scores to the total number of items using the specified formula:

$$CSR_j = \frac{\sum_{i=1}^n x_{ij}}{n_j}$$

Where CSR_i = firm's CSR disclosures, which are scored on a scale of 0 to 3.

n_j = denotes the total number of disclosure items, amounting to 37 for j^{th} firm.

X_{ij} = a score of 3 is assigned if the i^{th} firm reveals quantitative data, a score of 2 is given if qualitative data is disclosed with a precise explanation, a score of 1 is assigned for the disclosure of general qualitative data, and a score of 0 indicates no disclosure.

Reliability of CSR scoring. In our study, the CSR disclosure scoring process was conducted by a single primary coder with prior experience in CSR coding. Milne and Adler (1999) claim that a single coder with a good experience is more reliable and cost effective in scoring process. To ensure inter-rater reliability and minimise subjectivity, we adopted a verification process consistent with practices in prior research (Abhayawansa and Guthrie 2016; Al-Shaer 2018; Anas et al. 2015; Sadou et al. 2017). Specifically, we re-assessed 45 annual reports (approximately 5.5% of the sample) three months after the initial scoring. These reports were independently recoded by a second coder who was briefed on the disclosure index and scoring methods. The correlation between the primary coder's initial scores and the second coder's scores was 84%, indicating a high level of consistency (Qaderi et al. 2022; Wan-Hussin et al. 2021). The discrepancies identified between the primary and secondary coder's scores were carefully reviewed and resolved through discussion, ensuring consistent application of scoring criteria.

Moderating variables. The moderating variables investigated in this study are intellectual capital (IC) and COVID-19. In terms of IC, we employed the MVAIC model, a monetary measure of IC. Initially, we computed companies' value added (VAD) by summing operating profit (OP), depreciation and amortisation (DA), and employees' costs (EC). VAIC was then derived from total human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency coefficient (CEE). HCE represented the percentage of VAD to EC, SCE was computed by dividing structural capital (SC) by VAD (where SC equaled VAD minus HCE), and CEE denoted the percentage of VAD to capital employed (CE). While VAIC is a comprehensive metric for assessing a company's performance over time (Skhvediani et al. 2023; Tiwari 2022), it lacks consideration of relational capital (HCE). The modified MVAIC addresses this limitation by incorporating relational capital efficiency (RCE), making it a more comprehensive extension of the original VAIC (Soetanto and Liem 2019). In addition, given that VAIC is one of the best measurements for statistical analysis (Andriessen 2004), which has been extensively used in prior studies (Battisti et al. 2022; Nirino et al. 2022; Tiwari 2022; Vrontis et al. 2020), the VAIC was used for the robustness test in Section "Robustness check" of this study.

COVID-19 denotes the COVID-19 period and is assigned a value of one for observations belonging to years 2020–2021, and a value of zero otherwise (Baatwah et al. 2022; Hambali and Adhariani 2023; Shen et al. 2020).

Control variables. In this study, building upon prior research, several variables that could influence the nexus between CSR activities disclosure and corporate value are incorporated as control variables such as firm size (SIZE), leverage (LEVEG), sales growth (SGROWTH), systematic risk (BETA), illiquidity (Amihud), capital intensity (CapInt), and tangibility (Tangible)—to examine their impact on the relationship between independent variables and firm performance metrics (Al-Dhamari et al. 2022; Ghardallou and Alessa 2022; Gupta and Krishnamurti 2021; Jyoti and Khanna 2021; Nirino et al. 2022; Saeed et al. 2023; Youn et al.

2015). Firm size is calculated as the natural logarithm of market capitalisation (Qasem et al. 2025), while leverage is determined as the percentage of total debt to total assets (Saeed et al. 2023; Wang and Sarkis 2017). Sales growth is calculated as the difference between sales in year t and sales in $t - 1$, scaled by the sales in year $t - 1$ (Badru and Qasem 2024; Ghardallou and Alessa 2022). Market risk is defined by the correlation between the fluctuation in a stock's volatility and the overall volatility of the market (Qasem et al. 2022; Youn et al. 2015). Fang et al. (2009) find that firms with more liquid stocks have better performance, in this study, we use the illiquidity measurement suggested by Amihud and Mendelson (1986). Hence, illiquidity is measured as the annual average of the daily absolute return of a stock divided by its daily trading volume (Gupta and Krishnamurti 2021; Wan-Hussin et al. 2021). Capital intensity is defined as the percentage of total assets to the firm's total revenues (Saeed et al. 2023), and tangibility is measured as the percentage of a firm's tangible assets to its total assets (Ghardallou and Alessa 2022).

Model specification and regression method

Direct relationship model specification. To investigate the effects of CSR activities disclosure and IC on corporate value, the following regression model is employed:

$$\begin{aligned} CVALUE_{it} = & \beta_0 + \beta_1 CSR_{it} + \beta_2 MVAIC_{it} + \beta_3 LnSIZE_{it} \\ & + \beta_4 LEVEG_{it} + \beta_5 SGROWTH_{it} + \beta_6 BETA_{it} \\ & + \beta_7 LnAmihud_{it} + \beta_8 CapInt_{it} + \beta_9 Tangble_{it} \\ & + Years\ Dummies + Sector\ Dummies + \epsilon_{it} \end{aligned} \quad (1)$$

Again, to examine the effects of CSR activities disclosure and COVID-19 on corporate value, the following regression model is employed:

$$\begin{aligned} CVALUE_{it} = & \beta_0 + \beta_1 CSR_{it} + \beta_2 COVID - 19_{it} + \beta_3 LnSIZE_{it} \\ & + \beta_4 LEVEG_{it} + \beta_5 SGROWTH_{it} + \beta_6 BETA_{it} \\ & + \beta_7 LnAmihud_{it} + \beta_8 CapInt_{it} + \beta_9 Tangble_{it} \\ & + Years\ Dummies + Sector\ Dummies + \epsilon_{it} \end{aligned} \quad (2)$$

Moderation model specification. To test the moderation or contingent effects of IC and COVID-19 on the association between CSR activities disclosure and corporate value (i.e., attenuating or amplifying), we estimate the following regression models:

$$\begin{aligned} CVALUE_{it} = & \beta_0 + \beta_1 CSR_{it} + \beta_2 MVAIC_{it} + \beta_3 CSR * MVAIC_{it} \\ & + \beta_4 LnSIZE_{it} + \beta_5 LEVEG_{it} + \beta_6 SGROWTH_{it} \\ & + \beta_7 BETA_{it} + \beta_8 LnAmihud_{it} + \beta_9 CapInt_{it} + \beta_{10} Tangble_{it} \\ & + Years\ Dummies + Sector\ Dummies + \epsilon_{it} \end{aligned} \quad (3)$$

$$\begin{aligned} CVALUE_{it} = & \beta_0 + \beta_1 CSR_{it} + \beta_2 COVID-19_{it} + \beta_3 CSR * COVID-19_{it} \\ & + \beta_4 LnSIZE_{it} + \beta_5 LEVEG_{it} + \beta_6 SGROWTH_{it} + \beta_7 BETA_{it} \\ & + \beta_8 LnAmihud_{it} + \beta_9 CapInt_{it} + \beta_{10} Tangble_{it} \\ & + Years\ Dummies + Sector\ Dummies + \epsilon_{it} \end{aligned} \quad (4)$$

To mitigate the impact of years and industries, the regression equations incorporate dummy variables for these factors. To enhance robustness, we apply winsorisation to limit outliers and data errors by trimming values at the 1st and 99th percentiles. Table 2 presents the measurements of the variables used in this study.

Table 2 Variable definitions.

Variables	Acronym	Descriptions
Dependent variables		
Tobin's Q	TQ	(Market value of equity + total debt)/total assets
Return on assets	ROA	Net income divided by total assets
Return on equity	ROE	Net income divided by total equity
Return on invested capital	ROIC	Net income divided by invested capital
Independent variables		
Corporate social responsibility	CSR	CSR disclosure score
Corporate social responsibility	CSR _{qn}	CSR quantity
Independent variables: Intellectual Capital (VAIC and MVAIC)		
Human capital efficiency	HCE	Computed as value added divided by human capital
Structural capital efficiency	SCE	Computed as structural capital divided by value added
Capital employed efficiency	CEE	Computed as value added divided by capital employed
Value Added Intellectual Coefficient	VAIC	Computed as the sum of the three efficiencies (VAIC = HCE + SCE + CEE)
Relational capital efficiency	RCE	Computed as relational capital divided by value added
Modified Value-Added Intellectual Coefficient	MVAIC	Computed as the sum of the four efficiencies (MVAIC = HCE + SCE + CEE + RCE)
COVID-19	COVID-19	Take 1 for 2020, 2021, and 0 otherwise
Control variables		
Company size	SIZE	Market capitalisation
Size	LnSIZE	Natural log of firms' market capitalisation
Leverage	LEVEG	The ratio of total debt to total assets
Sales Growth	SGROWTH	The sales growth rate, calculated as the difference between sales in year t and sales in t - 1, scaled by the sales in year t - 1.
Systematic risk	BETA	Market risk is defined by the correlation between the fluctuation in a stock's volatility and the overall volatility of the market.
Illiquidity	Amihud	Following Amihud and Mendelson (1986), illiquidity measured as the annual average of the daily absolute return of a stock divided by its daily trading volume.
Capital intensity	CapInt	The ratio of total assets to total revenue of the firm
Tangibility	Tangible	Defined as the ratio of all tangible assets to total assets of the firm

Source(s): Table created by authors.

Regression method. This study employs a 6-year longitudinal dataset to quantitatively analyse the impact of explanatory variables (CSR disclosure, IC and COVID-19) on firm value first and then moderation effects of IC and COVID-19. Utilising the panel data approach, as suggested by Ebaid (2022), which integrates cross-sectional and time-series observations, we aim to minimise collinearity issues. For conducting the regression analyses, we assessed data using ordinary least squares (OLS) regression assumptions. First, we compared random-effects (REs) and pooled OLS regressions using the Breusch and Pagan Lagrange Multiplier Test (BPLM). BPLM results favoured the REs method over the pooled OLS method ($p = 0.000$) (Ghaleb et al. 2022; Gujarati and Porter 2009; Khan et al. 2024). The Hausman specification test (Hausman 1978) led to choosing a fixed effects method, but diagnostic tests revealed flaws, particularly the Breusch-Pagan/Cook-Weisberg tests provide significant p -values ($p = 0.000$) indicating heteroscedasticity. Furthermore, to test for the existence of autocorrelation in the regression methods, Wooldridge's test for panel data was used. The findings show that all regression methods suffered from autocorrelation problems ($p = 0.000$). Acknowledging the potential for autocorrelation and group-wise heteroscedasticity in the error variance over time (Baum 2001), the feasible generalised least squares (FGLS) method is utilised in this study. The FGLS method, recommended by Wooldridge (2009), proves robust in handling first-order autoregressive disturbances, cross-sectional correlation, and heteroscedasticity across panels in unbalanced datasets (Al-Duais et al. 2022; Bouaziz et al. 2020; Qasem et al. 2020; Wan Mohammad et al. 2016; Wooldridge 2010). Furthermore, the FGLS regression model addresses concerns related to data normality and homoscedasticity, making it more suitable for our analysis (Saif-Alyousfi 2020).

Empirical results

Descriptive statistics. Our study comprises 832 firm-year observations from 2016 to 2021, representing 11 industries classified by the Tadawul sectors. Descriptive statistics in Table 3 present key variables, including mean, median, standard deviation, minimum, and maximum values. TQ's mean (median) is 1.769 (1.240), ranging from 0.032 to 26.415. ROA averages 3.652 (3.530) with a range of -62.420 to 47.220 , while ROE's mean (median) is 4.131 (4.730), ranging from -73.140 to 75.410 . ROIC's mean (median) stands at 4.405 (4.130), with values spanning -69.140 to 53.660 . Our sample companies exhibit an average CSR score of 0.994 (33%), ranging from 0.000 to 2.784 (out of a possible 3). This aligns with prior Saudi findings, such as 27% Ebaid (2022), 24% Habbash (2016), and 36% Abdulhaq and Muhamed (2015), indicating a consistent trend of lower average CSR scores.

The MVAIC model indicates an average (median) IC value of 5.850 (3.957) across all sampled firms, with a minimum of -4.107 and a maximum of 92.593. Results reveal a mean COVID-19 value of 0.347, implying that approximately one-third of our sampled companies pertain to the years 2020–2021. SIZE has a mean value of SR35 billion, ranging from SR60 million to SR7.1 trillion. Table 3 demonstrates mean (median) values for LEVEG and SGROWTH at 24.201 (11.700) and 0.165 (0.000) respectively. Additionally, BETA and Amihud show mean (median) values of 1.054 (1.150) and 2.277 (0.443), while CapInt and Tangible exhibit mean (median) values of 5.982 (2.384) and 0.470 (0.489) respectively.

Correlation analysis. Table 4 presents the correlation matrix results for firm performance variables (TQ, ROA, ROE, and

Table 3 Descriptive statistics.

Variable	Mean	p50	SD	Min	Max
TQ	1.769	1.240	1.745	0.032	26.415
ROA	3.652	3.530	8.709	−62.420	47.220
ROE	4.131	4.730	16.730	−73.140	75.410
ROIC	4.405	4.130	11.371	−69.140	53.660
CSR	0.994	0.919	0.717	0.000	2.784
CSR _{qn}	0.443	0.432	0.302	0.000	1.000
MVAIC	5.850	3.957	7.459	−4.107	92.593
VAIC	5.354	3.425	7.569	−6.184	92.566
COVID-19	0.347	0.000	0.476	0.000	1.000
SIZE (000)	35,000,000	1,845,000	424,000,000	60,600	7,160,000,000
LnSIZE	14.672	14.428	1.543	11.012	22.691
LEVEG	24.201	22.700	19.461	0.000	80.930
SGROWTH	0.165	0.000	1.949	−0.980	35.118
BETA	1.054	1.150	0.623	−7.200	2.670
Amihud	2.277	0.443	8.023	0.001	181.352
LnAmihud	−0.753	−0.814	1.794	−7.106	5.200
CapInt	5.982	2.384	11.683	0.187	93.580
Tangible	0.470	0.489	0.247	0.000	0.991

Note: All variables are defined in Table 2.

ROIC), as well as independent and control variables, across sampled companies from 2016 to 2021. The findings indicate the absence of multicollinearity concerns, with correlations below 0.80 for variables within the same model. The highest correlation (0.414) is observed between SIZE and CSR (Gujarati and Porter 2009; Kennedy 2008). Variance inflation factor (VIF) calculations, though unreported, reveal values consistently below 10, confirming the absence of multicollinearity issues in this study (Kennedy 2008).

Regression results. Table 5 presents the results for regression Models (1) and (3), exploring the impact of CSR disclosure and IC (IC - MVAIC) on firm performance, along with the moderating effect of IC on the CSR-corporate performance relationship. Financial performance variables (TQ, ROA, ROE, ROIC) are dependent variables, while CSR and its interaction with IC (CSR*MVAIC) are explanatory variables. In Model (1), detailed in Table 5 Columns 1 to 4, CSR disclosure coefficients are consistently negative and statistically significant at the 1% level ($P < 0.001$) across all corporate performance metrics, supporting our hypothesis *H1a* in the negative direction. This implies that increased engagement in CSR activities does not enhance firm performance. Our findings align with prior studies that associate CSR with negative impacts on firm performance (Ari et al. 2024; Buallay 2019; Duque-Grisales and Aguilera-Caracuel 2021; Jyoti and Khanna 2021; Mutuc and Cabrilo 2022), firm value (Ahsan et al. 2022), and profitability (Badayi et al. 2021). According to Duque-Grisales and Aguilera-Caracuel (2021), the negative influence stems from inadequate disclosure of CSR-related expenditures in a firm's financial performance. Additionally, management may disproportionately allocate resources to CSR initiatives for personal gains and reputation enhancement, dis-advantaging shareholders (Barnea and Rubin 2010; Buallay 2019). Our findings also reflect observations by Ahsan et al. (2022) and Shahzad et al. (2022), who suggest that without strategic alignment, CSR efforts may fail to produce measurable financial benefits, potentially detracting from firm value. Godfrey (2005) argues that exceeding an ideal CSR investment level results in increased expenses without proportional benefits to the company.

Table 5 reveals a significant and positive impact of IC on corporate performance, with IC, as measured by MVAIC,

demonstrating statistical significance at the 1% level ($P < 0.001$) for key performance metrics such as ROA, ROE, and ROIC. Notably, the coefficient for MVAIC is not significant in the case of TQ. Consequently, our hypothesis *H1b* is largely supported in a positive direction. These findings align with prior research indicating a positive association between IC and corporate performance (Ari et al. 2024; Ginesti et al. 2018; Hamdan 2018; Kamukama et al. 2011; Nirino et al. 2022; Rahman and Liu 2023; Shahzad et al. 2022; Skhvediani et al. 2023; Tiwari 2022; Tran and Vo 2022; Xu and Li 2019). According to Shahzad et al. (2022) and Nirino et al. (2022), IC contributes to a company's competitive advantage and overall performance by enhancing operational efficiency and innovation capacity, which in turn drive long-term financial outcomes. Turning to control variables, most exhibit a significant relationship with corporate performance measures. As anticipated, both company size and sales growth display a positive association with performance, while leverage and risk show a negative correlation. However, illiquidity and tangibility deviate from expected relationships, and capital intensity shows no discernible connection.

Regarding regression Model (3), Table 5, Columns 5 to 8 exhibit slight variations in the coefficients of the interaction variable (CSR*MVAIC) across different corporate performance metrics. While insignificant with TQ, the coefficients show a negative and significant association at 1% and 5% levels with ROE, ROA, and ROIC. These findings imply that, despite CSR having a direct negative impact on corporate performance and MVAIC having a positive impact, the moderating effect of MVAIC strengthens the inverse relationship between CSR and corporate performance in three out of the four measures (ROE, ROA, and ROIC). This supports our hypothesis *H2*, indicating a complementary effect of the interaction variable on the inverse CSR-corporate performance relationship. Our results align with (Mutuc and Cabrilo 2022), who also found either no or very weak moderating effects of IC on the CSR-corporate performance association.

The results of regression Models (2&4) in Table 6, investigating the moderation effect of COVID-19 on CSR's impact on firm performance, are presented. Dependent variables include TQ, ROA, ROE, and ROIC. In Columns 1 to 4, COVID-19 coefficients exhibit a direct, significant negative association with ROA, ROE, and ROIC at a 1% level ($P < 0.001$), while displaying a positive

Table 4 Correlation matrix.														
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) TQ	1.000													
(2) ROA	0.197***	1.000												
(3) ROE	0.192***	0.884***	1.000											
(4) ROIC	0.201***	0.971***	0.894***	1.000										
(5) CSR	-0.039	0.175***	0.179***	0.187***	1.000									
(6) MVAIC	-0.032	0.339***	0.299***	0.296***	0.219***	1.000								
(7) COVID-19	0.243***	-0.028	-0.026	-0.027	0.157***	-0.067*	1.000							
(8) LnSIZE	0.072**	0.374***	0.368***	0.385***	0.414***	0.359***	0.153***	1.000						
(9) LEVEG	-0.248***	-0.160***	-0.159***	-0.159***	0.075**	-0.046	0.062*	0.076**	1.000					
(10) SGROWTH	0.144**	0.225**	0.221**	0.205**	0.048	0.070**	0.085**	0.118**	-0.012	1.000				
(11) BETA	-0.191***	-0.311***	-0.277***	-0.298***	0.035	-0.129***	-0.065**	-0.097***	0.104***	-0.008	1.000			
(12) LnAmihud	0.263***	0.359***	0.324***	0.346***	-0.084**	0.009	-0.185***	-0.053	-0.192***	0.002	-0.387***	1.000		
(13) CapInt	-0.050	-0.156***	-0.126**	-0.153***	-0.066*	-0.070**	0.063*	0.023	-0.161***	-0.069**	0.076**	-0.173***	1.000	
(14) Tangible	-0.028	-0.032	0.005	-0.033	0.230***	0.195***	-0.012	0.207***	0.243***	0.004	0.014	-0.109***	-0.009	1.000

***p < 0.01, **p < 0.05, *p < 0.1.

***p < 0.01, **p < 0.05, *p < 0.1.

and statistically significant association with TQ. Thus, our hypothesis H1c is largely supported. These results indicate a detrimental effect of the COVID-19 pandemic on company performance, aligning with previous studies (Golubeva 2021; Hsu and Liao 2022; Shen et al. 2020). Moving to Columns 5 to 8, the interaction variable (CSR*COVID) shows negative and statistically significant coefficients at a 1% level with TQ, while insignificance with other performance metrics (ROA, ROE, and ROIC). This implies that the pandemic exacerbates the negative link between CSR and firm performance, supporting hypothesis H3. The findings suggest an amplified detrimental impact of CSR on financial performance during the pandemic, likely due to increased operational and financial challenges faced by firms.

Robustness check

Using alternative measures of CSR: CSR Quantity. In our robustness test for baseline findings, we employ CSR quantity (CSR_{qn}) as an alternative measure through manual content analysis to evaluate the CSR-corporate performance relationship in Saudi firms. To measure CSR_{qn}, we applied a different methodology. We used the same 37-item disclosure checklist outlined in Section “Independent variable” for assessing CSR quality. Following prior Saudi research (Alotaibi and Hussainey 2016; Boshnak 2022; Ebaid 2022; Qasem et al. 2024), a binary scoring approach was adopted: companies received a score of 1 for each disclosed item on the checklist and 0 otherwise. The CSR_{qn} score for each company was then calculated by dividing the total scores by the maximum possible score (37), using the following formula

CSR_qn = (ΣActual items disclosed_it) / (Maximum checklist items)

Table 7 presents the results of the alternative CSR measure analysis for regression Models 1 and 2. Corresponding with our outcomes in Table 5, CSR quantity exhibits a significant negative impact on all corporate performance measures in Table 7. Similarly, MVAIC demonstrates a positive and significant effect on most financial performance metrics. Thus, hypotheses H1a and H1b maintain validity in their respective directions. Regarding the interaction variable (CSR_{qn}*MVAIC), Table 7 reaffirms the findings from the baseline results, indicating a negative and significant moderation effect of MVAIC on ROE, ROA, and ROIC, with no significant effect on TQ. This suggests a reinforcement of the inverse relationship between CSR quantity and corporate performance, supporting hypothesis H2.

Table 8 displays the outcomes of an alternative CSR measure analysis for regression Models 2 and 4. Consistent with our results in Table 6 (Columns 1 to 5), both CSR quantity and COVID-19 exhibit a notable adverse impact on various corporate performance measures in Table 8. Thus, hypotheses H1c keeps validity in its direction. However, the interaction variable (CSR_{qn}*COVID) is only statistically significant in relation to TQ, indicating a complementary moderation effect of COVID-19 on the relationship between CSR_{qn} and corporate performance. This lends marginal support to hypothesis H3, as previously reported in Table 6.

Using Alternative measures of IC - Value-added intellectual coefficient (VAIC). An alternative measure of IC, VAIC, is commonly employed in the literature. To validate our main results from regression Models 1 and 2, we substituted MVAIC with VAIC. Table 9 presents the outcomes using VAIC, revealing consistent effects of CSR and VAIC on corporate performance in line with Table 5, showcasing negative and positive impacts, respectively. This confirms hypotheses H1a and H1b. However, the interaction variable (CSR*VAIC) exhibits slight variation

Table 5 FGLS regression results (Models 1 & 3).

Variables	(1) TQ	(2) ROA	(3) ROE	(4) ROIC	(5) TQ	(6) ROA	(7) ROE	(8) ROIC
CSR	−0.301*** (0.027)	−0.674*** (0.201)	−0.916*** (0.341)	−0.809*** (0.237)	−0.309*** (0.027)	−0.629*** (0.208)	−0.891** (0.375)	−0.756*** (0.244)
MVAIC	−0.028 (0.019)	1.625*** (0.162)	2.138*** (0.276)	1.612*** (0.188)	−0.027 (0.019)	1.616*** (0.170)	2.325*** (0.313)	1.632*** (0.200)
CSR*MVAIC					−0.011 (0.014)	−0.336** (0.132)	−0.595*** (0.230)	−0.362** (0.154)
LnSIZE	0.492*** (0.028)	2.099*** (0.162)	4.171*** (0.300)	2.822*** (0.216)	0.480*** (0.027)	2.117*** (0.170)	4.066*** (0.328)	2.838*** (0.221)
LEVEG	−0.007*** (0.001)	−0.064*** (0.009)	−0.109*** (0.019)	−0.086*** (0.012)	−0.007*** (0.001)	−0.066*** (0.010)	−0.107*** (0.019)	−0.086*** (0.012)
SGROWTH	0.102*** (0.037)	3.911*** (0.349)	7.007*** (0.585)	4.640*** (0.404)	0.108*** (0.037)	3.955*** (0.338)	6.743*** (0.675)	4.671*** (0.390)
BETA	−0.025 (0.056)	−1.973*** (0.301)	−2.927*** (0.649)	−2.376*** (0.393)	−0.034 (0.056)	−1.987*** (0.305)	−2.812*** (0.655)	−2.435*** (0.389)
LnAmihud	0.067*** (0.015)	0.835*** (0.111)	1.394*** (0.202)	0.890*** (0.139)	0.072*** (0.015)	0.790*** (0.112)	1.412*** (0.205)	0.847*** (0.140)
CapInt	−0.002 (0.003)	−0.035 (0.024)	−0.068 (0.045)	−0.051* (0.029)	−0.003 (0.003)	−0.028 (0.024)	−0.043 (0.045)	−0.044 (0.029)
Tangible	0.067 (0.119)	−2.957*** (0.740)	−4.845*** (1.437)	−3.336*** (0.918)	0.091 (0.119)	−2.855*** (0.760)	−3.849*** (1.446)	−3.211*** (0.928)
_cons	−6.049*** (0.471)	−22.574*** (2.847)	−52.032*** (5.548)	−30.945*** (3.898)	−5.874*** (0.460)	−22.789*** (2.943)	−50.632*** (6.015)	−31.319*** (3.948)
Observations	832	832	832	832	832	832	832	832
Wald chi ²	866.74***	1118.72***	1089.14***	1059.62***	952.76***	1062.71***	867.43***	1036.35***
Year/Sector Dummies	Included							

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.**Table 6 FGLS regression results (Models 2 & 4).**

Variables	(1) TQ	(2) ROA	(3) ROE	(4) ROIC	(5) TQ	(6) ROA	(7) ROE	(8) ROIC
CSR	−0.290*** (0.028)	−0.663*** (0.207)	−1.052*** (0.367)	−0.815*** (0.246)	−0.272*** (0.027)	−0.631*** (0.208)	−1.102*** (0.377)	−0.784*** (0.249)
COVID-19	0.172*** (0.025)	−1.331*** (0.191)	−2.140*** (0.336)	−1.550*** (0.239)	0.221*** (0.025)	−1.318*** (0.191)	−2.177*** (0.346)	−1.531*** (0.241)
CSR*COVID					−0.093*** (0.013)	−0.140 (0.118)	0.171 (0.207)	−0.122 (0.147)
LnSIZE	0.495*** (0.027)	2.304*** (0.170)	4.581*** (0.312)	3.018*** (0.221)	0.406*** (0.026)	2.282*** (0.171)	4.603*** (0.319)	2.992*** (0.223)
LEVEG	−0.007*** (0.001)	−0.074*** (0.010)	−0.113*** (0.020)	−0.096*** (0.012)	−0.009*** (0.001)	−0.073*** (0.010)	−0.113*** (0.020)	−0.097*** (0.012)
SGROWTH	0.093*** (0.036)	4.450*** (0.363)	8.118*** (0.670)	5.253*** (0.428)	0.112*** (0.034)	4.446*** (0.363)	8.114*** (0.698)	5.257*** (0.431)
BETA	−0.014 (0.056)	−2.385*** (0.311)	−3.614*** (0.678)	−2.790*** (0.410)	−0.021 (0.057)	−2.365*** (0.311)	−3.530*** (0.682)	−2.757*** (0.410)
LnAmihud	0.064*** (0.015)	0.870*** (0.113)	1.442*** (0.207)	0.939*** (0.141)	0.102*** (0.015)	0.887*** (0.114)	1.426*** (0.209)	0.951*** (0.143)
CapInt	−0.001 (0.002)	−0.055** (0.025)	−0.104** (0.047)	−0.073** (0.031)	−0.002 (0.003)	−0.057** (0.025)	−0.100** (0.048)	−0.075** (0.031)
Tangible	0.064 (0.118)	−2.746*** (0.773)	−5.079*** (1.474)	−3.092*** (0.962)	0.154 (0.117)	−2.766*** (0.773)	−5.083*** (1.488)	−3.116*** (0.968)
_cons	−5.963*** (0.472)	−25.786*** (2.928)	−58.926*** (5.777)	−34.157*** (3.946)	−4.578*** (0.456)	−25.338*** (2.955)	−59.491*** (5.919)	−33.645*** (3.998)
Observations	832	832	832	832	832	832	832	832
Wald chi ²	825.51***	925.85***	825.51***	866.52***	881.80***	927.06***	797.94***	859.67***
Year/Sector Dummies	Included							

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7 FGLS regression results (Models 1 & 3).

Variables	(1) TQ	(2) ROA	(3) ROE	(4) ROIC	(5) TQ	(6) ROA	(7) ROE	(8) ROIC
CSR _{qn}	−0.327*** (0.019)	−0.523*** (0.199)	−0.813** (0.344)	−0.619*** (0.235)	−0.317*** (0.021)	−0.494** (0.204)	−0.852** (0.367)	−0.602** (0.241)
MVAIC	−0.030* (0.018)	1.638*** (0.162)	2.153*** (0.275)	1.621*** (0.187)	−0.029 (0.019)	1.625*** (0.169)	2.361*** (0.313)	1.631*** (0.199)
CSR _{qn} *MVAIC					−0.012 (0.013)	−0.279** (0.132)	−0.587** (0.231)	−0.305** (0.154)
_cons	−6.688*** (0.438)	−21.517*** (2.825)	−50.494*** (5.531)	−29.521*** (3.850)	−6.404*** (0.441)	−21.627*** (2.909)	−49.678*** (5.915)	−29.723*** (3.895)
Control variables	Included							
Observations	832	832	832	832	832	832	832	832
Wald chi ²	3644.11***	1097.84***	991.95***	1039.48***	2224.07***	1041.33***	855.65***	1012.02***
Year/Sector Dummies	Included							

***p < 0.01, **p < 0.05, *p < 0.1.

Table 8 FGLS regression results (Models 2&4).

Variables	(1) TQ	(2) ROA	(3) ROE	(4) ROIC	(5) TQ	(6) ROA	(7) ROE	(8) ROIC
CSR _{qn}	−0.321*** (0.020)	−0.442** (0.204)	−0.906** (0.364)	−0.557** (0.242)	−0.248*** (0.026)	−0.431** (0.204)	−0.934** (0.370)	−0.545** (0.245)
COVID-19	0.165*** (0.025)	−1.390*** (0.191)	−2.223*** (0.343)	−1.633*** (0.238)	0.207*** (0.025)	−1.375*** (0.192)	−2.268*** (0.352)	−1.612*** (0.241)
CSR _{qn} *COVID					−0.092*** (0.013)	−0.124 (0.121)	0.184 (0.214)	−0.099 (0.150)
_cons	−6.552*** (0.439)	−24.418*** (2.895)	−57.333*** (5.740)	−32.447*** (3.883)	−4.837*** (0.455)	−24.113*** (2.914)	−57.862*** (5.858)	−32.053*** (3.927)
Control variables	Included							
Observations	832	832	832	832	832	832	832	832
Wald chi ²	2883.03***	932.04***	793.55***	876.33***	915.12***	929.41***	771.81***	862.55***
Year/Sector Dummies	Included							

***p < 0.01, **p < 0.05, *p < 0.1.

Table 9 FGLS regression results (Models 1 & 3).

Variables	(1) TQ	(2) ROA	(3) ROE	(4) ROIC	(5) TQ	(6) ROA	(7) ROE	(8) ROIC
CSR	−0.294*** (0.028)	−0.659*** (0.199)	−0.897*** (0.344)	−0.776*** (0.234)	−0.301*** (0.027)	−0.631*** (0.204)	−0.934** (0.386)	−0.741*** (0.239)
VAIC	−0.011 (0.019)	1.643*** (0.160)	2.374*** (0.281)	1.682*** (0.187)	−0.012 (0.019)	1.624*** (0.164)	2.550*** (0.316)	1.699*** (0.195)
CSR*VAIC					−0.002 (0.014)	−0.173 (0.127)	−0.452* (0.233)	−0.254* (0.147)
_cons	−6.066*** (0.479)	−21.892*** (2.825)	−50.109*** (5.588)	−30.060*** (3.865)	−5.941*** (0.472)	−22.148*** (2.902)	−48.195*** (6.102)	−30.613*** (3.913)
Control variables	Included							
Observations	832	832	832	832	832	832	832	832
Wald chi ²	842.13***	1132.61***	1024.64***	1073.61***	879.31***	1097.03***	815.00***	1068.56***
Year/Sector Dummies	Included							

***p < 0.01, **p < 0.05, *p < 0.1.

across different performance measurements compared to Table 5. In Table 9, CSR*VAIC coefficients are not significant for TQ and ROA but are negative and marginally significant at a 10% level for ROE and ROIC. These findings, though not fully rejecting hypothesis H2, partly support it, indicating a complementary moderation effect of IC (VAIC) that strengthens the inverse relationship between CSR and corporate performance in at least two measures (ROE and ROIC).

Endogeneity issue. To affirm the results in Table 5 (Models 1 and 2), we conducted a final robustness test using instrumental variables (IV) in a two-stage regression to address endogeneity concerns related to heteroscedasticity, autocorrelation, and simultaneity/causality issues. Based on previous studies (Alobaid et al. 2024; Attig et al. 2013; Benlemlih and Bitar 2018; Bilyay-Erdogan et al. 2024; El Ghouli et al. 2011; Samet and Jarbouli 2017; Shahzad et al. 2022) we used the industry-year average of CSR

Table 10 Two-stage regression results (Models 1 & 3).

Variables	First Stage	Second Stage							
	(1) DV = CSR	(2) DV = TQ	(3) DV = ROA	(4) DV = ROE	(5) DV = ROIC	(6) DV = TQ	(7) DV = ROA	(8) DV = ROE	(9) DV = ROIC
PrCSR		−0.350*** (0.043)	−1.233*** (0.259)	−1.744*** (0.441)	−1.465*** (0.301)	−0.357*** (0.044)	−1.107*** (0.277)	−1.612*** (0.491)	−1.289*** (0.322)
CSR_IND	0.492*** (0.082)								
CSR_INI	1.352*** (0.046)								
MVAIC	0.005 (0.009)	−0.006 (0.017)	1.553*** (0.161)	2.067*** (0.278)	1.515*** (0.187)	−0.007 (0.020)	1.623*** (0.170)	2.415*** (0.312)	1.627*** (0.201)
PrCSR*MVAIC						0.006 (0.015)	−0.499*** (0.140)	−0.869*** (0.256)	−0.513*** (0.166)
_cons	−1.797*** (0.256)	−4.333*** (0.505)	−28.026*** (3.239)	−56.459*** (6.196)	−35.896*** (4.253)	−4.351*** (0.514)	−27.523*** (3.362)	−55.555*** (6.767)	−35.791*** (4.446)
Control variables	Included								
Observations	776	776	776	776	776	776	776	776	776
Wald chi²	2103.86	517.52	965.44	937.42	953.28	508.35	875.51	803.73	848.20
Kleibergen-Paap rk LM statistics (under-identification test)	43.338 (P = 0.0000)								
Kleibergen-Paap rk Wald F statistic (weak identification test)	250.852								
Hansen J statistic (over-identification test) (p-value)		0.1349	0.9337	0.9633	0.9595	0.1040	0.9057	0.8692	0.8921
Year/Sector Dummies	Included								

***p < 0.01, **p < 0.05, *p < 0.1.

(CSR_IND) and the initial CSR value of the firm (CSR_INI) as instrumental variables. These variables were chosen for their relevance to CSR without directly influencing corporate performance outcomes, thus satisfying the exclusion restriction. In the first stage, CSR was regressed on the instruments CSR_IND and CSR_INI, along with all control variables from the baseline models. As shown in column 1 of Tables 10 and 11, the first-stage regression results indicate that both CSR_IND and CSR_INI are significantly and positively related to CSR at the 1% level, demonstrating their relevance.

In the second stage, we replaced CSR with the predicted CSR values (PrCSR) derived from the first stage, while retaining the same set of control variables. Table 10 presents the second-stage regression results, where PrCSR and MVAIC display significant associations with various corporate performance metrics across Columns 2 to 5, consistent with the patterns observed in Table 5. An exception is the relationship between MVAIC and Tobin's Q (TQ), which is non-significant. These results affirm hypotheses *H1a* and *H1b*, offering a clearer perspective on our earlier findings. Furthermore, mirroring Table 5 (Columns 5 to 8), the interaction variable (PrCSR*MVAIC) in Table 10 (Columns 6 to 9) also reveals a significant negative moderation effect on all performance measures, except TQ. This underscores our argument regarding the complementary role of MVAIC in reinforcing the inverse relationship between CSR quality and corporate performance, thus validating hypothesis *H2*.

To validate the results in Table 6 (Models 2 and 4), we used the 'predicted' CSR (PrCSR) variable, maintaining other explanatory and control variables, including COVID-19, consistent with Table 6. In Table 11 (Columns 2–5), we observe a consistent and significant relationship between PrCSR and COVID-19 confirming hypotheses *H1c*, and each corporate performance measure

reported in Table 6. Additionally, in Table 11 (Columns 6–9), the interaction variable (PrCSR*COVID) shows a statistically significant and negative association with TQ in Columns 6. These results not only confirm hypothesis *H3* but also enhance its support from marginal to partial, offering a clearer perspective on the reinforcing impact of COVID-19 on the inverse relationship between CSR quality and corporate performance measures.

To check the validity of our instrumental variables, we conducted three specification tests. First, the under-identification test results, indicated by the Kleibergen-Paap rk LM statistic ($p = 0.0000$), confirm that our models are correctly identified (Al-Hadi et al. 2016; Sun et al. 2020). Second, the Kleibergen-Paap rk Wald F-statistic (Kleibergen and Paap 2006) was used to test for weak identification. The reported F-statistic values in Tables 10 and 11 exceed the critical threshold of 10 from the Stock-Yogo weak identification test (Stock and Yogo 2005), confirming that our instruments are both strong and relevant. Third, the Hansen's J statistic (Hansen 1982) was used to test for over-identification. The non-significant p-values for the Hansen's J statistic across all models in Tables 10 and 11 indicate that our instruments are exogenous and valid for the second-stage regressions.

Discussion and concluding remarks

In recent decades, global attention has intensified towards the pivotal role of CSR activities, prompting regulators and corporations worldwide to emphasise CSR towards corporate value for sustainable growth. Balancing CSR with corporate value, particularly through IC, is a significant and challenging endeavor. Despite a growing public demand for increased CSR focus, companies require financial stability to address complex issues

Table 11 Two-stage regression results (Models 2&4).

Variables	First Stage	Second Stage							
	(1) DV = CSR	(2) DV = TQ	(3) DV = ROA	(4) DV = ROE	(5) DV = ROIC	(6) DV = TQ	(7) DV = ROA	(8) DV = ROE	(9) DV = ROIC
PrCSR		−0.362*** (0.043)	−1.160*** (0.270)	−1.775*** (0.476)	−1.387*** (0.319)	−0.346*** (0.039)	−1.150*** (0.270)	−1.806*** (0.480)	−1.387*** (0.320)
CSR_IND	0.498*** (0.081)								
CSR_INI	1.352*** (0.045)								
COVID-19	0.104*** (0.022)	0.159*** (0.025)	−1.267*** (0.196)	−2.176*** (0.357)	−1.551*** (0.245)	0.174*** (0.023)	−1.258*** (0.197)	−2.193*** (0.363)	−1.544*** (0.246)
PrCSR*COVID						−0.061*** (0.012)	−0.112 (0.129)	0.071 (0.244)	−0.080 (0.166)
_cons	−1.744*** (0.256)	−4.306*** (0.500)	−29.504*** (3.229)	−62.187*** (6.534)	−37.981*** (4.324)	−3.585*** (0.449)	−29.260*** (3.230)	−62.609*** (6.636)	−37.774*** (4.349)
Control variables	Included								
Observations	776	776	776	776	776	776	776	776	776
Wald chi²	2113.23	523.15	804.64	722.97	760.83	567.27	805.44	714.16	756.53
Kleibergen-Paap rk LM statistics (under-identification test)	42.656 (P = 0.0000)								
Kleibergen-Paap rk Wald F statistic (weak identification test)	219.193								
Hansen J statistic (over-identification test) (p-value)		0.1463	0.5431	0.5286	0.5490	0.1537	0.5462	0.5342	0.5533
Year/Sector Dummies	Included								

***p < 0.01, **p < 0.05, *p < 0.1.

like climate change, global warming, and various ecological, social, and economic dimensions. The competitive market landscape, coupled with the challenges posed by COVID-19, further complicates companies' efforts to achieve CSR/sustainability and meet stakeholders' expectations. This study empirically explores the interplay between disclosure of CSR activities and corporate value among Saudi-listed companies. Additionally, we assess the moderating role of IC and COVID-19 pandemic on the relationship between CSR and corporate value. Our advanced econometric analysis reveals a significant negative impact of CSR on firm value, while IC exhibits a positive effect and COVID-19 negative effect on firm value. Furthermore, our investigation into the moderating role of IC and COVID-19 on the CSR-firm value nexus indicates that both factors complementarily strengthen the inverse relationship between CSR and corporate value. These findings hold under alternative measures of CSR and IC, as well as the 2SLS (IV) approach, addressing any concerns related to endogeneity.

This study presents new evidence in the emerging market of KSA in the Middle East. The negative correlation between disclosure of CSR activities and corporate value, along with the positive (negative) correlation between IC (COVID-19) and corporate value, align with the perspectives of stakeholder, legitimacy and institutional theories, as well as the resource-based view theory. These findings indicate that Saudi public companies have not been responding to stakeholder expectations for enhancing legitimacy through adequate CSR disclosure and making knowledge-based investments in the economy. While our results differ from the majority of prior studies emphasising the positive impact of CSR disclosure on firm value, they align with some others. The identified inverse relationship between CSR and corporate value highlights conflicting evidence, which may adversely affect a company's competitive advantage and introduce

uncertainty for investors. Such unintended consequences may significantly impact investors' assessments of the fundamental value of listed firms.

Despite the positive impact of IC on corporate performance, it is worrisome that this effect can turn negative when interacting with CSR. This indicates that the adverse explanatory power of CSR in influencing corporate value outweighs the positive effect of IC, resulting in a negative moderating complementary effect. This underscores the importance of a clear link between IC development and CSR efforts, as excessive investment in IC is costly and without such a connection may divert resources from areas with a more direct influence on firm value. Additionally, the COVID-19 pandemic accentuates the negative impact of CSR on firm value, suggesting a negative moderating complementary effect. This implies that the operational and financial challenges faced by firms during the pandemic could worsen the detrimental effects of CSR on corporate value.

This research provides new insights into the intricate relationship between CSR, corporate value, and investments in IC during the pandemic. Stakeholder and legitimacy theories explain the observed negative correlation between CSR disclosure and corporate value while institutional theory exerts external pressures for CSR. Excessive disclosure introduces uncertainty, impacting performance, with no offsetting positive influence from IC. Despite the potential benefits of CSR disclosure, there is a risk of misinterpretation, benefiting competitors. These findings underscore the importance of a careful and strategic CSR approach for achieving both financial and social performance objectives, urging caution among corporate management, regulatory bodies, and policymakers.

Our study expands the CSR and IC literature by examining the impact of CSR on corporate value in Saudi-listed companies with

robust IC resources. Our new pieces of evidence in Saudi companies offer valuable insights for management, policymakers/regulatory bodies and investors on the interplay between CSR and corporate value in the presence of the pandemic and investment in IC. However, certain limitations should be considered when interpreting the findings. The study's limited sample period and size may restrict generalisability to other jurisdictions, a common challenge in labour-intensive studies with manual content analysis and data collection from annual reports. Future research should employ a larger dataset over an extended timeframe for enhanced generalisability. Additionally, this study utilises specific measurements for disclosure of CSR activities (CSR disclosure score, CSR quality) and IC (VAIC, MVAIC) and firm value (TQ, ROA, ROE, ROIC). Future studies can explore alternative measurements such as ESG disclosure, GRI-based sustainability score, economic value added, and calculated intangible value. It's crucial to acknowledge that the influence of CSR and IC on corporate value may vary in diverse emerging economies, warranting cross-country comparisons and exploration of non-economic ramifications. Despite potential limitations, our study provides valuable insights for management, policymakers, investors, and stakeholders, particularly in the context of Saudi Arabian listed companies. The implications extend to other emerging markets in the Middle East, aiding in the pursuit of optimal corporate value amid recurring pandemics.

Data availability

The datasets generated and/or analysed during the current study are not publicly available due to ethical restrictions but are available from the corresponding author upon reasonable request.

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References

- Abdulhaq AS, Muhamed NA (2015) "Extent of corporate social responsibility disclosure and its determinants: Evidence from Kingdom of Saudi Arabia". *South East Asia J Contemp Bus* 7(No. 1):40–47
- Abhayawansa S, Guthrie J (2016) Does intellectual capital disclosure in analysts' reports vary by firm characteristics? *Adv Account* 35(December 2016):26–38
- Ahsan T, Al-Gamrh B, Mirza SS (2022) Corporate social responsibility and firm-value: The role of sensitive industries and CEOs power in China. *Appl Econ* 54(No. 16):1844–1863
- AL Ani MK (2021) Corporate social responsibility disclosure and financial reporting quality: Evidence from Gulf Cooperation Council countries. *Borsa Istanbul Rev* 21(No. 1):S25–S37
- Al-Abdin A, Roy T, Nicholson JD (2018) Researching corporate social responsibility in the Middle East: The current state and future directions. *Corp Soc Responsib Environ Manag* 25(No. 1):47–65
- Albuquerque R, Koskinen Y, Yang S, Zhang C (2020) Resiliency of environmental and social stocks: an analysis of the exogenous COVID-19 market crash. *Rev Corp Financ Stud* 9(No. 3):593–621
- Al-Dhamari R, Al-Gamrh B, Farooque OA, Moses E (2022) Corporate social responsibility and firm market performance: The role of product market competition and firm life cycle. *Asian Rev Account* 30(No. 5):713–745
- Al-Duais SD, Malek M, Abdul Hamid MA, Almasawa AM (2022) Ownership structure and real earnings management: Evidence from an emerging market. *J Account Emerg Econ* 12(No. 2):380–404
- Al-Hadi A, Taylor G, Al-Yahyaee KH (2016) Ruling family political connections and risk reporting: Evidence from the GCC. *Int J Account* 51(4):504–524
- Alharbi KMS (2021) The Impact of the 2030 Vision and Firm Characteristics on Corporate Social Responsibility Disclosure in Saudi Arabia, Doctoral dissertation, Victoria University
- Ali S, Kaur R (2021) Effectiveness of corporate social responsibility (CSR) in implementation of social sustainability in warehousing of developing countries: A hybrid approach. *J Clean Prod* 324:129154
- Alkayed H, Omar BF (2022) Determinants of the extent and quality of corporate social responsibility disclosure in the industrial and services sectors: The case of Jordan. *J Financ Report Account*, ahead-of-p(ahead-of-print). <https://doi.org/10.1108/jfra-05-2021-0133>
- Allameh SM (2018) Antecedents and consequences of intellectual capital: the role of social capital, knowledge sharing and innovation. *J Intellect Cap* 19(No. 5):858–874
- Alobaid ROH, Qasem A, Al-Qadasi AA (2024) Corporate Social Responsibility, Ownership Structure, and Firm Investment Efficiency: Evidence from the Saudi Stock Market. *Sustainability* (Switz) 16(15):1–25
- Alotaibi KO, Hussainey K (2016) Determinants of CSR disclosure quantity and quality: Evidence from non-financial listed firms in Saudi Arabia. *Int J Discl Gov* 13(4):364–393. <https://doi.org/10.1057/jdg.2016.2>
- Al-Shaer H (2018) Do environmental-related disclosures help enhance investment recommendations? UK-based evidence. *J Financ Report Account* 16(1):217–244
- Amihud Y, Mendelson H (1986) Asset pricing and the bid-ask spread. *J Financ Econ* 17(No. 2):223–249
- Ananzeh, H, Alshurafat, H, Bugshan, A, Hussainey, K (2022). The impact of corporate governance on forward-looking CSR disclosure. *J Financ Report Account*, ahead-of-p(ahead-of-print). <https://doi.org/10.1108/JFRA-10-2021-0379>
- Anas A, Abdul Rashid HM, Annuar HA (2015) The effect of award on CSR disclosures in annual reports of Malaysian PLCs. *Soc Responsib J* 11(4):831–852
- Andriessen D (2004) Making Sense of Intellectual Capital: Designing a Method for the Valuation of Intangibles, Elsevier, Amsterdam
- Anginer D, Demirci-Kunt A, Huizinga H, Ma K (2018) Corporate governance of Arı G, Karacaer M, Karacaer S, (2024) Socially responsible engagement and firm performance in emerging markets: Testing the mediating effect of intellectual capital. *Borsa Istanbul Rev* (Article in press). <https://doi.org/10.1016/j.bir.2024.07.012>
- Attig N, El Ghoul S, Guedhami O, Suh J (2013) Corporate Social Responsibility and Credit Ratings. *J Bus Ethics* 117(4):679–694
- Axjonow A, Ernstberger J, Pott C (2018) The impact of corporate social responsibility disclosure on corporate reputation: A non-professional stakeholder perspective. *J Bus Ethics* 151(No. 2):429–450
- Baatwah SR, Al-Qadasi AA, Al-Shehri AM, Derouiche I (2022) "Corporate social responsibility budgeting and spending during COVID – 19 in Oman: A humanitarian response to the pandemic". *Financ Res Lett* 47(No. B):102686
- Badayi SA, Matemilola BT, Bany-Arifin AN, Wei Theng L (2021) "Does corporate social responsibility influence firm probability of default"? *Int J Financ Econ* 26(No. 3):3377–3395
- Badru BO, Qasem A (2024) Corporate social responsibility and dividend payments in the Malaysian capital market: The interacting effect of family-controlled companies. *J Sustain Financ Invest* 14(2):283–306
- Bamahros HM, Alquhaif A, Qasem A, Wan-hussin WN, Thomran M, Al-Duais S, Shukeri SN et al. (2022) "Corporate governance mechanisms and ESG reporting: Evidence from the Saudi Stock Market". *Sustainability* (Switz) 14(No. 10):6202
- Bapuji H, de Bakker FGA, Brown JA, Higgins C, Rehbein K, Spicer A (2020) Business and society research in times of the Corona Crisis. *Bus Soc* 59(No 6):1067–1078
- Barnea A, Rubin A (2010) Corporate social responsibility as a conflict between shareholders. *J Bus Ethics* 97(No. 1):71–86
- Barnett M, Henriques I, Husted B (2020) Beyond good intentions: Designing CSR initiatives for greater social impact. *J Manag* 46(6):937–964
- Battisti E, Nirino N, Christofi M, Vrontis D (2022) Intellectual capital and dividend policy: The effect of CEO characteristics. *J Intellect Cap* 23(No. 1):127–143
- Baum CF (2001) Residual diagnostics for cross-section time series regression models. *Stata J* 1(No. 1):101–104
- Benlemlih M, Bitar M (2018) Corporate social responsibility and investment efficiency. *J Bus Ethics* 148(3):647–671
- Bilyay-Erdogan S, Danisman GO, Demir E (2024) ESG performance and investment efficiency: The impact of information asymmetry. *J Int Financial Mark, Inst Money* 91:101919. <https://doi.org/10.1016/j.intfin.2023.101919>
- Boshnak HA (2022) Determinants of corporate social and environmental voluntary disclosure in Saudi listed firms. *J Financial Report Account* 20(No. 3/4):667–692
- Bouaziz D, Salhi B, Jarboui A (2020) CEO characteristics and earnings management: empirical evidence from France. *J Financial Report Account* 18(No. 1):77–110
- Brown JA, Forster WR (2013) CSR and stakeholder theory: A tale of Adam Smith. *J Bus Ethics* 112(No. 2):301–312
- Buallay A (2019) Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Manag Environ Qual: Int J* 30(No. 1):98–115
- Buallay A, Fadel SM, Al-Ajmi JY, Saudagaran S (2020) Sustainability reporting and performance of MENA banks: Is there a trade-off? *Measuring Bus Excell* 24(No. 2):197–221
- Burlea Schiopoiu, A, and Popa, I (2013), "Legitimacy theory, in Encyclopedia of corporate social responsibility", Editors Samuel O. Idowu, Nicholas Capaldi,

- Liangrong Zu, Ananda das Gupta, SpringerVerlag Berlin Heidelberg, pp. 1579-1584
- Campello, M, Kankanhalli, G, & Muthukrishnan, P (2020). Corporate hiring under COVID-19: Labor market concentration, downskilling, and income inequality. Working Paper 27208, National Bureau of Economic
- Carroll AB (2004) Managing ethically with global stakeholders: A present and future challenge. *Acad Manag Executive* 18(No. 2):114-120
- Chang Y, Shen C-H (2014) Corporate social responsibility and profitability-cost of debt as the mediator. *Taipei Economic Inq* 50(No. 2):291-357
- Chang YK, Oh WY, Park JH, Jang MG (2017) Exploring the relationship between board characteristics and CSR: Empirical evidence from Korea. *J Bus Ethics* 140(No. 2):225-242
- Chen RCY, Lee CH (2017) The influence of CSR on firm value: An application of panel smooth transition regression on Taiwan. *Appl Econ* 49(No. 34):3422-3434
- Chih H-L, Shen C-H, Kang F-C (2008) Corporate social responsibility, investor protection, and earnings management: some international evidence. *J Bus Ethics* 79(No. 1/2):179-198
- Choi S, Lee S (2018) Revisiting the financial performance – corporate social performance link. *Int J Contemp Hospitality Manag* 30(No. 7):2586-2602
- D'Amato AD, Falivena (2019) "Corporate social responsibility and firm value: Do firm size and age matter? Empirical evidence from European listed companies". *Corp Soc Responsib Environ Manag* 27(No. 1):909-924
- Dakhli A (2021) The impact of ownership structure on corporate social responsibility: The moderating role of financial performance. *Soc Bus Rev* 16(No. 4):562-591
- Dang HN, Hoang K, Vu VT, Nguyen LV (2021) Do socially responsible firms always disclose high-quality earnings? Evidence from an emerging socialist economy. *Asian Rev Account* 29(No. 3):291-306
- Daou A, Karuranga E, Su Z (2013) Intellectual capital in Mexican SMEs from the perspective of the resource-based and dynamic capabilities views. *J Appl Bus Res* 29(No. 6):1673-1688
- Du S, El Akremi A, Jia M (2022) Quantitative research on corporate social responsibility: A quest for relevance and rigor in a quickly evolving, turbulent world. *J Bus Ethics* 187(1):1-15
- Du S, Yu K (2021) Do corporate social responsibility reports convey value relevant information? Evidence from report readability and tone. *J Bus Ethics* 172(2):253-274
- Dumay J (2016) A critical reflection on the future of intellectual capital: from reporting to disclosure. *J Intellect Cap* 17(No. 1):168-184
- Duque-Grisales E, Aguilera-Caracul J (2021) Environmental, social and governance (ESG) scores and financial performance of multinationals: Moderating effects of geographic international diversification and financial slack. *J Bus Ethics* 168(No. 2):315-334
- Ebaid IE-S (2022) Corporate governance mechanisms and corporate social responsibility disclosure: Evidence from an emerging market. *J Glob Responsib* 13(No. 4):2041-2568
- Eduardo O, Gallego-Álvarez I, Alvarez I (2019) National institutions, stakeholder engagement, and firms' environmental, social, and governance performance. *Corp Soc Responsib Environ Manag* 26(3):598-611
- El Ghoul S, Guedhami O, Kwok CCY, Mishra DR (2011) Does corporate social responsibility affect the cost of capital? *J Bank Financ* 35(9):2388-2406
- El Ghoul S, Guedhami O, Nash R, Patel A (2019) New evidence on the role of the media in corporate social responsibility. *J Bus Ethics* 154(4):1051-1079
- Eledum H, Elmahgop FO (2024) The Effect of Corporate Social Responsibility on Corporate Performance in the Food Industry in Saudi Arabia: A Partial Least Squares Structural Equation Modeling Approach. *Sustainability* 16:7925
- Fahlenbrach R, Rageth K, Stulz RM (2021) How valuable is financial flexibility when revenue stops? Evidence from the COVID-19 Crisis. *Rev Financial Stud* 34(No. 11):5474-5521
- Fang VW, Noe TH, Tice S (2009) Stock market liquidity and firm value. *J Financial Econ* 94(No. 1):150-169
- Ferrell A, Liang H, Renneboog L (2016) Socially responsible firms. *J Financial Econ* 122:585-606
- Freeman RE (2010) Managing for stakeholders: Trade-offs or value creation. *J Bus Ethics* 96:7-9
- Freeman RE (1984) *Strategic Management: A Stakeholder Approach*. Pitman Publishing Ins, USA
- Garriga E, Mele D (2004) Corporate social responsibility theories: Mapping the territory. *J Bus Ethics* 53(No. 1/2):51-71
- Gerged AM, Beddewela E, Cowton CJ (2021) Is corporate environmental disclosure associated with firm value? A multicountry study of Gulf Cooperation Council firms. *Bus Strateg Environ* 30(No. 1):185-203
- Ghaleb BAA, Kamardin H, Hashed AA (2022) Investment in outside governance monitoring and real earnings management: Evidence from an emerging market. *J Account Emerg Economies* 12(No. 1):52-76
- Ghardallou W, Alessa N (2022) Corporate social responsibility and firm performance in GCC countries: A panel smooth transition regression model. *Sustainability (Switz)* 14(No. 13):7908
- Ginesti G, Caldarelli A, Zampella A (2018) Exploring the impact of intellectual capital on company reputation and performance. *J Intellect Cap* 19(No. 5):915-934. pp
- Godfrey PC, Merrill CB, Hansen JM (2009) The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management hypothesis. *Strategic Manag J* 30(No. 4):425-445
- Godfrey PC (2005) The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Acad Manag Rev* 30(No. 4):777-798
- Golubeva O (2021) Firms' performance during the COVID-19 outbreak: International evidence from 13 countries. *Corp Gov: Int J Bus Soc* 21(No. 6):1011-1027
- Guenster N, Derwall J, Koedijk K (2011) The economic value of Corporate EcoEfficiency. *Eur financial Manag* 17(Issue 4):679-704
- Gujarati DN, Porter DC (2009) *Basics Econometrics*, 5th ed., The McGraw-Hill Companies, New York, NY
- Guo Z, Hou S, Li Q (2020) "Corporate social responsibility and firm value: The moderating effects of financial flexibility and R&D investment". *Sustainability* 12(No. 20):1-17
- Gupta J, Das N (2022) Multidimensional corporate social responsibility disclosure and financial performance: A meta-analytical review. *Corp Soc Responsib Environ Manag* 29(No. 4):731-748
- Gupta K, Krishnamurti C (2021) Corporate social responsibility, competition, and firm value. *Pac Basin Financ J* 68:101622
- Habbash M (2016) Corporate governance and corporate social responsibility disclosure: Evidence from Saudi Arabia. *Soc Responsib J* 12(No. 4):740-754
- Habbash M, Haddad L (2020) The impact of corporate social responsibility on earnings management practices: Evidence from Saudi Arabia. *Soc Responsib J* 16(No. 8):1073-1085
- Hafez H (2016) Corporate social responsibility and firm value: An empirical study of an emerging economy. *J Gov Regul* 5(No. 4):40-53
- Hambali A, Adhariani D (2023) Sustainability performance at stake during COVID-19 pandemic? Evidence from Sharia-compliant companies in emerging markets. *J Islamic Account Bus Res* 14(No. 1):80-99
- Hamdan A (2018) Intellectual capital and firm performance. *Int J Islamic Middle East Financ Manag* 11(No. 1):139-151
- Han Y-G, Huang H-W, Liu W-P, Hsu Y-L (2023) Firm-value effects of carbon emissions and carbon disclosures: Evidence from Taiwan. *Account Horiz* 37(No. 3):171-191
- Hansen LP (1982) Large sample properties of generalized method of moments estimators. *Econometrica: J Econom Soc* 50(4):1029-1054
- Haque F (2017) The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms. *Br Account Rev* 49(No. 3):347-364
- Hausman JA (1978) Specification tests in econometrics. *Econometrica* 46(No. 6):1251-1271
- Hernández JPS, Yañez-Araque B, Moreno-García J (2020) Moderating effect of firm size on the influence of corporate social responsibility in the economic performance of micro, small-and medium-sized enterprises. *Technol Forecast Soc Change* 151:119774
- Ho KC, Li HM, Gong Y (2022) How does corporate social performance affect investment inefficiency? An empirical study of China market. *Borsa Istanbul Rev* 22(No. 3):515-524
- Hou M, Liu H, Fan P, Wei Z (2016) Does CSR practice pay off in East Asian firms? A meta-analytic investigation. *Asia Pac J Manag* 33(No. 1):195-228
- Hsu YL, Liao LK (2022) Corporate governance and stock performance: The case of COVID-19 crisis. *J Account Public Policy* 41(No. 4):106920
- Hu Y, Yin C (2024). Political uncertainty, corporate social responsibility, and firm performance. *Br Acc Rev* 56(6), <https://doi.org/10.1016/j.bar.2024.101467>
- Hu Y, Chen S, Shao Y, Gao S (2018) CSR and firm value: Evidence from China. *Sustainability (Switz)* 10(No. 12):1-18. pp
- Ismail KNIK, Al-Musali MAK (2011) "Intellectual capital and financial performance of banks in Bahrain". *J Bus Manag Account* 1(No. 1):63-77
- Jiang Q, Xu Z, Ye G, Pahlow M, Hu M, Qu S (2022) A systematic scoping review of environmental and socio-economic effects of COVID-19 on the global ocean-human system *Sci total Environ* 849:157925. <https://doi.org/10.1016/j.scitotenv.2022.157925>
- Jones TM (1995) Instrumental stakeholder theory: A synthesis of ethics and economics. *Acad Manag Rev* 20(No. 2):404-437
- Jyoti G, Khanna A (2021) Does sustainability performance impact financial performance? Evidence from Indian service sector firms. *Sustain Dev* 29(No. 6):1086-1095
- Kamukama N, Ahiauzu A, Ntayi JM (2011) Competitive advantage: Mediator of intellectual capital and performance. *J Intellect Cap* 12(No. 1):152-164
- Katmon N, Mohamad ZZ, Mat Norwani N, Farooque OA (2019) Comprehensive board diversity and quality of corporate social responsibility disclosure: Evidence from an Emerging Market. *J Bus Ethics* 157(No. 2):447-481
- Kennedy P (2008) *A guide to econometrics* (6th ed.). Blackwell Publishing Ltd. [https://doi.org/10.1016/0164-0704\(93\)90038-N](https://doi.org/10.1016/0164-0704(93)90038-N)

- Khan S, Akhtar T, Qasem A (2024) Dynamics of capital structure determinants: Empirical evidence from GCC countries. *Future Bus J* 10(No. 107):1–18
- Khan S, Qasem A (2024) Are the firms' capital structure and performance related? Evidence from GCC economies. *Cogent Bus Manag* 11(No. 1):1–26
- Kleibergen F, Paap R (2006) Generalized reduced rank tests using the singular value decomposition. *J Econ* 133(1):97–126. <https://doi.org/10.1016/j.jeconom.2005.02.011>
- Kraaijenbrink J, Spender J-C, Groen AJ (2010) The resource-based view: a review and assessment of its critiques. *J Manag* 36(No. 1):349–372
- Krippendorff K (2013) *Content Analysis: An Introduction to Its Methodology*. SAGE Publications, New York, NY
- Krueger P (2015) Corporate goodness and shareholder wealth. *J Financial Econ* 115(No. 2):304–329
- Kurniasari W, Wibowo BJ, Wijaya YA (2017) The mediating effect of corporate social responsibility and good corporate governance on the company's firm value. *Res J Soc Sci* 10(No. 3):1–7
- Li F, Li T, Minor D (2016) CEO power, corporate social responsibility, and firm value: A test of agency theory. *Int J Manag Financ* 12(No. 5):611–628
- Li Z, Liao G, Albitar K (2020) Does corporate environmental responsibility engagement affect firm value? The mediating role of corporate innovation. *Bus Strategy Environ* 29(3):1045–1055
- Mahjoub LB (2019) Disclosure about corporate social responsibility through ISO 26000 implementation made by Saudi listed companies. *Cogent Bus Manag* 6(No. 1):1–23
- Maji SG, Goswami M (2017) Intellectual capital and firm performance in India: A comparative study between original and modified value added intellectual coefficient model. *Int J Learn Intellect Cap* 14(No. 1):76–89
- Margolis JD, Walsh JP (2003) Misery loves companies: Rethinking social initiatives by business. *Adm Sci Q* 48:268–305
- Martinez-Conesa I, Soto-Acosta P, Palacios-Manzano M (2017) Corporate social responsibility and its effect on innovation and firm performance: An empirical research in SMEs. *J Clean Prod* 142(No. 4):2374–2383
- Maswadi L, Amran A (2023) Does board capital enhance corporate social responsibility disclosure quality? The role of CEO power. *Corp Soc Responsib Environ Manag* 30(No. 1):209–225
- Mazur M, Dang M, Vo TTA (2020) Dividend policy and the COVID-19 Crisis. SSRN Electronic J 108765
- McWilliams A, Siegel DS, Wright PM (2006) Corporate social responsibility: Strategic implications. *J Manag Stud* 43(1):1–18
- Milne MJ, Adler RW (1999) Exploring the reliability of social and environmental disclosures content analysis. *Account, Auditing Account J* 12(2):237–256. <https://doi.org/10.1108/09513579910270138>
- Mukhtariddin M, Ubaidillah U, Dewi K, Hakiki A, Nopriyanto N (2019) Good corporate governance, corporate social responsibility, firm value, and financial performance as moderating variable. *Indonesian J Sustainability Account Manag* 3(No. 1):55–64
- Mutuc EB, Cabrilo S (2022) Corporate social responsibility, intellectual capital and financial performance: Evidence from developed and developing Asian economies. *Rev Manag Sci* 16(No. 4):1227–1267
- Nadeem M, Gan C, Nguyen C (2018) The importance of intellectual capital for firm performance: Evidence from Australia. *Aust Account Rev* 28(No. 3):334–344
- Nekhili M, Nagati H, Chtioui T, Rebolledo C (2017) Corporate social responsibility disclosure and market value: Family versus nonfamily firms. *J Bus Res* 77(Issue (C)):41–52
- Nguyen C, Nguyen L (2021) “The relationship between corporate social responsibility and financial performance: Empirical evidence from Vietnam”. *J Asian Financ, Econ Bus* 8(8):75–83
- Nirino N, Ferraris A, Miglietta N, Invernizzi AC (2022) Intellectual capital: The missing link in the corporate social responsibility–financial performance relationship. *J Intellect Cap* 23(No. 2):420–438
- Nuryana I, Bhebe E (2019) Disclosure of corporate social responsibility on firm value with profitability as a moderating variable. *AFRE Account Financial Rev* 2(No. 2):142–146. pp
- Ogachi D, Zoltan Z (2020) Corporate social responsibility and firm value protection. *Int J Financial Stud* 8(4):72
- Oskoue ZH (2019) Linking social and economic responsibilities and financial performance: The assisting role of innovation for an oil engineering and development company. *Int J Financ Econ* 24(No. 3):1345–1354
- Padhan R, Prabheesh KP (2021) The economics of COVID-19 pandemic: A survey. *Economic Anal Policy* 70:220–237
- Pelozo, J (2005), “Corporate social responsibility as reputation insurance”, Center for Responsible Business, UC Berkeley. Working Paper Series
- Pelozo J (2006) Using corporate social responsibility as insurance for financial performance. *Calif Manag Rev* 48(No. 2):52–72
- Peters GF, Romi AM (2015) The association between sustainability governance characteristics and the assurance of corporate sustainability reports. *Auditing: A J Pract Theory* 34(No. 1):163–198
- Platonova E, Asutay M, Dixon R, Mohammad S (2018) The impact of corporate social responsibility disclosure on financial performance: Evidence from the GCC Islamic Banking Sector. *J Bus Ethics* 151(No. 2):451–471
- Prior D, Surroca J, Tribó JA (2008) Are socially responsible managers really ethical?: Exploring the relationship between earnings management and corporate social responsibility. *Corp Gov* 16(No. 3):160–177
- Qaderi SA, Ghaleb ABA, Hashed AA, Chandren S, Abdullah Z (2022) Board characteristics and integrated reporting strategy: Does sustainability committee matter? *Sustainability (Switz)* 14(10):6092
- Qasem A, Al-duais SD, Wan-hussin WN, Bamahros HM, Alquhaif A, Thomran M (2022) “Institutional ownership types and ESG reporting: The case of Saudi listed firms”. *Sustainability (Switz)* 14(No. 18):11316
- Qasem A, Aripin N, Wan-Hussin WN (2020) Financial restatements and sell-side analysts' stock recommendations: Evidence from Malaysia. *Int J Manag Financ* 16(No. 4):501–524
- Qasem A, Badru BO, Ghaleb BA, Al-duais SD, Al-qadasi AA (2024) Corporate social responsibility disclosure in Saudi companies: Analysing the impact of board independence in family and non-family companies. *Humanities Soc Sci Commun* 11(1):1–18
- Qasem A, Mohammed A, Battisti E, Ferraris A (2025) Ownership structure and firm sustainable investments: Evidence from emerging markets. *Int J Emerg Mark* 20(2):609–637
- Qasem A, Wan-Hussin WN, Al-Qadasi AA, Ghaleb BAA, Bamahros HM (2023). Implications of sustainability reporting and institutional investors' ownership for external audit work: Evidence from Saudi Arabia. *J Financ Report Account. Ahead-of-print*, <https://doi.org/10.1108/JFRA-02-2023-0097>
- Qureshi MA, Kirkerud S, Theresa K, Ahsan T (2020) The impact of sustainability (environmental, social, and governance) disclosure and board diversity on firm value: The moderating role of industry sensitivity. *Bus Strategy Environ* 29(No. 3):1199–1214. pp
- Rahman MJ, Liu H (2023) Intellectual capital and firm performance: The moderating effect of auditor characteristics. *Asian Rev Account Vol. ahead-of-p No. ahead-of-print*, <https://doi.org/10.1108/ARA-03-2022-0054>
- Sadou A, Alom F, Laluddin H (2017) Corporate social responsibility disclosures in Malaysia: Evidence from large companies. *Soc Responsib J* 13(1):177–202. <https://doi.org/10.1108/SRJ-06-2016-0104>
- Saeed A, Alnori F, Yaqoob G (2023) Corporate social responsibility, industry concentration, and firm performance: Evidence from emerging Asian economies. *Res Int Bus Financ* 64:101864
- Saeed A, Gull AA, Rind AA, Mubarik MS, Shahbaz M (2022) Do socially responsible firms demand high-quality audits? An international evidence. *Int J Financ Econ* 27(No. 2):2235–2255
- Saeed A, Noor M, Soobaroyen T, Gull AA (2024) Investigating the varying relevance of CSR dimensions on firm leverage: The implications for internationalized firms. *Res Int Bus Financ*. <https://doi.org/10.1016/j.ribaf.2024.102409>
- Saeidi SP, Sofian S, Saeidi P, Saeidi SP, Saeidi SA (2015) How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *J Bus Res* 68(No. 2):341–350
- Saif-Alyousfi AYH (2020) Determinants of bank shareholder value: Evidence from GCC countries. *Int J Manag Financ* 16(No. 2):224–252
- Samet M, Jarbouai A (2017) How does corporate social responsibility contribute to investment efficiency? *J Multinat Financial Manag* 40(May 2017):33–46. <https://doi.org/10.1016/j.mulfin.2017.05.007>
- Sardo F, Serrasqueiro Z (2017) A European empirical study of the relationship between firms' intellectual capital, financial performance and market value. *J Intellect Cap* 18(No. 4):771–788
- Schnietz KE, Epstein MJ (2005) Exploring the financial value of a reputation for corporate social responsibility during a crisis. *Corp Reput Rev* 7:327–345
- Shahzad F, Baig MH, Rehman IU, Saeed A, Asim GA (2022) Does intellectual capital efficiency explain corporate social responsibility engagement–firm performance relationship? Evidence from environmental, social and governance performance of US listed firms. *Borsa Istanbul Rev* 22(No. 2):295–305
- Sheikh S (2018) Corporate social responsibility, product market competition, and firm value. *J Econ Bus* 98(No. C):40–55
- Shen H, Fu M, Pan H, Yu Z, Chen Y (2020) The impact of the COVID-19 pandemic on firm performance. *Emerg Mark Financ Trade* 56(No. 10):2213–2230
- Skhvediani A, Koklina A, Kudryavtseva T, Maksimenko D (2023) The impact of intellectual capital on the firm performance of Russian manufacturing companies. *Risks* 11(No. 4):76
- Socoliuc M, Grosu V, Hlaciuc E, Stanciu S (2018) Analysis of social responsibility and reporting methods of Romanian companies in the countries of the European Union. *Sustainability* 10(12):4662
- Soetanto T, Liem PF (2019) Intellectual capital in Indonesia: dynamic panel approach. *J Asia Bus Stud* 13(2):240–262
- Stock JH, Yogo M (2005) *Asymptotic distributions of instrumental variables statistics with many instruments*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511614491>

- Stout LA (2012) *The Shareholder Value Myth: How Putting Shareholders First Harms Investors, Corporations, and the Public*. Berrett-Koehler Publishers
- Sun XS, Habib A, Bhuiyan MBU (2020) Workforce environment and audit fees: International evidence. *J Contemp Account Econ* 16(1):100182
- Surroca J, Tribo J, Waddock SA (2010) Corporate responsibility and financial performance: The role of intangible resources. *Strategic Manag J* 31(No. 5):463–490
- Tahmid T, Hoque MN, Said J, Saona P, Azad MA (2022) Does ESG initiatives yield greater firm value and performance? New evidence from European firms. *Cogent Bus Manag* 9(1):2144098
- Tanimoto K (2019) Do multi-stakeholder initiatives make for better CSR. *Corp Gov* 19(No. 4):704–716
- Tiwari R (2022) Nexus between intellectual capital and profitability with interaction effects: Panel data evidence from the Indian healthcare industry. *J Intellect Cap* 23(No. 3):588–616
- Topcu M, Gulal OS (2020) The impact of COVID-19 on emerging stock markets. *Financ Res Lett* 36:101691
- Tran NP, Vo DH (2020) Human capital efficiency and firm performance across sectors in an emerging market. *Cogent Bus Manag* 7(No. 1):1738832
- Tran NP, Vo DH (2022) Do banks accumulate a higher level of intellectual capital? Evidence from an emerging market. *J Intellect Cap* 23(No. 2):439–457
- Ullah MS, Muttakin MB, Khan A (2019) Corporate governance and corporate social responsibility disclosures in insurance companies. *Int J Account Inf Manag* 27(No. 2):284–300
- Vrontis D, Christofi M, Battisti E, Graziano EA (2020) Intellectual capital, knowledge sharing and equity crowdfunding. *J Intellect Cap* 22(No. 1):95–121
- Wan Mohammad WM, Wasiuzzaman S, Nik Salleh NMZ (2016) Board and audit committee effectiveness, ethnic diversification and earnings management: A study of the Malaysian manufacturing sector. *Corp Gov (Bingley)* 16(No. 4):726–746
- Wang Z, Sarkis J (2017) Corporate social responsibility governance, outcomes, and financial performance. *J Clean Prod* 162:1607–1616
- Wan-Hussin WN, Qasem A, Aripin N, Ariffin MSM (2021) Corporate responsibility disclosure, information environment and analysts' recommendations: Evidence from Malaysia. *Sustainability (Switz)* 13(6):1–27
- Weber O, Diaz M, Schwegler R (2014) Corporate social responsibility of the financial sector - Strengths, weaknesses and the impact on sustainable development. *Sustain Dev* 22(No. 5):321–335. pp
- Wooldridge JM (2009) Correlated random effects models. 15th Conference on Panel Data, No. May, pp. 1–42
- Wooldridge JM (2010) *Econometric Analysis of Cross Section and Panel Data*, 2nd ed., MIT Press
- Worokinasih S, Zaini MLZBM (2020) The mediating role of corporate social responsibility disclosure on good corporate governance and firm value- A technical note. *Aust Account, Bus Financ J* 14(No. 1):88–96
- Xu J, Li J (2019) The impact of intellectual capital on SMEs' performance in China: Empirical evidence from non-high-tech vs. high-tech SMEs. *J Intellect Cap* 20(4):488–509
- Yang W, Yang J, Gao Z (2019) Do female board directors promote corporate social responsibility? An empirical study based on the critical Mass Theory. *Emerg Mark Financ Trade* 55(15):3452–3471
- Yoon B, Lee JH, Byun R (2018) Does ESG performance enhance firm value? Evidence from Korea. *Sustainability (Switzerland)*, 10(10):1–18
- Youn H, Hua N, Lee S (2015) Does size matter? Corporate social responsibility and firm performance in the restaurant industry. *Int J Hospitality Manag* 51:127–134. <https://doi.org/10.1016/j.ijhm.2015.09.008>
- Young S, Marais M (2012) A Multi-level perspective of CSR reporting: The implications of national institutions and industry risk characteristics. *Corp Gov: Int Rev* 20(No. 5):432–450

Zambon S, Dumay J (2016) A critical reflection on the future of intellectual capital: from reporting to disclosure. *J Intellect Cap* 17(No. 1):168–184

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