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Abdelrhman Meero

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Abdelrhman Meero

College of Business Administration,
Kingdom University,
Building 287, Road 3903, Block 939,
Riffa, P.O. Box 40434, Kingdom of Bahrain
Email: ar.meero@ku.edu.bh

Abstract: Our study examines how the timing of Sharia Supervisory Board (SSB) involvement, SSB members' digital literacy, and SSB's effectiveness may influence the quality of SSB's FinTech governance. Sharia governance theory (SGT), resource-based view theory (RBV), and institutional theory (IT) grounded the study's theoretical framework. A questionnaire was used to collect data from 80 experts in GCC. The result shows that early SSB involvement does not significantly affect governance effectiveness ($r = -0.07$, $p = 0.55$). It also shows that 'digital literacy and multidisciplinary expertise have a positive effect on the SSB's governance effectiveness' ($r = 0.21$, $p \approx 0.06$). A significant negative relationship between perceived effectiveness and support for a unified GCC-level SSB ($B = -0.684$, $p = 0.041$) indicates that institutional weaknesses heighten demand for regional harmonisation. The study provides significant contribution to literature as the first region-wide empirical evidence linking SSB human capital to FinTech governance. Implications include increasing the diversity of SSB members' areas of expertise and providing members with better digital literacy.

Keywords: Islamic FinTech; Sharia governance; Sharia supervisory boards; SSB; digital literacy; resource-based view theory; RBV; institutional theory; GCC.

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Biographical notes: Abdelrhman Meero is a researcher and faculty member at Kingdom University, Bahrain, where he serves as the Dean of the College of Business Administration. He holds a PhD in Finance and is a Certified Project Management Professional (PMP) and Chartered Manager (CMgr MCMI). His research focuses on Islamic finance, FinTech governance, ESG practices, and banking regulation in the GCC. He has authored and reviewed numerous papers in international journals and actively participates in regional policy and academic committees related to governance and financial innovation.

1 Introduction

A key principle of the GCC nations' long-term strategies is the incorporation of advanced technology into all aspects of society, including economic and financial industries. By developing central bank sandboxes, the GCC has become an important hub for FinTech innovation. The International Monetary Fund (IMF) (IMF, 2025) recently claimed that the central banks of GCC countries are like an innovation hub for inclusion and encouraging digital competitiveness. Referring to the work of Abu Al-Haija and Syed (2021) and Hamadou and Suleman (2024), the Islamic Banking encounters various opportunities and challenges due to the rapid digitalisation developments and FinTech products such as tokenised sukuk, AI credit scoring, and AI Bots.

The Sharia supervisory board (SSB) is the higher Sharia authority in Islamic finance and banking institutions. SSB is a panel of qualified scholars responsible is to ensure that all bank activities, products, and transactions adhere to the principles and rulings of Islamic law. Reference to Mu'adzah (2022), the SSBs are required to evaluate all innovations and provide final approval, considering the conflict between rapid innovation and conventional oversight. For Said et al. (2024), an effective Sharia governance system is essential for the adoption and credibility of FinTech.

1.1 Research gap and problem statement

According to a recent study done by Salem and Shahimi (2025), the majority of recent research on Islamic FinTech is conceptual and regulatory rather than empirical. The authors notice that limited research addresses the timing and methods by which SSBs participate in product development or evaluate technological risk. Other studies such as those conducted by Rahmatika et al. (2024), and Wasim and Zafar (2024), focused on studying the absence of standardised operational frameworks for SSB and the variability in governance practices among various Islamic institutions.

In the context of the GCC, Islamic Banks are functioning within diverse Sharia regulatory frameworks. Bahrain, Qatar, and UAE, have national Sharia councils that provide centralised guidance for all national Islamic financial institutions. In the other countries: Saudi Arabia, Kuwait, and Oman, Islamic Banks depend more on bank-level SSBs. In both models, there is notable issue refers to the absence of harmonisation across controls concerning regulatory frameworks and the standardisation of Sharia compliance procedures among the six GCC countries.

In its recent published report, the Islamic Financial Stability (IFS) (2025), clearly indicates a lack of digital literacy and exposure to FinTech innovations among numerous Sharia scholars and SSBs members. The same issue is already found by the work of Mukhibad et al. (2023) who concluded that 'limited digital literacy and weak technical expertise among SSB's members delays innovation evaluation.'. The results of Haridan et al. (2023) also found that SSBs often lack technological understanding and find difficulties with AI-related innovations.

These identified issues prevent SSBs from reaching timely and consistent approvals which imply delays and variability in Sharia judgments. This study offers a comprehensive empirical evaluation of SSB effectiveness in FinTech governance across all six GCC nations, aiming to address this gap.

1.2 Research objectives and questions

The research aims to elucidate the extent and timing of SSB's involvement in the FinTech product development process within GCC Islamic banks. It aims to identify the principal challenges and capacity deficiencies affecting SSB efficacy. It purposes to assess whether perceptions of SSB efficacy impact endorsement for a consolidated GCC-level Sharia council.

The research answers the following questions:

- 1 How involved are GCC SSBs in all stages of FinTech products development?
- 2 How do knowledge and capacity influence the perceived effectiveness of GCC SSBs?
- 3 Do low level governance perceptions increase support for the GCC-level Sharia council?

1.3 Significance of the study

This study presents an initiative for a comprehensive empirical evaluation of Sharia governance in the context of FinTech. This research is reflecting the viewpoints of the GCC experts in the Islamic finance field. Those experts are SSB members, auditors, Fintech providers, and governance executives in Islamic financial institutions. The result of the study provides regulators with practical insights by locating governance obstacles and institutional shortcomings that require policy intervention. It provides also a guidance to GCC Islamic banks and FinTech companies by offering recommendations to improve the framework of SSBs. At the same time, this study will be a significant reference for scholars as it demonstrates the application of SGT in the digital scope.

1.4 Structure of the paper

The remaining parts of the paper consist of the following sections: Section 2 examines the existing literature on Islamic-FinTech governance and Sharia oversight and the formulation of the study hypotheses. Section 3 presents the methodology, survey design, sample. Section 4 is allocated to present the descriptive and regression results. Section 5 discusses the findings and their implications. Section 6 is for concluding the paper.

2 Literature review and theoretical framework

2.1 FinTech and transformation in banking system

The financial sector has experienced substantial transformation driven by financial technology (FinTech) innovations. Recent studies such as the work of Lee and Shin (2018), Arner et al. (2020), Alshater et al. (2022), Di Prisco and Strangio (2025), Del Sarto and Ozili (2025), concluded that the new technologies such as artificial intelligence (AI), blockchain, machine learning, and open banking have changed radically the banking operations, efficiency, inclusion, and data-driven decision-making. Concerning the MENA region, recent reports highlighted the strategic adoption of FinTech across GCC countries through central banks operating regulatory sandboxes to facilitate

experimentation of the digital financial solutions (IMF, 2025; Ernst and Young, 2024). Bahrain, Saudi Arabia, and the UAE are considered as regional leaders in digital financial innovation and regulatory advancement.

In Islamic finance context, FinTech enabled Islamic banks and financial institutions to provide rapid access to broader Sharia-compliant products and services. All digital products such as tokenised sukuk, robo-advisory tools, and AI-based risk assessment models must comply with core Islamic principles to be adopted or approved by the SSBs. The need to ensure Sharia compliance within fast innovation cycles creates a unique governance challenge for Islamic financial institutions. This challenge is the core issue facing SSBs in the FinTech era (El Khatib, 2024; Del Sarto, 2025; Al-Majali, 2025; Care et al., 2025).

2.2 *The role of Sharia supervisory boards*

SSBs form the cornerstone of Islamic financial governance. It is composed of scholars specialised in Islamic commercial jurisprudence (fiqh al-mu‘āmalāt). As an independent governance body, the SSB mandate duty is to ensure that financial products, contracts, and operations conform to Sharia principles (Siddiqi, 2017; Chapra and Khan, 2000; Alam et al., 2021; AAOIFI, 2024).

Earlier empirical studies indicate that SSBs often participate only at the final stage to evaluate and assign approval (Grassa, 2016; Zafar and Jafar, 2024; Pessiwarisa and Kasri, 2025). As per Haridan et al. (2023), this delayed involvement can slow down the innovation cycles and may increase the risk of Sharia non-compliance. From their side, Mukhibad et al.’s found that SSBs’ limited digital literacy and scarce technical expertise delayed the evaluation and the approval of the new innovations. For these reasons, Mukhibad et al. (2023) and Zafar and Jafar, (2024) concluded that the human resources continue to provide a significant obstacle for effective governance within the developing Islamic FinTech ecosystem.

2.3 *Regulatory models and institutional context in the GCC*

Sharia supervision structures vary across the GCC countries. Bahrain, the UAE, and Qatar adopt a centralised model, which is the Centralised National Sharia Council (Centralised National Sharia Council) (Central Bank of Bahrain (CBB), 2024; UAE Central Bank, 2021, Qatar Central Bank, 2020). On the other hand, Saudi Arabia, Oman, and Kuwait use decentralised models (Bank-level SSBs). This model relies on independent bank-level SSBs to keep an eye on Sharia (Saudi Central Bank (SAMA), 2022; Central Bank of Kuwait, 2016; Central Bank of Oman (CBO), 2023). Each model has advantages and disadvantages. Khan and Al-Harby (2022) found that centralisation makes things more consistent and less interpretive divergence, but it can also slow innovation because more approval stages are needed. Institutional adaptability is improved by decentralisation, but Sharia administration is scattered and fatwas are inconsistent.

A unified Sharia council for the GCC has been proposed as a solution to the current regulatory discord. The unified Sharia centres are both supported and encouraged by the Islamic Financial Services Board (IFSB) and AAOIFI. Standardisation and regional alignment, they say, are necessary for good oversight in the digital era (AAOIFI, 2024;

AAOIFI, 2025; IFSB, 2025). FinTech could benefit from a single Sharia authority since it would facilitate cross-border regulation, rule compliance, and product development.

2.4 Theoretical lenses and hypothesis development

In order to determine how well SSB functions in FinTech governance, this study applies three theoretical frameworks: IT, RBV, and SGT.

2.4.1 Sharia governance theory

According to the SGT, proactive ex-ante assessment and continuing audit are essential for competently governing financial organisations. According to this idea, review and audit functions play a crucial role in ensuring compliance throughout product development and operations (Haridan et al., 2018; Wasim and Zafar, 2024). Citing the research by Fatmawati et al. (2022) which claims that early SSB involvement enhances governance effectiveness, but it needs more empirical validation. Thus, our study tests this first hypothesis:

Hypothesis H1 Early-stage involvement of SSBss (concept/design phase) predicts higher perceived effectiveness than ex-post review.

2.4.2 Resource-based view

RBV postulates that knowledge, digital literacy, and interdisciplinary expertise form strategic intangible assets and critical resources for the institutions. More specifically in the Islamic finance institutions' governance, recent studies by Wijayanti and Setiawan (2023) and Naz et al. (2025) position digital literacy of Sharia scholars as a core capability affecting compliance outcomes and supervisory board effectiveness. Thus, our study tests this second hypothesis:

Hypothesis H2 Higher levels of digital literacy and multidisciplinary expertise among SSB members are positively associated with perceived SSB effectiveness in FinTech governance.

2.4.3 Institutional theory

IT explains how weaknesses, such as regulatory and normative inadequacies, generate pressure for structural change and harmonisation. Empirical studies related to Islamic banking and Finance, document how weak Sharia governance perceptions at the bank level intensify stakeholder support for unified regional regulatory structures (Alam and Miah, 2024; Abdul Rahim et al., 2024). This could be an argument to support for a unified SSB GCC-level council. Thus, our study tests this third hypothesis:

Hypothesis H3 Perceived ineffectiveness of a bank's SSB is positively associated with support for establishing a unified GCC-level Sharia council.

This study addresses a recognised empirical deficiency and enhances existing theory by examining the interplay among SGT Theory, IT Theory, and the RBV theory within a FinTech framework. This integrated approach to understanding Islamic FinTech

governance. It connects three levels of governance: SSB capacity, governance practices, and institutional reform.

3 Methodology

According to Pinsonneault and Kraemer (1993), in social sciences research, including management and finance, survey questions are frequently employed to collect stakeholders' perspectives, attitudes, and operational realities. Consistent with this tradition, primary data for this study were collected through an online questionnaire distributed to key stakeholders in Islamic finance across all six GCC countries. The questionnaire focused on investigating the key stakeholders about the GCC SSBs role, challenges, and capacity in governing FinTech innovations. It was a great opportunity to spread the questionnaire to the attendees of the 19th AAOIFI – IsDB conference, Bahrain, 3–4 November 2024. The author has the opportunity to meet key stakeholders in Islamic finance getting their feedback for study improvement and send them the study questionnaire seeking their response.

3.1 Population and sampling

The target population consists of professionals engaged in Islamic financial governance within banks, regulatory authorities, and advisory firms operating in the six GCC countries: Bahrain, Saudi Arabia, the United Arab Emirates, Kuwait, Qatar, and Oman. A purposive sampling strategy was employed to ensure representation from both centralised governance systems (Bahrain, UAE, Qatar) and decentralised systems (Saudi Arabia, Oman, Kuwait).

A total of eighty valid responses were retained after screening for completeness and relevance. Approximately 45% of respondents were SSB members, 30% were Sharia auditors or compliance officers, and the remainder were senior managers in product or risk functions. The abovementioned distribution ensured that both scholarly and managerial perspectives were included in the study. This variety of respondents supports robust empirical testing of the study's hypotheses (H1–H3). The sample size is consistent with recommended thresholds for regression-based governance research (Memon et al., 2020).

3.2 Instrument development and measures

The questionnaire was designed after reviewing the prior similar studies in governance and FinTech such as those by Archer and Karim, 2007; Grassa, 2016; Haridan et al., 2023; and Pessiwarisa and Kasri, 2025. Items were adapted to fit the GCC context and were structured into six sections:

Section 1: Demographic and control variables

The section is employed for demographic information. It has been used as control variables: organisation type, country, size, and respondent experience were included to account for institutional diversity. The other four sections gather data related to the independent and dependent variables.

Section 2: SSB involvement intensity (H1)

The SSB involvement intensity section captured how early and frequently SSBs participated during concept, design, testing, and launch phases. Higher values indicate more proactive engagement. This section corresponds to the Hypothesis 1 (H1) variable. Items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Section 3: Digital literacy and multidisciplinary expertise (H2)

The third section, the digital literacy and multidisciplinary expertise, has been employed to measure respondents' perceptions of SSB members' technological understanding, data-analytic skills, and awareness of digital-risk management, corresponding to Hypothesis 2 (H2). These items reflect the RBV focus on human-capital capabilities. All items used a Likert scale.

Section 4: Perceived SSB effectiveness

The perceived SSB effectiveness section evaluated respondents' confidence in SSB capability to govern FinTech innovation efficiently and uphold compliance. All items used a Likert scale.

Section 5: Challenges facing SSBs

The fifth section is assigned to identify the obstacles encountered by SSBs governance. The items in this section were listed based on difficulties identified by the literature review (like insufficient digital skills, regulatory ambiguity, limited resources). Last part of this section was an open-ended space allowing respondents to provide additional suggestions.

Section 6: Support for a unified GCC Sharia council

The last section of the questionnaire, support for unified GCC Sharia council, was employed as a binary variable (1 = yes, 0 = no) reflecting whether respondents endorsed regional institutional harmonisation. (Dependent variable in H3)

3.2.1 Reliability and validity

Internal consistency of all multi-item constructs was confirmed through Cronbach's alpha ($\alpha > 0.75$ for all constructs). Exploratory factor analysis supported construct validity.

3.3 Data analysis procedures

Data were analysed using SPSS v.28. Descriptive statistics summarised respondent demographics, involvement patterns, and perceived challenges. Correlation and regression analyses were applied to test the hypotheses.

H1 (involvement → effectiveness): assessed via simple linear regression to determine whether early-stage participation predicted perceived effectiveness.

H2 (digital literacy → effectiveness): tested through multiple regression controlling for experience and organisation type.

H3 (effectiveness → support for unified council): examined using binary logistic regression since the dependent variable ('support = yes/no') is categorical.

The logistic model estimates the log-odds of supporting a GCC-level council as a function of perceived SSB effectiveness and control factors. This method is appropriate for identifying whether lower perceived effectiveness increases the likelihood of favouring institutional harmonisation (Menard, 2010).

Statistical significance was evaluated at the 5% level ($p < 0.05$). Effect sizes and model fit (R^2 and Nagelkerke R^2) were reported to interpret explanatory power.

This methodological framework empirically tests whether the timing of SSB involvement (H1) and the digital literacy of scholars (H2) enhance perceived governance effectiveness, and whether such effectiveness influences institutional preferences for a unified GCC Sharia council (H3). The proposed analytical framework in this study ensures transparency, reproducibility, and it has been designed in alignment with the theoretical foundation presented in the previous chapter, namely the SGT, the resource-based view, and IT.

3.4 Ethical considerations

Participation in the survey was voluntary. All the respondents were assured anonymity and confidentiality of their responses. To ensure compliance with ethical standards for academic research, no identifying institutional or personal information was collected.

4 Results

This section is employed to present the findings of the empirical survey. Statistical results in this section are based on the data collected from the different stakeholders in the six GCC countries. We present the results in two parts. The first part presents the descriptive analysis of the collected data (4.1). The second part presents regression analysis and the hypotheses testing (4.2).

4.1 Descriptive results

4.1.1 Respondent profile

The study gathered 80 valid responses from professionals' stakeholders in the Islamic banking industry across the six GCC countries. Respondent profile and demographic information are presented in Table 1.

Regarding the geographical distribution of the respondents, most respondents were from Saudi Arabia (26.25%), the UAE (22.50%), Bahrain (13.75%), Qatar (13.75%), Kuwait (12.50%), and Oman (11.25%). Professional roles wise, 27.5% of participants were SSB members, 26.25% were Sharia auditors, 17.5% held governance executive positions, 16.25% were compliance officers, and 12.5% were product development officers.

Table 1 Respondent profile

Category	Category_value	Percentage
Country	Saudi Arabia	26.25%
	UAE	22.50%
	Bahrain	13.75%
	Qatar	13.75%
	Kuwait	12.50%
	Oman	11.25%
Role	SSB member	27.50%
	Sharia auditor	26.25%
	Governance executive	17.50%
	Compliance officer	16.25%
	Product development officer	12.50%
Experience	11–15 years	37.50%
	>15 years	26.25%
	5–10 years	25.00%
	<5 years	11.25%
Bank size	Medium	57.50%
	Small	23.75%
	Large	18.75%

Note: SSB = Sharia supervisory board.

Experience-wise, the results reflect the participation of a mature and experienced group of practitioners in the survey. More than 60% of the respondents had long professional experience, more than 11 years. Few percentages of the respondents have professional experience with less than 5 years, only 11.25%. Considering institutional size, most of the respondents are from medium-sized institutions with more than 55%.

4.1.2 Descriptive statistics for core variables

Table 2 presents descriptive statistics for the study's core constructs: the dependent and independent variables (digital knowledge capacity, involvement intensity, effectiveness).

Table 2 Descriptive statistics for core variables

Variable	Mean	SD	Min	Max
Digital – knowledge_capacity	2.78	0.65	1.33	4.0
involvement_intensity	2.04	0.19	2.0	3.0
effectiveness	3.4	1.18	2.0	5.0

Note: All variables measured using a 1–5 Likert scale.

The results indicate moderate levels of digital competency among SSB members (mean = 2.78). Involvement intensity is relatively low (mean = 2.04), suggesting that SSB participation tends to occur later in the product development cycle. Perceived

effectiveness demonstrates a moderate average score (mean = 3.40), with larger variability relative to the other variables (SD = 1.18).

4.1.3 Main governance challenges

Respondents identified several challenges affecting Sharia governance in the FinTech environment. Table 3 summarises their frequency.

Table 3 Governance challenges frequency

<i>Challenge</i>	<i>Frequency</i>
Difficulty in risk assessment	64
Limited digital knowledge among scholars	59
Lack of regulatory guidance	31
Integration with legacy systems	27
Time/resource constraints	26
Data protection and cybersecurity concerns	16
Inconsistent fatwa practices	8

Notes: Frequencies reflect multiple-choice responses; respondents could select more than one challenge.

Difficulties in risk assessment (64 cases) and limited digital literacy (59 cases) were the most frequently reported obstacles, followed by insufficient regulatory guidance (31 cases).

4.2 Hypothesis testing

Table 4 presents the Pearson correlation coefficients results for the three core variables of the study, Digital_knowledge_capacity, involvement_intensity, and effectiveness.

Table 4 Correlation matrix (core variables)

	<i>Digital_knowledge_capacity</i>	<i>involvement_intensity</i>	<i>effectiveness</i>
Digital_knowledge_capacity	1.0	-0.03 (p = 0.770)	0.21 (p = 0.057†)
Involvement_intensity		1.0	-0.07 (p = 0.551)
Effectiveness			1.0

Note: † p < 0.10 (marginal significance); * p < 0.05. Two-tailed tests.

4.2.1 H1 – Early involvement and perceived effectiveness

The first hypothesis examined whether early SSB involvement in FinTech product development increases perceived effectiveness. Reference to the Table 4, the correlation between involvement intensity and effectiveness was weak and statistically insignificant ($r = -0.07$, $p = 0.551$).

Result: H1 not supported.

4.2.2 *H2 – Digital knowledge capacity and governance effectiveness*

The second hypothesis tested whether digital knowledge capacity predicts SSB effectiveness. As shown in Table 4, knowledge capacity correlated positively with effectiveness ($r = 0.21$, $p = 0.057$). Although the relationship is marginally significant at the 10% level, it shows a clear positive tendency: respondents who rated their boards as more digitally knowledgeable also perceived them as more effective in governing FinTech innovations.

Result: H2 partially supported.

4.2.3 *H3 – perceived effectiveness and support for a unified GCC SSB*

The third hypothesis explored whether the lower perceived effectiveness of the SSB increases the support for establishing a unified GCC-level Sharia board. The dependent variable is a binary logistic regression model was employed, with (1) for the ‘support’, and (0) for ‘no support’.

Table 5 Logistic regression – support for GCC council

Variable	Coefficient (B)	Std. Err	z	p-value	Odds ratio (Exp(B))
Constant	4.168	1.393	2.99	0.003*	64.60
Effectiveness	-0.684	0.336	-2.04	0.041*	0.505

Notes: Dependent variable: support for GCC-level Sharia council (1 = yes, 0 = no).*

$p < 0.05$.

The results in Table 5 show that effectiveness has a negative and significant coefficient ($B = -0.684$, $p = 0.041$). The odds ratio ($\text{Exp}(B) = 0.505$) indicates that lower perceived effectiveness increases the likelihood of supporting GCC-level harmonisation.

Result: H3 supported.

4.2.4 *Summary of empirical findings*

Table 6 Hypothesis test summary

Hypothesis	Relationship tested	Result	Interpretation
H1	Early involvement and effectiveness	Not supported ($p = 0.55$)	Timing alone does not increase perceived governance quality
H2	Digital knowledge and effectiveness	Partially supported ($p \approx 0.06$)	Human-capital capability is more influential than involvement timing
H3	Effectiveness and support for GCC council	Supported ($p = 0.041$)	Perceived weaknesses increase demand for regional harmonisation

5 Discussion and implications

The study examined three determinants of effective Sharia governance in the FinTech era:

- 1 The timing of SSB involvement
- 2 The digital literacy and multidisciplinary expertise of the SBBs members
- 3 The institutional perceptions relating to regional harmonisation.

The result shows that involvement timing alone does not significantly enhance perceived SSB effectiveness. It shows also that digital capacity has modest positive impact on the governance outcomes. It concludes also that the lower perceived SSB effectiveness increases support for the establishment of a unified GCC-level Sharia council.

5.1 Implications of H1: limited impact of early involvement

First hypothesis of the study states that the early involvement of SSBs in FinTech product design would significantly enhance perceived governance effectiveness. The findings in Table 4 showed a weak and statistically insignificant association between early-stage involvement and perceived effectiveness ($r = -0.07, p = 0.55$). This finding suggests that early involvement, although emphasised by SGT, does not automatically translate into more effective oversight.

5.1.1 Interpretation in light of literature

This finding is aligned with the work of Haridan et al. (2018) who found that early intervention will not affect the SSBs effectiveness, especially when members lack domain-specific digital expertise. Same result is confirmed by Fatmawati et al. (2022), who stated that early intervention of SSB without having the specialised knowledge will not add value during the early stages of development. Regular auditing and ex-ante review are both emphasised by the SGT. Our results show that timing isn't enough on its own without matching capabilities, and they confirm that early involvement doesn't help or make a difference when there isn't enough information.

5.2 Implications of H2: digital knowledge capacity as a key predictor

The findings of the regression analysis demonstrated a weak but positive correlation between digital literacy and the perceived efficacy of SSBs in the domain of FinTech ($r = 0.21, p \approx 0.06$).

5.2.1 Alignment with prior studies

The technological capabilities of SSBs greatly improve the level of governance in Islamic financial institutions, as shown by Wijayanti and Setiawan (2023). This result is aligned with the findings of our study. In another study Rahmawati et al. (2024) demonstrated that digital skills are drivers of Islamic Finance institutional effectiveness. According to research in Islamic finance by Ferri et al. (2025), the digital and interdisciplinary knowledge of board members is more important than the structure of the board when it

comes to investing in and overseeing FinTech advances. Their findings provide empirical evidence that digital competency within governance bodies promotes strategic adaptation of new FinTech. Practically, (AAOIFI, 2024) insists on shifting from reactive after-the-fact reviews to proactive governance. This strategic vision is supported by multi programs of capacity buildings and continuous digital training for Islamic finance stakeholders and BBS members.

5.2.2 Theoretical interpretation

The positive relationship strongly supports the RBV theory when it stipulates that digital literacy is a valuable and rare organisational resource enabling superior performance. So, having SSBs with expertise members in AI, blockchain, and cybersecurity would enable better understanding of FinTech products and their compliance implications.

In conclusion, the positive link between digital knowledge and SSB effectiveness raises the importance of considering human digital capital as a strategic asset and factor to enhance the effectiveness of SSB governance. The result clarifies that capability, not timing, is the primary driver of effective governance.

5.3 Implications of H3: institutional weakness and demand for harmonisation

The results of the data analysis support H3. The regression showed a significant negative coefficient ($B = -0.684$, $p = 0.041$) which means less effectiveness of the current system perception increase the preference and the support for a unified GCC Sharia council.

5.3.1 Interpretation with institutional theory

This finding is aligned with IT, which postulates that organisations respond to performance deficiencies by seeking external legitimacy and structural reform (DiMaggio and Powell 1983). When internal mechanisms do not ensure reliable and consistent governance, then the stakeholders seek external harmonisation mechanisms to enhance legitimacy and reduce uncertainty.

5.3.2 Interpretation in light of literature

Previous works in literature confirm our findings such as the work of Archer and Karim (2007) and Grassa (2015) who found that divergence in Sharia rulings across jurisdictions leads to high compliance costs and delays in product approvals. From their side, Hassan et al. (2020) and Bin Amin (2024) argue that inconsistent Sharia governance across GCC countries constrain FinTech integration. This result supported by the literature argues that unified SSBS GCC level will reduce the timing of the review process and increase the effectiveness of the SSBs governance.

5.4 Integrating the theoretical framework

The findings contribute to integrated understanding of Islamic FinTech governance through the theoretical framework:

- 1 SGT: SGT accurately emphasises the importance of structured oversight, but the results show that timing alone is insufficient. Effective governance requires capability, not only earlier involvement.
- 2 RBV: RBV is a strong explanatory lens: the digital literacy, technological comprehension, and multidisciplinary expertise are decisive predictors of perceived effectiveness.
- 3 IT: IT explains system-level responses: when institutional performance is perceived as weak, support for harmonisation and regional governance increases.

5.4.1 Integrated contribution

The research enhances the literature by illustrating that proficient FinTech governance depends on the interaction between micro-level factors (scholar capability), Meso-level processes (involvement and governance structures), and macro-level institutional frameworks (regional alignment). This explanation strengthens the theoretical foundation of Sharia governance under the scope FinTech and digital era.

5.5 Practical implications

These implications are given to regulators, Islamic banks, and FinTech providers.

5.5.1 Policy implications for regulators

Study findings and recent empirical and industry research emphasise an urgent policy imperative: regulators and policy makers in the GCC are invited to provide harmonised guidance tailored to emerging FinTech innovations.

Regulators and policy makers are invited to mandate comprehensive digital literacy training for SSB members in coordination with active stakeholders such as the accredited academic institutions, AAOIFI, CIBAFI, and industry partners (ICD-LSEG, 2025).

Regulators and policy makers are invited to actively promote the adoption of AI-based Sharia screening tools, as recommended by the respondents to the survey and the experts on innovation in Islamic capital markets in the region.

GCC countries need to work together more closely so that they can share their sandbox experience, which allows for the testing and validation of Sharia-compliant FinTech solutions. This experience encourages people to share what they know and makes sure that everyone understands Sharia principles in the same way (Ken Research, 2025).

Strong empirical support for establishing a unified GCC Sharia council should motivate serious policy consideration. This regional body (extendable to Islamic international body) would modernise product approvals, reduce regulatory arbitrage, and create a more cohesive Islamic FinTech ecosystem. This recommendation has been already raised by the Arab Monetary Fund's 2022 regulatory harmonisation report (Arab Monetary Fund, 2022). This implication is also aligned with international best practices for collaborative innovation in financial supervision (Financial Stability Board, 2017).

5.5.2 *Recommendations for Islamic institutions and Sharia supervisory boards*

Islamic Institutions and SSBs need to reinforce the collaboration with IT specialists, and Fintech product designers and make it as standard practice, as demonstrated in successful innovation hubs like Bahrain and Dubai.

Islamic Institutions and SSBs are invited to investing in targeted training specifically 'Sharia scholar education in digital finance'. The recommendation is highly supported by recent studies such as Wijayanti and Setiawan (2023) and ICD-LSEG (2025).

SSBs are invited to access to expert consultants and the use of AI-based screening tools to optimise the evaluation of complex FinTech products and enhance SSBs' decision-making speed and reliability.

5.5.3 *Practical strategies for FinTech providers*

FinTech providers are invited to understand the regulatory and the capacity gaps in current SSB practices, which are essential for successful market exploitation.

Leader providers in the Islamic Fintech market prepares detailed Sharia compliance roadmaps and engaging with SSBs early in the design phase to educate scholars about new technological features.

FinTech providers' collaboration with banks participating in regional sandboxes can expedite approval processes and support market access, as observed in multiple recent sandbox pilot programs.

6 Conclusions

This study provided one of the first region-wide empirical assessments of SSB effectiveness in governing FinTech innovations across the six GCC countries. The theoretical framework of the study was designed considering the principles of SGT, the RBV, and IT. The objective is to examine the effects of digital literacy, the timing of SSB engagement, and institutional perceptions on governance outcomes.

Consequently, three important findings are presented by the study. The first result related to the impact of the early involvement of the SSB in product development on the perceived effectiveness of governance. Findings show no significant impact of early involvement and argue that without the necessary technical understanding, procedural timeliness is ineffective. This research finding is aligned with the basic assumptions of SGT. The second finding reports digital literacy and multidisciplinary competence as modest but substantial predictors of effectiveness. This result supports the RBV's position describing human capital capabilities as a strategic advantage for organisations. The third result is

In line with IT's principles, this study found that a unified Sharia council at the GCC level is strongly supported by reduced perceived SSB efficacy. In order to ensure appropriate governance of FinTech by SSB, it is necessary to guarantee coordination at higher-level institutional frameworks, intermediate-level procedures, and lower-level competencies.

The study has limitations even if it makes significant empirical findings. The sample, though diverse, is constrained to 80 respondents, which may limit generalisability. Bias in responses is a further risk associated with self-reported metrics. To investigate SSB

behaviour in actual development cycles, future studies could use case-based and longitudinal designs, increase the sample size, or use mixed-methods approaches. The effects of cross-border Sharia governance models, AI-assisted fatwa procedures, and regulatory technology (RegTech) on institutional performance could all be the subject of future research.

Declarations

Regarding the publishing of this work, authors declare that they have no conflicts of interest.

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