

ROLE OF FINANCIAL INNOVATION ON FIRM'S FINANCIAL PERFORMANCE: MEDIATING ROLE OF R&D SPENDING INSTABILITY WITH SPECIAL REFERENCE TO THE INDIAN BANKING SECTOR

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Abstract *Innovation is a well-thought-out crucial chauffeur in today's viable markets for ensuring great success of the firms. This present study tried to find the effect of financial innovation on financial performance of the Indian banking sector. The mediating role of the research & development investment instability is also measured. Data for the study were obtained from working professionals employed in different scheduled banks of India in the Delhi – NCR region. CFA and structural equation modelling techniques were used for data analysis via SPSS & AMOS. Process Macro was also used for mediation analysis. The major findings of this research acknowledge that the different dimensions of financial innovation that are important for a bank's financial performance are financial product innovation and financial process innovation. A direct noteworthy relationship exists between financial innovation and financial performance. In addition, there exists a partial mediation between research & development investment fluctuation, and financial innovation and financial performance. The real-world inference of this study is that selecting the suitable financial innovation forms can boost the bank's financial performance.*

Keywords: *Indian Banks, Financial Innovation, Financial Performance, Investment Fluctuation, Research & Development*

INTRODUCTION

The notion of financial innovation plays a substantial role in the changing and competitive financial sector. Today, banking companies are operating in a volatile sector, where customer's tastes and preferences, technological improvements related to products-services, and the environment are changing randomly (Miller, 1983). Banking companies need to be highly innovative to obtain stability in their performance (Tajeddini et al., 2006). Both for start-ups and well-established companies, innovation is an important weapon for achieving competitive advantage (Lichtenthaler, 2020). Tuan et al. (2016) narrated that the ideologies of process, publicising, and structural novelty positively affect the innovation performance. Higher the innovation performance, higher the firm's performance, which includes different dimensions of performance like product, financial, and importantly, market.

Thus, in today's competitive markets, innovation is regarded as a crucial aspect for the lasting accomplishment of a firm

(Darroch & McNaughton, 2002; Baker & Sinkula, 2012). The innovative businesses are able to face challenges posted by the market in a more efficient manner, compared to non-innovative businesses (Brown & Eisenhard, 1995; Mile & Snow, 1978; Faina Medin et al., 2016). Banks will be able to enhance their overall performance and productivity by investing in new and innovative technologies (Stiglitz, 2010; Beck et al., 2012).

In India, Amritha (2018) found a significant influence of innovation in financial aspects on the profit margins and productivity of banks, and it was suggested that banks should invest in innovative banking. Ngumi (2014) investigated the outcome of innovations in banking on the economic performance of the banking sector in Kenya, while Lilly and Juma (2014) explored the effect of banking strategic innovations on the banking performances. Biswas and Bhattacharya (2020) found that financial innovation is a key factor in evaluating bank's financial performance. Melwani (2019) also identified business innovation as one of the important indicators of firm's financial performance. Vinayagamoorthy (2010) identified that technology

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modernisation plays a key role in improving the financial performance of Indian commercial banks, while Mabrouk Abir et al. (2010-2011) observed the influence of the implementation of financial modernisation on overall performance of commercial banks and found a positive relation. Further, Kong YuSheng et al. (2020), in their study, investigated the association of banking innovation adoption on the achievement of commercial banks in Ghana, and their findings revealed a significant relationship between the dimensions of innovation, like market innovation, process innovation, and product innovation, and the firm's performance. Along with financial innovation, many research studies approve the optimistic results of research & development spending on firms' financial performance and economic development (Eberhar, Maxwell & Siddique, 2004; Lome, Heggseth & Moen, 2016). Shin, Kraemer and Dedrick (2009) also found a substantial positive association between R&D spending and long-term financial performance in the global electronics industry. However, Jirásek (2017) proposed the association of R&D expense instability with the financial performance of a firm and concluded that firms with a lower level of financial performance have greater research & development investment fluctuations. This research also identified the long-term positive influence of R&D spending on firm's financial performance. Thus, in India, very few researches have been done on financial innovation, R&D spending, and its impact on bank's financial performance. The current research, therefore, aims to bridge the stated research gap and contribute to the banking innovative practices literature from the perspective of a developing economy. Therefore, the core objectives of this research article are:

- To assess the influence of financial innovation activities on the bank's performance, especially the financial performance.
- To assess the mediating effect of R&D spending instability on the association between financial innovation and bank's financial performance in India.

REVIEW OF LITERATURE

Financial Innovation

Innovation in banking means immense utilisation of new techniques and methods, new programmes, new products, and new services of the bank management. Financial innovation is an important part of banking innovation, which improves the overall performance of banks. According to Miller (1986), the financial sector should continue to produce a mix of new financial products which includes

exchange traded funds, new types of derivatives, various tax-deductible shares, various risk diversified products, and so on.

In the view of Reuben (2012), financial innovation in banks may be defined as an act of constituting and promoting advanced financial instruments, advanced technologies, and financial institutions and markets. It encourages financial intermediation and reduces transaction cost and risks, which strengthen the banking sector (Bhatt, 1989). Solans (2003) characterised financial innovation as trading and means of payment, technological advances which promote easy access to information, developing advanced financial services and instruments, introducing modern forms of organisation, and the emergence of financial markets. Amritha (2018) proposed that financial innovation is correlated with new ideas that creates the formation of a new product, process, and technology. It is not only related to the creation of new ideas, but also focuses on bringing them into the new market and exploiting them in a manner that leads to improvement in the quality of the new products, processes, and technology. According to Wyman (2012), financial innovations facilitate firms in raising funds for investment more securely, quickly, and at a reduced cost. Gundogdu et al. (2017) identified different forms of financial innovation, as new products, new services, new processes, or new organisational establishments. New financial products may be flexible rate mortgages, ETIFs, and so on; new services could be Internet banking or OST (online securities trading); new processes are like credit scoring, ERK (electronic record-keeping) for securities, and so on; and new organisational forms could be a new EETS, only Internet-oriented banks, and so on. Amritha (2018) proposed that the Indian banking sector should focus on the five important aspects of financial innovation, like product, process, technology, organisation, and market, to explore opportunities for innovations. This may improve the performance of the banking industry and the satisfaction of their customers. Lerner et al. (2011) identified the dimensions of financial innovation as product and process variants. Examples of product innovations are advanced corporate securities, advanced forms of combined investment plans, new derivative contracts, and so on, whereas process innovations may be advanced forms of pricing and processing transactions, and distributing stocks. In practice, it is very difficult to differentiate product and process innovations, as these two are often interlinked. Lerner et al. (2011) again defined that financial innovation includes both product and process innovations, as this is an act of invention and diffusion. Thus, on the basis of the above literature review, only two dimensions of financial innovation, i.e., product innovation and process innovation, have been considered for this study.

Process Innovation

Process innovation may be defined as an emergence of new and enlarged form of production or service delivery system of the enterprise, which focuses on important adjustments in techniques, tools, machines, and equipment (OECD, 2005; Exposito & Sanchis-Llopis, 2019; Obeng & Boachie, 2018). Process innovation indicates new production processes, which means arrangement of new financial products and services (Vargas, 2007). Reuben (2012) defined process innovation as a change in the way of manufacturing, creating, and distributing products or services. For customers, process innovation involves a new way with which the products and services are formatted and delivered. Process innovation is generally associated with technological changes which are aimed at increasing the capability of the production process (Amritha, 2018). Process innovations may be illustrated as ATM, NEFT and RTGS, online banking, mobile banking, and so on (Gundogdu & Taskin, 2017). For achieving productivity in the banking industry, banks need to regularly find ways to lower working costs. For this, banks need to use process innovative technologies like mobile banking, ATMs, and Internet banking, as well as personal banking, which can reduce operational (working) costs and increase quality of service over time (YuSheng & Ibrahim, 2019). Thus, process innovation may be identified as one of the eminent factors of innovation dimensions (YuSheng & Ibrahim, 2020).

Product Innovation

Product innovation has been identified as one of the key dimensions of financial innovation. It may be defined as the formation of new (innovative) products or services to fulfil market demands, thus creating a customer-focused type of financial innovation (Vargas, 2007). Amritha (2018) identified that product innovations are very helpful for the intermediaries to differentiate their strategies from the competitor's strategies, by giving solutions to neglected customer's demands. According to Policy Studies Institute (2018), product innovation is concerned with advanced products, innovative product designs, or utilisation of new materials or new components while manufacturing the established products. OECD (2005) quoted that product innovation concerns a compelling advancement in technical specification, appearance, ingredient and material, imparted software, portability, persistency, and various important characteristics. Atuahene-Gima (2001) also defines product innovation as changes in the characteristics, performance, and achievements of a product. To take competitive advantage in the market, most successful businesses generally use innovative products and services (Martin et al., 2017). Product innovations may include commercial papers,

certificate of deposits, GDR/IDR, mutual funds, CDS, derivatives, ETF, ULIP, credit cards, debit cards, ASBA, FCCB, gold loan, FCEB, and so on (Gundogdu & Taskin, 2017). Thus, product innovation may be considered one of the eminent factors of innovation dimensions (YuSheng & Ibrahim, 2020).

Financial Innovation and Banks' Financial Performance

It has been identified in various previous research studies that there is a positive and compelling affair between innovation and firm's performance (Cho & Pucik, 2005; Espallardo & Ballester, 2009; Gunday et al., 2011; Rajapathirana & Hui, 2018). In many empirical studies it has also been found that innovation types are also positively associated with firm's performance, i.e. ROI, competitiveness of firms, market share, and consumer demands and preferences (Neely et al., 2001). Majumdar and Majumdar (2020) found that the financial performance of any business can be evaluated using cash flow ratios, and thus, financial innovation can also be calculated using these ratios. Financial innovation is one of the important types of innovation that primarily focused on financial growth and maximising shareholder's wealth of the organisation; it appears in the form of innovative products, changed practices, and procedures (Forrer, 2015). De Young et al. (2007) identified that online payment adoption enhanced profitability of community banks, by increasing revenues from deposit service charges. Financial innovations like mutual and ETFs (exchange traded funds), equity funds, securitisation, and venture capital assist the firms in financial deepening and growth (Lerner & Tufano, 2011). Cherotich et al. (2015) established a specific relationship between financial innovations and financial performance of various commercial banks in Kenya, and suggested that banking innovation may become a key factor in underdeveloped economies as well. Mugane (2015) measured the impact of financial innovations on financial performance of various banks in Kenya and found a significant negative relationship between product innovation and financial performance of banks. Gundogdu et al. (2017) found that credit card management has a strong positive effect on ROA and ROE, whereas ATM usage and Internet banking have a significant negative impact on the performance of various banks. Rajapathirana and Hui (2018) concluded that product, process, and organisational innovations are positively associated with institutional performance, i.e. financial growth, employee's satisfaction, customer retention, and internal process. Innovative strategies are expected to influence various aspects of firm's performance. Through literature available on the firm's performance, four important dimensions of performance have been identified,

i.e., innovative performance, market performance, financial performance, and production performance (Narver et al., 1990; Yilmaz et al., 2005). Mabrouk and Mamoghli (2010) also concluded that product innovation is a key factor that enhances the profitability of banks, whereas process innovation increases both the profitability and efficiency of commercial banks. YuSheng and Ibrahim (2020) proposed that firms should adopt innovative strategies to enhance their operational performance, such as various financial performance, strategic market performance, and innovative production performance. Thus, innovation is a stimulus that drives institutional performance.

R&D Expense and Firm's Performance

Various previous literatures have identified a strong positive impact of R&D expenditures on financial performance of the firm (Eberhart, Maxwell & Siddique, 2004; Shin, Kraemer & Dedrick, 2009; Jirásek, 2017). Lome et al. (2016) concluded that the specific influence of R&D investments on firm's performance becomes visible only from the second year of the investment, whereas fluctuations in R&D investment have a negative influence on the organisation's performance. The reasons for variation in R&D investment could be factors like economic cycle, firm life/business cycle, organisational learning, short-term self-interest, and so on (Levitt & March, 1988; Beneito et al., 2015). Thus, it may be concluded that a higher level of R&D instability could reveal some strategic differences in a firm's innovation efforts, which impacts the firm's performance at a later stage.

HYPOTHESIS DEVELOPMENT

To achieve the objectives of the study, the following hypotheses have been formulated and tested using the structural equation modelling approach.

HA1: There is a significant positive relationship between financial product innovation and financial innovation.

HA2: There is a significant positive relationship between financial process innovation and financial innovation.

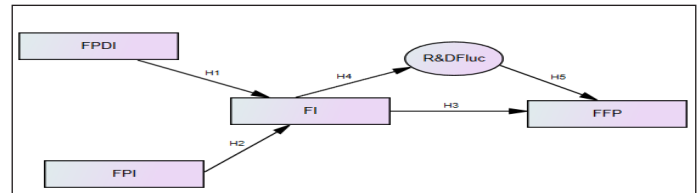
HA3: There is a significant positive relationship between financial innovation and financial performance of banks.

HA4: There is a significant positive relationship between financial innovation and research & development investment fluctuation.

HA5: There is a significant positive relationship between research & development investment fluctuation and firm's financial performance.

HA6: There is a mediation effect of R&D spending instability on the relationship between financial innovation and bank's financial performance.

Proposed Model



Researcher's Own Model.

Fig. 1: Conceptual Model of the Study

RESEARCH METHODOLOGY

Data Collection Tool

Fig. 1 demonstrates the core aim of the study, which is primarily to assess the connection between financial innovation and financial performance of the firm. Along with this, focus was also on exploring the factors which constitute financial innovation. In the study, a total of five variables, i.e., financial process innovation (FPI), financial product innovation (FPDI), financial innovation (FI), firm financial performance (FFP), and Research & Development investment fluctuation (R&D Fluc), were used, along with some demographic variables, namely gender, age, education, type of division/firm, and position level at job. On the basis of literature available relating to financial innovation and financial performance, and to meet the objectives of the study, a questionnaire consisting of 25 statements was designed, which includes statements adopted from different scales, i.e. financial process innovation and financial product innovation statements were adopted from Damanpour (1992) and Miller and Friesen's (1982), respectively; firm's financial performance was adopted from the study by Li et al. (2010); and R&D investment fluctuation was adopted from the study by Szakonyi, R. (1994). A five-point Likert scale was used for the development of the questionnaire, where one (1) stands for strongly disagreed and five (5) for strongly agreed. After the initial development of the questionnaire, the same was distributed to professors working in the finance domain to obtain expert opinion, and only after their approval was it tested using an online pilot survey with 50 respondents. As per the results of the pilot survey, necessary adjustments were made to the questionnaire, which was then circulated

for an in-depth study. Both of these measures ensure face validity of the structured questionnaire (Nunnally, 1978).

The sample for the study comprises working professionals of the scheduled commercial banks of India, which includes employees of public sector banks, private sector banks, foreign banks, payment banks, and cooperative banks. Many banks under each category had been chosen on the basis of their size and current market capitalisation. Non-convenient and judgemental sampling were used for selecting the major banks. Data had been collected from different branches, chosen randomly, of the selected banks operating in different zones of Delhi – NCR region, i.e., Northern Delhi, Southern Delhi, Eastern regions of Delhi, and Western regions of Delhi. The data was collected over a period of four months, February 2020 to May 2020, using online survey method. The questionnaire was emailed to nearly 700 working professionals employed in public and private sector banks. However, only 598 were returned. Out of the received questionnaires, 45 were found to be incomplete and thus had to be omitted from the study. The investigation for the study was done on 553 questionnaires which were fully complete. The demographic outline of the sampled units is mentioned in Table 1.

Table 1: Demographic Profile of the Respondents

	Demographic	N	%
Education	Intermediate	110	20.03%
	Graduate	170	30.88%
	Post-graduate	167	30.05%
	Other	106	19.03%
Gender	Male	292	52.75%
	Female	261	47.24%
Age	Between 22-32	134	24.20%
	32-42 years	194	35.05%
	42-52 years	159	28.71%
	Above 52 years	66	12.02%
Type of Division	Corporate Division	206	37.39%
	Retail Division	347	62.60%
Level of Employment	Junior Level	179	32.38%
	Middle Level	192	34.55%
	Senior Level	182	33.05%

Researcher's Output.

Table 1 showcases the demographic features of the respondents. Around 52% of the respondents were male,

while nearly 47% were female. A majority of the respondents were between 32 and 42 years old, representing 35% of the total sample size. Nearly 28.7% of the respondents belonged to the age group 42-52 years; respondents belonging to the age group 22-32 years made up 24%, while only 12% were in the age group above 52 years. The type of division was also considered relevant for the study, and it was found that nearly 37% of the respondents work in the corporate divisions of the banks, while 62% work in the retail divisions. Respondents were from the top (33%), middle (34%), and junior (32%) level management.

ANALYSIS AND DISCUSSION

For demographic analysis of the respondents, descriptive statistics were used. After ensuring sample sufficiency and adequacy of the sample size used for the study using KMO and Bartlett's test of sphericity, internal consistency, including reliability for the constructs, had been analysed using Cronbach's alpha with SPSS Version 21. Common method bias was tested for the data set and results obtained were satisfactory, as one single factor was able to explain only 37.62% of the total variation, which is less than the maximum permissible range of 50%. Sample sufficiency was tested using KMO (.839) and Bartlett's test of sphericity, significant at 0.000 level. Afterwards, CFA was used to analyse the cross-loadings on the constructs, and thereafter, path analysis was performed using AMOS Version 21. Rai and Gupta (2021) found CFA analysis to be the key model to study the relationship between various variables; as a result, CFA analysis has been used in this study. Mediation analysis was performed using Process Macro by Andrew F. Hayes, through SPSS.

Reliability Analysis of the Constructs

After the data has been checked for outliers or missing frequency, reliability of the constructs was checked using the Cronbach's alpha. The reliability statistic was compared against the minimum acceptable value of 0.7 (Henseler et al., 2009; Nunnally, 1978). The value for all the constructs were greater than 0.7, as mentioned in Table 2, along with other descriptive statistics like the number of items in the construct, scale from where the relevant statements have been adopted, and mean and standard deviation of the constructs. As the proposed model of the study was found to be reliable, it was used for doing further analysis.

Table 2: Reliability Statistics

Construct	Cronbach's Alpha	Mean	SD	No. of Items	Scale Adopted
Financial Product Innovation	0.875	1.14	0.49	5	Miller and Friesen's (1982)
Financial Process Innovation	0.863	1.26	0.538	5	Damanpour (1992)
Financial Performance	0.854	1.8	.800	4	Li et al. (2010)
R&D Investment Fluctuation	0.879	1.61	0.7277	6	Szakonyi, R. (1994)

Researcher's Output.

Correlation Analysis

Table 3 represents the correlation matrix between the constructs. It also presents the value of mean and standard deviation of the variables. The results confirm the association between different variables, like the value of r between FPI

and FFP (.415), FPDI and FFP (.439), FI and FFP (.621), FI and FPI (.889), FI and FPDI (.880), FPI and FPDI (.616), and FI and R&D Fluc (.708) are above 0.4. Since a majority of the correlation statistics are above 0.5, it can be concluded that there exists strong correlation between the different constructs.

Table 3: Correlation Statistics

Construct	Mean	S.D.	FI	FFP	FPI	FPDI	R&D Fluc
FI	.9348	.32786	1				
FFP	1.8752	.80023	.621**	1			
FPI	1.1402	.49019	.889**	.415**	1		
FPDI	1.2688	.50829	.880**	.439**	.616**	1	
R&D Fluc	1.6542	.57024	.708**	.364**	.681**	.601**	1

Researcher's Output.

Measurement Model: Confirmatory Factor Analysis

As the first step, CFA was performed to test how well the items used to construct financial product innovation, financial process innovation, and financial firm performance signified the latent variables on the basis of different goodness- and badness-of-fit indicators. For this objective, two models were framed, wherein Model 1 comprises dimensions like financial product innovation, financial process innovation, and firm's financial performance as first-order CFA and Model 2 comprises financial innovation as a second-order construct, where financial product innovation and financial process innovation were part of financial innovation, and financial firm performance is another variable. The results of confirmatory factor analysis were found to be satisfactory, as the regression weights, validity criteria, and different model fit indices were also found to be in the acceptable limits.

Model 1: p -value < 0.001, (TLI) = 0.909, root mean square error of approximation (RMSEA) = 0.088, Comparative Fit Index (CFI) = 0.922, Goodness-of-fit index (GFI) = 0.909.

CR and AVE for all constructs are greater than 0.7 and 0.5, respectively, as the values are 0.877, 0.589; 0.869, .574; and 0.850, 0.589, respectively, for FDPI, FPI, and FFP. Since the values of CR and AVE are above the minimum threshold

limits, convergent validity is restored. The AVE values for the constructs are also greater than MSV and ASV values, ensuring discriminant validity. MSV and ASV values are .310, 0.235; 0.310, 0.221; and 0.159, 0.145, respectively, for FDPI, FPI, and FFP. As the AVE and CR values for all the constructs were found to be more than 0.5 and 0.7, respectively, this ensures the presence of convergent validity (Kline, 2010). Discriminant validity of the constructs was also found to be satisfactory, as the value of AVE is greater than the squared inter-constructs correlation (Byrne & Barbara, 2010; Rai, Dua & Yadav, 2019).

Model 2: p -value < 0.001, (TLI) = 0.905, root mean square error of approximation (RMSEA) = 0.088, Comparative Fit Index (CFI) = 0.922, Goodness-of-fit index (GFI) = 0.909.

Structural Equation Modelling Results

After checking both the models using CFA, path analysis (structural equation modelling approach) was used to compare the two models and to select the best model. In the first SEM model (Fig. 2), the direct effect of the variables, i.e., financial product innovation and financial process innovation, on the financial performance of the firm was analysed, whereas in the second SEM model (Fig. 3), the influence of financial innovation, a second-order CFA

variable, on the firm's financial performance was tested. Financial innovation includes two variables – financial product innovation and financial process innovation.

The results of the two models are shown in Table 4. In the first model, only financial product innovation seemed to be significantly influencing the firm's financial performance, and another variable, i.e., financial process innovation, was found to be insignificant, as the associated p-value was greater than 0.05. This is because financial product innovation and financial process innovation are highly correlated variables, with correlation statistics at 0.561, which signifies a very high correlation between the two constructs. The combined variance explained by both the variables is 0.28, which is significant, as p-value is less than 0.05. The goodness-of-fit indices is within the acceptable limit, as GFI = 0.902, TLI = 0.897, CFI = 0.915, RMSEA = 0.091, and AIC = 480.917, against the threshold limits of > .80 (Mac Callum & Hing, 1997), > .90 (Hooper, Coughlan & Mullen, 2008), > .90 (Hu & Bentler, 1999), and between 0.08 and .10 (MacCallum & Hong, 1996), respectively.

The second model of structural equation modelling approach is more significant compared to the first model. In the second model of the SEM approach, financial innovation

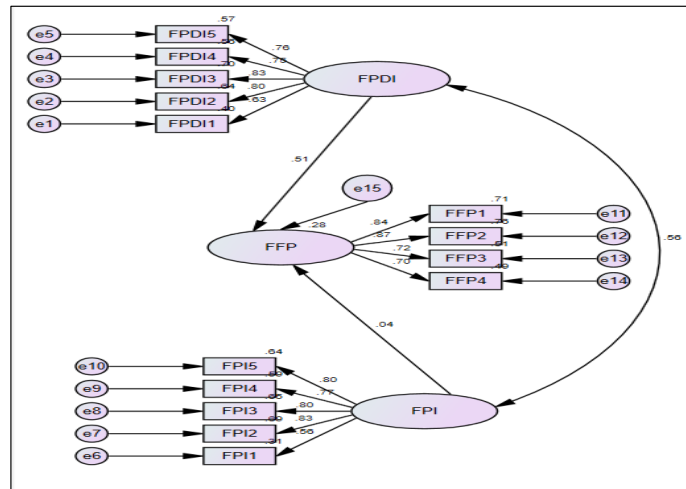
is used as a second-order variable to analyse its influence on the firm's financial performance. The beta coefficients are $FPI < -FI$ (.0755), $FPDI < -FI$ (0.737), and $FFP < -FI$ (.509), respectively, and all are significant at 95% level of confidence. Therefore, H1 and H2 are accepted. Although the combined variance explained is 0.26, which is significant as p-value is less than 0.05, other goodness-of-fit model values are more acceptable and significant. The values of goodness-of-fit indices are 0.908, 0.905, 0.922 for GFI, TLI, and CFI, respectively; the values of badness-of-fit are also acceptable against the minimum threshold limits of > .80 (Mac Callum & Hing, 1997), > .90 (Hooper, Coughlan & Mullen, 2008), > .90 (Hu & Bentler, 1999), and between 0.08 and .10 (MacCallum & Hong, 1996), respectively, and are more significant if compared with values of the first model of SEM approach. The values are 0.088 and 454.243 for RMSEA and AIC, respectively.

As per the Akaike information criterion (AIC) test (Akaike, 1974), if there are two models for the same data set, preference will be given to the model which holds a smaller AIC value. The AIC value of model 1 (SEM approach) is 480.976 and of model 2 (SEM approach) is 454.243. Therefore, financial innovation is preferred over the financial process innovation and financial product innovation. Hence, H3 is accepted.

Table 4: SEM (Path Analysis) Results

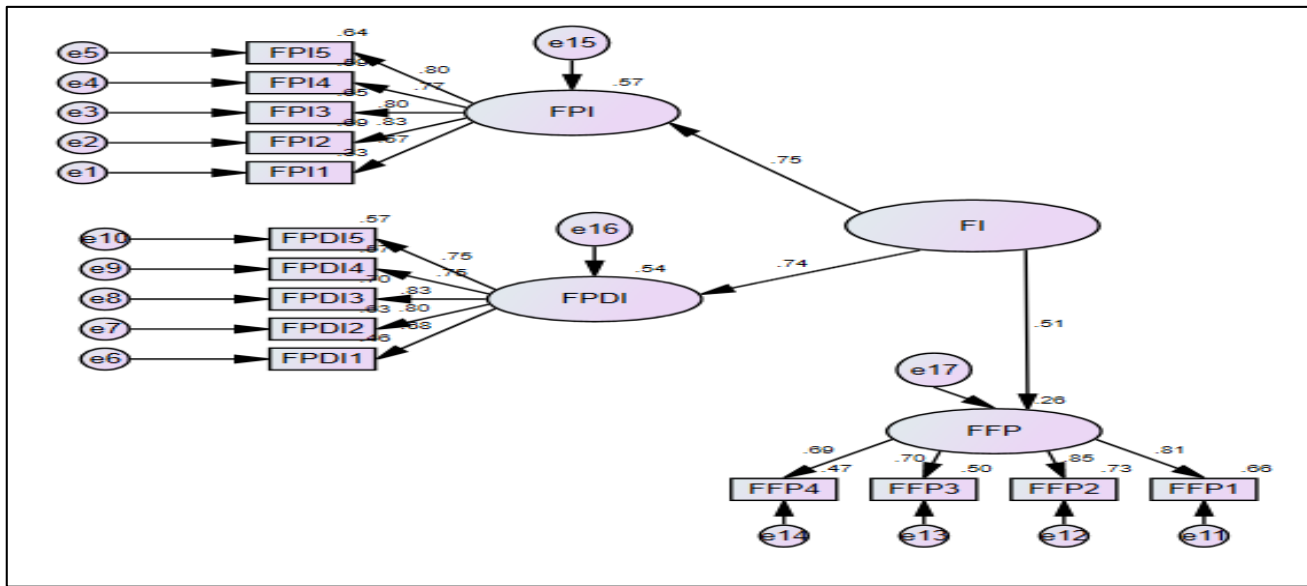
	Regression Path	Estimate	P Value	GFI	CFI	TLI	AIC	RMSEA	R2
Model 1 (SEM Approach)	FFP < -FPDI	0.509	0	0.902	0.915	0.9	480.98	0.091	0.28
	FFP < -FPI	0.039	0.389						
Model 2 (SEM Approach)	FPI < -FI	0.755	0	0.908	0.922	0.91	454.24	0.088	0.26
	FPDI < -FI	0.737	0						
	FFP < -FI	0.509	0						

Researcher's Output.



Researcher's Output.

Fig. 2: First SEM Model



Researcher’s Output.

Fig. 3: Second SEM Model

Mediating Role of R&D Investment Fluctuation between Financial Innovation and Firm’s Financial Performance

To check the mediation effect of R&D investment fluctuation on the relationship between firm innovation and the firm’s financial performance, direct relationships between the independent, dependent, and mediating variables were tested. It was found that there is a direct influence of the autonomous variable (FI) on the dependent variable (FFP), independent variable (FI) on the mediating variable (R&D Fluc), and mediating variable (R&D Fluc) on the dependent variable (FFP). Standardised regression weights are 0.729 (p value = 0.000), 0.708 (p value = 0.00) and -0.153 (p value = 0.001), respectively, for FI & FFP, FI & R&D Fluc, R&D Fluc & FFP.

As a direct effect is present between the variables, indirect effect of the mediating variable is tested; the standardised indirect effect equals -0.108 at significance value of 0.013. This displays that there is a noteworthy mediation effect of the R&D investment fluctuation on the relationship between firm financial innovation and firm’s financial performance. The total effect, direct effect, and indirect effect of the FI on FFP in the presence of a mediator were 0.621 (p value = 0.001), 0.729 (p value = 0.001), and -0.108 (p value = 0.013), respectively. As both effects, i.e., direct and indirect, were present and significant at 95% level of confidence interval (as mentioned in the table), there exists partial mediation (Jaccard & Jacoby, 2010). Therefore, hypothesis H4, H5,

and H6 are accepted. When R&D investment fluctuation is used as a mediator, the total effect is reduced compared to the direct effect, but it is still significant. The total effect is reduced as R&D investment fluctuation and firm’s financial performance exhibit a negative association. Whenever there is an uncertainty with respect to R&D expenditures, firm’s financial performance will be hampered.

Table 5: Mediation Results

	Total Effect	P Value	Direct Effect	P Value	Indirect Effect	P Value
FI < -FFP	0.621	0.001	0.729	0.001	-0.108	0.013
Fi < -R&D	0.708	0.001	0.708	0.0001	-	
R&D < -FFP	-0.153	0.013	-0.153	0.013	-	

Researcher’s Output.

CONCLUSION AND PRACTICAL IMPLICATION

The purpose of this research study was to examine and analyse the role of financial innovation on the firm’s financial performance in the Indian banking sector, because it is one of the pillars of the Indian financial system. The study results showed that financial innovation, which includes financial product innovation and financial process innovation, and significantly affected the level of the firm’s financial performance. Thus, it may be concluded that if banks focus on product and process innovation, then the financial performance can be improved significantly. The

results of the study hold importance for the banks which have low profitability ratios; if they focus on their financial innovation, profitability can be increased to a great extent. As the new concept of payment banks is emerging in India, the conclusions of the study provide an insight to those who want to start a new payment banking mechanism. The results of the study can also be applied to the online payment mechanism, including mobile wallets, as they also perform the main functions of the bank. Another vital emphasis of the study was on finding the mediating effect of fluctuations in the R&D investment on the connection between financial innovation and firm's financial performance. The outcomes suggest that there is a partial mediating effect. This is important for the managers to understand that if there is uncertainty with respect to the R&D operations, it will hamper the firm's performance. If financial innovation is taking place in an organisation, then the focus must be aligned with the R&D operations. If there are large fluctuations in the amount of R&D investment, then the benefits of financial innovation will not be available in the pure context.

LIMITATIONS

The current study suffers from a few limitations. The present study was undertaken, keeping in mind only the banking sector. Future research may cater to other financial institutions. The study was limited to only financial innovation, whereas future research may also include other types of innovation, like market innovation and technological innovation. In the present study, only financial performance is measured. In future studies, other parameters of performance, like customer satisfaction, employee satisfaction, and so on, can be undertaken. The data collected was limited to only the Delhi NCR region.

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