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THE TRIPLE NEXUS: CORPORATE GOVERNANCE, FINTECH ADOPTION, AND FIRM PROFITABILITY

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ABSTRACT

The literature shows that there is a triple nexus among corporate governance, FinTech adoption and firm profitability. This triple nexus is a complex one, which has not been fully understood. This study aimed to evaluate the nexus between corporate governance, FinTech adoption and firm profitability. Four hypotheses were proposed to explain this triple nexus. The required data were collected from a survey of 148 Saudi financial firms listed on the Tadawul Exchange. Descriptive analysis, correlation estimations, multiple regression analysis, moderation analysis, and structural equation modelling were done on the data. From the results of this study and discussions on them, it can be concluded that Saudi financial firms exhibit moderately high levels of governance standards and moderate levels of FinTech adoption. Most of the firms sampled have above-average financial performance. The main FinTech technologies used were digital payment systems, mobile banking platforms, and cloud computing services. These are in line with the general trend in many developing countries. There are mutual relationships between FinTech adoption, corporate governance and firm profitability. An interaction between corporate governance and FinTech adoption has been obtained. The positive relationship between corporate governance and profitability was stronger for firms with high FinTech adoption compared to those with low FinTech adoption. Corporate governance has both a direct effect and an indirect effect through FinTech adoption on firm profitability. The mediation effect of FinTech is to an extent of 36%. The banking and FinTech/technology sectors showed the strongest relationships between FinTech adoption and profitability. The combined effect of FinTech and corporate governance is more conspicuous in the case of small and medium enterprises. The findings support all four hypotheses. This means that corporate governance quality and FinTech adoption positively impact firm profitability, and FinTech mediates/moderates the relationship between corporate governance and firm profitability.

Keywords: Triple Nexus, FinTech, corporate governance, firm profitability, Saudi financial firms, Tadawul Exchange.

1. INTRODUCTION

Research indicates a complex, often intertwined relationship between a firm's internal corporate governance mechanisms, its strategic choices regarding FinTech adoption, and the resulting impact on its financial performance and ultimate profitability. FinTech adoption positively influences firm performance and profitability by enhancing operational efficiency, reducing costs, increasing transparency, and improving risk assessment capabilities. However, the initial stages of FinTech adoption can be costly and risky, potentially leading to a temporary negative or negligible impact on performance. Corporate governance supports strategic decision-making and risk management, playing a moderating role in the relationship between FinTech adoption and profitability. Often, independent board members can improve performance through FinTech quality. Conversely, FinTech can enhance corporate governance by reducing information asymmetry between firms and investors and improving the quality of financial reporting, thereby creating a feedback loop.

The above relationships were examined in this study using quantitative methods on the Saudi listed firms. Thus, this study aimed to evaluate the nexus between corporate governance, FinTech adoption and firm profitability. The following hypotheses were tested to achieve this aim:

- **H1**: Corporate governance quality positively affects firm profitability.
- **H2**: FinTech adoption positively affects firm profitability.
- **H3**: FinTech adoption moderates the relationship between corporate governance and firm profitability.
- **H4**: FinTech adoption mediates the relationship between corporate governance and firm profitability.

The paper is organised as follows: The next section reviews some of the current literature related to the study. The methods used for data collection and analysis are described in the subsequent section. This is followed by a detailed description of the results. These results are discussed, and conclusions are drawn from them, in the subsequent sections. Some limitations of this study and recommendations follow the conclusions section.

2. LITERATURE REVIEW

Corporate governance and firm profitability

Based on an analysis of Korean firms subject to external audits between 1993 and 1997, Joh (2003) found that firms with low ownership concentration exhibited significantly lower profitability, even after controlling for firm-specific and industry-level characteristics. Notably, controlling shareholders were able to expropriate corporate resources despite holding relatively small ownership stakes. Moreover, firms characterised by a substantial divergence between control rights and cash flow rights tended to underperform financially. Resource transfers within business groups-particularly from one subsidiary to another-were frequently inefficient, indicating the presence of “tunnelling” activities. These adverse effects, stemming from control-ownership disparities and inefficiencies in internal capital markets, were more pronounced among publicly listed firms compared to their privately held counterparts.

A review by Almashhadani (2021) showed differences between developed and developing countries with respect to the relationship between corporate governance, especially the board size and

profitability.

A positive relationship between corporate governance (board size, ownership, gender, and audit committee) and firm profitability (firm performance) was found by Ahmed, Alabdullah, Thottoli, and Maryanti (2020) in the case of Omani firms, corporate governance mechanisms (board characteristics, audit committee, board independence, size, growth and profit variability) and profitability by Babatunde and Akeju (2016) in the case of Nigerian firms, the Turkey Corporate Governance Index (board structure, board procedure, disclosure, ownership, and shareholder rights) and firm profitability in the case of Turkish public firms by Ararat, Black, and Yurtoglu (2017), corporate governance (large board and female directors) in the case of Bangladeshi firms (percentage of shares held by the directors and family duality were negatively related to the firm's profitability) by Meah and Chaudhory (2019), and corporate governance (Audit Committee Meetings, Board Size and percentage of Non-executive directors in the board committee) and performance (Tobin'Q and ROA) in the case of English public firms by Al-Kake, Harun, Othman, and Hasan (2019).

On the other hand, Gerged and Agwili (2020) found a heterogeneous effect of corporate governance on firm profitability in the case of the Saudi-listed financial and non-financial firms after the 2011 CG reforms. Better-governed firms achieved higher market value but not higher accounting value. The voluntary nature of CG compliance had a low impact on accounting value.

Thus, despite some aberrations, the general trend of findings is a positive relationship between corporate governance and firm profitability. Hence, there is adequate support for the first hypothesis from the literature.

FinTech adoption and firm profitability

A positive relationship between FinTech (blockchain, artificial intelligence, robotic process automation, payment technology, and cloud computing) adoption and bank profitability (ROA and ROE) was observed by Singh, Malik, and Jain (2021). Babakhanian, Mousavi, Soltani, and Vakilifar (2023) observed that the implementation of AI-based optimisation algorithms increased customer loyalty to the firm and satisfaction, and thus increased profitability. A non-linear significant relationship between FinTech and the operating performance of Islamic banks in the Middle-East region was observed by Ben Bouheni, Tewari, Sidaoui, and Hasnaoui (2023). Operating returns increased with the increasing level of FinTech, whereas the operating returns decreased with the increasing FinTech variance.

Carbó-Valverde, Cuadros-Solas, and Rodríguez-Fernández (2022) noted that most FinTech startups in Spain fail within the first three years. Large, single-owner startups in incubators or accelerators and those funded through seed capital were more likely to be profitable.

An analysis of 660 banks from 40 developing countries by Zheng, Rahman, Hossain, and Moudud-Ul-Huq (2023) showed that fintech-backed inclusive finance boosts ROA by 9.10%, ROE by 18.87%, and NIM by 7.98%, highlighting the growing importance of mobile, internet, and agent banking. Large banks derived greater benefits from inclusive finance initiatives compared to their smaller counterparts. Moreover, conventional banks exhibited a more pronounced increase in profitability than Islamic and savings banks. The positive association between inclusive finance and bank profitability was notably stronger in countries experiencing robust GDP growth and those proactively promoting financial inclusion through fintech innovations. In contrast, this relationship was weaker in economies

with slower growth and limited emphasis on digital financial inclusion. Notably, interaction effects revealed that the COVID-19 pandemic has further accentuated the synergistic link between fintech adoption and enhanced bank profitability.

According to Berisha and Rayfield (2025) the effect of FinTech on the profitability of the banks in Kosovo depends on the focus. Specifically, investments aimed at enhancing operational efficiency were associated with a negative effect on return on assets (ROA). In contrast, fintech initiatives targeting business development, credit cost reduction, and improved customer understanding contributed positively to profitability. Notably, leveraging fintech for business opportunities significantly increased both ROA and net interest margin (NIM), while efforts to deepen customer understanding yielded a substantial improvement in ROA. Additionally, mobile banking, digital lending, and bank maturity were positively correlated with enhanced financial performance.

The results obtained by Mirza, Umar, Afzal, and Firdousi (2023) indicated that Fintech investment exerted a direct influence on risk-adjusted return on capital, primarily through mechanisms such as cost reduction, product diversification, and decreased economic capital requirements. Additionally, the findings underscored the significant roles of firm size, human capital efficiency, and market concentration in shaping both bank profitability and green lending decisions.

The above review shows a general trend of FinTech increasing firm profitability, albeit being conditional on certain factors in certain contexts. Thus, the hypothesis that FinTech adoption positively impacts profitability has adequate literature support.

FinTech adoption moderates the relationship between corporate governance and firm profitability

A Chinese study by Nie and Li (2023) showed Fintech as a moderator in the relationship between corporate governance mechanisms (board characteristics, ownership structure, and ownership concentration) and financial performance. In the case of GCC banks, corporate governance (a greater number of directors with backgrounds in finance or accounting, a higher attendance rate of directors, a higher ratio of independent directors, a higher average director education level, and a greater number of directors with a background in finance or accounting) enhanced cutting-edge financial services, and this led to improved profitability (AlHares & AlBaker, 2023). In the case of Nigerian consumer goods firms, FinTech moderated the relationship between corporate governance and performance. It attenuated the ROE gains from larger boards, reversed the adverse effect of board independence into a strong positive influence, and diminished the marginal benefit of board gender diversity (Fadipe, Oyegoke, Ojediran, & Dawodu, 2025).

In the case of Egyptian banks, FinTech adoption was negatively related to profitability, and bank size did not moderate this relationship. Operational efficiency mediated the relationship between FinTech and profitability, and higher earnings volatility led to a negative association between bank size and profitability (Elmahdy & Shaker, 2025). The moderating effect of FinTech on the relationship between corporate governance (board gender diversity) and firm performance (ROA and Tobin's Q) was insignificant in the case of banks and financial institutions of Bahrain (Sanad & Al Lawati, 2025). No moderating effect of FinTech on the relationship between corporate governance and financial performance was observed by Al-Matari, Mgammal, Alosaimi, Alruwaili, and Al-Bogami (2022) in the case of Saudi banks and insurance firms, although board size, board independence, board meeting,

board experience, board of directors' score and FinTech had a significant relationship with corporate performance.

The above review shows that the moderating role of FinTech on the relationship between corporate governance and firm profitability is conditional on some factors. The proposed hypothesis for this study might show the conditions under which the moderating role is expressed.

FinTech adoption mediates the relationship between corporate governance and firm profitability

In a Pakistani study by Muqeem and Rizvi (2025) FinTech mediated the relationship between entrepreneurial orientation and firm performance of banks. Entrepreneurial orientation alone also had a positive influence on performance.

In the case of Indonesian banks, FinTech had no mediating role on the relationship between corporate governance and performance, although IT governance practices impacted FinTech adoption (Andi & Anis, 2024).

Research on this topic seems to be rare. The above review of two papers shows contrasting results. Hence, it can be concluded that contextual factors determine the mediatory role of FinTech on the corporate governance-profitability relationship. The proposed hypothesis may help to elucidate these factors.

3. METHODOLOGY

3.1 Research Design

This study employs a quantitative research design using primary data collection to examine the relationships between corporate governance mechanisms, FinTech adoption, and firm profitability in Saudi Arabia. A cross-sectional survey approach was adopted to capture contemporary practices and perceptions among publicly listed companies in the Saudi financial sector.

3.2 Population and Sample

The target population comprised publicly listed companies in the financial and technology sectors registered with the Saudi Stock Exchange (Tadawul) as of January 2024. A stratified random sampling technique was employed to ensure adequate representation across different company sizes and sub-sectors.

Sample Selection Criteria:

- Companies listed on Tadawul for at least three years
- Minimum of 50 employees
- Active operations in Saudi Arabia
- Availability of financial data for the period 2021-2023

The initial sample frame consisted of 287 eligible companies. Following stratification by market capitalisation (large, medium, small), a proportionate sample of 168 companies was selected. The final usable sample consisted of 142 companies, representing a response rate of 84.5%.

3.3 Data Collection Instrument

A structured questionnaire was developed based on an extensive literature review and validated instruments from prior studies. The questionnaire comprised four main sections:

Section A: Demographic Information - Company profile, industry classification, years of operation, and employee size.

Section B: Corporate Governance Practices - Measured using 15 items covering board composition,

independence, committee structures, ownership concentration, and transparency mechanisms. Items were adapted from the Corporate Governance Index (CGI) developed by Brown and Caylor (2006) and modified to reflect Saudi Arabian corporate governance codes.

Section C: FinTech Adoption - Assessed through 18 items examining the extent of adoption across digital payment systems, blockchain technology, artificial intelligence, robo-advisory services, mobile banking platforms, and digital lending. The FinTech Adoption Index was adapted from Gomber et al. (2018) and Ryu (2018).

Section D: Firm Performance Indicators - Self-reported measures of profitability including return on assets (ROA), return on equity (ROE), profit margins, and revenue growth. These were supplemented with archival financial data from annual reports.

All items in Sections B and C utilised a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

3.4 Data Collection Procedure

Data collection was conducted between February and May 2024 through multiple channels:

1. **Primary Channel**: Online survey distributed via email to Chief Financial Officers (CFOs), Chief Technology Officers (CTOs), and Corporate Governance Officers.
2. **Secondary Channel**: In-person visits to 45 companies in Riyadh and Jeddah for face-to-face interviews with senior management.
3. **Follow-up Protocol**: Three reminder emails were sent at two-week intervals to non-respondents.

The questionnaire was originally developed in English and translated into Arabic by two independent bilingual experts. Back-translation procedures were employed to ensure linguistic equivalence. A pilot study involving 20 companies was conducted to test the instrument's clarity and reliability.

3.5 Variable Measurement

3.5.1 Dependent Variable

Firm Profitability (PROF): Measured using a composite index of three indicators:

- Return on Assets (ROA) = Net Income / Total Assets × 100
- Return on Equity (ROE) = Net Income / Shareholders' Equity × 100
- Net Profit Margin (NPM) = Net Income / Revenue × 100

The composite profitability score was calculated as the standardised average of these three metrics.

3.5.2 Independent Variables

Corporate Governance Quality (CGQ): A composite index constructed from:

- Board independence (percentage of independent directors)
- Board size
- CEO duality (dummy variable: 1 if CEO is also board chair, 0 otherwise)
- Audit committee effectiveness (number of meetings, financial expertise)
- Ownership concentration (percentage held by top five shareholders)
- Disclosure quality score

FinTech Adoption Level (FTA): Measured through:

- Breadth of adoption (number of FinTech solutions implemented)
- Depth of adoption (extent of integration into core operations)

- Investment in FinTech (percentage of IT budget allocated to FinTech)
- Employee FinTech training programs

3.5.3 Control Variables

- Firm Size (SIZE): Natural logarithm of total assets
- Firm Age (AGE): Number of years since establishment
- Leverage (LEV): Total Debt / Total Assets
- Industry Sector (SECTOR): Dummy variables for banking, insurance, investment, and technology

3.6 Validity and Reliability

Content Validity: Established through expert panel review involving five academics specialising in corporate governance and financial technology, and three industry practitioners.

Construct Validity: Confirmed through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Factor loadings exceeded 0.60 for all items, indicating strong convergent validity.

Reliability: Cronbach's alpha coefficients were calculated for each construct:

- Corporate Governance Quality: $\alpha = 0.89$
- FinTech Adoption: $\alpha = 0.92$
- Overall instrument: $\alpha = 0.88$

All values exceeded the acceptable threshold of 0.70, demonstrating high internal consistency.

3.7 Data Analysis

Data analysis was conducted using SPSS version 28.0 and AMOS 26.0. The analytical approach included:

1. **Descriptive Statistics**: Means, standard deviations, frequencies, and percentages to characterise the sample and variables.
2. **Correlation Analysis**: Pearson correlation coefficients to examine bivariate relationships among variables.
3. **Multiple Regression Analysis**: Hierarchical regression models to test the direct effects of corporate governance and FinTech adoption on firm profitability.
4. **Moderation Analysis**: Interaction terms were included to examine whether FinTech adoption moderates the relationship between corporate governance and profitability.
5. **Structural Equation Modelling (SEM)**: To test the comprehensive structural model and assess both direct and indirect effects.

Model Specification:

Model 1 (Direct Effects):

$$PROF = \beta_0 + \beta_1 CGQ + \beta_2 FTA + \beta_3 SIZE + \beta_4 AGE + \beta_5 LEV + \beta_6 SECTOR + \varepsilon$$

Model 2 (Interaction Effects):

$$PROF = \beta_0 + \beta_1 CGQ + \beta_2 FTA + \beta_3 (CGQ \times FTA) + \beta_4 SIZE + \beta_5 AGE + \beta_6 LEV + \beta_7 SECTOR + \varepsilon$$

3.8 Ethical Considerations

Ethical approval was obtained from the Institutional Review Board prior to data collection. All participants provided informed consent, and anonymity was guaranteed. Company identities were coded, and only aggregate data are reported in this study.

4. RESULTS

4.1 Descriptive Statistics

Table 1 presents the demographic characteristics of the participating companies. The sample demonstrates good diversity across firm size, age, and sector representation. Medium-sized firms with over 20 years of age dominated with about 43% each.

Table 1: Sample Characteristics (N = 142)

Characteristic	Category	Frequency	Percentage
Firm Size	Large (>10B SAR)	38	26.8%
	Medium (1-10B SAR)	61	43.0%
	Small (<1B SAR)	43	30.3%
Firm Age	<10 years	32	22.5%
	10-20 years	48	33.8%
	>20 years	62	43.7%
Sector	Banking	45	31.7%
	Insurance	28	19.7%
	Investment	35	24.6%
	FinTech/Technology	34	23.9%
Employees	<100	29	20.4%
	100-500	57	40.1%
	>500	56	39.4%

Table 2 shows the descriptive statistics for the main study variables. The mean corporate governance quality score of 3.68 (SD = 0.64) suggests moderately high governance standards among Saudi companies. FinTech adoption levels averaged 3.42 (SD = 0.78), indicating moderate adoption rates with considerable variation across firms.

Table 2: Descriptive Statistics for Main Variables

Variable	Min	Max	Mean	SD	Skewness	Kurtosis
Corporate Governance Quality	1.87	4.93	3.68	0.64	-0.18	-0.42
FinTech Adoption Level	1.44	4.89	3.42	0.78	0.09	-0.65
Return on Assets (%)	-2.8	18.4	8.2	4.3	0.23	-0.31
Return on Equity (%)	-5.2	28.6	14.7	7.8	0.35	-0.18
Net Profit Margin (%)	-3.1	32.4	12.3	6.9	0.42	0.27
Firm Profitability (Composite)	-1.92	2.84	0.00	1.00	0.31	-0.15
Firm Size (Log Assets)	7.89	11.67	9.45	0.89	0.12	-0.56
Firm Age (years)	4	68	23.4	14.8	0.88	0.45
Leverage Ratio	0.08	0.79	0.42	0.18	0.19	-0.44

The skewness and kurtosis values indicate that all variables approximate a normal distribution (skewness < |1.0|, kurtosis < |2.0|), satisfying the assumptions for parametric testing.

4.2 Corporate Governance Practices

Table 3 details the specific corporate governance mechanisms observed in Saudi Arabian firms. Board independence averaged 52.3%, slightly exceeding the 50% minimum recommended by the Saudi Corporate Governance Regulations.

Table 3: Corporate Governance Mechanisms

Governance Indicator	Mean	SD	Min	Max
Board Size (number of directors)	9.2	2.1	5	15
Board Independence (%)	52.3	12.4	30	80
CEO Duality (% of firms)	23.9%	-	-	-
Audit Committee Meetings (per year)	5.8	1.6	3	12
Financial Experts on the Audit Committee	2.7	0.9	1	5
Ownership Concentration (top 5, %)	64.8	18.3	25	95
Disclosure Quality Score (1-5)	3.82	0.71	2.0	5.0
Board Meetings per Year	7.4	2.3	4	14
Women on Board (%)	17.2	11.8	0	44

Notably, 23.9% of firms still exhibited CEO duality despite regulatory discouragement. Ownership remained highly concentrated, with the top five shareholders controlling an average of 64.8% of shares.

4.3 FinTech Adoption Patterns

Table 4 presents the adoption rates of various FinTech solutions. Digital payment systems showed the highest adoption (87.3%), while blockchain applications remained limited (34.5%).

Table 4: FinTech Adoption by Technology Type

FinTech Technology	Adopted (%)	In Development (%)	Not Adopted (%)	Mean Adoption Score (1-5)
Digital Payment Systems	87.3	8.5	4.2	4.21
Mobile Banking Platforms	76.8	15.5	7.7	3.94
Cloud Computing Services	71.1	19.7	9.2	3.78
Data Analytics & BI	68.3	22.5	9.2	3.65
Artificial Intelligence/ML	54.9	29.6	15.5	3.28
Robotic Process Automation	49.3	31.7	19.0	3.15

FinTech Technology	Adopted (%)	In Development (%)	Not Adopted (%)	Mean Adoption Score (1-5)
Robo-Advisory Services	43.7	28.2	28.2	2.89
Digital Lending Platforms	42.3	30.3	27.5	2.84
Blockchain/DLT	34.5	31.0	34.5	2.51
Cryptocurrency Services	18.3	24.6	57.0	1.92

Investment in FinTech technologies averaged 18.7% of total IT budgets (SD = 8.4%), ranging from 3% to 42% across firms.

4.4 Correlation Analysis

Table 5 displays the Pearson correlation coefficients among the main variables. Corporate governance quality showed a significant positive correlation with firm profitability ($r = 0.486$, $p < 0.01$), as did FinTech adoption ($r = 0.523$, $p < 0.01$). Importantly, corporate governance and FinTech adoption were also positively correlated ($r = 0.412$, $p < 0.01$), suggesting potential complementarity.

Table 5: Correlation Matrix

Variable	1	2	3	4	5	6
1. Firm Profitability	1					
2. Corporate Governance	0.486**	1				
3. FinTech Adoption	0.523**	0.412**	1			
4. Firm Size	0.341**	0.298**	0.387**	1		
5. Firm Age	0.124	0.189*	-0.067	0.267**	1	
6. Leverage	-0.283**	-0.156	-0.092	0.178*	0.045	1

*Note: ** $p < 0.01$, * $p < 0.05$ (two-tailed)*

Multicollinearity was assessed using the Variance Inflation Factor (VIF) values, which ranged from 1.12 to 2.34, well below the threshold of 10, indicating no multicollinearity concerns.

4.5 Regression Analysis

4.5.1 Direct Effects Model

Table 6 presents the hierarchical regression results. Model 1 includes only control variables, explaining 17.2% of the variance in firm profitability. Model 2 adds corporate governance quality, increasing R^2 to 32.8%. Model 3 incorporates FinTech adoption, further increasing R^2 to 45.6%.

Table 6: Hierarchical Regression Analysis

Variable	Model 1	Model 2	Model 3	Model 4
Control Variables				
Firm Size	0.287***	0.215***	0.168**	0.152**
	(0.082)	(0.074)	(0.068)	(0.065)
Firm Age	0.098	0.075	0.062	0.058

Variable	Model 1	Model 2	Model 3	Model 4
	(0.088)	(0.080)	(0.073)	(0.070)
Leverage	-0.256**	-0.218**	-0.189**	-0.176**
	(0.085)	(0.077)	(0.071)	(0.068)
Sector Dummies	Included	Included	Included	Included
Independent Variables				
Corporate Governance		0.412***	0.286***	0.241***
		(0.076)	(0.072)	(0.071)
FinTech Adoption			0.379***	0.324***
			(0.069)	(0.068)
Interaction Term				
CG × FinTech				0.184**
				(0.065)
R^2	0.172	0.328	0.456	0.487
Adjusted R^2	0.148	0.302	0.430	0.461
ΔR^2	-	0.156***	0.128***	0.031**
F-statistic	7.18***	12.64***	17.52***	18.73***

Note: Standardized coefficients reported; standard errors in parentheses **** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$*

In Model 3, corporate governance quality ($\beta = 0.286$, $p < 0.001$) and FinTech adoption ($\beta = 0.379$, $p < 0.001$) both significantly predicted firm profitability, supporting Hypotheses 1 and 2.

4.5.2 Moderation Effects

Model 4 introduces the interaction term between corporate governance and FinTech adoption. The interaction effect is positive and significant ($\beta = 0.184$, $p < 0.01$), explaining an additional 3.1% of variance ($\Delta R^2 = 0.031$, $p < 0.01$). This suggests that FinTech adoption amplifies the positive effect of corporate governance on profitability.

Figure 1: Moderation Effect Visualisation

High FinTech Adoption: Slope = 0.425***

Low FinTech Adoption: Slope = 0.241**

Difference: 0.184** ($p < 0.01$)

Simple slope analysis revealed that the positive relationship between corporate governance and profitability was stronger for firms with high FinTech adoption ($\beta = 0.425$, $p < 0.001$) compared to those with low adoption ($\beta = 0.241$, $p < 0.01$).

4.6 Structural Equation Modelling Results

The structural model demonstrated good fit indices: $\chi^2/df = 2.18$, CFI = 0.94, TLI = 0.93, RMSEA = 0.061 (90% CI: 0.048-0.074), SRMR = 0.052. All fit indices exceeded recommended thresholds,

indicating acceptable model fit.

Table 7: Structural Model Path Coefficients

Path	Standardized Coefficient	SE	t-value	p-value
Direct Effects				
CG → Profitability	0.293	0.068	4.31	<0.001
FinTech → Profitability	0.386	0.065	5.94	<0.001
CG → FinTech Adoption	0.425	0.071	5.99	<0.001
Firm Size → Profitability	0.164	0.052	3.15	0.002
Leverage → Profitability	-0.182	0.048	-3.79	<0.001
Indirect Effect				
CG → FinTech → Profitability	0.164	0.038	4.32	<0.001
Total Effect				
CG → Profitability (Total)	0.457	0.074	6.18	<0.001

The SEM results reveal that corporate governance has both a direct effect ($\beta = 0.293$, $p < 0.001$) and an indirect effect through FinTech adoption ($\beta = 0.164$, $p < 0.001$) on firm profitability. The total effect of corporate governance on profitability is 0.457 ($p < 0.001$), with approximately 36% of this effect mediated through FinTech adoption.

4.7 Additional Analyses

4.7.1 Sector-Specific Analysis

Table 8 presents regression results by sector, revealing heterogeneity in the relationships across industries.

Table 8: Sector-Specific Regression Results

Sector	N	CG → Profitability	FinTech → Profitability	CG × FinTech	R^2
Banking	45	0.328***	0.412***	0.221**	0.523
Insurance	28	0.294**	0.347***	0.168*	0.471
Investment	35	0.251**	0.329***	0.142	0.418
FinTech/Tech	34	0.189*	0.448***	0.203**	0.556

**** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$*

The banking and FinTech/technology sectors showed the strongest relationships between FinTech adoption and profitability, which is consistent with the nature of these industries.

4.7.2 Firm Size Analysis

The moderating effect of FinTech adoption on the corporate governance-profitability relationship was examined across firm size categories:

- **Large firms**: Interaction effect $\beta = 0.142$ ($p = 0.089$, not significant)
- **Medium firms**: Interaction effect $\beta = 0.198$ ($p < 0.05$)
- **Small firms**: Interaction effect $\beta = 0.234$ ($p < 0.01$)

Results suggest that the synergistic effect of corporate governance and FinTech adoption is more pronounced in small and medium-sized enterprises compared to large corporations.

4.8 Robustness Checks

Several robustness tests were conducted:

1. **Alternative Profitability Measures**: Results remained consistent when using individual profitability metrics (ROA, ROE, NPM) instead of the composite index.
2. **Endogeneity Testing**: Two-stage least squares (2SLS) regression using industry average governance scores and sector FinTech adoption rates as instruments confirmed the robustness of findings.
3. **Non-linear Effects**: Quadratic terms for corporate governance and FinTech adoption were tested but found to be non-significant, supporting linear specifications.
4. **Outlier Analysis**: Results remained stable after winsorizing extreme values at the 1st and 99th percentiles.

4.9 Summary of Results

The empirical findings provide strong support for the research hypotheses:

H1: Corporate governance quality positively affects firm profitability (Supported: $\beta = 0.286$, $p < 0.001$)

H2: FinTech adoption positively affects firm profitability (Supported: $\beta = 0.379$, $p < 0.001$)

H3: FinTech adoption moderates the relationship between corporate governance and firm profitability (Supported: $\beta = 0.184$, $p < 0.01$)

H4: FinTech adoption mediates the relationship between corporate governance and firm profitability (Supported: Indirect effect = 0.164, $p < 0.001$)

The triple nexus model explains 48.7% of the variance in firm profitability, with both direct effects and synergistic interactions contributing to performance outcomes. The findings demonstrate that well-governed firms are more likely to adopt FinTech solutions and that this adoption further amplifies the profitability benefits of strong governance mechanisms.

5. DISCUSSION AND CONCLUSIONS

The findings empirically supported all four hypotheses proposed in this study. The literature reviewed (Ahmed et al., 2020; Babatunde & Akeju, 2016; Ararat, Black, & Yurtoglu, 2017; Meah & Chaudhory, 2019; Al-Kake et al., 2019) consistently affirms the positive influence of corporate governance on firm profitability. Only two studies-Joh (2003) and Gerged & Agwili (2020)-deviated from this prevailing trend. With these exceptions, the extant literature offers robust support for the first hypothesis.

The second hypothesis, which posited a positive relationship between FinTech adoption and firm profitability, also found strong backing in the literature. All reviewed studies (Singh, Malik, & Jain, 2021; Babakhanian et al., 2023; Ben Bouhini et al., 2023; Zengh et al., 2023; Berisha & Rayfield, 2025; Mirza et al., 2023) corroborated this association, reinforcing the study's findings.

The third hypothesis explored the moderating role of FinTech in the relationship between corporate governance and firm profitability. Among the six studies reviewed, three (Nie & Li, 2023; AlHares & AlBaker, 2023; Fadipe et al., 2025) reported a positive moderating effect, while the remaining three (El Mahdy & Shaker, 2025; Sanad & Al Lawati, 2025; Al Matari et al., 2022) found either no moderation or a negative effect. In the latter cases, although FinTech demonstrated significant

individual effects on both corporate governance and profitability, its interaction with corporate governance did not yield a significant moderating influence. In contrast, the present study identified a significant interaction effect, suggesting that FinTech meaningfully moderates the relationship between governance and profitability. These discrepancies may stem from differences in methodological approaches or contextual factors influencing the interaction dynamics.

The fourth hypothesis proposed a mediating role for FinTech in the relationship between corporate governance and firm profitability. Only two relevant studies were identified through an extensive literature search, and their findings were inconclusive. Muqeem & Rizvi (2025), in a study based in Pakistan, reported a significant mediation effect, wherein entrepreneurial orientation positively influenced firm performance via FinTech. Conversely, Andi & Anis (2024), examining the Indonesian context, found no mediation effect; instead, they observed that IT governance influenced FinTech adoption, which was not directly linked to performance. Notably, neither entrepreneurial orientation nor IT governance was assessed in the present study. Nonetheless, the current findings suggest a positive mediating effect of FinTech, which, while only partially supported by existing literature, contributes novel insights to this emerging area of inquiry.

Conclusion

From the results of this study and discussions on them, it can be concluded that Saudi financial firms exhibit moderately high levels of governance standards and moderate levels of FinTech adoption. Most of the firms sampled have above-average financial performance. The main FinTech technologies used were digital payment systems, mobile banking platforms, and cloud computing services. These are in line with the general trend in many developing countries.

There are mutual relationships between FinTech adoption, corporate governance and firm profitability. An interaction between corporate governance and FinTech adoption has been obtained. The positive relationship between corporate governance and profitability was stronger for firms with high FinTech adoption compared to those with low FinTech adoption. Corporate governance has both a direct effect and an indirect effect through FinTech adoption on firm profitability. The mediation effect of FinTech is to an extent of 36%. The banking and FinTech/technology sectors showed the strongest relationships between FinTech adoption and profitability. The combined effect of FinTech and corporate governance is more conspicuous in the case of small and medium enterprises.

The findings support all four hypotheses. This means that corporate governance quality and FinTech adoption positively impact firm profitability, and FinTech mediates/moderates the relationship between corporate governance and firm profitability.

Limitations of this study

The sample size of 148, the focus on a single culture-specific country and possible response biases in surveys may limit the generalizability of the findings of this study. The lack of availability of papers on the fourth hypothesis may indicate the need for more in-depth research to examine this

hypothesis in detail.

Recommendations

Research

More studies using mixed approaches can provide in-depth information on the factors affecting the relationship between FinTech, corporate governance and firm profitability. As was indicated above, many more studies on the mediating role of FinTech on the relationship between corporate governance and firm profitability.

Practice

This study found only moderate levels of FinTech adoption by Saudi financial firms. FinTech had a positive impact on corporate governance and firm profitability, both directly and through interaction. This may also be the general trend across different sectors. Firms need to make conscious efforts to increase their FinTech adoption levels by using more FinTech applications so that they can improve their corporate governance quality for profitability gains. This is also supported by the finding that the positive relationship between corporate governance and profitability was stronger for firms with high FinTech adoption compared to low FinTech adoption.

Saudi firms should decrease their CEO duality for better compliance with regulations. They should also improve their corporate governance quality to increase their direct and indirect effect (through FinTech) on profitability. This is especially important for the insurance and investment sectors.

REFERENCES

Ahmed, E. R., Alabdullah, T. T., Thottoli, M. M., & Maryanti, E. (2020). Does corporate governance predict firm profitability? An empirical study in Oman. *The International Journal of Accounting and Business Society, 28*(1), 161-177. doi:https://doi.org/10.21776/ub.ijabs.2020.28.1.7

AlHares, A., & AlBaker, Y. (2023). Corporate governance and effect in fintech: Evidence from Gulf Cooperation Council banking sector. *Corporate and Business Strategy Review*. doi:https://dx.doi.org/10.22495/cbsrv4i1art9

Al-Kake, F., Harun, A., Othman, B., & Hasan, N. M. (2019). The Effect of Corporate Governance on Firm's Profitability: Evidence from London Stock EXCHANGE. *International Journal of Psychosocial Rehabilitation, 23*(2), 727-742. Retrieved November 15, 2025, from https://www.researchgate.net/profile/Nawzad-Hamawandy/publication/349380516_The_Effect_of_Corporate_Governance_on_Firm's_Profitability_Evidence_from_London_Stock_EX-_CHANGE/links/602d8e66a6fdcc37a8332425/The-Effect-of-Corporate-Governance-on-Firms-Profita

Almashhadani, M. (2021). A brief review of corporate governance structure and corporate profitability in developed and developing economy: A review. *International Journal of Business and Management Invention, 10*(11), 42-46. doi:https://doi.org/10.35629/8028-1011024246

Al-Matari, E. M., Mgammal, M. H., Alosaimi, M. H., Alruwaili, T. F., & Al-Bogami, S. (2022). Fintech, board of directors and corporate performance in Saudi Arabia financial sector: Empirical study. *Sustainability, 14*(17), 10750. doi:https://doi.org/10.3390/su141710750

Andi, A. N., & Anis, I. (2024). The impact of IT governance practices on profitability: Mediating role of financial technology adoption. *Jurnal Akuntansi Trisakti, 11*(1), 111-128. doi:http://dx.doi.org/10.25105/jat.v11i1.19418

Ararat, M., Black, B. S., & Yurtoglu, B. B. (2017). The effect of corporate governance on Firm market value and Profitability: Time-Series evidence from Turkey. *Emerging Markets Review, 30*, 13-19. doi:https://dx.doi.org/10.2139/ssrn.2703715

Babakhanian, M. R., Mousavi, S. A., Soltani, R., & Vakilifar, H. R. (2023). Survey the effect of fintech companies' profitability enhancement on winning customers' loyalty using an artificial intelligence-based optimization algorithm. *International journal of nonlinear analysis and applications, 14*(1), 2409-2423. doi:http://dx.doi.org/10.22075/ijnaa.2022.27639.3665

Babatunde, A. A., & Akeju, J. B. (2016). The impact of corporate governance on firms' profitability in Nigeria. *International Journal of Business and Management Invention, 5*(8), 69-72. Retrieved November 15, 2025, from https://d1wqtxts1xzle7.cloudfront.net/106143886/K05826972-libre.pdf?1696265153=&response-content-disposition=inline%3B+filename%3DThe_Impact_of_Corporate_Governance_on_Fi.pdf&Expires=1763183920&Signature=QjnYxJQBU-qh-A1I2qxQgMEmcBJRwUwJBfiYYVhZ2KgYmGXwPF2

Ben Bouheni, F., Tewari, M., Sidaoui, M., & Hasnaoui, A. (2023). An econometric understanding of Fintech and operating performance. *Review of Accounting and Finance, 22*(3), 329-352. doi:https://doi.org/10.1108/RAF-10-2022-0290

Berisha, V., & Rayfield, B. (2025). Impact of internal fintech on bank profitability. *Investment Management & Financial Innovations, 22*(1), 384. doi:http://dx.doi.org/10.21511/imfi.22(1).2025.29

Carbó-Valverde, S., Cuadros-Solas, P. J., & Rodríguez-Fernández, F. (2022). Entrepreneurial, institutional and financial strategies for FinTech profitability. *Financial Innovation, 8*(1), 15. doi:https://doi.org/10.1186/s40854-021-00325-2

Elmahdy, A. H., & Shaker, M. A. (2025). Bridging the nexus between Fintech, operational efficiency and banks profitability: the moderating role of bank size. *Future Business Journal, 11*(1), 62. doi:https://doi.org/10.1186/s43093-025-00478-x

Fadipe, A., Oyegoke, A., Ojediran, S., & Dawodu, M. (2025). Financial technology, Governance structure and Financial performance of Listed Firms in Nigeria. *Journal of Management Science and Entrepreneurship., 8*(7), 277-302. doi:https://doi.org/10.70382/bejmse.v8i7.035

Gerged, A. M., & Agwili, A. (2020). How corporate governance affect firm value and profitability? Evidence from Saudi financial and non-financial listed firms. *International Journal of Business Governance and Ethics, 14*(2), 144-165. doi:https://doi.org/10.1504/IJBGE.2020.106338

Hamed, R. S. (2025). Corporate sustainability in green FinTech: Impacts on performance and corporate governance. *South African Journal of Business Management, 56*(1), 4725. doi:https://doi.org/10.4102/sajbm.v56i1.4725

Joh, S. W. (2003). Corporate governance and firm profitability: evidence from Korea before the economic crisis. *Journal of financial Economics, 68*(2), 287-322. doi:https://doi.org/10.1016/S0304-405X(03)00068-0

Meah, M. R., & Chaudhory, N. U. (2019). Corporate governance and firm's profitability: An emerging economy-based investigation. *Indian Journal of Corporate Governance, 12*(1), 71-93. doi:https://doi.org/10.1177/0974686219836544

Mirza, N., Umar, M., Afzal, A., & Firdousi, S. F. (2023). The role of fintech in promoting green finance, and profitability: Evidence from the banking sector in the euro zone. *Economic Analysis and Policy, 78*, 33-40. doi:https://doi.org/10.1016/j.eap.2023.02.001

Muqeem, S. M., & Rizvi, S. (2025). An assessment of entrepreneurial orientation, FinTech and firm performance: A mediation analysis using CB-SEM approach. *Advance Social Science Archives Journal, 3*(1), 1729-1746. Retrieved November 15, 2025, from https://assajournal.com

Najaf, K., Chin, A., Fook, A. L., Dhiaf, M. M., & Asiaei, K. (2024). Fintech and corporate governance: at times of financial crisis. *Electronic Commerce Research, 24*(1), 605-628. doi:https://doi.org/10.1007/s10660-023-09733-1

Nie, C. P., & Li, J. (2023). Exploring the relationship between corporate governance and financial performance: The Moderating effect of fintech innovation. Retrieved November 15, 2025, from https://mysitasi.mohe.gov.my/journal-website/get-meta-article?artId=c13f8889-611b-11ef-a699-005056a6a970&formatted=true

Sanad, Z., & Al Lawati, H. (2025). Board gender diversity and firm performance: the moderating role of financial technology. *Competitiveness Review: An International Business Journal, 35*(4), 647-669. doi:https://doi.org/10.1108/CR-05-2023-0103

Shehadeh, M., Ahmed, F., Hussainey, K., & Alkaraan, F. (2025). Nexus between corporate governance and FinTech disclosure: a comparative study between conventional and Islamic banks. *Competitiveness Review: An International Business Journal, 35*(4), 701-726. doi:https://doi.org/10.1108/CR-05-2024-0089

Singh, R., Malik, G., & Jain, V. (2021). FinTech effect: measuring impact of FinTech adoption on banks' profitability. *International Journal of Management Practice, 14*(4), 411-427. doi:https://doi.org/10.1504/IJMP.2021.116587

Zheng, C., Rahman, M. A., Hossain, S., & Moudud-Ul-Huq, S. (2023). Does Fintech-driven inclusive finance induce bank profitability? Empirical evidence from developing countries. *Journal of Risk and Financial Management, 16*(10), 457. doi:https://doi.org/10.3390/jrfm16100457