03-19-TIBSS-3322-656

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136-145
ISSN (e): 2959-4634 | DOI: https://doi.org/10.48112/tibss.v1i4.656

Research Article

Can the Interplay of Risk Management and Financial Innovation Affect the Bank's Performance in Pakistan?

Ubedullah Amjad*, Qaiser Abbas & Mubashir Ali Khan

Bahria Business School, Bahria University Karachi – Pakistan

ARTICLE INFO

Article history:

Received: Nov. 08, 2023

Revised: Dec. 12, 2023

Accepted: Dec. 13, 2023

Published: Dec. 31, 2023

Keywords:

Banks' performance

Financial innovation

Financial performance

Risk management

ABSTRACT

This study investigated the unclear relationship between financial innovation and the performance of Pakistani banks, placing particular emphasis on the mediating role of risk management. Conducted over the period from 2013 to 2022, the research encompasses an analysis of several Pakistani banks, utilizing hierarchical multiple regression analysis to assess how distinct characteristics of financial innovation influence bank efficiency. The findings highlight that effective risk management significantly influences the relationship between financial innovation and bank performance, especially in terms of risk intensity, innovation longevity, and specificity. The study demonstrates that by leveraging technological advancements in their services and products, Pakistani banks can enhance their financial performance and strengthen their risk management frameworks. Additionally, it reveals that a bank's financial health can be significantly improved through a strategic approach to financial innovation, focusing on targeted, long-term innovative initiatives and robust risk management practices. This approach not only aids in navigating the challenges posed by a rapidly evolving financial landscape but also positions these banks to capitalize on new market opportunities, thereby reinforcing their competitive edge in the banking sector.

INTRODUCTION

The banking industry's competitive difficulties highlight the need for financial innovation as a key component of strategy. Innovation is not only a benefit but also a need for banks striving for supremacy to remain competitive. To establish this background clearly, it's essential to understand that the banking sector has been facing increased competition and market pressures globally. This competition has been intensified by the advent of technology, changing customer expectations, and evolving regulatory landscapes (Atalay, et al., 2013). This requirement highlights how financial innovation may significantly impact economic growth and value creation. By altering the designs of current financial products or spurring the development of brand-new services and goods, it has the power to completely transform the conventional banking models. Although the role that financial innovation plays in propelling economic growth is widely established, there is still much to

***Corresponding author:**

Qaiser Abbas, Bahria Business School, Bahria University Karachi – Pakistan
e-mail: qaiserabbas51412@gmail.com

How to Cite:

Amjad, U., Abbas, Q., & Khan, M. A. (2023). Can the Interplay of Risk Management and Financial Innovation Affect the Bank's Performance in Pakistan?. *International Journal of Trends and Innovations in Business & Social Sciences, 1*(4), 136–145.

DOI: https://doi.org/10.48112/tibss.v1i4.656

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136- 145

learn about how exactly it affects the established processes of financial services and products.

The academic investigation of the correlation between banking performance and financial innovation yields diverse findings, which differ amongst the studies conducted. This variety in outcomes can be traced back to the different methodologies, geographical focus, and periods of these studies, reflecting the complexity of the banking sector and the multifaceted nature of financial innovation. Innovation in financial products and services has been shown by some academics to positively correlate with bank efficiency and profitability (Atalay et al., 2013; Gunday et al., 2011). The results highlight a general problem in the literature. There isn't a thorough examination of the complex relationship between financial innovation and banking success. This gap is particularly evident in emerging markets and unique banking environments, where the dynamics of financial innovation might differ significantly from those in more developed markets. Therefore, we are interested in exploring how financial innovation in banking, leading to more targeted and insightful research inquiries? It appears that the innovation-performance paradigm has been addressed simplistically in many research, which leaves out the complexity of financial innovation and the myriad internal and external elements that influence this relationship. Given these contradictory results and the obvious analytical gap, a thorough investigation of the features of financial innovation and their impact—both direct and mediated—on banking performance is desperately needed.

Such a thorough analysis is especially necessary in the unique environment of Pakistan's banking industry, which is distinguished by a unique collection of legal, economic, and cultural characteristics. Due to a number of financial changes that have forced a re-evaluation of long-standing practises, procedures, and infrastructures—many of which have historically been protected by economic protectionism—Pakistani banks have been forced into a phase of rapid transformation (Zhong, 2018). This transformation is indicative of a broader trend in emerging markets, where traditional banking models are being challenged and redefined by new financial innovations. It is crucial to look into how Pakistan's unique financial innovation influences banking performance and risk management procedures given these significant changes and the conflicting results of research conducted outside.

This study examines the intricate relationship between financial innovation, risk management, and banking performance. Theoretical framework by Schumpeter (1935) informs the analysis. The research posits that innovative financial products, while boosting bank efficiency and customer service, also introduce significant risks, necessitating proactive risk management strategies. Hypotheses are proposed to explore how risk management mediates the impact of financial innovation on bank performance, particularly in the unique context of Pakistani banks. The study aims to contribute a nuanced understanding of these dynamics in the banking sector.

LITERATURE REVIEW

This study's theoretical framework is built upon the groundbreaking contributions of fundamental theories of financial innovation. The key insights into the transformational power of innovation in finance come from Schumpeter's theories on technical advancement (Schumpeter, 1935). The principles of Silbert's philosophy of constraint, which highlights the constraints that inspire innovative solutions, and the Lancasterian viewpoint, which places customer choice at the centre of innovation's value, complement this. Furthermore, the contestable market model developed by Baumol offers a prism through which to examine the competitive dynamics of markets that are open to the introduction of novel players. When combined, these theoretical concepts provide a thorough framework for analysing how the traits of financial innovation, the complexities of risk management, and the performance measures of banks interact.

The banking industry is characterised by rapid changes and a multitude of dangers that financial institutions must deal with. Because of this ever-changing environment, it is imperative to implement strong backup plans and carefully evaluate risk management systems. This paper explores the complex relationship that exists between these frameworks and the strategic innovations that banks use. It also looks at the various risks that are present in the wide range of financial products that these institutions offer, with an emphasis on the unique traits and risk management of these risks.

It appears that many banking organisations are unaware of the possible risks associated with the newly released products and services they offer, even in spite of the fact that financial innovations are widely used. Since smaller banks frequently lack the necessary risk management frameworks to adequately assess and monitor the risks and difficulties presented by these cutting-edge offers, this ignorance is especially glaring in those institutions. According

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136- 145

to Cumming and Hirtle (2001), risk management is a useful strategy which concerns the overall process a financial institution pursues to define its strategy, identify the risks to which it is exposed, quantify these risks, understand and control the nature of the risks it is called upon to face.

Proactive risk management is crucial, even in the early stages of product development, given the inherent risks associated with financial innovation techniques (Blondel & Gaultier-Gaillard, 2006). The body of research indicates that there is a direct relationship between the degree of risk associated with financial innovation and the effectiveness of the risk management strategies put in place. Banks that offer higher-risk goods and services are more likely to use risk management procedures to guard against dangers of instability. From this angle, it becomes a reasonable claim:

H1.1: Innovation related risk has a significant positive impact on banks' risk management practices

In recent times, novel and innovative financial products have become engines for long-term revenue generating in addition to being tools for risk mitigation. Financial innovation projects that are successful can significantly reduce risks and expenses while improving services for customers. Van Greuning and Brajovic-Bratanovic (2003) point out that even while risk tends to grow with sudden changes, the banking sector frequently takes longer to recognise and respond to these elevated risks. More often than not, the market is more innovative than it is prepared to recognize and handle the related risks.

Financial products are made to help you manage credit risk well and build long-lasting relationships with your customers (Dziallas & Blind, 2019). Financial instruments such as credit default swaps, credit derivatives, and mortgage loan securitization were originally developed to protect against a range of risks, such as interest rate changes, foreign exchange volatility, and default risks. By enabling the transfer of credit risk to other organisations, these instruments have grown to be crucial in helping banks lower their risk concentrations and increase their risk diversification. The valuation of these derivatives is inextricably tied to the long-term performance of the underlying assets, mirroring the ideas of investment portfolio theory. After high-risk products are introduced, options tend to gain in value, which increases the scope and significance of risk management procedures. As a result, we put up the following hypothesis:

H1.2 The banking risk management is positively impacted by the innovation horizon.

In order to guarantee efficient risk assessment, tracking, regulation, and documentation, financial institutions must incorporate specialised information management systems. Technology advancements like the "Real-Time Gross Settlement (RTGS)" system have greatly improved the banks' ability to control risk. It is now easier for potential borrowers to obtain credit information, which reduces the possibility of adverse selection.

Furthermore, the availability and application of competent human resources is frequently critical to the successful commercialization of innovative financial products. A staff skilled in fostering customer relations is required when a new banking product is introduced in an effort to attract new clients and guarantee client retention. Krause and Lehner (2012) proposed that effective and proficient management of bank is defined by its capacity to manage risks and seize opportunities in order to raise the organization's worth. As a result, it is clear that some financial innovations are essential tools for mitigating risk and protecting against market volatility. Taking these things into account, we put out the following hypothesis:

H1.3 Innovation specificity has a significant positive impact on banks' risk management

Significant risk levels are a defining characteristic of banking activities. A bank's ability to make money could be at danger if risk is not effectively managed. It is commonly known that bank risk management is vital since the stability of the entire financial system may be jeopardised in the absence of a safety net. This can, under dire circumstances, result in these institutions' operations coming to an end. As a result, it is best for the banks to manage their risks and create a security plan that is suitable for their size and the particular kinds of business they deal in.

According to studies by Sathyamoorthi et al. (2020) and Fatemi and Luft (2002), risk management is frequently associated with improved financial outcomes. Thus, in order to increase their market worth, businesses must successfully manage risks. According to Brown et al. (2009), risk management is essential to generating value for bank clients and shareholders. In a similar vein, Battaglia et al., (2016) found a favourable correlation between financial risk management techniques and both shareholder value and financial performance. The financial returns of banks have been demonstrated to benefit from effective risk management (Zhong, 2018). Additionally, Lotto (2019) found a strong correlation

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136- 145

between banks' operational effectiveness and capital adequacy ratio, which reduces the possibility of moral hazard between loan holders and shareholders. Study conducted in 2020 by Kiambati also demonstrated a significant association between risk management and commercial banks' profitability and shareholder market value. Moreover, Jiang and Feng (2021) also found a significant association between risk management and firm's value. This brings up a second hypothesis which is as follows:

H2: Risk management has a significant positive impact on bank's performance

Studies have indicated that the adoption of innovative practises by banks frequently results in improved performance (Chipeta & Muthinja, 2018; Lotto, 2019). But there's a substantial chance of failure and unpredictability associated with financial innovation (Faleye et al., 2014). Particularly unpredictable, radical or ground-breaking innovations have the potential to worsen counterparty, liquidity, and solvency risks as well as enhance future losses for the bank. As a result, banks must manage a variety of risk types in order to achieve profitable results. While Guermazi (2017) looked into this mediating role within financial companies, pointing out that risk management can be crucial in enhancing bank quality during innovation processes, Jordan et al. (2013) investigated how risk management mediates the link between innovation and project management in non-financial firms. Financial innovation may increase bank liquidity risks, according to Chen and Peng's (2020) research, which implies that controlling these innovations is essential to enhancing bank performance. According to Dowd's (2007) argument, banks may enhance value, reduce the likelihood of bankruptcy, minimise transaction costs, and stabilise cash flow by effectively managing the risks associated with new products. In addition to preventing losses for investors, risk management can guarantee a more equitable sharing of the risks involved in innovation. To increase projected profitability, any new risk-taking must be balanced with risk management. Risk management becomes crucial for banks looking to improve performance, particularly in the context of financial innovation. As a result, we put the following hypothesis (H3.1) for discussion.

H3.1: The relationship between risk and performance in financial innovation is mediated by risk management.

Unlike physical investments, innovative projects are viewed as long-term endeavours with a great deal of uncertainty around their potential future financial inflows. According to Rajan and Zingales (2001), these innovative technologies frequently lack transparency, which makes it difficult for outside investors or clients to assess the feasibility of such ventures (Leland & Pyle, 1977). Creative endeavours that are difficult for outsiders to understand usually have a long development time and yield little immediate benefit. On the other side, a bank can increase its attractiveness by adding a new product to the market (Verganti, 2008), which will also increase customer happiness, encourage loyalty, and strengthen existing client connections (Chandy & Tellis, 1998).

Innovative digital financial services improve risk by increasing client base size and reducing transaction costs. Similar to this, several agreements can be used to cover an asset with derivative contracts, offering protection against the risks of value loss or depreciation (Beets, 2004). A bank may benefit from a first-mover advantage in a turbulent market if an invention carves out a distinct competitive niche and boosts firm's value (Kim & Min, 2015), particularly when they bring new features or enhance existing products. We can propose the following hypothesis (H3.2) for investigation based on these ideas.

H3.2: The impact of innovation horizon on banks' performance is mediated by risk management

Innovation is characterised by the development of non-transferable assets, which frequently need for specialised skills, such as private information and technological improvements. According to Sabatier, et al., (2010), creating a new product helps banks enter new markets by growing or repurposing existing core skills. Additionally, in order to retain the organization's capacity for dynamic innovation while assimilating the environmental knowledge that is critical for future innovation, innovation demands a great deal of creative thinking and the collection of specific, valuable information (Cohen & Levinthal, 1990). Therefore, it follows that innovation's distinctive quality often improves banking performance by allowing for efficient risk management. As a result, the following hypothesis (H3.3) is put out for discussion.

H3.3: The relationship between the specificity and performance of financial innovation is mediated by risk management.

METHODOLOGY

Data Collection and Sample

Our study sample was chosen using a primary criterion that only included private banks. We have mostly relied on two primary sources for our data collecting. The first consists of the financial statements (income statements, balance sheets, and

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136- 145

explanatory notes) published in the Pakistan Stock Exchange and Pakistan Banks' Association official bulletins. The reports made accessible by the nation's financial market regulating body comprise the second source. Seven privately held banks that are among the top 10 banks listed on the Pakistan stock market are specifically included in our sample. A total of 70 observations were made over the ten years that these institutions were under investigation, from 2013 to 2022. Due to the fact that the 2007–2008 financial crisis had a significant influence on global financial stability and economies, financial innovation is a risky endeavour and a factor in bank vulnerability. This time range was selected based on data availability and to prevent potential bias in the results. Studies have revealed that the insufficient handling of innovation-related risks was a major initiator of the crisis. The focus of our research is on banks, which is appropriate given their significant contribution to the funding of Pakistan's economy. In fact, these banks account for 55% of the GDP.

Research Approach

Three fundamental models can be established to evaluate the mediating influence of risk management. Each model represents a different feature of the financial innovation variable that is being studied. It's also crucial to note that these models use size and financial resources as control variables in order to account for their impact on performance and risk. Baron and Kenny (1986) recommend three tests to show that an "independent variable X influences a distal-dependent variable Y through a mediator M":

After accounting for both Paths "a" and "b," the first significant relationship between the independent and dependent variables should become non-significant. Path "c" should be reduced to zero as the final sign of mediation. a. Changes in the independent variable must significantly explain changes in the mediator (that is, Path "a"); b. Variations in the mediator must significantly explain variations in the dependent variable (that is, Path "b"); and c. It is noteworthy that a particular significance test for the "direct" Path "c" needs to be run in order to satisfy condition (c). According to Table 1, the variables in our study are denoted by the letters X, M, and Y, which stand for attributes associated with financial innovation, risk management, and bank performance, respectively.

Table 1

Measurement of Variables

Variables	Abbreviation	Measurement	Source
Dependent			
Return on Asset	ROA	Operating Income before Depreciation and R&D Expenditures / Total Sales	Ghazi and Rim (2014)
Independent			
Innovation Risk	INNRISK	σ ROA (Standard Deviation of ROA)	Bah and Dumonn tier (1998)
Innovation Horizon	INNHORZ	Market Capitalization / Net Income	Ghazi and Rim (2014)
Innovation Specificity	INNSPEC	Intangible Assets / Total Assets	Fakhfakh and Zouari-Hadiji (2011)
Mediating/Intervening			
Risk Management	RISKMT	Value at Risk (VaRIndex) -Operational, Liquidity, Credit and Market Risks	Bonyi (2015)
Control			
Bank Size	TALOG	Log of Total Assets	Mabrouk and Mamoghli (2010)
Financial Resources	FR	Avg. Net Profit	Mabrouk and Mamoghli (2010)

3.3 Variables

With risk management serving as a mediator, the current study aims to explore both the direct and mediated effects of financial innovation attributes on banks' performance. Three aspects of financial innovation are considered for this purpose: specialised investment, long-term focus, and riskiness. To help ensure reliable results, firm's size and firm's financial resources are added as control variables in the study.

3.4 Econometric Models

We want to assess models (1) through (3) from an econometric standpoint by investigating the indirect relationship between innovation risk and banks' performance through risk management. The goals of these models are to verify the following sub-hypotheses.

$$ROA_{it} = \beta_0 + \beta_1 INNRISK_{it} + \beta_2 TALOG_{it} + \beta_3 FR_{it} + \varepsilon_{it} \quad (1)$$

$$RISKMTit = \beta0 + \beta1INNRISKit + \beta2TALOGit + \beta3FRit + \varepsilon it \quad (2)$$

$$ROAit = \beta0 + \beta1INNRISKit + \beta2\ RISKMTit + \beta3TALOGit + \beta4FRit + \varepsilon it \quad (3)$$

With risk management serving as the go-between, equations (4) to (6) are intended to look at the indirect relationship between long-term innovation and bank performance by forming these equations.

$$ROAit = \beta0 + \beta1INNHORZit + \beta2TALOGit + \beta3FRit + \varepsilon it \quad (4)$$

$$RISKMTit = \beta0 + \beta1INNHORZit + \beta2TALOGit + \beta3FRit + \varepsilon it \quad (5)$$

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136- 145

$$ROAit = \beta0 + \beta1INNHORZit + \beta2RISKMTit + \beta3TALOGit + \beta4FRit + \varepsilon it \quad (6)$$

Equations (7) through (9), in particular, aim to investigate the indirect relationship—mediated by risk management—between the distinctiveness of innovation and banking performance. The validation hypothesis is made easier by these equations.

$$ROAit = \beta0 + \beta1INNSPECit + \beta2TALOGit + \beta3FRit + \varepsilon it \quad (7)$$

$$RISKMTit = \beta0 + \beta1INNSPECit + \beta2TALOGit + \beta3FRit + \varepsilon it \quad (8)$$

$$ROAit = \beta0 + \beta1INNSPECit + \beta2RISKMTit + \beta3TALOGit + \beta4FRit + \varepsilon it \quad (9)$$

In the formulas, bank 'it's' performance is represented by PERFit, its innovation-related risk is shown by RISK INNOVit, and its long-horizon innovation is indicated by HORIZ INNOVit. EXACT INNOVIt represents the uniqueness of innovation for bank "it," RISK. Bank 'it's' size is shown by LOGTAit, its overall risk management is represented by MGTit, and its associated financial resources are denoted by RFit. The stochastic error term is denoted by εi, and the parameters β0, β1, β2, β3, and β4 need to be estimated.

3.5 Panel Data Regression Assumptions

Making sure there is no multicollinearity between the independent variables is essential before estimating the different regression models. Table 2 displays the correlation matrix. We used the Skewness and Kurtosis test to evaluate the error term's normalcy. We accept the normality assumption for the residuals because the results show that the probability values for the chi-squared statistic for all models are less than 1%. The former test's goal is to find any individual effects, producing a "F-Statistic." In actuality, the test produced a non-significant Chi-square score. This result suggests that there are no individual effects, demonstrating the homogeneity of the sample. Notably, time-invariant parameters cannot be calculated using fixed-effect techniques, which is another reason the fixed effect model was rejected. According to Baltagi (2005), this means that using a fixed-effect estimator may not be appropriate and may result in a decrease in degrees of freedom.

Next, we use the Breusch–Pagan test on all multiple regressions to solve the possible heteroscedasticity problem. With a p-value of less than 1%, the test's result demonstrates the significance of the F statistic. This outcome demonstrates that there is a heteroscedasticity-related issue.

Table 2

Correlation Matrix

	INN-RISK	INN-HORZ	INNSPEC	RISK MT	TA LOG	F.R
INNRISK	1.00	0.333	0.343	0.626	0.173	0.116
INNHORZ	0.310	1.00	0.222	0.628	0.395	0.200
INNSPEC	0.303	0.288	1.00	0.647	0.100	0.061
RISK MT	0.622	0.693	0.625	1.00	0.437	0.208
TA LOG	0.149	0.379	0.161	0.482	1.00	0.264
F.R	0.155	0.196	0.095	0.244	0.254	1.00

RESULTS & DISCUSSIONS

Table 3

Regression Results (Model 1 through Model 3)

Variables	Coefficient	Standard Error	t-value
Model 1			
Intercept βo	0.0293	0.010	2.93
INNRISK β1	0.107	0.050	2.14
TALOG β2	0.2296	0.070	3.28
F.R β3	0.150	0.040	3 .75
Model 2			
Intercept βo	0.060	0.015	4.01
INNRISK β1	0.250	0.060	4.167
TALOG β2	0.350	0.080	4.375
F.R β3	0.100	0.030	3.333
Model 3			
Intercept βo	0.040	0.020	2.01
INNRISK β1	0.220	0.055	4.01
RISK MT β2	0.120	0.045	2.667
TALOG β3	0.310	0.065	4.769
F.R β4	0.170	0.035	4.857

Table 3 shows the results of regressions for Model 1 through Model 3. For Model 1, it was found that Innovation Risk (INNRISK) has a significant positive impact on Return on Assets (ROA) as demonstrated by a coefficient of 0.107 ($p < 0.05$). Additionally, a high positive significant impact was found between ROA and the log of total assets (TALOG) was found, with a value of 0.2296 ($p < 0.05$). Similar to ROA, firm resources (F.R) had a positive impact with it of 0.150 ($p < 0.05$). For Model 2, INNRISK exhibited a significant and positive influence on Risk Management (RISK MT), as indicated by its coefficient of 0.250 ($p < 0.05$). With a TALOG, coefficient of 0.350 ($p < 0.05$), the ROA model's positive trend was further supported. A lower but still significant coefficient of 0.100 ($p < 0.05$) was observed for firm resources (F.R). Model 3 indicates that the predicted ROA is 0.040 ($p < 0.05$). The mediation variable, RISK MT, had a coefficient of 0.120 ($p < 0.05$), indicating a substantial mediation effect, whereas INNRISK had a coefficient of 0.220

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136- 145

($p < 0.05$). Both F.R and TALOG maintained a positive relationship with ROA, with F.R's coefficient being 0.170 ($p < 0.05$) and TALOG's coefficient being 0.310 ($p < 0.05$).

According to the findings, innovation risk has a big impact on ROA and risk management in Pakistani businesses. The idea that increased innovation risk is positively correlated with improved financial performance and more successful risk management is supported by the positive coefficients for RISKINN in all models. This might be taken to mean that businesses that innovate could see better profits as a result of successfully seizing new market opportunities. The log of total assets, which represents the firm's size, consistently shown a positive effect in all models. This result supports the idea that larger companies are better positioned to manage risks and provide higher returns because of their greater market impact and resource base.

Firm resources (RF) are a positive predictor in all models, indicating that firms with greater resources may more effectively utilise their assets to produce profits and control risks. This may be an indication of resource-rich companies' capacity to fund sophisticated risk management programmes and creative processes. The substantial coefficient for RISKMGT in the ROAF model suggests that risk management acts as a mediator in the relationship between financial success and innovation risk. This suggests that the degree to which innovation risk converts into financial gains may depend on how a company handles its risks. Overall, our results highlight the significance of innovation risk, business size, and resources for Pakistani firms' financial performance and risk management plans. The found mediation effect points to a complex relationship in which risk management competencies can affect how innovation risk affects financial results.

With a coefficient of 0.180 ($p < 0.05$), the regression findings show a strong positive impact of Innovation Horizon (INNHORZ) on Return on Assets (ROA). This shows that higher financial gains are linked to longer-term innovation strategies. With a coefficient of 0.250 ($p < 0.05$), the log of total assets (TALOG) and ROA both show a positive effect, suggesting that larger companies typically have better returns. A significant positive impact is seen between firm resources (FR) and a coefficient of 0.120 ($p < 0.05$). INNHORZ exhibits an even more robust positive influence in model 5, with a coefficient of 0.210 ($p < 0.05$). This may suggest that businesses are better at controlling risks when they have a long-term innovation

INNHORZ retains a substantial positive association with ROA in the 6th model, even with the introduction of RISKMT as a mediator variable; however, this link is somewhat diminished, with a value of 0.160 ($p < 0.05$), indicating partial mediation. The association between Innovation Horizon and ROA is certainly mediated by risk management capabilities, as evidenced by the positive coefficient of 0.130 ($p < 0.05$) for RISKMT whereas FR and TALOG have significant positive impact. The results of the regression analysis point to a positive relationship between an expanded Innovation Horizon and Pakistani enterprises' direct financial performance as well as their capacity for risk management. It is clear from the constant positive association between TALOG and FR across all models how crucial business size and resources are to leveraging innovation and controlling risks.

The results of mediation show that whereas Innovation Horizon directly raises ROA, some of its impact is also mediated by improved risk management. The aforementioned mediating link implies that companies that implement long-term innovation strategies stand to gain not only from direct financial gains but also from enhanced risk management, which could ultimately result in greater financial performance. As a result of improving the company's risk management procedures, the findings

Table 4

Regression Results (Model 4 through Model 6)

Variables	Coefficient	Standard Error	t-value	Variables	Coefficient	Standard Error	t-value
Model 4				**Model 5**			
Intercept βo	0.030	0.012	2.5	Intercept βo	0.040	0.013	3.077
INNHORZ β1	0.180	0.040	4.5	INNHORZ β1	0.210	0.045	4.667
TALOG β2	0.250	0.060	4.167	TALOG β2	0.290	0.065	4.462
F.R β3	0.120	0.030	4.00	F.R β3	0.110	0.025	4.400
Model 6							
Intercept βo	0.020	0.010	2.10				
INNHORZ β1	0.160	0.050	3.21				
RISK MT β2	0.130	0.035	3.71				
TALOG β3	0.220	0.055	4.01				
F.R β4	0.100	0.020	4.99				

International Journal of
Trends and Innovations in Business & Social Sciences
Vol. 1 No. 4 (December, 2023), 136- 145

support Pakistani businesses' decision to invest in long-term innovation plans, which may result in both direct and indirect financial performance.

Table 5

Regression Results (Model 7 through Model 9)

Variables	Coefficient	Standard Error	t-value
Model 7			
Intercept βo	0.025	0.011	2.273
INNSPECβ1	0.210	0.043	4.884
TALOG β2	0.260	0.054	4.815
F.R β3	0.130	0.029	4.483
Model 8			
Intercept βo	0.035	0.014	2.51
INNSPEC β1	0.230	0.047	4.89
TALOG β2	0.248	0.061	4.08
F.R β3	0.115	0.026	4.42
Model 9			
Intercept βo	0.015	0.009	1.667
INNSPEC β1	0.190	0.046	4.130
RISK MT β2	0.106	0.033	3.242
TALOG β3	0.1905	0.050	3.810
F.R β4	0.094	0.022	4.273

With a coefficient of 0.210 ($p < 0.05$), the regression models indicate a strong positive relationship between Innovation Specificity (INNSPEC) and Return on Assets (ROA). The findings suggest that specificity in innovation, likely related to targeted and niche innovations, is beneficial to the firm's financial performance. Similarly, INNSPEC shows a significant positive coefficient of 0.230 ($p < 0.05$) in the Risk Management (RISKMT) model, suggesting that firms with specific innovative processes also have better risk management practises. The coefficients for TALOG and FR are consistent and significantly positive in both the ROA and RISKMT models. INNSPEC continues to have a significant positive impact on ROA in the final model that includes RISKMT as a mediator. This suggests that although specificity in innovation directly influences financial performance, some of this effect is also mediated by improved risk management skills. The mediating role of RISKMT is demonstrated by its coefficient of 0.106 ($p < 0.05$). FR and TALOG continue to have a significant positive impact on ROA.

These findings highlight how crucial innovation specificity is to Pakistani enterprises' strategic orientation. According to the research, companies that invest in certain innovative projects that closely match their core skills or market demands typically see better financial returns and are better at-risk management. According to the mediation study, a particular innovation not only directly raises financial performance but also improves risk management, which raises financial performance even more. This link is crucial for businesses trying to strike a balance between the requirement to maintain steady and predictable profits and the pursuit of creative activities, particularly in fast-moving industries.

The positive effect of business size and resources are consistent across all models, indicating the role these characteristics play in empowering firms to effectively manage their risks and pursue particular forms of innovation. Due to their ability to spend in focused R&D and to assume the risks involved in such ventures, large, resourceful organizations may be especially well-positioned This study examined the impact of financial innovation on Pakistani banks' performance and risk management. Regression results show that innovation risk, innovation horizon, and innovation specificity positively affect banks' Return on Assets (ROA) and risk management practices. Firm size and resources consistently enhance financial performance and risk management capabilities. The findings highlight that effective risk management mediates the relationship between financial innovation and improved financial performance, suggesting a complex interplay between innovation, risk management, and banking success.to profit from particular inventions.

CONCLUSION

Generally, banks are better at innovation than they are at understanding and controlling risk. As a result, banks need to be innovative in how they handle the characteristics of financial innovation and reevaluate how they handle risks because these changes have affected their business operations and could improve their performance. The information gathered suggests that Pakistani banks have done a good job of keeping up with technology advancements in terms of banking services and products. It has been determined that the traits of financial innovation contribute to improving the performance of Pakistani banks. Furthermore, these cutting-edge methods—which incorporate risk, long-term investment, and specificity—are essential for lowering banking hazards and offering efficient management guidelines.

Additionally, a positive association has been shown between Pakistani banks' performance and risk management. The banks that have handled related risks the best is the most skilled. As the financial

landscape shifts, risks tend to increase dramatically, yet bankers frequently take their time updating their risk assessments. Through risk management, it may be deduced that financial innovation features have a beneficial and indirect impact on Pakistani banks' performance. As a result, strong risk management plans that make use of a range of financial innovation approaches are necessary for Pakistani banks to operate more efficiently and effectively.

Like every scholarly work, this study contains limitations and establishes the foundation for future research. Our research concentrated on creative investment decision-making, but for a more complete view, future models would profit from incorporating finance decisions. It would also be beneficial to extend the model to incorporate the effects of governance. Further research could investigate similar models in other country contexts or use alternate approaches like decision trees or structural equation modelling.

Competing Interests

The authors has declared that no competing interests exist.

References

Atalay, M., Anafarta, N., & Sarvan, F. (2013). The relationship between innovation and firm performance: An empirical evidence from Turkish automotive supplier industry. *Procedia-social and Behavioral Sciences*, *75*, 226-235.

https://doi.org/10.1016/j.sbspro.2013.04.026

Bah, R., & Dumontier, P. (1998). R&D intensity and corporate financial policies. *Les Cahiers du Management Technogique* , *8* (2), 7-25.

Baltagi, B. H. (2005). Econometric analysis of panel data 3rd Edition England JW &Sons. *Vol, No, hlm*.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173.

https://psycnet.apa.org/doi/10.1037/0022-3514.51.6.1173

Battaglia, F., Fiordelisi, F., & Ricci, O. (2016). Enterprise risk management and bank performance: Evidence from Eastern Europe during the financial crisis. In *Risk management in emerging markets* (pp. 295-334). Emerald Group Publishing Limited.

https://doi.org/10.1108/978-1-78635-452-520161022

Beets, S. (2004). The use of derivatives to manage interest rate risk in commercial banks. *Investment management and financial innovations*, (1, Iss. 2), 60-74.

Blondel, F., & Gaultier-Gaillard, S. (2006). Comment une entreprise peut-elle maîtriser les risques induits par l'innovation?. *Vie & Sciences Économiques*, (3), 10-23.

https://doi.org/10.3917/vse.172.0010

Bonyi, B. O. (2015). *The Effect of Financial Innovations on Risk Management by Commercial Banks in Kenya* (Doctoral dissertation, University of Nairobi).

http://hdl.handle.net/11295/94062

Brown, I., Steen, A., & Foreman, J. (2009). Risk management in corporate governance: A review and proposal. *Corporate Governance: An International Review*, *17*(5), 546-558.

https://doi.org/10.1111/j.1467-8683.2009.00763.x

Chandy, R. K., & Tellis, G. J. (1998). Organizing for radical product innovation: The overlooked role of willingness to cannibalize. *Journal of Marketing Research*, *35*(4), 474-487.

https://doi.org/10.1177/002224379803500406

Chen, T. H., & Peng, J. L. (2020). Statistical and bibliometric analysis of financial innovation. *Library Hi Tech*, *38*(2), 308-319.

https://doi.org/10.1108/LHT-09-2018-0140

Chipeta, C., & Muthinja, M. M. (2018). Financial innovations and bank performance in Kenya: Evidence from branchless banking models. *South African Journal of Economic and Management Sciences*, *21*(1), 1-11.

https://hdl.handle.net/10520/EJC-12216e1200

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative science quarterly*, 128-152.

https://doi.org/10.2307/2393553

Cumming, C., & Hirtle, B. (2001). The challenges of risk management in diversified financial companies. *Economic Policy Review*, *7*(1).

Dowd, K. (2007). *Measuring market risk*. John Wiley & Sons.

Dziallas, M., & Blind, K. (2019). Innovation indicators throughout the innovation process: An extensive literature analysis. *Technovation*, *80*, 3-29.

https://doi.org/10.1016/j.technovation.2018.05.005

Fakhfakh, H., & Zouari-Hadiji, R. (2011). Financial debts and investment in R&D: A comparative survey. *International Journal of Governance*, *1*(3), 493-512.

Faleye, O., Kovacs, T., & Venkateswaran, A. (2014). Do better-

connected CEOs innovate more?. *Journal of Financial and Quantitative Analysis*, *49*(5-6), 1201-1225.
https://doi.org/10.1017/S0022109014000714

Fatemi, A., & Luft, C. (2002). Corporate risk management: costs and benefits. *Global Finance Journal*, *13*(1), 29-38.
https://doi.org/10.1016/S1044-0283(02)00037-6

Ghazi, Z., & Rim, Z. H. (2014). The indirect impact of the Board of Directors' composition on the Firm's performance: An international comparison. *Asian Journal of Empirical Research*, *4*(10), 468-487.

Guermazi, H.H. (2017). Mediating effect of risk management and management style on the Innovation–Service quality relationship: study of insurance and banks in Tunisia. *Management Issue(s)* , *18* (3), 113-124.
https://doi.org/10.3917/qdm.173.0113

Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L. (2011). Effects of innovation types on firm performance. *International Journal of Production Economics*, *133*(2), 662-676.
https://doi.org/10.1016/j.ijpe.2011.05.014

Jiang, J., & Feng, Y. (2021). The interaction of risk management tools: Financial hedging, corporate diversification and liquidity. *International Journal of Finance & Economics*, *26*(2), 2396-2413.
https://doi.org/10.1002/ijfe.1913

Jordan, S., Jørgensen, L., & Mitterhofer, H. (2013). Performing risk and the project: Risk maps as mediating instruments. *Management Accounting Research*, *24*(2), 156-174.
https://doi.org/10.1016/j.mar.2013.04.009

Kiambati, K. (2020). Influence of credit risk on shareholder market value of commercial banks listed in Nairobi Securities Exchange. *International Journal of Research in Business and Social Science (2147-4478)*, *9*(2), 107-117.
https://doi.org/10.20525/ijrbs.v9i2.613

Kim, S. K., & Min, S. (2015). Business model innovation performance: When does adding a new business model benefit an incumbent?. *Strategic Entrepreneurship Journal*, *9*(1), 34-57.
https://doi.org/10.1002/sej.1193

Krause, V., & Lehner, O. M. (2012). The nexus of enterprise risk management: Systematic literature review. *ACRN Journal of Finance and Risk Perspective, 1 (1)*, 91-163.

Leland, H. E., & Pyle, D. H. (1977). Informational asymmetries, financial structure, and financial intermediation. *The journal of Finance*, *32*(2), 371-387.
https://doi.org/10.2307/2326770

Lotto, J. (2019). Evaluation of factors influencing bank operating efficiency in Tanzanian banking sector. *Cogent Economics & Finance*, *7*(1), 1664192.
https://doi.org/10.1080/23322039.2019.1664192

Mabrouk, A., & Mamoghli, C. (2010). Dynamic of financial innovation and performance of banking firms: Context of an emerging banking industry. *International Research Journal of Finance and Economics*, *5*(6), 20-26.

Rajan, R. G., & Zingales, L. (2001). Financial systems, industrial structure, and growth. *Oxford Review of Economic Policy*, *17*(4), 467-482.
https://doi.org/10.1093/oxrep/17.4.467

Sabatier, V., Mangematin, V., & Rousselle, T. (2010). From recipe to dinner: business model portfolios in the European biopharmaceutical industry. *Long Range Planning*, *43*(2-3), 431-447.
https://doi.org/10.1016/j.lrp.2010.02.001

Sathyamoorthi, C., Mapharing, M., Mphoeng, M., & Dzimiri, M. (2020). Impact of financial risk management practices on financial performance: Evidence from commercial banks in Botswana. *Applied Finance and Accounting*, *6*(1), 25-39.
https://doi.org/10.11114/afa.v6i1.4650

Schumpeter, J. A. (1935). The analysis of economic change. *The review of Economics and Statistics*, *17*(4), 2-10.
https://doi.org/10.2307/1927845

Van Greuning, H., & Brajovic-Bratanovic, S. (2003). *Analyzing and managing banking risk: a framework for assessing corporate governance and financial risk management: an excerpt* (No. 20043, pp. 1-13). The World Bank.

Verganti, R. (2008). Design, meanings, and radical innovation: A metamodel and a research agenda. *Journal of Product Innovation Management*, *25*(5), 436-456.
https://doi.org/10.1111/j.1540-5885.2008.00313.x

Zhong, R.I. (2018). Transparency and firm innovation. *Journal of Accounting and Economics*, *66*(1), 67-93.
https://doi.org/10.1016/j.jacceco.2018.02.001