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Factors Affecting the Credit Risk Management in the Banking Sector of Pakistan: Moderating Effect of Financial Technology

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Abstract: Credit Risk Management (CRM) identifies and manages the risks associated with lending and credit activities. This study investigates the impact of Environmental Risk (ER), Market Risk Analysis (MRA), Organizational Structure (OS), and Operational Efficiency (OE) on the Credit Risk Management (CRM) of the banking sector in Pakistan. Furthermore, examine the moderating effect of financial technology. The quantitative data was collected for this study by random sampling from different branches of banks in three cities of Pakistan. The Partial Least Squares (PLS) method is employed to analyze the data for this study. The study concludes that there is a significant role of Environmental Risk (ER), Market Risk Analysis (MRA), Organizational Structure (OS), and Operational Efficiency (OE) in credit risk management in the banking sector of Pakistan and a significant moderating role of financial technology. Furthermore, this study contributes a significant theoretical framework to the body of knowledge, enhancing the theory related to credit risk management. The practical implications of this study would streamline credit risk assessment processes and boost the efficiency of risk management, and credit decisions can now be made more quickly and reliably.

Keywords: Credit risk management, Environmental risk, Market risk analysis, Organizational structure, Operational efficiency, and Financial technology

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INTRODUCTION

The banking industry is integral to the global monetary system and is critical for economic development and stability (Ahmed et al., 2021). Banks are financial entities that offer credit and loans to clients such as individuals, businesses, and governments. Because of the nature of lending, credit risk is one of the most significant risks to which financial institutions are exposed (Khan, Ali, Anjum, & Noman, 2019). Loan defaults and other credit exposures are instances of credit risk when borrowers fail to satisfy their financial obligations. It entails the chance that a lender may suffer losses due to a borrower's refusal or inability to repay part of their loan. As a result, controlling credit risk is a vital component of banking operations since it directly impacts banks' safety, profitability, and community status (Anam, 2023; Rezaei & Shahabi, 2020). Credit risk management requires comprehensive procedures and processes to successfully identify, assess, monitor, and reduce credit risks. Banks utilize complicated algorithms to decide whether or not a borrower is creditworthy, what rates and conditions to provide, and how to limit possible losses (Khan & Ali, 2017). If banks utilize effective credit risk management techniques, they may secure their loan portfolios, maintain firm capital reserves, and keep their companies running long-term (Dunyoh et al., 2022).

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On the other hand, the banking industry is part of a complex and ever-changing ecosystem that necessitates constantly developing and adapting risk management frameworks. In recent years, new risk variables have developed, prompting financial institutions to broaden their credit risk management techniques beyond their traditional predecessors. One such component is the risk that environmental circumstances impair borrowers' ability to repay loans and financial institutions' profitability (Ali et al., 2010; Sharifi et al., 2019). Climate change, environmental degradation, and the need for sustainable development have all heightened public awareness of environmental issues. Borrowers' assets and collateral may be damaged or lose value due to severe weather events or environmental deterioration, making it harder for them to repay loans (Ramdhonah et al., 2018). Businesses in some industries may also face losses and credit downgrades due to transition risks linked to new laws, such as carbon pricing systems or stricter emission limits(Khan, Hussain, Maqbool, Ali, & Numan, 2019). As a consequence of environmental risks, financial institutions must consider borrowers' long-term survival and resilience when assessing credit risk (Ali, 2021).

Simultaneously, market risk analysis has grown in relevance in credit risk management. Interest rates, currency exchange rates, and stock prices are all examples of capital losses caused by adverse changes in market pricing. The ability of borrowers to meet their financial obligations and overall creditworthiness may be significantly damaged by market volatility. A detailed market risk analysis allows banks to assess how market movements and macroeconomic factors impact credit risk (Gulzar et al., 2021). When banks include market risk analysis in their credit risk management frameworks, they can better evaluate borrowers' creditworthiness, create appropriate pricing strategies, and identify gaps in their loan portfolios(Khan, Anjum, Baig, Afzal, & Asghar, 2022). With credit risk assessment processes, it is easier to evaluate borrowers' creditworthiness statistically and qualitatively, as well as the entire credit risk exposure of a bank's portfolio. These approaches, which include statistical models, financial indicators, and credit rating systems, may evaluate the likelihood of default and potential credit losses. Strong credit risk assessment tools assist banks in making better lending decisions, using capital more efficiently, and maintaining appropriate provisioning levels (Lezgovko & Jakovlev, 2017).

Credit risk management is also largely dependent on operational efficiency. Effective risk management, efficient operations, and timely credit assessments distinguish a financially stable banking organization. Banks need an efficient operating structure to manage credit risk, process transactions quicker, and allocate resources(Khan, Asad, Fatima, Anjum, & Akhtar, 2020). Data management, information technology, automation, and workflow procedures are all components of credit risk management workflow efficiency. Banks may increase the speed and accuracy of their credit risk assessments, as well as their loan approval processes and their capacity to monitor and report on hazards, by simplifying their operations (Munangi & Sibindi, 2020). Credit risk management is challenging for Pakistan's financial institutions for various reasons (Siddique et al., 2022). This research investigates the impact of environmental risk, market risk analysis, organization structure, and operational efficiency on credit risk management in Pakistan's banking business. The moderating role of financial technology is also investigated.

Credit risk management protects financial institutions and economic crises. The ability of banks to handle credit risk has an impact on their profitability and stability. Increases in nonperforming loans indicate inadequate risk management, which stifles economic growth. Effective credit risk management is critical in today's global economy due to variances in the legal framework, economic situations, and the prevalence of financial technology. Fintech has the potential to transform how banks calculate, track, and deal with credit risks. The findings of this study may have implications for Pakistani policymakers and banks on how to reduce the possibility of credit default. For this purpose, we tried to investigate factors affecting credit risk management and the role of financial technology in effective credit risk management.

LITERATURE REVIEW

Environmental Risk

Environmental risk is one issue that might affect credit risk in various ways. Banks in some wealthy countries face immediate danger because they are responsible for cleaning up the pollution that defaulted borrowers caused (Dibra & Bezo, 2021). Customers' ability to repay loans may be compromised if they engage in environmentally unsafe practices with financial repercussions, such as higher expenditures or lower income. Compliance with the law does not guarantee a bank's good name if it is associated with environmentally harmful projects or

borrowers (Masinde, 2017). Because the assessment of environmental risk is so fundamental to determining a company's creditworthiness, environmental credit risk management has become an essential component of banks' risk management. More effective management of environmental credit risks would benefit financial institutions, corporate borrowers, and government regulators. Borrowers who are environmentally conscientious and want to invest in green innovations will appreciate that the loan procedure considers their concerns about the planet from start to finish (Murtaza et al., 2015). According to (Abubakar et al., 2016), borrowers with high environmental performance may have easier access to funding and pay reduced interest rates. The study's goal (Rehman et al., 2019) is to investigate how climate change and other natural catastrophes may impact banks' ability to manage credit risk and their bottom line. The World Bank has also emphasized the need to incorporate climate risks into credit risk management to protect vulnerable communities from the negative consequences of climate change and poverty (Ali et al., 2021). Therefore, it is suggested that:

H1: Environmental Risk (ER) significantly impacts on Credit Risk Management (CRM).

Market Risk Analysis

According to research (Ahmed & Malik, 2015), including market risk analysis in credit risk management models reduces loan default rates dramatically. One study found that organizations that employed market risk analysis to estimate the risk potential of their loan portfolios suffered substantially fewer losses during periods of market volatility (Hussain et al., 2019). Loan defaults were reduced significantly at financial institutions that applied systematic credit risk management practices through market risk analysis. According to another study (Kessy, 2022), market risk analysis may assist in decreasing financial losses during periods of market volatility. Market risk analysis has been proved via empirical study to be a significant relationship with credit risk management, decreasing default rates and reducing losses. Financial institutions may enhance their risk management systems by analyzing market trends and spotting potential threats to make better-informed decisions about lending and investment strategies (Ahmad et al., 2022).

H2: Hypothesis 2: Market Risk Analysis (MRA) significantly impacts on credit risk management (CRM).

Organization Structure

The organizational structure that defines the relationships between its different levels, departments, and lines of authority determines the organization's ability to make and implement decisions (Pandey & Dasgupta, 2016). Credit risk management requires a well-designed plan. Clear roles and responsibilities help address problems faster. Decisions made faster decrease credit risks and boost productivity. Unexpected findings from a bank corporate governance and credit risk study (Yeasin, 2022). Larger boards and elder CFOs lower credit risk, making commercial banks more vulnerable to corporate governance frameworks. (Akhtar & Saleem, 2021). Credit risk gets reduced when there are fewer essential shareholders and more independent board members.

Larger boards, older CFOs, and less engaged directors may smooth the credit risk management process. Credit risk management is affected by commercial bank ownership structure. Liquidity, profitability, and shareholder and depositor power negatively correlate with credit risk management practices (Karunakaran, 2022). Political pressure and bureaucratic judgments, rather than solid business processes, may drive loan issuance when there is excessive government participation, primarily via control rights, which creates problems in credit risk management practices. Denationalization or less government control of the banking business may improve banking sector governance and credit risk management practices (AL-Ardah & Al-Okdeh, 2022). According to the researcher (He et al., 2020), systematic credit risk management is affected organizational culture. The organizational structure affects credit risk management. Delegating work, enhancing communication, and making decisions swiftly are essential in credit risk management. (Lalon & Morshada, 2020). Financial institutions' credit risks depend on corporate management structures, board size, CFO age, and board independence. Ownership structure and government engagement heavily influence credit risk management practices in developing economies (Nwude & Okeke, 2015). Credit risk management has significant relationships with organizational structure (Rasheed et al., 2018).

H3: Organization structure (OS) significantly impacts on credit risk management (CRM).

Operational Efficiency

Cost savings, customer satisfaction, risk mitigation, rule compliance, new product creation, and productivity all benefit from efficient banking operations. Streamlining financial institution processes can achieve better financial results and competitive advantage (Altaf et al., 2022). Technology adoption that leverages advanced systems and automation to boost productivity; and effective data management. Credit risk management protects bank loans (Thabet & Alaeddin, 2017). Credit risk management comprises identifying and analyzing possible threats, formulating and implementing strategies to mitigate such risks, and diversifying assets to reduce exposure to any one region (Madhuwanthi & Morawakage, 2019). According to the researcher (Teresa & Matriano, 2022), discover creditworthiness degradation early and take action by thoroughly reviewing things. Banks can avoid failing by setting aside enough money to cover losses due to capital adequacy tests and provisioning. Credit risk management allows institutions to demonstrate compliance and risk management expertise (Alim et al., 2021). Banks that manage credit risks well may protect their loan portfolios, decrease losses, and remain viable (Adekunle et al., 2015). Research (Wardoyo et al., 2022) shows operational efficiency impacts credit risk management. This impact includes the need for efficient operations, effective data management, and the adoption of new technology. Fred Nelson's (2020) study on European financial institutions, this study investigates how European banks deal with credit risk and how efficient their operations are. It investigates how various operational efficiency methods, including cost savings and new technologies, affect credit risk management and the overall quality of loan portfolios. Furthermore, as an example, commercial banking (Banu et al., 2021); this study investigates the relationship between operational efficiency and credit risk management in commercial banks in particular. It investigates how operational efficiency, measured by cost efficiency and productivity, affects credit risk management techniques and the potential for loan defaults.

H4: Operational Efficiency (EF) significantly impacts on credit risk management (CRM).

Moderating Role of Financial Technology

Over the past decade, financial technology has grown from obscurity to a worldwide player (Fani et al., 2018). "Financial technology" is gaining popularity, although its use is still limited (Sahu et al., 2017). Saleh & Abu Afifa (2020) described financial technology as financial technology enterprise. Financial technology payment and lending companies were grouped. (Qureshi & Lamarque, 2022) and (Hesborn et al., 2016) are examples of "Financial technology" innovations. However, financial technology lenders refinance more creditworthy customers than shadow banks, giving better financial services (A. Ali & Khan, 2019). Financial technology lenders process mortgage applications 20% faster than banks (Gubareva & Borges, 2016). Credit risk is mitigated by bank financial technology thanks to positive feedback loops. Emerging technologies have been shown to have positive spillover effects for commercial banks (Agaba et al., 2022); Bank Financial technology can improve risk management and credit risk with blockchain and cloud computing. Bank Financial technology improves internal governance and control, lowering credit risk. Financial technology helps banks diversify portfolios and improve business models to minimize credit risk. Bank Financial technology may raise credit risk. Technical risk—data, privacy, transaction, and identity authentication—is the first bank financial technology risk. Bank Financial technology regulatory risk rises (Deng et al., 2020; Abubakar et al., 2016).

H5: Environmental risk and Credit risk management are significantly moderated by financial technology.

H6: Market risk analysis and Credit risk management are significantly moderated by financial technology.

H7: Organization structure and Credit risk management are significantly moderated by financial technology.

H8: Operational efficiency and Credit risk management are significantly moderated by financial technology.

Conceptual Framework

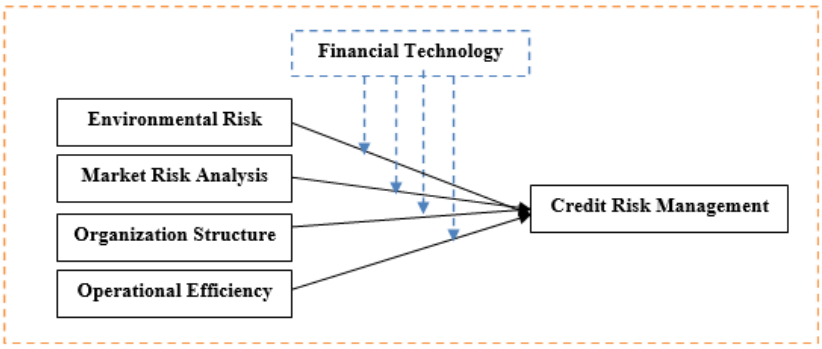

Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

Data Collection Process

This quantitative study investigates the impact of environmental risk (ER), market risk analysis (MRA), organizational structure (OS), and operational efficiency (OE) on credit risk management (CRM) and the moderating effect of financial technology. First, we decided on a technique, population, and sample size for the study. We delved into the tools, including the validation procedures, experiments, and data analysis. The target population of this study was employees banking sector of Pakistan. As a result, every member of the population had an equal chance of being chosen as a sample member, and simple random sampling processes were employed to steer broad purposes in the population. Olken and Rotem (1995) contend that simple random sampling can yield a representative sample because it eliminates bias in the selection process. Using validated instruments and data collected from a representative sample of from management of banking institutions in three Pakistani cities (Bahawalpur, Rahim Yar Khan, and Multan). The distribution and collection of self-administered questionnaires occurred via drop-off and pick-up. According to Bryman (2006), you can anticipate a higher response rate when employing this method. There were a total of 320 distributed questionnaires, and 265 were returned. In light of previous research in the same field (Guerci et al., 2016), the response rate of 82.81% for this study is reasonable.

Measurement of Scale

Bryman (2006) argues that questionnaires and structured interviews are the two most common data collection techniques associated with survey strategies. Therefore, the current study extensively utilized a self-administered questionnaire for its quantitative data collection. Therefore, the current study employed a 5-point Likert scale ranging from strongly agrees to strongly disagree (Finstad, 2010). The entire gauge is based on well-established, previously employed measurements. Several modifications were made to the original English form. Four items were adopted from a previous study (Al-Tamimi, 2002) for credit risk management. Four items were collected to measure environmental risk (George, 2015). Four items from an earlier study (Al-Tamimi & Al-Mazrooe, 2007) were used to measure market risk analysis (Al-Tamimi & Al-Mazrooe, 2007). Four items were used for measuring organizational structure (Aymen, 2014). Four items from a prior study (Jones, 2013; Olszak, 2016) were utilized for operational efficiency. Four items were selected to measure financial technology (Dara & Mariah, 2020).

Analysis Techniques

The present study employs the same methodology as Hair et al. (2007), which specifies that the results should be separated into two sections. Following Hair et al. (2007), the initial values of the measurement model for examining item reliability, internal item consistency, convergent validity, and discriminate validity were determined. Similarly, Hair et al. (2007) determined and suggested the values for structural model evaluation to assess the significance of the path coefficient, variance explanation, effect magnitude, and predictive significance. Figure 2 depicts the phases of the two models. The research model has been validated using partial least squares (PLS). (Henseler et al., 2015) Despite this, it is utilized in numerous fields, not just management research. Smart-PLS is

a viable method for making predictions because it can evaluate the predictive validity of both measurement and structural models (Henseler et al., 2016). It permits the evaluation of multiple constructs simultaneously (Hair et al., 2012).

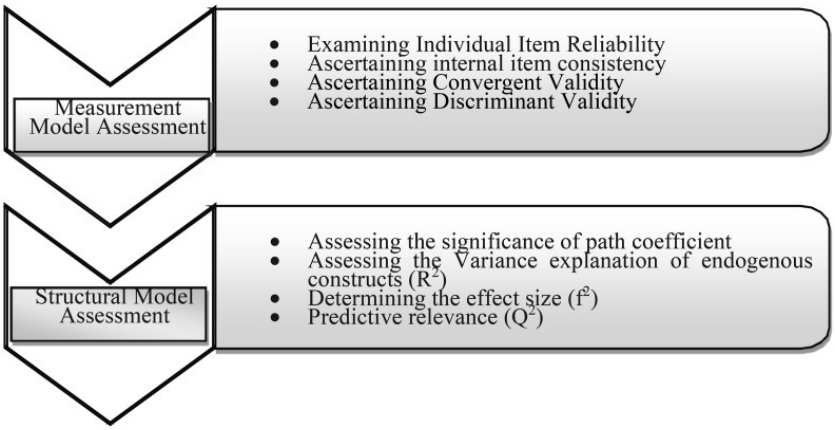

Figure 2: Two-Step Process of PLS Path Model Assessment (Source: Henseler et al. (2009))

RESULT AND DISCUSSION

Descriptive Demographics

Table 1 shows the information on the respondents in detail.

Table 1: Respondent Data

Variable		Frequency	Percentage
Sex	Male	192	72.45%
	Female	73	27.55%
Age	21-30	34	12.83%
	31-40	80	30.19%
	41-50	89	33.58%
Managerial Level	Top Management	40	15.09%
	Middle Level Management	100	37.73%
	Low Level Management	125	47.17%
Education	Bachelors	81	30.57%
	Master	137	51.70%
	M.Phil	30	11.32%
	PhD	17	6.42%
Experience	1-10	103	38.87%
	11-20	98	36.98%
	21-30	64	24.42%

Table 2: Measurement Model Analysis

Constructs	Items	Item Loading	Cronbach's alpha	CR	AVE
Environment Risk			0.838	0.88	0.663
	ER1	0.888			
	ER2	0.724			
	ER3	0.887			
	ER4	0.742			
Market Risk Analysis			0.783	0.802	0.609
	MRA1	0.812			
	MRA2	0.858			
	MRA3	0.656			
	MRA4	0.781			
Organization Structure			0.883	0.89	0.74
	OS1	0.799			
	OS2	0.876			
	OS3	0.897			
	OS4	0.867			
Operational Efficiency	OE1		0.858	0.912	0.713
	OE2	0.931			
	OE3	0.900			
	OE4	0.572			
		0.921			
Credit Risk Management			0.95	0.95	0.87
	CRM1	0.887			
	CRM2	0.922			
	CRM3	0.959			
	CRM4	0.959			
Financial technology					
	FT1	0.937	0.888	0.955	0.762
	FT2	0.955			
	FT3	0.963			
	FT4	0.576			

Convergent Validity

This study examined convergent validity (Figure 2) using PLS algorithm calculations. According to Hair et al. (2007) and Henseler et al. (2014), factor loadings, Cronbach's alpha, composite reliability (CR), and mean-variance Cortina (1993) suggested that in terms of item reliability, factor loading estimates should be greater than 0.5 and, preferably, 0.7 or higher. Moreover, CA should be greater than 0.7. Internal consistency reliability should be greater than 0.70. In addition, the AVE should be greater than 0.5 regarding convergent validity (Keramati et al., 2012). This study provides evidence of reliability and validity

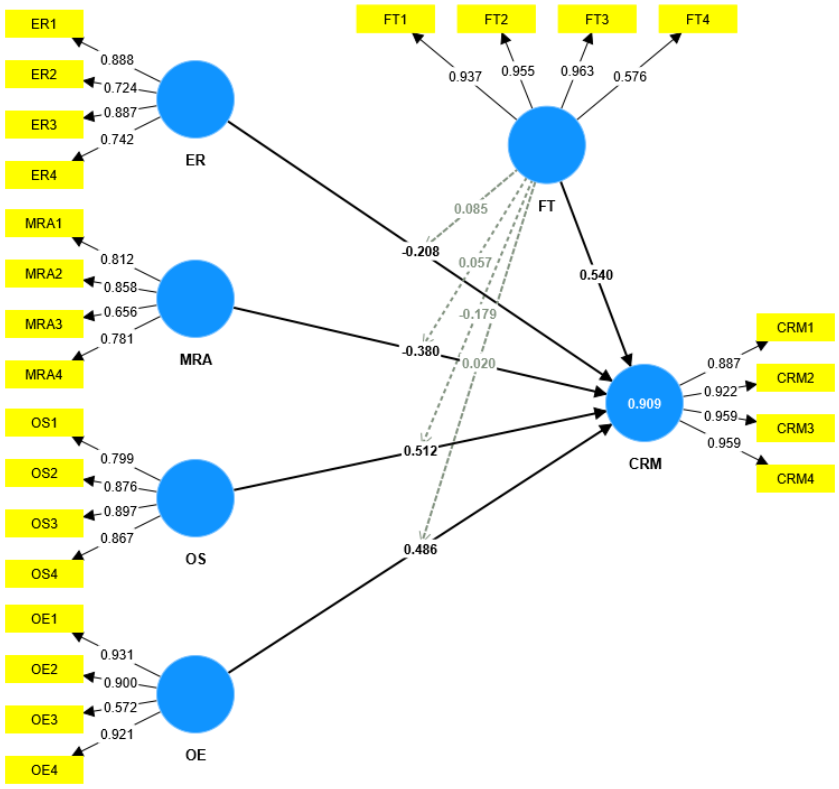

Figure 3: Measurement Model

Note: ER= Environmental Risk, MRA= Market Risk Analysis, OS = Organization Structure, OE = Operational Efficiency, CRM= Credit Risk Management and FT= Financial technology.

Discriminant Validity

This study investigates the discriminant validity of its scale items to determine the relationship between the variables in its theoretical framework. This study's discriminant validity was determined using the cross-loading, HTMT, and Fornel Larker criterion methodologies developed by Hair Jr. et al. (2020). Gold et al. (2001) suggest using the HTMT method to corroborate the discriminant validity of the investigation. This method was utilized in order to determine discriminant validity and cross-loadings. Gold et al. (2001) suggest that HTMT discriminant validity variable values less than 0.90 are appropriate. As shown in Table 2, the discriminant validity of each scale item is less than 0.90. This study provides conclusive evidence of the discriminant validity of the scale measurements utilized to test the study's hypotheses

Table 3: Heterotrait-Monotrait Ratio (HTMT)

Items	ER	MRA	OS	OE	FT	CRM
Environmental Risk (ER)						
Market Risk Analysis (MR)	0.795	0.814				
Organization Structure	0.894	0.833	0.873			
Operational Efficiency (OE)	0.767	0.794	0.86	0.78		
Financial technology (FT)	0.812	0.863	0.892	0.88	0.844	
Credit Risk Management (CRM)	0.894	0.89	0.857	0.861	0.89	

Partial Least Square – Structural Equation Modeling Results

Using PLS bootstrapping calculations, the direct impact of a different variable on the study's theoretical framework was examined. PLS bootstrapping calculations were performed to determine the path coefficient values. Also provided were the standard deviation, *t*, and *p* values. Table 3 demonstrates that all hypotheses are supported. The environmental risk has a positive and statistically significant impact on credit risk management (β = 0.049;

t-value = 4.218 and *p* 0.01); therefore, H1 is supported. The market risk analysis has a positive and statistically significant impact on credit risk management (β = 0.059, *t*-value = 6.47, and *p* 0.01); thus, H2 is supported. The organizational structure has a positive and statistically significant impact on credit risk management (β = 0.133, *t*-value = 3.643, and *p* 0.01); therefore, H3 is supported. Operational efficiency positively and significantly impacts credit risk management (β = 0.122; *t*-value = 4.187 and $p < 0.01$); thus, H4 is supported.

Table 4: Hypothesis & Results

	Original Sample	Sample Mean	Standard Deviation	*t* Statistics	Remarks
Environmental Risk -> Credit Risk Management	0.208	0.197	0.049	4.218 (***)	Significant
Market Risk Analysis -> Credit Risk Management	0.38	0.392	0.059	6.47 (***)	Significant
Organization Structure-> Credit Risk Management	0.486	0.512	0.133	3.643 (***)	Significant
Operational efficiency -> Credit Risk Management	0.512	0.493	0.122	4.187 (***)	Significant

(*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1% and (no) Not Significant

Moderation Analysis

Moderation analysis measured the moderating effect between independent and dependent variables. For that purpose, a moderating effect of financial technology on the relationship between environmental risk and credit risk management was found to be significant (beta (β) = 0.179, t = 2.927, $p < 0.01$). Meanwhile, H5 is accepted. The moderating effect of financial technology on the relationship between market risk analysis and credit risk management was found to be significant (beta (β) = 0.177, t = 1.78, $p < 0.1$). Meanwhile, H6 is accepted. Financial technology has a significant moderating effect on the relationship between organizational structure and credit risk management (beta (β) = 0.177, t = 1.781, $p < 0.1$). Consequently, H7 is accepted. Financial technology has an insignificant moderating effect on the relationship between organizational structure and credit risk management (beta (β) = 0.052, t = 0.200, $p > 0.1$). Consequently, H8 is rejected. Based on the statistical analysis shown in Table 4.

Table 5: Moderation Analysis

	Original Sample	Sample Mean	Standard Deviation	*t* statistics	Remarks
Financial Technology x Environmental Risk -> Credit Risk Management	0.525	0.5	0.179	2.927 (***)	Significant
Financial Technology x Market Risk Analysis -> Credit Risk Management	0.315	0.329	0.177	1.781 (*)	Significant
Financial Technology x Organization Structure-> Credit Risk Management	-0.662	-0.636	0.178	3.711 (***)	Significant
Financial Technology x Operational Efficiency-> Credit Risk Management	0.01	0.011	0.052	0.200 (no)	Insignificant

CONCLUSION

Credit risk management (CRM) identifies and manages the risks associated with lending and credit activities. Credit risk management can be affected by environmental risk (ER), market risk analysis (MRA), organizational structure (OS), operational efficiency (OE), and the moderating effect of financial technology (Financial technology).

To determine the path coefficient values, PLS bootstrapping calculations were performed. The environmental risk has a positive and statistically significant effect on credit risk management; therefore, H1 is supported and consistent with previous research (Rehman et al., 2019). Market risk analysis has a positive and statistically significant effect on credit risk management; thus, H2 is supported and consistent with previous research (Kessy, 2022; Ahmad et al., 2022). The organizational structure has a positive and statistically significant effect on credit risk management; therefore, Hypothesis 3 is supported and consistent with previous research (Lalon & Morshada, 2020; Nwude & Okeke, 2015). Operational efficiency has a positive and statistically significant effect on credit risk management; Thus, H4 is supported and consistent with previous research (Banu et al., 2021; Nelson, 2020). The moderating effect of financial technology on the association between environmental risk and credit risk management was found to be statistically significant. In the interim, H5 is approved. Financial technology significantly moderates the relationship between market risk analysis and credit risk management. In the interim, H6 is accepted. Financial technology significantly moderates the relationship between organizational structure and credit risk management. Therefore, H7 is approved. The moderating effect of financial technology on the relationship between operations efficiency and credit risk management is insignificant. Therefore, H8 is rejected.

To address these obstacles, credit risk management must integrate environmental risk assessment and mitigation strategies. For instance, lenders may need to assess borrowers' susceptibility to environmental risks and modify their lending practices accordingly. A practical framework for credit risk management should include comprehensive market risk analysis techniques for assessing and monitoring market risks and adjusting credit policies accordingly. Credit risk management functions must be integrated into the organizational structure to ensure appropriate coordination and communication between credit risk evaluation and monitoring departments. Credit risk management should emphasize streamlining processes, leveraging automation and technology, and instituting robust internal controls to improve operational efficiency. Facilitates accurate and timely credit risk evaluation, monitoring, and decision-making. Financial technology solutions can improve data analytics capabilities, automate credit risk assessment procedures, and enhance the overall efficacy of risk management. By leveraging financial technology, lenders can gain access to real-time data, create more sophisticated risk models, and make more timely and accurate credit decisions. By enhancing credit risk management capabilities, adopting financial technology may mitigate credit risk in the banking sector of Pakistan.

Implications

Adopting financial technology technologies can help lenders enhance their data analytics capabilities, streamline credit risk assessment processes, and boost the efficiency of risk management. Credit decisions can now be made more quickly and reliably. The availability and quality of relevant data are prerequisites for incorporating environmental risk and market risk assessments into credit risk management. There needs to be more reliable data to ensure the precision of risk assessments and the efficacy of risk management methods. Internal controls to improve operational efficiency. Facilitates accurate and timely credit risk evaluation, monitoring, and decision-making. Financial technology solutions can improve data analytics capabilities, automate credit risk assessment procedures, and enhance the overall efficacy of risk management. By leveraging financial technology, lenders can gain access to real-time data, create more sophisticated risk models, and make more timely and accurate credit decisions.

Limitation and Future Research

In the present study, the subjects of the survey were the impacts of environmental risk, market risk analysis, organizational structure and operational efficiency, and the moderating role of financial technology of commercial banks in Pakistan. The population of this study included and was limited to commercial banking in Pakistan only. As such, other categories, such as microfinance and Islamic banks, can be included in a future study. Perform cross-country comparisons to examine how credit risk management practices and the moderating effect of financial technology differ across various countries or regions with different financial systems and levels of technological advancement.

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