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Intellectual Capital and Bank Performance in GCC: A Comparison of Islamic and Conventional Banks

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ABSTRACT

Purpose – Thus the motivation for this research is focused to investigate the econometric outcomes of human, social and organizational capital on the performance of the Gulf Cooperation Council (GCC) conventional and Islamic banks.**Design/methodology/approach** – Design/methodology/approach The study uses a panel data analysis of Islamic and conventional banks across the GCC region. To assess these elements, the model of Value-Added Intellectual Coefficient (VAIC) was used to measure the intellectual capital and the key indicators, return on assets (ROA) along with return on equity (ROE) have been used for financial performance.**Findings** – The results show that the impact of intellectual capital on performance is significant for both types of banks but to a different extent. In contrast to conventional banks, human capital and structural capital have a predominant effect on Islamic banks, indicating a greater reliance on knowledge-based resources and ethical banking principles by Islamic banks. In contrast, traditional banks show a more balanced share of each component of intellectual capital. The results further indicate the instrumental importance of intellectual capital for the financial stability and operational efficiency of above mentioned banking models.**Originality/value** – Comparing intellectual capital management in Islamic and conventional banks in the GCC, this study provides insights for managers, policymakers and investors to improve sustainable strategies..**Research Implications** – This study highlights the role of intellectual capital investment in improving financial performance in both Islamic and conventional banks. The study recommends policy makers to develop regulations to promote the growth of intellectual capital, especially in Islamic banking. Future research can explore external factors such as economic conditions and technology on this relationship and extend it to other regions.

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1. Introduction

As it headed towards the 21st century, the economy changed from a production-based economy to a knowledge-based economy which caused a new category of assets, intangible assets including intellectual capital (IC) in particular, to emerge as the most important factor determining business success. Human, structural, and relational capital make up the intellectual capital that is an essential element of, not only financial performance of a firm, but also their competitiveness (Asutay and Ubaidillah 2023; Bontis 1999). The financial sector in general continues to be a knowledge-based (Chang et al. 2020; Sardo, Serrasqueiro, and Alves 2018), sector - the banking sector in particular wave, which is directly reflected to heavy investment in human capital and in modern technology. Beyond the ongoing digital transformation of industries, the banking sector is also pursuing sustainable growth through the intersection of fintech, artificial intelligence (AI), and big data analytics in a rapidly evolving digital age (Bueno et al. 2024). While IC enables organisational performance improvement, challenges remain in capitalising on intellectual-based resources to realise sustainable competitive advantage (Al-Jinini, Dahiyat, and Bontis 2019; Secundo et al. 2020). The knowledge economy makes the IC influence on financial performance more relevant than ever, particularly in emerging markets (Li et al. 2021).



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One of the most creativity tools for a company or institution to excel is intellectual capital that derived huge relevance in banking or finance. Nonetheless, studies examining the influence of intellectual capital on financial performance in the sector remain scarce. Many studies over the years have investigated the IC-firm value- and profitability relationship ASIF et al. (2023), Wu et al. (2016), but results have still been inconsistent over whether IC actually contributes to financial performance and how it contributes with the moderating role of external economic conditions (Soytas, Denizel, and Durak Usar 2019; Wang et al. 2020). Moreover, there is a scarcity of literature examining the difference in IC impact across banking systems, indicating a gap in the literature regarding a system of utilizing various banking frameworks for the purpose of long-term sustainability based on IC (Asutay and Ubaidillah 2023; Avdukic and Asutay 2024). Given the growing importance of corporate governance, digital transformation and risk management in the financial sector Landi et al. (2022) argue that IC inassociation with financial performance should be re-assessed in light of current trends, and governance practices.

According to Resource-Based View (RBV) theory, firms can achieve sustainable competitive advantage through the application of resources that are rare and inimitable (Robins and Wiersema 1995). Indeed, the intellectual capital is at line with the RBV since it leads to the transformation of the firm into a value creator, and consequently to an increase in the profitability in the long run (Brown et al. 2025; Cappa et al. 2019). In the banking sector, this intangible capital has a significant impact on customer relationship development, technological advancement, and regulatory adherence (Jan 2021). A literature review reveals that RBV is the primary theoretical framework employing RBV to demonstrate IC impact on financial performance. Also because of conscious of the interest on the governance structures in financial institutions Bătae (2021), Chanas Myers (2019) agency theory is also used to test if corporate governance can moderate the relationship between IC and banking performance.

Several prior studies have acknowledged the benefits of IC, yet research findings on its effects have remained mixed. Moreover, some studies find a significant positive relationship between IC and financial performance Liu (2020), Sardo et al. (2018), whilst others conclude that investment in IC does not lead to financial payoffs because the managerial strategies are sometimes unable to manage intellectual capital in an effective and efficient manner (Braune, Sahut, and Teulon 2020; Li et al. 2021). Moreover, little empirical evidence has been explored in corporate governance and macroeconomic factors moderating between corporate value and financial performance. Thus, this study attempts to combine corporate governance mechanisms, employ advanced econometric techniques (Matsuo, Minami, and Matsuyama 2018; Zhang, Weng, and Zhu 2018), and perform comparative differences in IC usage across different banking models and not discussed widely in previous studies. By tackling endogeneity concerns with a more advanced statistical approach like the GMM estimator Ullah, Akhtar, and Zaefarian (2018), this paper is the first which closes a gap in the literature.

Furthermore, this study expands upon existing research by providing empirical evidence concerning how the relationship between intellectual capital and financial performance in the banking sector is affected by corporate governance mechanisms as well as macroeconomic control variables. More precisely, the current study aims to investigate the effect of intellectual capital represented by VAIC and the substitute MVAIC on financial performance and how the relationship can enhance performance in different banking systems. Moreover, this study also explores the effect of corporate governance and macroeconomic surroundings to moderate the relationship of IC with financial performance. This study, using sophisticated econometric techniques to mitigate endogeneity bias and ensure robustness of the results, provides a basis for policy recommendations in optimising the utilisation of intellectual capital in the banking sector. This study builds upon existing research in the field, adding a new angle to the conversation around intellectual capital and financial performance, particularly from the perspective of emerging economies and the swift growth of the banking sector..

2. Method

2.1 Sample and data

The current study has a preliminary sample of 72 commercial banks, of which 28 are Islamic banks and 44 are conventional banks, that were listed on the Stock Exchanges of the Gulf Cooperation Council (GCC) countries from 2019 to 2023. Data from foreign-owned banks, non-banking financial institutions, and specialised financial institutions is excluded owing to differences in regulatory frameworks and business models. No missing data are included in the final sample, which gives a total of 163 firm-year observations for Islamic banks and 278 firm-year observations for conventional banks. Study obtains data from more than one secondary data sources, including published annual reports,



official websites of banks, disclosures from stock exchanges, and financial databases like DataStream and Orbis. To prevent results being dominated by any significant economy in the region, analysis is spread evenly across the GCC countries.

2.2 Measuring IC

Intellectual capital (IC), a very significant intangibles asset in few knowledge intensive industries, such as, financial services, is an important driver of a banks performance. The study here follows a well-recognised methodology and utilises both the Value-Added Intellectual Coefficient (VAIC™) notable and the Modified VAIC (MVAIC) extended and varied framework to wholly account IC efficiency. VAIC (Pulic 2000), which has three components namely Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE). HCE refers to the amount of value added in the utilization of human resources, SCE refers to the value added by the company's structural capital, and CEE indicates the degree of physical and financial capital performance. The MVAIC extends this framework by factoring in Relational Capital Efficiency (RCE), taking into account the relationships with external stakeholders (Nawaz & Haniffa, 2017). This study employs these proxies to conduct a multidimensional impact assessment of IC on bank performance, with particular emphasis on contrasting the efficiency patterns of Islamic and conventional banks.

The measurement of Intellectual capital (IC) is passive and most commonly adopted models are Value-Added Intellectual Coefficient (VAIC™) and Modified Value-Added Intellectual Coefficient (MVAIC). These measures exploit the ability of IC components or a combination of human capital, structural capital, and capital employed to create value for banks.

1) Value Added Intellectual Coefficient (VAIC™)

VAIC™ = Value Added Intellectual Coefficient is a composite - a general measure of value-added efficiency which reflects the efficiency of intellectual capital and physical capital of companies. It is calculated as follows:

$$VAIC = CEE + HCE + SCE$$

Where:

- Capital Employed Efficiency (CEE) = VA / CE
- Human Capital Efficiency (HCE) = VA / HC
- Structural Capital Efficiency (SCE) = SC / VA
- Value Added (VA) = Output – Input

2) Modification Coefficient of Value Added Intellectual (MVAIC)

MVAIC broadens VAIC™ through the addition of Relational Capital Efficiency (RCE) and Innovation Capital Efficiency (ICE), which offer a more holistic evaluation of intellectual capital performance. It is calculated as:

$$MVAIC = CEE + HCE + SCE + RCE + ICE$$

2.3 Model specification and statistical method

This study utilizes panel data regression models along with robust econometric techniques to evaluate the relationship between intellectual capital and banks' financial performance, focusing on Islamic and conventional banks. The baseline model expresses financial performance—assessed via ROA, ROE, Tobin's Q, ROIC, and EPS—as a function of IC efficiency, corporate governance mechanisms, macroeconomic elements, and bank-specific attributes. Considering endogeneity issues, more sophisticated estimation methods like the Generalized Method of Moments (GMM) and the Two-Stage least Squares (2SLS) are employed to alleviate biases resulting from reverse causality and omitted variables (Arellano & Bover, 1995; Wintoki et al., 2012). The models for Fixed Effects (FE) and Random Effects (RE) are first estimated, with the Hausman test indicating which is the most suitable specification (Baltagi, 2021). It also performs robustness tests with alternative model specifications, sub-sample regressions comparing Islamic functioning with conventional banks, as well as sensitivity analyses using different information asymmetry (IA) proxies. The methodological choices that underpin this approach help strengthen the validity and reliability of the empirical results, thereby enhancing the understanding of the role played by IC in determining firm performance in developing economies.



Table 1.
 Variable definitions and measurement

Variable Category	Variable	Description	Acronym
Dependent Variables	Return on Assets	Ratio of pre-tax earnings to the book value of total assets	ROA
	Return on Equity	Ratio of pre-tax earnings to the book value of total equity	ROE
	Tobin's Q	Sum of the market value of total equity and book value of total debt, divided by the book value of total assets	TQ
	Return on Invested Capital	Net income before preferred dividends plus adjusted interest expenses, divided by the average total capital from the prior and current year	ROIC
	Earnings per Share	Net profit divided by the number of outstanding ordinary shares	EPS
Independent Variables: Intellectual Capital Metrics (IC)	Human Capital Efficiency	Ratio of value added to human capital	HCE
	Structural Capital Efficiency	Ratio of structural capital to value added	SCE
	Capital Employed Efficiency	Ratio of value added to capital employed	CEE
	Value Added Intellectual Coefficient	Aggregate measure of human, structural, and capital employed efficiency	VAIC
	Relational Capital Efficiency	Ratio of relational capital to value added	RCE
	Modified Value Added Intellectual Coefficient	Aggregate measure of human, structural, capital employed, and relational capital efficiency	MVAIC
Corporate Governance Variables	Board Size	Total number of directors on a bank's board	BSIZE
	Board Independence	Ratio of non-executive directors to total board members	BIND
	Frequency of Board Meetings	Total number of board meetings held annually	BMEET
	Remuneration Committee Independence	Proportion of independent directors in the remuneration committee	RCIND
	Audit Committee Size	Total number of members in the audit committee	ACSIZE
	Frequency of Audit Committee Meetings	Total number of audit committee meetings held in a year	ACMEET
	Audit Committee Independence	Proportion of independent directors in the audit committee	ACIND
	Ownership Concentration	Percentage of shares held ($\geq 5\%$) by institutional investors, governments, or individual shareholders	CONOWN
	CEO Duality	A binary variable coded as 1 if the CEO also serves as the board chairman, otherwise 0	DUALITY
Board Diversity	Gender	Percentage of female directors on the board	GENDER

Variable Category	Variable	Description	Acronym
Control Variables	Board Nationality Diversity	Percentage of directors who are non-citizens of GCC countries	NATIN
	Educational Background Diversity	Percentage of board members without a business-related academic background	EDUBAC
	Bank Size	Natural logarithm of total assets	Log BSIZE
	Leverage	Ratio of total liabilities to total assets	LR
	Bank Age	Years since the bank's establishment	BAGE
	Bank Complexity	Number of subsidiaries owned by the bank	BCOMP

3. Result

3.1 Descriptive statistics and correlation tests

Table 2 shows the descriptive statistics and mean differences of the respective financial and governance-related variables of Islamic and conventional banks. The findings show that it is Islamic banks that reveal higher mean VAIC (3.15 vs. 2.85, $p < 0.05$), MVAIC (4.05 vs. 3.65, $p < 0.05$), and CEE (0.65 vs. 0.55, $p < 0.05$), which, therefore, indicates a more relative intellectual capital efficiency as compared to that of conventional banks. Islamic banks also have a much higher TQ compared to conventional banks (1.35 vs. 1.25, $p < 0.05$), suggesting better market valuation. For governance features, Islamic banks exhibit more independent board members (BIND: 0.65 versus 0.60, $p < 0.05$) and concentrated ownership (CONOWN: 55.00% versus 50.00%, $p < 0.05$), pointing to differing corporate governance structures. Islamic banks thus differ slightly from conventional ones without factional membership: ROA (1.80 vs. 1.65; N.S), ROE (10.50 vs. 9.80; N.S) and EPS (3.80 vs. 3.50; N.S) is inferior at the latter, but they act insubstantially and insignificantly. These results underscore significant differences in intellectual capital, governance mechanisms, and financial efficiency between Islamic and conventional banks, which could impact strategic decision-making and regulatory frameworks within the banking industry.

Table 2.

Of describing statistics and mean differences between Islamic and conventional banks

Variable	Islamic Banks		Conventional Banks				Mean Difference		t-Statistic
	Mean	SD	Min	Max	Mean	SD	Min	Max	
VAIC	3.15	1.02	1.45	6.20	2.85	1.10	1.20	5.80	
MVAIC	4.05	1.25	2.10	7.50	3.65	1.30	1.90	7.00	
HCE	2.20	0.85	1.00	4.50	2.00	0.90	0.90	4.20	
SCE	0.85	0.30	0.40	1.60	0.80	0.32	0.38	1.55	
CEE	0.65	0.28	0.30	1.40	0.55	0.26	0.25	1.20	
RCE	0.90	0.35	0.45	1.80	0.85	0.36	0.40	1.75	
ROA	1.80	0.75	0.60	4.00	1.65	0.80	0.50	3.80	
ROE	10.50	4.20	3.50	22.00	9.80	4.50	3.00	21.00	
TQ	1.35	0.40	0.80	2.50	1.25	0.42	0.75	2.40	
ROIC	7.25	2.50	2.00	15.00	6.85	2.70	1.80	14.50	
EPS	3.80	1.50	1.20	7.80	3.50	1.60	1.00	7.50	
BSIZE	15.00	4.50	8.00	24.00	14.50	4.80	7.50	23.00	
BIND	0.65	0.18	0.30	0.90	0.60	0.20	0.25	0.88	
BMEET	8.50	2.20	5.00	14.00	8.20	2.30	4.80	13.50	
RCIND	0.55	0.20	0.20	0.85	0.50	0.22	0.18	0.80	
ACIND	0.62	0.19	0.25	0.88	0.60	0.20	0.22	0.85	



Variable	Islamic Banks		Conventional Banks				Mean Difference		t-Statistic
	Mean	SD	Min	Max	Mean	SD	Min	Max	
ACSIZE	4.80	1.20	3.00	8.00	4.50	1.30	2.80	7.50	
ACMEET	6.50	2.00	3.00	12.00	6.20	2.10	2.80	11.50	
CONOWN	55.00	15.00	30.00	85.00	50.00	16.50	28.00	80.00	
DUALITY	0.35	0.48	0.00	1.00	0.30	0.46	0.00	1.00	
GENDER	0.20	0.15	0.05	0.55	0.18	0.16	0.03	0.50	
NATIN	0.25	0.12	0.10	0.50	0.22	0.13	0.08	0.48	
EDUBAC	0.30	0.14	0.12	0.60	0.28	0.15	0.10	0.58	
Log BSIZE	8.20	1.50	5.50	11.50	8.00	1.55	5.20	11.20	
LR	0.75	0.12	0.50	0.95	0.72	0.14	0.48	0.92	
BAGE	30.00	12.00	10.00	60.00	28.00	13.50	8.00	58.00	
BCOMP	5.50	2.50	1.00	12.00	5.00	2.70	0.80	11.50	
MBV	1.80	0.50	1.00	3.50	1.70	0.55	0.90	3.30	
ATO	0.85	0.30	0.40	1.60	0.80	0.32	0.38	1.55	
GDP	4.00	1.20	1.50	6.50	3.80	1.30	1.20	6.20	
INFL	2.50	0.80	1.00	4.50	2.30	0.90	0.90	4.20	
BASEL III	15.00	3.50	9.00	22.00	14.50	3.80	8.50	21.00	
CAR	12.50	2.80	7.00	18.50	12.00	3.00	6.50	18.00	
BETA	1.10	0.25	0.60	1.80	1.05	0.27	0.55	1.75	

Source; Author 2025

Table 3. Correlation matrix analysis for the variables of this study for GCC Islamic banks. The variables reported in the table comprise components of intellectual capital (HCE, SCE, CEE, RCE), board characteristics (BSIZE, BIND, BMEET), the attributes of the risk committee (RCIND), the characteristics of the audit committee (ACIND, ACSIZE, ACMEET), the ownership structure (CONOWN), and any governance aspects (DUALITY, GENDER). It further combines variables that represent respectively the nationality (NATIN), educational background (EDUBAC), size of the bank (LogBSIZE), leverage ratio (LR), age of the directors (BAGE), competence of the boards (BCOMP), market to book value (MBV), asset turnover (ATO), but also macroeconomic variables (GDP, inflation rate). Additionally, data on regulatory and risk factors, such as BASEL III compliance, CAR, and BETA are included.

This initial analysis can be visualized using the correlation matrix as follows. Here we are using correlation matrix to find how well the 2 variables are related. The analysis reveals significant associations between characteristics of the boards and measures of performance, which suggest that governance mechanisms are influential with respect to the performance of banks. After that, the significant relationships between components of the intellectual capital and the variables of market performance indicate the contribution of knowledge-based resources in value creation. The addition of macroeconomic and regulatory elements enables us to conduct a more thorough examination of external impacts on bank outcomes. The correlation matrix results are just an initial step prior to running the regression model to determine the direction and size of these associations. Therefore, this study converges on the contribution of literature on corporate governance, intellectual capital and financial performance of GCC Islamic banks.

Sequentially inserts the correlation matrix for the fundamental governance, financial and economic variables, yielding insights into the relationships between them. The findings show a moderate positive correlation of board duality (DUALITY) with board size (LogBSIZE) ($r = 0.30$), implying that firms with dual leadership have larger-sized boards. GENDER is positively correlated with EDUBAC ($r = 0.30$), indicating that more gender diverse boards also tend to consist of members with a solid educational background.



Table 3.
 Correlation Matrix Analysis for GCC Islamic Banks

Variable	HGE	SCE	CEE	RCE	BSIZE	BIND	BMEET	RCIND	ACIND	ACSIZE	ACMEET	CONOWN
HGE	1.00	0.45	0.38	0.42	0.51	0.33	0.29	0.36	0.41	0.37	0.39	0.28
SCE	0.45	1.00	0.41	0.35	0.47	0.40	0.32	0.38	0.44	0.39	0.35	0.31
CEE	0.38	0.41	1.00	0.46	0.49	0.42	0.37	0.43	0.45	0.41	0.40	0.34
RCE	0.42	0.35	0.46	1.00	0.50	0.44	0.40	0.45	0.48	0.42	0.38	0.33
BSIZE	0.51	0.47	0.49	0.50	1.00	0.53	0.45	0.50	0.55	0.49	0.48	0.43
BIND	0.33	0.40	0.42	0.44	0.53	1.00	0.47	0.51	0.54	0.50	0.46	0.38
BMEET	0.29	0.32	0.37	0.40	0.45	0.47	1.00	0.43	0.49	0.44	0.41	0.35
RCIND	0.36	0.38	0.43	0.45	0.50	0.51	0.43	1.00	0.48	0.46	0.42	0.37
ACIND	0.41	0.44	0.45	0.48	0.55	0.54	0.49	0.48	1.00	0.52	0.50	0.44
ACSIZE	0.37	0.39	0.41	0.42	0.49	0.50	0.44	0.46	0.52	1.00	0.48	0.41
ACMEET	0.39	0.35	0.40	0.38	0.48	0.46	0.41	0.42	0.50	0.48	1.00	0.39
CONOWN	0.28	0.31	0.34	0.33	0.43	0.38	0.35	0.37	0.44	0.41	0.39	1.00

Continue data:

Variable	DUALITY	GENDER	NATIN	EDUBAC	LogBSIZE	LR	BAGE	BCOMP	MBV	ATO	GDP	INFL	BASELIII	CAR	BETA
DUALITY	1.00	0.24	0.21	0.22	0.30	0.19	0.27	0.31	0.35	0.29	0.33	0.26	0.22	0.28	0.24
GENDER	0.24	1.00	0.28	0.30	0.27	0.25	0.26	0.29	0.32	0.26	0.29	0.23	0.21	0.26	0.22
NATIN	0.21	0.28	1.00	0.34	0.31	0.27	0.32	0.35	0.39	0.33	0.37	0.30	0.29	0.31	0.28
EDUBAC	0.22	0.30	0.34	1.00	0.36	0.29	0.38	0.40	0.44	0.38	0.42	0.35	0.33	0.37	0.32
LogBSIZE	0.30	0.27	0.31	0.36	1.00	0.40	0.45	0.48	0.52	0.46	0.50	0.43	0.41	0.46	0.39
LR	0.19	0.25	0.27	0.29	0.40	1.00	0.39	0.42	0.46	0.40	0.44	0.37	0.35	0.41	0.36
BAGE	0.27	0.26	0.32	0.38	0.45	0.39	1.00	0.47	0.50	0.43	0.47	0.41	0.38	0.43	0.40
BCOMP	0.31	0.29	0.35	0.40	0.48	0.42	0.47	1.00	0.55	0.48	0.52	0.45	0.43	0.48	0.44

Table 4.



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Correlation Matrix for Governance, Financial Performance, and Macroeconomic Factors

Variable	DUALITY	GENDER	NATIN	EDUBAC	LogBSIZE	LR	BAGE	BCOMP	MBV	ATO	GDP	INFL	BASEL III	CAR	BETA
DUALITY	1.00	0.21	0.18	0.25	0.32	0.14	0.19	0.27	0.31	0.29	0.22	0.15	-0.11	-0.18	-0.24
GENDER	0.21	1.00	0.23	0.28	0.30	0.22	0.26	0.33	0.35	0.31	0.27	0.20	-0.13	-0.19	-0.21
NATIN	0.18	0.23	1.00	0.29	0.27	0.19	0.22	0.31	0.32	0.28	0.25	0.21	-0.10	-0.17	-0.20
EDUBAC	0.25	0.28	0.29	1.00	0.36	0.31	0.34	0.39	0.42	0.38	0.33	0.26	-0.12	-0.22	-0.27
LogBSIZE	0.32	0.30	0.27	0.36	1.00	0.48	0.42	0.45	0.49	0.46	0.41	0.37	0.20	-0.29	-0.32
LR	0.14	0.22	0.19	0.31	0.48	1.00	0.50	0.52	0.53	0.49	0.45	0.40	0.24	-0.33	-0.36
BAGE	0.19	0.26	0.22	0.34	0.42	0.50	1.00	0.44	0.47	0.42	0.39	0.33	0.18	-0.28	-0.30
BCOMP	0.27	0.33	0.31	0.39	0.45	0.52	0.44	1.00	0.51	0.47	0.43	0.38	0.22	-0.35	-0.37
MBV	0.31	0.35	0.32	0.42	0.49	0.53	0.47	0.51	1.00	0.50	0.48	0.41	0.28	-0.40	-0.43
ATO	0.29	0.31	0.28	0.38	0.46	0.49	0.42	0.47	0.50	1.00	0.44	0.39	0.25	-0.30	-0.33
GDP	0.22	0.27	0.25	0.33	0.41	0.45	0.39	0.43	0.48	0.44	1.00	0.35	0.20	-0.25	-0.27
INFL	0.15	0.20	0.21	0.26	0.37	0.40	0.33	0.38	0.41	0.39	0.35	1.00	0.42	0.35	-0.28
BASEL III	-0.11	-0.13	-0.10	-0.12	0.20	0.24	0.18	0.22	0.28	0.25	0.20	0.42	1.00	0.56	-0.31
CAR	-0.18	-0.19	-0.17	-0.22	-0.29	-0.33	-0.28	-0.35	-0.40	-0.30	-0.25	0.35	0.56	1.00	-0.40
BETA	-0.24	-0.21	-0.20	-0.27	-0.32	-0.36	-0.30	-0.37	-0.43	-0.33	-0.27	-0.28	-0.31	-0.40	1.00



Table 5.
 GMM regression results for IC's (VAIC) effect on financial measures

Independent Variable	Islamic Banks			Conventional Banks		
	ROA	ROE	TQ	ROA	ROE	TQ
VAIC	0.152*** (0.034)	0.198*** (0.041)	0.243** (0.050)	0.174*** (0.029)	0.225*** (0.038)	0.267*** (0.046)
BSIZE	0.075** (0.028)	0.081** (0.033)	0.090* (0.044)	0.063* (0.026)	0.088** (0.032)	0.095** (0.039)
BIND	0.132*** (0.030)	0.145*** (0.038)	0.110** (0.045)	0.127*** (0.027)	0.151*** (0.036)	0.119*** (0.042)
BMEET	0.065* (0.025)	0.072* (0.031)	0.089** (0.040)	0.058* (0.023)	0.069** (0.029)	0.085** (0.038)
RCIND	0.110** (0.032)	0.127** (0.040)	0.134** (0.048)	0.098** (0.030)	0.121** (0.038)	0.129** (0.045)
ACIND	0.085* (0.028)	0.092* (0.035)	0.098** (0.043)	0.077* (0.026)	0.089* (0.034)	0.095** (0.041)
ACSIZE	0.073* (0.026)	0.081** (0.032)	0.088** (0.040)	0.069* (0.024)	0.079* (0.030)	0.084** (0.038)
ACMEET	0.064* (0.024)	0.070* (0.031)	0.078** (0.038)	0.061* (0.022)	0.068* (0.029)	0.075** (0.036)
CONOWN	0.098** (0.031)	0.105** (0.039)	0.112** (0.046)	0.092** (0.029)	0.103** (0.037)	0.109** (0.044)
DUALITY	-0.074* (0.027)	-0.081* (0.033)	-0.089** (0.041)	-0.069* (0.025)	-0.078* (0.031)	-0.085** (0.039)
GENDER	0.042 (0.021)	0.051 (0.027)	0.058 (0.033)	0.038 (0.020)	0.047 (0.026)	0.054 (0.031)
NATIN	0.058 (0.024)	0.067* (0.030)	0.073* (0.037)	0.055 (0.023)	0.064* (0.029)	0.070* (0.035)
EDUBAC	0.049 (0.022)	0.056 (0.028)	0.063 (0.034)	0.045 (0.021)	0.053 (0.027)	0.060 (0.033)
BASEL III	0.102** (0.033)	0.115** (0.041)	0.128** (0.048)	0.098** (0.031)	0.112** (0.039)	0.121** (0.046)
CAR	-0.056 (0.025)	-0.064 (0.032)	-0.070 (0.039)	-0.051 (0.024)	-0.060 (0.030)	-0.068 (0.037)
BETA	-0.069* (0.028)	-0.075* (0.034)	-0.082** (0.042)	-0.065* (0.026)	-0.072* (0.032)	-0.079** (0.040)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
L.ROA	0.362*** (0.047)	-	-	0.385*** (0.042)	-	-
L.ROE	-	0.409*** (0.050)	-	-	0.428*** (0.045)	-
L.TQ	-	-	0.440*** (0.052)	-	-	0.460*** (0.048)
_cons	0.212*** (0.040)	0.250*** (0.046)	0.275*** (0.055)	0.225*** (0.038)	0.265*** (0.044)	0.290*** (0.052)
Observations	320	320	320	320	320	320
Hansen test of over-identification (p-value)	0.342	0.386	0.401	0.355	0.375	0.412
Arellano–Bond test for AR(1) (p-value)	0.028	0.032	0.041	0.030	0.034	0.039



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Independent Variable	Islamic Banks			Conventional Banks		
	ROA	ROE	TQ	ROA	ROE	TQ
Arellano–Bond test for AR(2) (p-value)	0.215	0.227	0.240	0.221	0.230	0.245

Table 6.
 GMM results for the effect of IC (MVAIC) on financial performance indicators

Independent Variable	Islamic Banks			Conventional Banks		
	ROA	ROE	TQ	ROA	ROE	TQ
MVAIC	0.168*** (0.036)	0.210*** (0.043)	0.259** (0.051)	0.185*** (0.031)	0.235*** (0.040)	0.275*** (0.047)
BSIZE	0.070** (0.027)	0.078** (0.034)	0.085* (0.043)	0.061* (0.025)	0.080** (0.031)	0.088** (0.038)
BIND	0.135*** (0.031)	0.150*** (0.039)	0.115** (0.046)	0.130*** (0.028)	0.155*** (0.037)	0.125*** (0.043)
BMEET	0.062* (0.024)	0.070* (0.030)	0.085** (0.039)	0.057* (0.022)	0.068** (0.028)	0.081** (0.036)
RCIND	0.115** (0.033)	0.130** (0.041)	0.140** (0.049)	0.105** (0.031)	0.125** (0.039)	0.135** (0.046)
ACIND	0.088* (0.029)	0.095* (0.036)	0.105** (0.044)	0.080* (0.027)	0.090* (0.035)	0.100** (0.042)
ACSIZE	0.075* (0.026)	0.085** (0.033)	0.092** (0.041)	0.070* (0.025)	0.083* (0.032)	0.089** (0.039)
ACMEET	0.066* (0.025)	0.072* (0.032)	0.080** (0.039)	0.063* (0.023)	0.070* (0.030)	0.078** (0.037)
CONOWN	0.102** (0.032)	0.110** (0.040)	0.120** (0.047)	0.096** (0.030)	0.108** (0.038)	0.115** (0.045)
DUALITY	-0.078* (0.028)	-0.085* (0.034)	-0.093** (0.042)	-0.072* (0.026)	-0.082* (0.032)	-0.090** (0.040)
GENDER	0.045 (0.022)	0.054 (0.028)	0.060 (0.034)	0.040 (0.021)	0.050 (0.027)	0.057 (0.033)
NATIN	0.060 (0.025)	0.070* (0.031)	0.075* (0.038)	0.056 (0.024)	0.066* (0.030)	0.072* (0.036)
EDUBAC	0.052 (0.023)	0.060 (0.029)	0.067 (0.035)	0.048 (0.022)	0.056 (0.028)	0.063 (0.034)
BASEL III	0.108** (0.034)	0.120** (0.042)	0.133** (0.049)	0.102** (0.032)	0.118** (0.040)	0.127** (0.047)
CAR	-0.058 (0.026)	-0.067 (0.033)	-0.073 (0.040)	-0.053 (0.025)	-0.063 (0.031)	-0.070 (0.038)
BETA	-0.072* (0.029)	-0.078* (0.035)	-0.085** (0.043)	-0.068* (0.027)	-0.075* (0.033)	-0.082** (0.041)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
I.ROA	0.365*** (0.048)	-	-	0.388*** (0.043)	-	-
I.ROE	-	0.415*** (0.051)	-	-	0.435*** (0.046)	-
I.TQ	-	-	0.450*** (0.053)	-	-	0.470*** (0.049)
_cons	0.220*** (0.041)	0.260*** (0.047)	0.285*** (0.056)	0.230*** (0.039)	0.270*** (0.045)	0.295*** (0.053)
Observations	320	320	320	320	320	320
Hansen test of over-identification (p-value)	0.350	0.390	0.410	0.360	0.380	0.420



Arellano–Bond test for AR(1) (p-value)	0.030	0.035	0.042	0.032	0.036	0.040
Arellano–Bond test for AR(2) (p-value)	0.220	0.235	0.250	0.225	0.240	0.255

Table 7.

Results of GMMs regressing the effect of ICs (VAICs and MVAICs) on financial performance measures

Independent Variable	Islamic Banks		Conventional Banks		Islamic Banks		Conventional Banks	
	ROIC	EPS	ROIC	EPS	ROIC	EPS	ROIC	EPS
Panel A: VAIC								
VAIC	0.185*** (0.038)	0.210*** (0.045)	0.195*** (0.035)	0.225*** (0.042)	-	-	-	-
Panel B: MVAIC								
MVAIC	-	-	-	-	0.195*** (0.036)	0.230*** (0.044)	0.205*** (0.033)	0.240*** (0.041)
BSIZE	0.070*** (0.029)	0.080*** (0.035)	0.065*** (0.027)	0.075*** (0.033)	0.068*** (0.028)	0.085*** (0.034)	0.060*** (0.026)	0.078*** (0.032)
BIND	0.140*** (0.032)	0.155*** (0.039)	0.135*** (0.030)	0.150*** (0.037)	0.145*** (0.031)	0.160*** (0.038)	0.138*** (0.029)	0.153*** (0.036)
BMEET	0.060* (0.025)	0.072* (0.032)	0.057* (0.023)	0.068* (0.030)	0.063* (0.024)	0.075* (0.031)	0.058* (0.022)	0.070* (0.029)
RCIND	0.115*** (0.034)	0.130** (0.041)	0.110*** (0.032)	0.125*** (0.039)	0.118*** (0.033)	0.135*** (0.040)	0.112** (0.031)	0.128** (0.038)
ACIND	0.085* (0.030)	0.095* (0.037)	0.080* (0.028)	0.090* (0.035)	0.088* (0.029)	0.100* (0.036)	0.082* (0.027)	0.093* (0.034)
ACSIZE	0.075* (0.027)	0.085** (0.033)	0.070* (0.025)	0.080*** (0.031)	0.078** (0.026)	0.090*** (0.032)	0.072* (0.024)	0.083** (0.030)
ACMEET	0.063* (0.025)	0.072* (0.032)	0.060* (0.023)	0.070* (0.030)	0.065* (0.024)	0.075* (0.031)	0.062* (0.022)	0.072* (0.029)
CONOWN	0.100*** (0.032)	0.115** (0.040)	0.095*** (0.030)	0.110*** (0.038)	0.105*** (0.031)	0.120*** (0.039)	0.098** (0.029)	0.115** (0.037)
DUALITY	-0.075* (0.029)	-0.085* (0.036)	-0.070* (0.027)	-0.080* (0.034)	-0.078* (0.028)	-0.088* (0.035)	-0.072* (0.026)	-0.083* (0.033)



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Independent Variable	Islamic Banks		Conventional Banks		Islamic Banks		Conventional Banks	
	ROIC	EPS	ROIC	EPS	ROIC	EPS	ROIC	EPS
GENDER	0.048 (0.023)	0.058 (0.030)	0.044 (0.022)	0.054 (0.028)	0.050 (0.022)	0.060 (0.029)	0.046 (0.021)	0.056 (0.027)
BASEL III	0.110** (0.035)	0.125** (0.043)	0.105** (0.033)	0.120** (0.041)	0.115** (0.034)	0.130** (0.042)	0.108** (0.032)	0.125** (0.040)
CAR	-0.060 (0.027)	-0.070 (0.035)	-0.055 (0.025)	-0.065 (0.033)	-0.063 (0.026)	-0.073 (0.034)	-0.058 (0.024)	-0.068 (0.032)
BETA	-0.070* (0.028)	-0.078* (0.035)	-0.065* (0.026)	-0.075* (0.033)	-0.073* (0.027)	-0.082* (0.034)	-0.068* (0.025)	-0.078* (0.032)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
L.ROIC	0.370*** (0.050)	-	0.385*** (0.047)	-	0.375*** (0.049)	-	0.390*** (0.046)	-
L.EPS	-	0.420*** (0.055)	-	0.435*** (0.052)	-	0.425*** (0.054)	-	0.440*** (0.051)
_cons	0.225*** (0.042)	0.255*** (0.048)	0.235*** (0.041)	0.265*** (0.047)	0.230*** (0.040)	0.260*** (0.046)	0.240*** (0.039)	0.270*** (0.045)
Observations	320	320	320	320	320	320	320	320
Hansen test of over-identification (p-value)	0.370	0.395	0.380	0.400	0.375	0.398	0.385	0.410
Arellano-Bond test for AR(1) (p-value)	0.028	0.035	0.030	0.038	0.029	0.036	0.031	0.039
Arellano-Bond test for AR(2) (p-value)	0.225	0.240	0.230	0.245	0.228	0.242	0.232	0

Source: Author 2025



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Nationality diversity (NATIN) is positively associated with board age (BAGE) ($r = 0.32$) and board compensation (BCOMP) ($r = 0.35$), suggesting that boards with more diverse national representation are likely to have directors with considerably more experience and better-compensated advisors. Lastly, leverage (LR) yields moderate correlations with market-to-book value (MBV) ($r = 0.46$), and asset turn (ATO) ($r = 0.40$), indicating the impact of financial studies on financial logic & practice. The moderate correlation of macroeconomic variables including GDP and INFL with financial stability measures like CAR ($r = 0.37$) and BASELIII ($r = 0.33$) indicates that economic conditions may play a role in regulatory compliance and financial vitality. Since there is relatively low correlation among variables, we do not expect multicollinearity concerns that would make subsequent regression analyses unreliable.

3.2 GMM regressions

Tables 5 The GMM regression results are presented in Table 5, where the coefficient for Return on Equity (ROE) is negative and significant across Islamic banks, and ROA is negative and significant across both Islamic and conventional banks. Findings: The study provides evidence of a strong and positive interlink between VAIC and all financial performance indicators of both the banking systems. The empirical results show that for Islamic banks, VAIC is positively correlated with ROA ($\beta = 0.152, p < 0.01$), ROE ($\beta = 0.198, p < 0.01$), and TQ ($\beta = 0.243, p < 0.05$). For the case of traditional banks as well, VAIC exerts positive influences on ROA ($\beta = 0.174, p < 0.01$), ROE ($\beta = 0.225, p < 0.01$), and TQ ($\beta = 0.267, p < 0.01$). These implications underscore the importance of intellectual capital in driving financial performance, indicating that investment in knowledge-based assets translates into greater profitability and competitive advantage in the marketplace. There is also a significant board characteristics effect. BSIZE has a positive impact on the all measures of financial performances and has a greater effect in traditional banks. Board independence (BIND) continues to be an important factor, as independent directors as whole do actually improve firms. For instance, the frequency of BMEET and RCIND were positively and significantly associated with ROA, ROE and TQ respectively, indicating that governance mechanism encourage better financial decision-making to some extent.

Interestingly, the audit committee characteristics provide additional support for these findings, confirming that ACIND, ACSIZE, and ACMEET, positively influence financial performance regardless of banking type. In a similar vein, CONOWN shows a positive relation to performance, suggesting that more concentrated ownership draws managerial rewards in-line with public funding. Nevertheless, where CEO duality (DUALITY) is negatively related to ROA, ROE, and TQ, indicating that separating the CEO and board chair roles improves governance efficacy. Although GENDER, NATIN and EDUBAC all register positive coefficients, the fact that their effects are not consistently significant suggests that these attributes might not be the primary determinants of financial outcomes. The Basel III (BASEL III) regulatory variable has a positive and significant effect on financial performance which indicates that regulatory factor is indeed an important factor in ensuring stability and profitability. On the contrary, CAR has a negative but insignificantly impact, meaning, an increase in capital buffer does not immediately reflects in the performance. Decreased financial measures firm risk (BETA) is negatively associated with market measures, especially Tobin's Q; thus, more exposure to risk reduces market valuation. All the control variables illustrate individual characteristics except for the three lagged dependent variables (L.ROA, L.ROE, L.TQ) which demonstrates the province of Financials that past performance carries over dynamic performance. Hansen test confirms the validity of the considered instruments for the GMM estimation and Arellano-Bond test rejects second-order autocorrelation (AR(2) p -value > 0.10), ensuring the robustness of the model specification. Broadly, the results suggest that financial performance emerges from the relationship of an enterprise with top management, boards and regulators, thus confirming the importance of intellectual capital, board governance and regulatory governance as determinants of overall financial performance in the Islamic and conventional banking sectors. These findings have important implications for practitioners, such as policy-makers, banks managers, and regulators; they point to the importance of strategic investments in non-originated knowledge assets and governance reforms contributing to long-term financial sustainability.

The results of the Generalized Method of Moments (GMM) estimation are reported in Table 6; the effect of MVAIC on financial performance indicators of Islamic and conventional banks. The results show a strong and positive impact of MVAIC on Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q (TQ) of both banking types. More specifically, the MVAIC coefficient for Islamic banks is equal to 0.168 ($p < 0.1$). Hansen test of over-identification confirms instrument validity: $p > 0.34$, indicating that the model is well-specified. Wider implications: The findings reveal that more intellectual capital, better board structure, strict regulatory compliance, and proficient risk management enhance not only the performance of Islamic banks but also that of conventional banks. In contrast, there is a slightly higher association between MVAIC and financial indicators among conventional banks, indicating that these banks might be more efficient in converting intellectual capital into financial gain. Meetings of board members (BMEET) were positively associated with financial performance, while their effects on TQ (0.085, $p < 0.05$, Islamic banks and 0.081, $p < 0.05$ for

conventional banks) were stronger. Independence of risk committees (RCIND) and the ACIND are at play in more robust financial performance, specifically TQ, showing coefficients between 0.105 and 0.140. We also find that larger audit committees (ACSIZE) and more frequent audit committee meetings (ACMEET) positively influence financial transparency, highlighting the importance of these aspects in promoting transparency. The ownership concentration (CONOWN) is significantly positive of the financial indicators, with the coefficients ranging from 0.102 to 0.120, implying more efficient monitoring and better performance with higher ownership concentration. On the other hand, CEO duality (DUALITY) is negatively associated with financial performance measures, namely TQ (-0.093, $p < 0.05$, for Islamic banks and -0.090, $p < 0.05$, for conventional banks), indicating that the split between the role of the CEO and chairman improves governance effectiveness. There is weak but positive effect of gender (GENDER) and nationality diversity (NATIN), with the latter being significant for ROE and TQ ($p < 0.05$), suggesting their contribution to enhancing performance. Education background (EDUBAC) has a positive relationship with financial indicators but is statistically insignificant as well.

Specifically, the enhancement of financial performance due to the implementation of BASEL III regulations range between 0.108 and 0.133 ($p < 0.05$) from all models, supporting the idea that the regulatory regime is very effective in augmenting the resilience of financial institutions. The negative coefficients of capital adequacy ratio (CAR) and beta (BETA) (of which only BETA is statistically significant ($p < 0.05$)) suggest that increases in systematic risk lead to decreases in financial performance. We present the Arellano–Bond test results as evidence that our GMM estimation is valid ($p > 0.1$ for second-order autocorrelation). The Hansen over-identification test suggests high quality instrument, the most of them have p-values higher than 0.34 and thus, confirm the well specify model. Overall, the results show a strong relationship between intellectual capital, board composition, regulatory compliance, and risk management on financial performance, which is true for both conventional and Islamic banks. On the contrary, traditional banks have a rather stronger relationship between MVAIC and financial variables, which indicates that traditional banks use their intellectual capital more effectively and efficiently to create the financial performance.

3.3 Tests of robustness

The serial multicollinearity between the variables was checked from the estimated correlation matrix. Details of this analysis concluded that there exists no serial correlation between any of the independent variables, confirming focused to proceed ahead with further estimation. Following the descriptive statistics, Table 7 shows the results of the generalized method of moments (GMM) estimation to investigate the impact of intellectual capital based on two measures of intellectual capital VAIC and MVAIC on the financial performance of Islamic and conventional banks. Sustainable competitive advantage: ROIC & EPS as dependent variables. Panel A shows that VAIC significantly and positively influences both ROIC and EPS for Islamic and conventional banks. The coefficient of VAIC on ROIC is 0.185 ($p < 0.01$) for Islamic banks and 0.195 ($p < 0.01$) for conventional banks, and the coefficient of VAIC on EPS is 0.210 ($p < 0.01$) and 0.225 ($p < 0.01$) respectively. Panel B assesses how MVAIC affects the results and show areas of a similarly positive relationship. The coefficients reveal that MVAIC has a positive impact on ROIC for Islamic and conventional banks (0.195 [$p < 0.01$] and 0.205 [$p < 0.01$] respectively). Similarly, its impact on EPS equals 0.230 ($p < 0.01$) for Islamic banks and 0.240 ($p < 0.01$) for conventional banks. These results emphasize the importance of intellectual capital efficiency for the improvement of financial performance. Control variables BSIZE, BIND, BMEET, RCIND, ACIND, ACSIZE, ACMEET, and CONOWN show positive relations with ROIC and EPS at different levels of significance. In contrast, CEO duality (DUALITY) has a significant negative impact on both proxies of financial performance. It is worth noting that GENDER has a positive relationship with ROIC and EPS, though the impact is not statistically significant. Meanwhile, compliance with Basel III (BASEL III) positively affects financial performance, while capital adequacy ratio (CAR) and firm risk (BETA) negatively impacts it but not significantly. The significant estimation results for lagged dependent variables (L.ROIC and L.EPS) of Islamic banks (0.370 ($p < 0.22$), autocorrelation, which reinforces the reliability of the GMM estimators. The results reveal a slightly stronger effect of MVAIC compared to VAIC on enhancing the financial performance of Islamic and conventional banks, further highlighting the significance of intellectual capital in fostering financial performance in the banking sector as a whole. The findings further not only underline the importance of corporate governance characteristics and regulatory compliance in enhancing bank performance but also bridge the gap in literature where global studies are relatively new.

4. Discussion

This study's results indicate that intellectual capital has a significant impact on the financial performance of GCC banks. The comparison between Islamic and conventional banks produces valuable findings regarding the varied impact of IC components, human capital, structural capital and relational capital, on the performance of the two types of banks.



4.1 The Influence of Intellectual Capital on Bank Performance

Intellectual capital emerges as a significant determinant of bank performance, regardless of the Islamic or conventional type of banking sector. But the extent of its effect differs across the two banking models. The results are in line with previous studies (Pulic, 2004; Chen et al., 2014) which suggest that banks characterized by high intellectual capital efficiency tend to demonstrate better financial performance. In particular, human capital appears as the most instrumental dimension, reiterating the idea that skilled employees and managers are central to improving operational efficiency and fostering innovations amongst banks (Mention & Bontis, 2013).

4.2 Use of intellectual assets in conventional and Islamic banks

Comparative evaluation between Islamic and conventional banks is thus an important domain of the study. The findings indicate that intellectual capital is beneficial to both banking models, but the extent and manner of its utilization is noticeably different between the two. Delving deeper into our findings, we found Islamic banks exhibited a stronger tendency towards relational capital. They are committed to the principles of Sharia bank and related practices, which enable them to gain trust and facilitate stakeholder engagement towards being an ethical bank. These results align with findings from other research like Kamath (2019) and Nawaz & Haniffa (2017) that demonstrate how the financial performance of Islamic financial institutions is influenced by stakeholder relationships. However, traditional banks show more efficiency in allocating their structural capital, taking advantage of modern technological frameworks and uniform financial procedures to maximize profitability (Joshi et al., 2013).

4.3 The role of human capital in business

It also further emphasizes that human capital is the most important factor in both banking models. Well-educated employees, strong leaders, and ongoing investment in talent development greatly improve bank performance. Human Capital in Islamic Banks: The Foundation of Sharia Compliant Corporate Innovation Conversely, conventional banks are more reliant on human capital for their strategic financial management and risk assessment (Sharabati et al., 2010). These findings align with the argument provided by Clarke et al. (2011) that states that banks with a strong base of intellectual capital are capable of attaining sustainable competitive advantages.

4.4 Implications for policy and management

From a practical standpoint, the paper reveals that banking institutions in the GCC are behind in developing intellectual capital. Also, the fast-paced growth of the financial sector poses a challenge for Islamic and conventional banks to improve their intellectual capital strategies. Political decision-makers must reflect on establishments that enable expertise exchange, ongoing professional growth, and technology proliferation to maximize usage of mental resources. In addition, Islamic banks need to make sure they are boosting their structural capital, and minimise the risk of over-reliance on relational capital, whilst too conventional banks should develop stronger relationships with their stakeholders to build up trust and thus customer retention.

5. Conclusion

The relevance of this research lies in the fact that it is the first to gauge the influence of intellectual capital on the performance of both Islamic and conventional banks operating in the GCC region, providing empirical evidence in this regard. Results indicate the necessity of intellectual capital to improve bank performance concerning both the Islamic and conventional banking model. The first indicates that both types of banking sector benefited from investment in intellectual capital, but Islamic banking sector relied more on human capital and structural capital due to its distinctive functional framework. This highlights the significance of knowledge-based resources as a driver of financial stability and competitive edge among the banking institutions. To our knowledge, this study adds to the literature by providing comparative quantitative evidence into the relationship between intellectual capital and bank performance, highlighting the importance of intellectual capital management as a long-term competitive strategy across diverse banking systems.

This study has some limitations, despite its merit. Self-Limiting of the Research Conducted on huccouncil banks The analysis is limited only to the banks in the GCC region; therefore, the generalizability of the findings to other countries with a different regulatory environment and a different set of economic conditions may be limited. Second, the study is based on secondary financial data, which may not encompass the full qualitative nature of aspects of intellectual capital such as innovation and leadership effectiveness. Third, the study does not consider macroeconomic factors with the potential to impact bank performance, such as inflation and geopolitical risks. Future studies could broaden the extent

combining qualitative methods, diversifying their sample in new regions as well as examining the mediating role of regulatory policies on the intellectual capital–performance link.

Author contributions

Funding declaration

The authors declare no funding sources for this research.

Declaration of availability of data

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Conflict of interest

No conflict of interest is declared by the authors regarding this study.

Appendix data

Table A1.

Sample Distribution of GCC Banking Sector

Country	Number of Islamic Banks	% of Sample	Number of Conventional Banks	% of Sample
Bahrain	6	21.4%	8	18.2%
Kuwait	5	17.9%	7	15.9%
KSA (Saudi Arabia)	5	17.9%	9	20.5%
United Arab Emirates	6	21.4%	10	22.7%
Qatar	4	14.3%	6	13.6%
Oman	2	7.1%	4	9.1%
Total	28	100%	44	100%

Source; Author 2025

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