

Risk disclosure and financial performance of Islamic banks in Jordan: the moderating role of financial technology

Mohammed Abd-Akarim Almomani¹, Adai Al-Momani²

¹Department of Islamic Banking, Faculty of Business, Ajloun National University, Ajloun, Jordan

²Department of Computer Science, Faculty of Information Technology, Zarqa University, Zarqa, Jordan

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ABSTRACT

Risk disclosure (RD) is important to inform investors. However, few studies examined this variable in developing countries and in Islamic bank context. This research investigates how RD affect financial performance (FP) of Islamic banks in Jordan. It also examines the moderating role of financial technology (FinTech). We use a quantitative method to examine how mandatory risk disclosure (MRD) and voluntary risk disclosure (VRD) impact return on assets (ROA) and return on equity (ROE) in Islamic banks operating in Jordan. Our results show that both MRD and VRD have a significant effect on FP of Islamic banks. Moreover, FinTech acts as a moderator in the connection between risk disclosure (MRD and VRD) and FP performance. The effect was compared before and after coronavirus disease 2019 (COVID-19) and it shows that the COVID-19 has increased the effect of MRD and VRD on FP of Islamic banks. More focus on VRD and MRD will enhance the FP of Islamic banks in Jordan.

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Corresponding Author:

Mohammed Abd-Akarim Almomani

Department of Islamic Banking, Faculty of Business, Ajloun National University

Ajloun, Jordan, 26810 Ajlun, Jordan

Email: momani_60@yahoo.com

1. INTRODUCTION

Practitioners and legislators focused more on corporate governance (CG) after Enron, WorldCom, and Lehman Brothers collapsed owing to accounting problems and misstatements [1]. These incidents rocked investor trust, requiring better governance and regulatory monitoring to ensure corporations disclose information appropriately for shareholders and stakeholders [2]. Lack of openness and disclosure of essential information caused several business scandals [3]. There are several type of disclosure. One of the important yet neglected disclosure is the risk disclosure (RD) [4]. This disclosure can be mandatory by the regulation of the banks and the country or voluntary conducted by the bank to increase the trust in the financial information of banks and attract more investors by giving useful insights about their activity [5]. Legal or regulatory requirements need mandatory disclosure. Regulators globally encourage RD, especially for public corporations, to encourage openness and accountability [6].

In the annual reports of banks, the disclosed information can include qualitative and quantitative financial information [7]. Conflicting stakeholder interests, information costs, and competitive pressures affect disclosure quantity and quality [8]. Because investors and stakeholders requires this information to make financial decision regarding their investments. Therefore, it became important for banks to disclose such information [9]. Companies must publish precise financial accounts under global regulation. In the digital era, investors and shareholders want more information to make decisions and attract investments, making mandatory disclosures unsatisfactory [10]. This is more critical in Islamic banks where the banks

should comply with Shariah law and adhere to specific rules such as the forbidden of Riba and disclosed all the activities that comply with shariah law [11].

Voluntary risk disclosure (VRD) matters for several reasons. It shows current and future corporate risks, which might affect investment, financing, and liquidity. It also improves risk management by increasing stewardship responsibility, investor protection, and financial reporting utility [12]. Depending on company characteristics and CG, these disclosures include financial, operational, integrity, and strategic risks [13]. Agency theory suggested that by separation between the ownership and management, the conflict of interest increases [14]. Having effective MRD and VRD reduces the information asymmetry and reduces the knowledge gap between management and owners [15].

In Jordan, several companies were in financial distress owing to issue of governance and transparency of the financial results. It was estimated that number of listed companies in the country was dropped between 2000-2012 due to issue of transparency of disclosing information regarding the financial status of the companies [16]. Organizations depend on CG procedures to increase transparency, confidence in financial rules, and investment [17]. These topics raise doubts about Jordanian financial institutions' CG processes and their ability to boost stakeholder trust via RD. This is because RD in Jordan is unsatisfactory compared with developed nations due to stronger financial and administrative frameworks, industrialised nations apply CG more effectively [18].

However, recently, the technology has advanced and banks as well as investors uses the technology to access report, and analyse financial data, and helps in decision making [19]. Banks also uses the financial technology (FinTech) to access more customers and investors while investors uses the technology to analyse data and reach wide range of data and analysis [20]. FinTech as a moderator in the study of VRD and MRD and bank financial performance (FP) may reveal how technological advances affect disclosure practices and financial results [21]. Policymakers and practitioners must understand how FinTech moderates the impact of transparency on bank performance as the financial sector adopts digital technologies [22].

Therefore, the purpose of this study is to examine the effect of mandatory and VRD on the FP of banks in Jordan. The FP is measured using return on asset and return on equity. The study also examines the moderating role of FinTech between the two variables. The next section discusses the literature review followed by the methodology, findings and discussion, implications and conclusion.

2. LITERATURE REVIEW

2.1. Financial disclosure

Companies disclose their operations, finances, plans, and past, present, and future performance. This disclosure is usually mandated or voluntary [4]. According to rules and legislation, corporations must disclose their performance to shareholders and stakeholders. In contrast, firms actively provide information to attract investors and educate stakeholders of their operations and finances [23]. Mandatory disclosure meets minimal criteria, however, stakeholders and inventors desire more information to make accurate decision [24]. Forecasts and estimations are sometimes more important than statutory disclosure data in voluntary disclosure [25]. Annual reports include disclosures beyond financial statements and accounting rules. Insiders such as the management use voluntary disclosure to important information to others, reducing information asymmetry. This external mode of control reduces adverse selection and moral hazard, safeguarding shareholders and lowering information disparity-related agency costs [26].

VRD supplements financial statements and final accounts with financial and non-financial information that benefits firms but is not mandated by legislation [7]. Voluntary disclosure's ability to impact stakeholders' opinions of annual reports, essential company information sources, is driving its popularity. VRD usually helps investors make decisions more than MRD [27]. Given the importance of RD, this research examines amman stock exchange (ASE) financial organisations' RD policies. RD helps stakeholders make educated financial decisions by notifying them about financial, operational, integrity, and strategic risks. According to RD literature [4], [6], mandatory disclosure uses international financial reporting standards (IFRS), whereas voluntary disclosure develops RD indices and assessment methodologies.

Employed qualitative and quantitative methods to analyse governing families' effects on mandated and voluntary disclosure [28]. Examined bank voluntary and mandated RDs by risk category [18]. In [4], [29] utilised revealed item scores to evaluate RD in developing economies. Studies used different measuring methodologies to measure RD. This research used [29] VRD index since it covers financial report risk in 32 components. In addition, the MRD is measured using the IFRS measurement.

2.1.1. Risk disclosure in Jordan

RD requirements in developing nations can differ significantly from those in developed countries, implying that what is considered pertinent in one country may not hold the same relevance elsewhere [30].

The disclosure in Jordan can be traced back to 1997 when several laws were enacted to guide companies to disclose important information for investors and shareholders [31]. In addition, the country has opened its board for international business where the local businesses have to comply with certain regulations to meet the international standards.

The listed companies in Jordan are divided into three main sectors that include the financial, service, and industrial sectors. These sectors are further divided into 23 subsectors. Financial sector is the larger and most important and it contributes largely to the economy. Therefore, this study focuses on the banks in Jordan and in particular the Islamic banks because it is an emerging sector in the Islamic countries. In addition, these banks have certain expectation from the community since they adhere to shariah principals. Prior studies in Jordan indicated that the RD in Jordan is still at the minimal level. Haddad *et al.* [32] found that VRD was 28% in 1998 and increased to 37% in 2014. On the other hand, the VRD is higher in other countries with values of 48.8% as reported by [33] and percentage of 65% and 74.33% as reported in other previous studies [34].

Nevertheless, there are differences in the quantity and quality of disclosed information across sectors. In Jordan, the background information of company as well as the economic environmental details are most disclosed information in Jordan, and this could be due to the notion that this information is described by low cost and publicly accessible to all shareholders and investors [35]. On the other hand, important information such as forward-looking information and non-financial disclosures receive less attention, possibly due to political influence, assumptions of user familiarity, and the availability of alternative information sources [36]. Overall, mandatory disclosure rates in Jordan exceed voluntary disclosure rates, with companies complying with nearly 90% of mandatory requirements compared to approximately 37% for voluntary disclosure, which remains suboptimal [37]. Moreover, research on RD is scarce. Hence, this study seeks to address this gap by examining RD and its effect on FP among banks in Jordan.

2.2. Hypotheses development

2.2.1. Risk disclosure and financial performance of Islamic Banks

RD is an emerging variable in the literature of financial management. Most of previous studies focused on the link between CG and voluntary disclosure. Mallin *et al.* [38] found that corporate social responsibility (CSR) disclosure affected bank FP. Srairi [39] found that banks with more CG transparency perform better. Size, equity, risk profile, and ownership concentration affect bank performance. States that industry, listing status, and firm size affect UAE corporate annual report openness [25]. These data imply that disclosure practices may affect certain corporate features and FP.

On the other hand, [37] pointed out that 61.3% of Jordanian banks' voluntary disclosure was insufficient. Thus, poor disclosure may not affect FP. In Jordan, [40] found no association between CG transparency and start-up performance. These data suggest that releasing information can affect FP depending on the organization's maturity. Observed in Indonesia that return of assets (ROA) and net profit margin (NPM) affected positively by voluntary disclosure, while no effect was observed on return of equity (ROE) [41].

In Kuwait's MRD research, [42] found that compliance with disclosure standards can affect FP under certain governance approaches. Studied the RD in US and FP. International financial reporting (IFR) and RD increased performance [43]. These results show that extensive disclosure practices, including financial and risk-related information, can improve FP. Haddad *et al.* [32] found that firm size, external audits, and liquidity affected disclosure. These data suggest that legislative improvements and transparency regulations may improve FP over time.

Ajili and Bouri [23] found that bank size, age, and leverage affects IFRS compliance disclosure in Arab Gulf Countries where larger, older institutions followed IFRS more. Better reporting can improve FP. Agyei-Mensah [4] found that board size and independent directors improved RD in Ghana. Block ownership and institutional ownership concentration have little effect. Thus, effective administrative structures may improve FP by improving risk reporting. Rahman and Hamdan [44] found that only company size favoured voluntary disclosure in Malaysia. However, other variables had no meaningful effect. This means that governance norms and openness may affect FP differently depending on the conditions.

Examined the VRD in UK and concluded that there is large differences between MRD and VRD [30]. Their studies was between 1997 and 2016 which indicated that the VRD and MRD are changing overtime and environment. Examined the effect of independence of directors as well as the shariah supervisory boards (SSB) on RD and concluded that the these two variables has a positive impact on RD but the role duality and ownership structure did not affect the RD [45]. These findings indicate that the existence of Shariah governance in Islamic banks has a significant impact on their FP and risk reporting. Examined the institutional governance variables such as stakeholder-oriented, financial openness, and economic incentives [46]. The findings indicated that these variables has increased strategy disclosures in Asian and European countries. Elgammal *et al.* [47] found that board independence and CEO duality negatively affected RD.

However, foreign ownership and board size positively benefited forward-looking disclosure in Qatar. RD has been found to have a significant effect on the FP of banks, insurance companies and financial institutions [48]. Therefore, in this study, the following is proposed:

H1: MRD affects significantly the FP of Islamic banks in Jordan (ROA and ROE).

H2: VRD affects significantly the FP of Islamic banks in Jordan (ROA and ROE).

2.2.2. Financial technology as moderator

FinTech is an essential development in the banking sector. It has enhanced the procedures of banking and improved the consumer experiences as well as increased the efficiency and reduced the risk which all ultimately affected positively the FP of banks [49]. FinTech has strengthened the ability of banks to identify risk and analyse big data accurately and in shorter time. This is done by using advanced analytics and AI as well as machine learning algorithms [50]. As technology improves the banks' ability to assess risk, it can help banks to provide investors, shareholders, regulators as well as the public with more accurate assessment of risk. It also enable banks to monitor closely the risk to meet strategic and regulatory needs and goals [51].

FinTech improves openness and communication, which are crucial to RD [52]. Banks may quickly and easily provide stakeholders with risk information via digital platforms and mobile apps. Interactive dashboards, data visualisations, and personalised reporting help stakeholders understand the bank's risk, performance, and mitigation measures [53]. This openness builds stakeholder trust and boosts the bank's reputation and investment appeal. FinTech solutions help banks comply with RD regulations by streamlining compliance operations. Blockchain technologies, smart contracts, and automated compliance monitoring improve RD accuracy and dependability by reducing human mistakes and operational inefficiencies [54].

FinTech technologies and platforms help banks improve operational efficiency, save expenses, and increase income. Automation of client onboarding, account management, and transaction processing improves resource allocation, productivity, and profitability. FinTech also helps banks improve client engagement, cross-selling, and personalised financial services using data-driven insights [55]. Banks may increase customer satisfaction and loyalty by using customer data and behavioural analytics to customise product offers and marketing tactics to changing consumer demands. FinTech helps expand into new markets and consumer groups, diversifying revenue and market penetration [51], [52].

The role of Fintech as a moderator was examined in a few studies. The moderating role of FinTech between business enablers and bank performance was examined in the study of [56]. FinTech also moderated the effect of NPL on stock [54].

It was found that FinTech moderated positively the effect of enablers on bank performance. On the other hand, the FinTech did not moderate the effect of board of director characteristics and bank performance [57]. Therefore, in this study, the FinTech is proposed as a moderating variable between MRD and VRD and FP of Islamic banks in Jordan.

H3: Fintech moderates the effect of MRD on FP of Islamic banks in Jordan (ROA and ROE).

H4: Fintech moderates the effect of VRD on FP of Islamic banks in Jordan (ROA and ROE).

3. RESEARCH METHOD

, the Companies Law, the Securities Law, and the Banking Law, as well as Jordanian Securities Commission and Central This research included 195 listed businesses in finance, industrial, and services sectors as of December 31, 2023. Due to their particular character, financial organisations need specialised CG procedures and specific adherence to MRD and VRD [58]. Their regulatory framework includes the Jordanian CG code, Shariah governance Bank of Jordan Instructions and Regulations. These regulations are applicable only for the banking sector.

The research covers 2009–2023. In first January 2009, the Jordanian CG code was implemented [33] and 2023 was the last year all companies have produced annual reports at the time of data collection. The number of firms was 195 in 2023, with 96 service and industrial and 99 finance. Financial sector subsectors include 28 banks. Out of which, there are only 17 banks that are local and have Islamic window. However, two of these banks were established in the period between 2009 and 2023. Therefore, these two banks were excluded. Therefore, only 15 banks meet the inclusion criteria of this study of having data between 2009 and 2023. These 15 banks are the target population of this study. Therefore, this study is limited only to the banks in Jordan and it includes 15 banks with data available about the financial statement of these banks during 2009-2023. The variables of this study was measured based on previous studies. Table 1 shows the classification of the variables as well as the definitions of variables and the source of measurement.

Table 1. Measurement of variables

Variable	Definition	Source
Dependent variable		
Return on asset	Net Income (after interest and tax)/total assets	[59]
Return on equity	Net income divided by shareholders' equity	[60]
Independent variable		
MRD	IFRS index	[61]
VRD	An index measured by actual disclosed items divided by possible disclosed items.	[29]
Moderator		
Financial technology	Index	[62]
Control variable		
Bank size	Natural log of total assets	[59]
Bank age	Number of year since bank establishment	[63], [64]
Leverage	The ratio of total debts to total assets of each firm.	[65]
COVID19	Dummy variable 0 for period before COVID19 and 1 for period after COVID19.	[66]

The data was collected from 15 banks over 15 years. In total, there are 225 observations. The data is completed with 15 observations for each bank. The time (T) is 15 with the number of bank (N=15). The data was declared as a panel data and it is strongly balanced. Researchers have different views on the key assumptions to evaluate before regression analysis. These include outliers, normality, multicollinearity, correlation, heteroscedasticity, and autocorrelation [67]. We handled outliers using Winsorization. However, several factors were not normally distributed. The Van der Waerden approach transformed the data into a normal distribution. Skewness and kurtosis were less than 1.96 and 3, respectively, confirming normality (Table 2). The multicollinearity was confirmed because the variation inflation factor (VIF) is less than five and tolerance is greater than 0.20 as shown in Table 2. In addition, the correlation between variables is less than 0.85.

Researchers utilise the Breusch-Pagan/Cook-Weisberg test to examine heteroscedasticity. a null hypothesis implies homoscedasticity. Rejecting the null hypothesis (p<0.05) shows heteroscedasticity. Table 2 shows homoscedasticity with p-values over 0.05 after Stata transformed variables into log values. Autocorrelation, often called serial correlation, links dependent variable values across time. Researchers recommend a delayed error term. Autocorrelation testing often uses the Breusch-Godfrey LM test. As seen in Table 2, the dataset has no autocorrelation.

Table 2. Normality, multicollinearity and correlation

Variable	Normality		Multicollinearity		Correlation									
	S	K	T	VIF	1	2	3	4	5	6	7	8	9	
ROA	-1.03	2.11	.91	1.08	1									
ROE	-1.29	-1.20	.62	1.62	.49**	1								
MRD	1.31	-1.30	.63	1.61	.51**	.43**	1							
VRD	-1.44	1.85	.85	1.12	.44**	.22**	.21**	1						
FT	1.03	1.83	.63	1.41	.15*	.34**	-	.15**	1					
BS	1.20	2.01	.92	1.02	.21**	.24**	.26	.13	.27	1				
BA	1.79	2.10	.42	2.22	.27**	.19**	-	.12	-.10	-.14	1			
LEV	1.82	2.32	.44	2.20	.38**	.25**	-.49	-	-	-.10	.25**	1		
C19	1.29	1.20	.64	1.40	.12**	.16*	.27**	-.26	.12**	.21**	-	-	.13*	1
HT	DV1	0.18	P	0.67					.29**	.18**	.32**			
AU	DV2	1.71	P	0.31										
	1.219	P=0.20												
	1.413	P=0.41												

*Significant at 0.1 level, ** significant at 0.05 level, *** significant at 0.001 level.

Note: ROA: return on asset, ROE: return on equity, MRD: mandatory risk disclosure, VRD: voluntary risk disclosure, FT: financial technology, BS: bank size, BA: bank age, LEV: Leverage, C19: COVID19. HT: heteroskedasticity, AU: autocorrelation. S: skewness, K: kurtosis. T: tolerance.

4. RESULTS AND DISCUSSIONS

Descriptive information of the variables of this study is shown in Table 1. It shows that the level of VRD ranged between 0.31 to 0.56 with mean of 0.41. In addition, the MRD ranged between 0.91 to 1 with mean of 0.98. the level of ROA ranged between -0.03 to 0.31 with mean of 0.09 while the ROE ranged between -0.04 to 0.39 with mean of 0.08. The firm size ranged in natural log number between 10.19 to 23.9

with mean of 15.4. Age of banks also ranged between 6 to 78 with mean of 21.4. Lastly, the leverage ranged between 0.14 to 0.49 with mean of 0.23. For COVID19, the value ranged between 0 to 1 with mean of 0.27.

4.1. Hypotheses testing

The Hausman test was conducted to select the appropriate model. The result indicated that fixed effect model is more appropriate for the data analysis. Chi2 for ROA accounted for 20.99 and the Prob>chi is 0.003. Similarly, for the ROE, the Chi2 is 29.09 and the Prob>chi is 0.001. The result of testing the hypotheses are shown in Table 3. The model are statistically significant with R-square between 36.1 for ROA and 43.3% for ROE. The results shows the direct effect of MRD and VRD on the ROA and ROE.

Table 3. Results of hypotheses

Variable	ROA		ROE	
	Coef.	P>t	Coef.	P>t
MRD	0.14	0.000	0.10	0.000
VRD	0.10	0.000	0.08	0.034
BS	-0.03	0.321	0.69	0.000
BA	0.05	0.275	-0.28	0.000
LEV	-0.02	0.675	0.08	0.013
C19	-0.28	0.000	-0.09	0.001
R-square	0.361		0.433	
F(6,218)	4.21		5.41	
Prob > F	0.002		0.000	

As shown in Table 3, the effect of MRD on ROA (Coef=0.14, P<0.05) and ROE (Coef=0.10, P<0.05) are positive and significant. Thus, H1 is supported. For H2, the effect of VRD is also significant on ROA (Coef=0.10, P<0.05) and ROE (Coef=0.08, P<0.05). Therefore, H2 is supported. The effect of control variables varied with notable negative effect of COVID-19 on ROA and ROE as shown in Table 3.

The moderating effect of FinTech was tested by multiplying the indicator of Fintech with the indicators of MRD to create MRD*FT and with VRD to create VRD*FT. The moderating effect of FT between MRD and ROA (Coef=0.17, P<0.05) and ROE (Coef=0.16, P<0.05) are positive. Thus, H3 is supported. For H4, it is supported because the moderating effect of FT between VRD and ROA (Coef=0.24, P<0.05) and ROE (Coef=0.21, P<0.05) are positive. Therefore, H4 is supported. In addition, we examined the effect of MRD and VRD before and after COVID-19. As shown in Table 4, the effect of MRD increased slightly after COVID-19 while the effect of VRD increased largely after COVID-19.

Table 4. Moderating effect of FinTech

Variable	ROA		ROE	
	Coef.	P>t	Coef.	P>t
MRD	0.14	0.000	0.20	0.010
VRD	0.28	0.000	0.25	0.001
FT	0.16	0.019	0.22	0.010
MRD*FT	0.17	0.000	0.15	0.002
VRD*FT	0.24	0.001	0.11	0.004
BS	0.48	0.010	0.12	0.020
BA	-0.09	0.139	-0.06	0.956
LEV	0.19	0.033	0.05	0.630
C19	0.23	0.000	-0.17	0.000
Leverage	0.25	0.044	-0.04	-0.12
MRD _{beforeCOVID}	0.13	0.003	0.10	0.011
MRD _{afterCOVID}	0.14	0.009	0.11	0.013
VRD _{beforeCOVID}	0.10	0.011	0.09	0.021
VRD _{afterCOVID}	0.19	0.001	0.14	0.002

The results show that MRD and VRD boost ROA and ROE. This finding is in line with previous studies such as [37] who found that CG openness improves FP. According to [44] legislative changes and transparency laws may increase FP over time. Bigger, older Arab Gulf banks complied better with IFRS, which might improve FP [23]. Further demonstrate that RD affects FP [30], [45], [46], [47]. According to agency theory, conflicts of interest between shareholders and management cause agency costs and inefficiencies. The favourable effect of RD on FP shows that open disclosure methods might reduce agency conflicts by lowering information asymmetry and aligning shareholder and management objectives.

The finding also showed that FinTech moderated positively the effect of MRD and VRD on ROA and ROE. The results are consistent with FinTech's revolutionary role in banking operations. FinTech allows banks to quickly and correctly analyse massive volumes of data using sophisticated analytics, AI, and machine learning algorithms, improving risk detection and assessment [68], [69]. Improved risk management improves decision-making and stakeholder communication, improving FP. Through digital platforms, FinTech allows banks to give stakeholders with real-time risk information and personalised reporting, building trust and reputation. These findings are also in line with other researchers who found that FinTech moderated the effect of variables [54], [56].

RD is stronger after COVID-19 compared before COVID-19. RD has improved after COVID-19 for numerous reasons. The pandemic caused unprecedented disruptions and uncertainties in global markets, leading organisations to examine and improve risk management [70], [71]. The pandemic also led Islamic banks to increase their provision of bad debt and assess their liquidity. Islamic banks have to promote transparency to convince stakeholders about their resilience amid new risks such operational difficulties and financial volatility. Second, regulatory bodies enhanced disclosure requirements to ensure transparency and responsibility in evolving risk situations. Islamic banks must provide complete and timely RD to satisfy regulators and investors. Thirdly, the outbreak highlighted risk management and governance systems and their importance in stakeholder trust and business reputation. Islamic banks may have improved RD quality and depth to educate stakeholders on COVID-19's potential effects on operations, FP, and long-term sustainability.

This study shifts the focus from CG to RD in developing countries' RD-FP relationship. The study explores how MRD and VRD influence FP to understand how RD tactics effect FP of Islamic banks. MRD and VRD can enhance FP, highlighting the need of transparency and accountability in risk management. The study also illustrates how FinTech may reduce uncertainty and enhance the relationship between RD and FP of Islamic banks. The study emphasises the need of efficient RD in emerging countries with information asymmetry and regulatory barriers. The findings can help businesses strengthen their RD frameworks, guaranteeing legal compliance and employing VRD to notify stakeholders about risk exposure and management strategies. The findings also suggest FinTech technologies can improve RD transparency, compliance, and stakeholder communication.

5. CONCLUSION

This research examined the role of MRD and VRD on FP of Islamic banks in Jordan and it also examined the moderating role of FinTech. The findings showed that MRD and VRD affected positively FP of Islamic banks. In addition, FinTech moderated positively the effect of MRD and VRD on FP of Islamic banks. Additional findings showed that the effect of MRD and VRD was stronger after COVID-19 compared before COVID19. While this research provided significant findings regarding the role of RD in the context of Islamic banks, there are some limitations that should be mentioned to enhance generalizability of the findings. This study was conducted in Jordan among Islamic banks. Number of full-fledged Islamic bank is limited. Therefore, the Islamic bank with Islamic window were included. This might reduce the generalizability of the findings on all Islamic banks. The findings also were derived from 15 banks. Including more banks can enhance the generalizability of the findings. The study examined the banking sector. More studies are needed in future research to examine other sectors such as the industrial or service sector in different locations. More countries can be included, and this can enhance the understanding of RD and its impact on FP in cross-countries studies. Quantitative methods also obscure RD, FP, and FinTech dynamics. Future studies may use qualitative methods like interviews or case studies to highlight RD techniques and FP. In this research, we discuss how FinTech moderates RD. Researchers should study how FinTech technologies like data analytics, AI, and blockchain enhance Islamic bank RD and FP. Addressing these restrictions will increase RD, FP, and FinTech understanding.





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BIOGRAPHIES OF AUTHORS

Dr. Mohammed Abd-Akarim Almomani     received the B.Sc. degrees in Business Administration from Jarash University, Jordan, in 1998, M.Sc. degrees in Banking and Financial Sciences (Islamic Banking), from Arab Academy for Banking and Financial Sciences, Jordan, in 2002, respectively and the Ph.D. degree in Islamic economics and banking from Yarmouk University, in 2009. working as Associate Professor in the Department of Islamic Banking at Ajloun National University. His research interests include Islamic economics and banking. He can be contacted at email: momani_60@yahoo.com.



Adai Al-Momani     received the B.Sc. degrees in computer science from Jadara University, Jordan, M.Sc. degrees in Information Technology from University Tenaga Nasional, Malaysia, in 2010 and 2016, respectively and the Ph.D. degree in Computer Sciences from Universiti Sultan Zainal Abidin, Malaysia in 2023. His research interests include IoT and computer information system. He can be contacted at email: oalmomani@zu.edu.jo.