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Creators	Khan, Muhammad Bilal, Ezeani, Ernest, Saleem, Hummera and Usman, Muhammad

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Table I Descriptive information of sample selection procedure

Panel A		
Selection of Firms	Nos. of Firms	%
Agriculture	18	1.744
Telecommunication	10	0.969
Conglomerate	30	2.907
Information Technology	166	16.085
Manufacturing	582	56.395
Metals & Minerals	67	6.492
Business Service Sector	52	5.039
Transportation	20	1.938
Power Utilities	39	3.779
Whole Sales	48	4.651
Total Firms	1,032	100

Panel B		
Description	No of Firm Years	No of Firms
Availability of total firm-year observations on the CSMAR and Wind database from 2005 to 2022	22,008	1,223
Less:		
Observations with missing earning management forecasts	680	38
Observations with insufficient data to construct cost of debt proxy	710	39
Observations with insufficient data to construct innovation activities proxy	759	42
Observations with insufficient data construct control variables	1,283	71
Final sample	18,576	1,032

Source(s): Created by Author(s)

Table II Descriptive Summary

Variables	Observation	Mean	Median	Min.	Max.	S.D
Dependent Variable						
TIA	18,576	0.04	0.00	0.00	0.05	0.08
Independent Variable						
MEFs	18,576	0.68	1.00	0.00	1.00	0.85
Mediator						
COD	18,576	0.07	0.05	0.03	0.08	0.07
Control Variables						
ABL	18,576	0.47	0.00	0.00	1.00	0.50
LEV	18,576	0.43	0.43	0.27	0.59	0.20
FS	18,576	21.89	21.78	21.03	22.63	1.23
FA	18,576	10.91	11.00	6.00	14.00	6.24
ROA	18,576	0.04	0.04	0.01	0.07	0.05
SOE	18,576	0.67	1.00	0.00	1.00	0.47
BTM	18,576	0.54	0.51	0.32	0.74	0.27
B4A	18,576	0.04	0.00	0.00	1.00	0.18
PCF	18,576	0.60	1.00	0.00	1.00	0.49
GRO	18,576	0.14	0.07	0.00	0.26	0.28
CFO	18,576	0.06	0.05	0.01	0.09	0.11
TQ	18,576	1.84	1.42	0.73	2.56	1.51
LOSS	18,576	0.12	0.00	0.00	1.00	0.32
ING	18,576	0.06	0.00	-0.16	0.08	0.45

Notes: General information: TIA, the firms' R&D spending scaled by the entire operating revenue during the year; MEF, the firm's earnings forecast quantity during a financial year; COD, the interest cost of a firm divided by debt in total (non-current obligations due during one year, short- and long-run debts, bond payables, and accounts payable) of the firm "i" and year "t."; ABL, equivalent to "1" when firms access bank loans and "0" for others; LEV, the debt of the firms relating to the sum of debt in a year divided by assets in total; FS, the natural log of total assets; FA, the total years between the firm's financial reports per year and initial public offerings; ROA, the firm's profitability, and it was estimated as the net earnings scaled by the total firm assets; SOE, if a non-financial firm was controlled through the state or government, and the value is one and zero; BTM, the market worth of equity add the sum of asset book worthless, the equity book value, and deferred taxes (adjusted to "0" when lost) scaled by the firm's entire asset book value; B4A, equaled one if an audit report was issued in a year and zero otherwise; PCF, equivalent to "1" if firms' officials, including the manager, general manager, or real controller, had a political link with Government officials linked with political consultative meetings or national congress duties at a country level or above and "0" for others; GRO, sales growth estimated as the disparity with the existing year sale plus preceding year sales divided by the prior sales; CFO, CF divided by assets in total in a year; TQ, the equity market worth plus the firm's obligations book worth divided by the firm's total assets; LOSS, one for the firms whose net income was negative and zeroed otherwise; ING, the proportion of earnings forecasts released by firms in the identical industry.

Source(s): Created by Author(s)

Table III Correlation Matrix

Variable	TIA	MEFs	COD	ABL	LEV	FS	FA	ROA	SOE	BTM	B4A	PCF	GRO	CFO	TQ	LOSS
TIA	1															
MEFs	0.2462*	1														
COD	-0.0455*	-0.1182*	1													
ABL	0.1821*	0.2503*	-0.2271*	1												
LEV	-0.1097*	0.0313*	-0.5019*	0.2192*	1											
FS	0.0753*	0.0988*	-0.2251*	0.3008*	0.3912*	1										
FA	0.1106*	0.1122*	-0.2828*	0.3501*	0.3215*	0.4711*	1									
ROA	0.0688*	-0.0622*	0.2740*	-0.1142*	-0.2851*	-0.0163*	-0.1314*	1								
SOE	-0.0790*	-0.1764*	-0.0431*	-0.0331*	0.1014*	0.1906*	0.1322*	-0.1121*	1							
BTM	-0.2230*	-0.1297*	-0.1142*	0.0730*	0.2445*	0.3384*	0.1364*	-0.2685*	0.2098*	1						
B4A	0.0309*	-0.0234*	0.005	0.0314*	0.0694*	0.2262*	0.1020*	0.0380*	0.0187*	0.0963*	1					
PCF	0.2094*	0.3100*	-0.0927*	0.2341*	0.0734*	0.1148*	0.2158*	0.0741*	-0.2963*	-0.1418*	0.0304*	1				
GRO	0.0800*	0.1117*	-0.0922*	0.1265*	0.0744*	0.1616*	0.0795*	0.1673*	-0.0549*	-0.0728*	-0.003	0.0996*	1			
CFO	-0.0431*	-0.1443*	0.2273*	-0.1801*	-0.1603*	-0.1358*	-0.2050*	0.2028*	0.1146*	0.0375*	0.0147*	-0.1706*	-0.0063	1		
TQ	0.2709*	0.1210*	0.1608*	-0.0344*	-0.3654*	-0.3949*	-0.1086*	0.2692*	-0.2315*	-0.7551*	-0.0729*	0.1720*	0.0419*	0.0037	1	
LOSS	-0.0574*	0.0370*	-0.0789*	0.014	0.1438*	0.0768*	0.0226*	-0.6723*	0.0839*	0.0917*	-0.0210*	-0.0812*	-0.1713*	-0.0452*	-0.0868*	1

Source(s): Created by Author(s)

Table IV Testing mediation effect of cost of debt on the relationship between management earnings forecasts and the firm's technical innovation activities

VARIABLES	Exp. Sign	Model 1	Model2	Model 3
		DV	Mediator	DV
		TIA	COD	TIA
MEFs	+/-	0.00122** (0.000609)	-0.00183*** (0.000580)	0.00110* (0.000608)
COD	-	-	-	-0.0619*** (0.00792)
ABL	+/-	0.00267** (0.00108)	-0.00301*** (0.00102)	0.00248** (0.00107)
LEV	+/-	0.0195*** (0.00353)	-0.141*** (0.00336)	0.0108*** (0.00370)
FS	+/-	-0.00139 (0.000866)	-0.00362*** (0.000825)	-0.00162* (0.000865)
FA	+/-	-0.0655*** (0.00260)	0.00616** (0.00248)	-0.0651*** (0.00260)
ROA	+/-	-0.0133 (0.0125)	0.144*** (0.0119)	-0.00434 (0.0125)
SOE	+/-	-0.00151 (0.00128)	0.000961 (0.00122)	-0.00145 (0.00128)
BTM	+/-	0.00190 (0.00348)	-0.0101*** (0.00332)	0.00127 (0.00348)
B4A	+	0.0124*** (0.00382)	0.00258 (0.00364)	0.0125*** (0.00382)
PCF	+/-	0.000783 (0.00145)	-0.000801 (0.00138)	0.000733 (0.00145)
GRO	+/-	0.00423*** (0.00152)	-0.0111*** (0.00144)	0.00355** (0.00152)
CFO	+	0.00594 (0.00438)	0.0364*** (0.00417)	0.00820* (0.00438)
TQ	+/-	0.00613*** (0.000590)	-0.00350*** (0.000562)	0.00592*** (0.000590)
LOSS	+/-	-0.00345* (0.00178)	0.0153*** (0.00169)	-0.00250 (0.00178)
Cons.		1.094*** (0.0458)	0.113*** (0.0437)	1.101*** (0.0458)
Industry F-E		Yes	Yes	Yes
Year F-E		Yes	Yes	Yes
Observations		18,576	18,576	18,576
R-squared		0.359	0.220	0.361

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source(s): Created by Authors

Table V Findings of Heckman's (1979) Selection Procedure

VARIABLES	1stStep	2nd Step	2nd Step	2nd Step
	DV	Model 1	Model 2	Model 3
	MEFD	DV	Mediator	DV
		TIA	COD	TIA
MEFs	-	0.00130**	-0.00200***	0.00119**
	-	(0.000607)	(0.000577)	(0.000606)
COD	-	-	-	-0.0555***
	-	-	-	(0.00770)
ABL	-0.319***	0.0205***	-0.00529***	0.0202***
	(0.0327)	(0.00181)	(0.00173)	(0.00181)
LEV	2.110***	-0.102***	-0.133***	-0.110***
	(0.0797)	(0.00989)	(0.00944)	(0.00993)
FS	-0.287***	0.0138***	-0.00264*	0.0137***
	(0.0158)	(0.00148)	(0.00141)	(0.00148)
FA	-0.0489***	0.000515	-0.000828**	0.000467
	(0.00303)	(0.000337)	(0.000325)	(0.000336)
ROA	1.889***	-0.107***	0.177***	-0.0973***
	(0.395)	(0.0147)	(0.0140)	(0.0147)
SOE	-0.325***	0.0161***	-0.00126	0.0160***
	(0.0312)	(0.00194)	(0.00185)	(0.00194)
BTM	0.393***	-0.0162***	-0.00846**	-0.0167***
	(0.0869)	(0.00365)	(0.00349)	(0.00365)
B4A	0.582***	-0.0172***	0.00967**	-0.0166***
	(0.0751)	(0.00435)	(0.00416)	(0.00434)
PCF	0.0520	-0.00236	7.16e-05	-0.00236
	(0.0324)	(0.00145)	(0.00138)	(0.00145)
GRO	0.152***	-0.00330**	-0.0113***	-0.00393**
	(0.0544)	(0.00166)	(0.00158)	(0.00166)
CFO	-0.694***	0.0449***	0.0381***	0.0471***
	(0.134)	(0.00539)	(0.00514)	(0.00539)
TQ	0.0746***	0.00334***	-0.00256***	0.00319***
	(0.0155)	(0.000654)	(0.000624)	(0.000653)
LOSS	0.182***	-0.0121***	0.0184***	-0.0111***
	(0.0586)	(0.00192)	(0.00183)	(0.00192)
Instrumental Variable				
ING	-0.256***	-	-	-
	(0.0387)	-	-	-
IMR		-0.0658***	0.0098*	-0.0654***
		(0.00557)	(0.00532)	(0.00556)
Cons.	4.267***	-0.117***	0.185***	-0.107***
	(0.335)	(0.0225)	(0.0215)	(0.0225)
Industry F-E	Yes	Yes	Yes	Yes
Year F-E	Yes	Yes	Yes	Yes
Pseudo R ²	0.1731	-	-	-
R-Square	-	0.2978	0.3211	0.2981

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source(s): Created by Authors

Table VI Findings of Two-Stage Least Square (TSLS)

VARIABLES	Model 1	Model 2	Model 3
	DV	Mediator	DV
	TIA	COD	TIA
MEFs	0.0341*** -0.00645	-0.0151* -0.00883	0.0346*** -0.00646
COD	-	-	-0.114*** -0.0107
ABL	0.0290*** -0.0022	-0.00542** -0.00232	0.0282*** -0.00217
LEV	-0.0575*** -0.00362	-0.141*** -0.00318	-0.0744*** -0.00419
FS	0.0135*** -0.000822	0.00242*** -0.000858	0.0136*** -0.000824
FA	0.000282** -0.000114	-0.00104*** -0.000117	0.000164 -0.000115
ROA	-0.165*** -0.0196	0.268*** -0.0215	-0.132*** -0.019
SOE	-0.00598*** -0.00175	-0.00531*** -0.00175	-0.00619*** -0.00176
BTM	-0.0383*** -0.00397	0.00222 -0.00386	-0.0381*** -0.00396
B4A	0.0016 -0.00336	0.00558** -0.00272	0.00293 -0.00334
PCF	0.0303*** -0.00274	0.00439 -0.00295	0.0304*** -0.00274
GRO	0.0124*** -0.00244	-0.0126*** -0.00235	0.0108*** -0.00241
CFO	0.00762 -0.00597	0.0640*** -0.00628	0.0144** -0.00591
TQ	0.0119*** -0.00064	-0.00075 -0.000512	0.0117*** -0.000638
LOSS	-0.00599** -0.00248	0.0278*** -0.00194	-0.00274 -0.00252
Cons.	-0.237*** -0.0149	0.0890*** -0.0127	-0.223*** -0.0147
Sargan Statistic	0.001	0.005	0.001
Cragg-Donald Wald F statistic	245.616	60.033	244.613
LM statistic	242.604	59.87	241.639
Observations	18,576	18,576	18,576
R-squared	0.055	0.306	0.052

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source(s): Created by Authors

Table VII Findings of the Robustness Test

VARIABLES	Model 1	Model 2	Model 3
	DV	Mediator	DV
	INNO	COD	INNO
MEFs	0.0385*** (0.00307)	-0.00180*** (0.000581)	0.0378*** (0.00310)
COD	- -	- -	-0.0677* (0.0404)
ABL	0.0168*** (0.00542)	-0.00286*** (0.00102)	0.0162*** (0.00551)
LEV	0.103*** (0.0178)	-0.141*** (0.00336)	0.0958*** (0.0191)
FSLN	0.0803 (0.0929)	-0.101*** (0.0176)	0.0738 (0.0988)
FALN	-0.0893*** (0.0241)	0.00374 (0.00455)	-0.121*** (0.0289)
ROA	-0.297*** (0.0628)	0.144*** (0.0119)	-0.267*** (0.0658)
SOE	-0.0620*** (0.00646)	0.00112 (0.00122)	-0.0580*** (0.00674)
BTM	-0.134*** (0.0175)	-0.00953*** (0.00331)	-0.145*** (0.0184)
B4A	0.0409** (0.0193)	0.00273 (0.00364)	0.0501** (0.0204)
PCF	0.0684*** (0.00732)	-0.000716 (0.00138)	0.0662*** (0.00748)
GRO	-0.00519 (0.00765)	-0.0107*** (0.00145)	-0.00747 (0.00779)
CFO	-0.0390* (0.0221)	0.0354*** (0.00418)	-0.0337 (0.0237)
TQ	-0.0112*** (0.00298)	-0.00359*** (0.000562)	-0.01000*** (0.00306)
LOSS	-0.0275*** (0.00896)	0.0152*** (0.00169)	-0.0275*** (0.00923)
Constant	-0.134 (0.287)	0.445*** (0.0542)	-0.0813 (0.299)
Industry F-E	Yes	Yes	Yes
Year F-E	Yes	Yes	Yes
Observations	18,576	18,576	18,576
R-squared	0.917	0.221	0.915

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source(s): Created by Authors