Bank Diversification, Performance and Cash Holdings: Evidence from Pakistan

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ABSTRACT

The current study explores the moderating impact of cash holdings on the relationship between bank diversification and bank performance. For doing this, the data for the period of 2009 to 2019 for 18 banking firms is obtained from annual reports and the business recorder websites. Return on assets, profit ratio, Tobin q, and cost to income ratio are utilized as dependent, income diversity is taken as independent, cash positions, and cash conversion cycle, and liquidity are used as moderating while bank size, capital ratio, loan loss provision ratio, and loan ratio are used as control variables. Regression analysis is applied to analyze the impact of cash holdings on the bank diversification and performance link. The findings of the study show that income diversification, cash positions, cash conversion cycle, and liquidity have a positive impact on the bank's performance (measured by return on assets, profit ratio, and cost-to-income ratio). Income diversification has a non-significant impact on Tobin Q while cash positions, cash conversion cycle, and liquidity have a significant positive impact on Tobin Q. Moreover, all measures of cash holdings (cash positions, cash conversion cycle, and liquidity) moderate the relation between bank diversification and performance as the coefficients of income diversity become more significant with the inclusion of moderating force. The findings suggest increasing income diversity in banks in order to improve bank performance. The study also recommends considering cash holdings as a strengthening force in the relationship between bank diversification and performance.

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1. Introduction

Cash is considered the liquid asset for a business concern. The cash holding will aid the banks confirm transaction needs, clasp opportunities of investment and necessities of risk (La Rocca & Cambrea, 2019); Singh and Misra (2019). The cash holding (CH) plays a vital starring role for managing banks. On the other hand, enormous CH will ground the opportunity costs especially when bank has omitted investment accomplishments that produce a return to select CHs. On the opposing side, if the bank does not warranty its solvency, the bank is in hazard of facing financial collapse. The CH is an issue that has produced a lot of discussion in academe and in the financial community. Lately, there have been numerous researches every wherein the globe eyeing at the moderating role of cash holding in the association between bank diversification and bank performance (Saleem, Hussain, & Ibraheem, 2020). However, these researchers display different outcomes.

Cambrea, Tenuta, and Vastola (2019) and La Rocca and Cambrea (2019) explores a positive connection between cash and profitability. The extraordinary cash holding supports the organizations to accomplish massive performance (Cambrea, Calabrò, La Rocca, & Paolone,

2022). There is a need to inspect the effect of bank diversification on financial return, and further investigates defines the effect of bank cash holdings on the relationship of bank diversification and performance. The significance of the perfect cash producer is bewildered when one considers the work of cash resources in connection to benefit the executives, backing, and choice of a steady capital structure, the effect of the benefit point of view on the association's cash records. Since the association cannot be beneficial without additional cash. As shown by La Rocca and Cambrea (2019), corporate cash is viewed as a significant capacity of the Association's budgetary technique. Supporting being a significant component of an association's spending procedure gives cash when the firm shrivels on cash; making it necessary to analyze bank cash holding with the relation of bank diversification and performance.

In the contemporary aggressive financial condition, conventional financial administrations gave by business banks are never again novel, particularly after the mechanical development and globalization of budgetary administrations. Each bank essentially offers comparative administrations, which has brought about a thin spread of net premium edge. It is regular that business banks campaign governments to widen their customary financial exercises into other non-premium pay monetary administrations. For instance, the Gramm-Leach Bliley Act (GLBA) instituted in 1999 has enabled US business banks to overall and lawfully take part in guaranteeing protection exercises, a technique which has additionally been utilized by Europe's all-inclusive financial framework and numerous Asian nations in the course of the most recent two decades. Prior to the GLBA deregulation, the collaborations of degree and size of monetary data sharing all through the budgetary division in the US must be done through the arrangement of bank holding organizations. Banking firms play a crucial role between the investors and the borrowers. They take the surplus finance from those individuals of the community, which have the surplus of finance and provide to those, which have deficit of finance. The financial institutions also known as the intermediaries (Mantovi, 2019). It engages the financial affairs of the countries by receiving money from those populates which have excess rather than needs and grant to those which have fewer money to fulfill the needs or for the legal establishment of business. Through the help of the financial institutions, finance is circulated from one place to another and save the opportunity cost which is beard by the investors on the idle finance (Payne, Peltier, & Barger, 2021).

It is difficult for the layman to efficiently invest the amount in any profitable project although with the help of financial institutions, this problem is eliminated. The flow of finance in the financial institutions runs the business cycle of the countries. Lu (2013)The main and the first financial institution is bank but now a day many other institutions are providing the services just like the banks, the difference is that they are not registered as bank. The common types of the financial institutions are given below. Bank is a financial institution, which is directed and controlled through the central bank situated in the home country. Bank is a negotiator which received the pool of credits from prosperous investors and advances to the destitute investors. The banks are the central body between the investors and the borrowers, thus, earns a lot of money. If the investors directly done the investment then the cost of investment is greater than the cost which is bearded by the banks, the cost of bank's investment is low because it collects a pool and diversified it in different plans Mantovi (2019)Before making the investment in any stock or security it is obligatory to analyze the risk that is related with this investment (Hussain, Rafique, Khalil, & Nawaz, 2013). For this purpose, the investor pay price for acquiring the information. Two possibilities are available here; first is that the investor hires the expert to acquire information and analyses risk or itself he performs this task, in both cases the investor bear high cost as compare to the cost which is incurred by the bank at the time of granting advances to the borrowers.

Haralayya and Aithal (2021) stated that the banks have the credit managers which construct the rating of the borrower to repay the due amount or not the benefit of this manager is that the salary which is given to manager is fixed, the bank with one cost perform a lot of rating rather than to paying for per borrower but if investor without intermediary want to invest it must be paid. Like the commercial banks, saving banks also provide incentives to receive deposits and issues loan. The procedure to run these institutions is totally different from banking; the process of paying the tax is apart from banks (Tavakoli Baghdadabad, 2018). It is very difficult for the investors to diversify their risk by investing in more than one business or project. The diversification is required some negotiators to invest in the valuable vehicles for earning the profit and to reduce the risk. The diversification through dealers are costly and have a specific

limit (e.g., may be the investment starts from 2000000) but the investor only has 1000000 to invest so, in this way it is difficult to handle. The mutual funds are those companies which do not put any restriction and only collect the pool of finance from different peoples and invested in a profitable (Brown & Moles, 2014). The mutual fund companies by joining more than one hand reduced the risk and enhanced the yield on the investment. The mutual funds also provide the services like banking sector but the insurance is not available to these companies. These companies provide two type of benefits: first is that the investors can purchased the share of stock exchanges and the second is that at the time of need the investors can easily liquidate their shares. The company's income is the small percentage of the profit is retained by the companies and the fee is charged by the companies for wisely invested the finance of the investors.

There are limited studies which provide extensive analysis of bank cash holdings on diversification and performance link in Pakistan. Previously, the diversification literature emphases on cross state examination, in which country level data are highly aggregated. There is a need to scrutinize the effect of bank diversification on performance and further investigates the influence of bank cash holdings on the relationship of bank divergence and financial returns. Objectives of the study are to analyze the interrelation between income diversity and performance, to explore whether cash positions moderate the relationship between income diversity and bank performance, to check the moderating influence of cash conversion cycle on the relation between income diversity and bank performance and to investigate whether liquidity moderates the association among income diversity and performance.

A huge bit of current cash related composing is constrained to running economies where the business division works in an unpredictable administration circumstance, and firms need to meet certain breaking points to openly report their data. Bound. Corporate the executives rely upon their capacity to develop and make markets. Also, feeble corporate administration has been recognized for enabling over-fortified cash property (Khatib, Abdullah, Hendrawaty, & Elamer, 2022) because of the expanded perspective on the executives in these business segments, the effect of corporate administration is commonly unordinary. Along these lines, advertises additionally need development and development (Hunjra, Tayachi, Mehmood, & Hussain, 2021) and (Haralayya & Aithal, 2021)

2.   Literature Review

Diversification is one of the significant subjects of the account writing. This system is likewise urgent for a bank as a money related establishment. Banks can plan to expand its credit portfolio to build the presentation and to decrease the credit portfolio hazard. In the writing there is assortment of concentrates that examinations expansion and bank execution. Scannella and Polizzi (2021) performed one of the first and significant investigations about enhancement on banks' credit portfolio. They dissected Italian banks and found that both mechanical and sectarian enhancement decreases bank returns while creating less secure advances. In any case, Huy et al. (2021) explored German banks and saw that broadening tends as related with decreases in bank returns, significantly in the wake of controlling for chance.

The efficiency and execution components of the bank have been considered after seventeen works, after the real works. These makers saw the reasonable qualities of the bank, the undeniable parts of the business, and the financial factors as the standard factors that make the bank beneficial. Starting here of view, incalculable examinations on this issue have been finished on (Muradova, 2021). All things considered, as information and correspondence mechanics (ICTs) are worried about the mid-nineties, eccentric activities have become an extra supporter of bank income and have in this manner become a significant factor in the bank's execution. Choose to import and

Through Dynamic Board Momentum Strategy (GMM), the outcomes show that Asian banks have less open door for non-premium techniques, yet at the same time not benefit. utilized a dataset of 16 recorded Chinese business banks to inspect the effect of non-assessable portions in banks from 2007 to 2013. Clarifying the limit model of the board, genuine disclosures show that there is a nonlinear connection between nanorist pay and bank execution. The disclosures show that there is a negative connection between the unpaid edge and the execution of the business. The makers reported that it ought to steadily raise the non-premium

compensation proportion to a specific level with the goal for banks to bit by bit make results. Muradova (2021) using the case of Pakistani banks during (2020 to 2022), researched the connection between pay rise and banking execution. The discoveries demonstrated the constructive outcome of expanding pay on bank's degree in Pakistan. Thus, utilized the case of 81 banks in India during (2005to 2012). Huge disclosures show that out-of-pocket increments in compensation and non-pay positively affect pay and increment benefits. For the American setting, see Oberson (2021)utilized 368,006 quarterly perspectives on 10,341 US banks during 2022, and found that a higher extent of non-premium pay was with more prominent benefit than the money related part and distinctive exhibit frameworks. Under These outcomes uncovered that raising more ground might be the best choice.

3.   Theoretical Background

Speculation gives conflicting gauges about the impact of increasingly imperative development of activities on the display of budgetary middle people. Existing theories of budgetary intermediation propose extending returns to scale associated with upgrade. As suggested by created by (Arslan & Umutlu, 2009) banks get customer information during the path toward making credits that can energize the viable game plan of other cash related organizations, including the ensuring of assurances. In like manner, insurances and security underwriting, lender and regular hold organizations and various activities can convey information that improves credit making. Thusly, banks that take part in a collection of activities could acknowledge economies of augmentation that lift execution. There is moreover a cost associated with center individual danger and a predominant separated arbiter has less peril and subsequently lower costs.

In models of assurance or liquidity course of action (Arslan & Umutlu, 2009; Hameed, Hussain, Marri, & Bhatti, 2021) money related masters are chance unwilling and face some risk which the center individual can pool and improve for the good of they. Moreover, widening makes it more affordable for cash related establishments to achieve trustworthiness in their activity as screeners or screens of borrowers. As showed up by the models of relegated adventure watching or evaluation (Iqbal, 2017), the credibility of terrible outcomes empowers the representative to disguise proceeds or to ensure that hardship instead of nonattendance of effort incited the dreadful outcomes; a center individual with better widened theories has less probability of very horrendous outcomes, decreasing related costs. Thusly, that it is perfect for a bank to be maximally separated across over parts. Masters of development fight also that advance authorities, for instance, banks and store associations are regularly especially turned and widening transversely over division's decreases their chance of excessive cash related wretchedness.

Furthermore, the standard view is that increasingly conspicuous test has extended the prerequisite for banks to separate: lower advantages leave less edge for good, so extension gives a significant diminishing in peril. Only an essential course of action solution for controllers is proposed by the ordinary speculation: the budgetary portion should be left commonly unhindered, which should along these lines brief offset with a few gigantic, well-upgraded and forceful banks. Iqbal (2017) in unregulated settings where center individuals are new or the market is growing rapidly, there should be critical section, with various risky agents harmonizing: examiners can't encourage their exercises and commitment shade makes the cost of getting bit of the pie through rate contention most important when the potential for upgrade is generally significant.

Research on bank execution determinants has concentrated on return on both bank resources and value, and net financing cost edges. It has customarily inspected the impacts of banks on certain bank-related variables, for example, chance, showcase power and administrative expenses. As of not long ago, inquire about has concentrated on the effect of macroeconomic factors on the presentation of banks. Utilizing board rot alongside bookkeeping rot, contemplates bank net loan cost holders in 10 sub-Saharan African nations. It finds that credit hazard and working defaults (demonstrating market quality) clarify the greater part of the distinction in net premium edge over the district. Monetary hazard has just constrained effect on net intrigue edge in the examination. Utilizing bank-level information for 80 nations over the period (Berger & Bouwman, 2013) investigate how bank qualities and generally speaking financial condition influence both loan cost edges and bank returns.

Thinking about the two measures, this investigation gives a review of the impacts of income on numerous determinants that influence investors and borrowers' conduct against investors. The outcomes propose that financial and administrative conditions clearly affect edge and productivity. Low advertise fixation prompts low edges and benefit, while the impact of remote possession shifts among modern and creating nations. Berger and Bouwman (2013) ponder bank advance edges determinants in Latin America utilizing bank and nation level information. They found that moderately high loan costs (which is an intermediary for higher expansion related financial hazard in the investigation), spreads are bigger because of less effective banks and higher hold necessities. In spite of the fact that Berger and Bouwman (2013) doesn't expressly test for market control, his huge affiliation that he finds between high working expenses and net premium edges might be proof of market quality. The Hypotheses of the Study are as follows;

H1:   Income diversity is positively associated with (a) ROA, (b) PR, (c) TBQ and (d) CIR.
H2:   Cash positions moderates the relation between income diversity and (a) ROA, (b) PR, (c) TBQ and (d) CIR.
H3:   Cash conversion cycle moderates the linkage between income diversity and (a) ROA, (b) PR, (c) TBQ and (d) CIR.
H4:   Liquidity moderates the association between income diversity and (a) ROA, (b) PR, (c) TBQ and (d) CIR.

4.   Conceptual Framework

Figure 1 demonstrates framework of current study. It indicates that cash holdings (measured by cash positions, cash conversion cycle and liquidity) is a moderator force in the link between bank diversification (income diversity) and bank performance (return on assets, profit, Tobin q and cost to income ratio).

Figure 1: Conceptual Framework
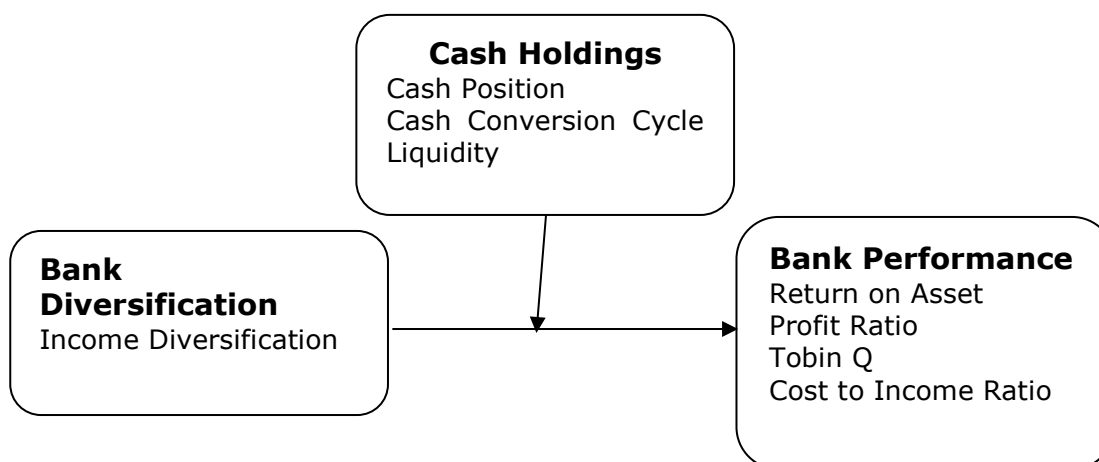
5.   Data and Methodology
5.1   Data source

The research is conducted on the banking firms which are listed in the Pakistan Stock Exchange (PSX). This chapter encompassed data, its sources and methodology, description of variables, model specification and arithmetical explanation of the variables. Pakistan's banking corporation establish as a population of this document. Sample size utilized of banking companies listed at PSX (100) index. From Pakistani banking sector, 18 banking firms are selected as study sample. The firms with missing data are removed from the sample. The date period ranges from (2007 to 2019). Information is gotten from budget reports of chosen test firms. Likewise, it has been recently announced that organizations have been deliberately chosen based on information on budgetary banking to bank broadening and money holding, bank execution in the Pakistan Stock Exchange. The data are mined from the annual report of selected banks traded in the PSX, and business recorder.

5.2 Description of Variables

Four types of variables (dependent, Independent, moderating and control) are used in this research, which are calculated by subsequent proxies that have been described in the past studies. The description of variables is provided in Table 1.

Table 1: Variables and Measurement

Variable Name	Description/Measurement
Dependent Variables: Bank Performance (BP)	
Return on Assets (ROA)	ROA = Net Income/Total Assets
Profit Ratio (PR)	PR = Net operating income/Total Assets
Tobin's Q (TBQ)	TBQ = (Number of Shares Outstanding × Stock Price) / Total Assets
Cost To Income Ratio (CIR)	CIR = Ratio of Overheads to the sum of net interest revenue and other operating income
Independent Variables: Bank Diversification (BD)	
Income Diversity (ID)	ID = 1-(net interest income-other operating income)/Total Operating Income
Moderating Variables: Cash Holding (CH)	
Cash Position (CP)	CP = Ratio of Cash and Cash Equivalent to Total Assets
Cash Conversion Cycle (CCC)	Cash Conversion Cycle (CCC) = Average Collection Period (ACP) + Inventory Turnover in Days (ITD) – Average Payment Period (APP) Where; ACP = (AR1/1 + AR31/12)/2/Sales ×360; ITD = (INV1/1 + INV31/12)/2/CGS× 360 APP= (AP1/1 + AP31/12)/2/CGS * 360 Where; AR: Account Receivables, AP: Account Payables, INV: Inventory, CGS: Cost of Goods Sold
Liquidity (LQ)	LQ = (Cash + Cash Equivalents + Short term investments) ÷ Current Liabilities
Control Variables	
Bank Size (BS)	BS = Logarithm of total Assets
Capital Ratio (CR)	CR = Logarithm of operating income
Loan Loss Provision Ratio (LPR)	LPR = Ratio of loan Loss provision to net loans
Loan Ratio (LR)	LR = Ratio of net loans to total assets

5.3 Econometric Models

The multiple regressions are employed to examine the moderating effect of cash holdings on the link between bank diversification and performance. For this purpose, the study uses following econometric models:

5.3.1 Return on Assets (ROA)

M1: $ROA_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(CCC_{it}) + \beta_4(LQ_{it}) + \beta_5(BS_{it}) + \beta_6(CR_{it}) + \beta_7(LPR_{it}) + \beta_8(LR_{it}) + e_{it}$

M2: $ROA_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(ID \times CP_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M3: $ROA_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CCC_{it}) + \beta_3(ID \times CCC_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M4: $ROA_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(LQ_{it}) + \beta_3(ID \times LQ_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

5.3.2 Profit Ratio (PR)

M5: $PR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(CCC_{it}) + \beta_4(LQ_{it}) + \beta_5(BS_{it}) + \beta_6(CR_{it}) + \beta_7(LPR_{it}) + \beta_8(LR_{it}) + e_{it}$

M6: $PR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(ID \times CP_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M7: $PR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CCC_{it}) + \beta_3(ID \times CCC_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M8: $PR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(LQ_{it}) + \beta_3(ID \times LQ_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

5.3.3 Tobin Q (TBQ)

M9: $TBQ_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(CCC_{it}) + \beta_4(LQ_{it}) + \beta_5(BS_{it}) + \beta_6(CR_{it}) + \beta_7(LPR_{it}) + \beta_8(LR_{it}) + e_{it}$

M10: $TBQ_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(ID \times CP_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M11: $TBQ_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CCC_{it}) + \beta_3(ID \times CCC_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M12: $TBQ_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(LQ_{it}) + \beta_3(ID \times LQ_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

5.3.4 Cost to Income Ratio (CIR)

M13: $CIR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(CCC_{it}) + \beta_4(LQ_{it}) + \beta_5(BS_{it}) + \beta_6(CR_{it}) + \beta_7(LPR_{it}) + \beta_8(LR_{it}) + e_{it}$

M14: $CIR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CP_{it}) + \beta_3(ID \times CP_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M15: $CIR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(CCC_{it}) + \beta_3(ID \times CCC_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

M16: $CIR_{it} = \beta_0 + \beta_1(ID_{it}) + \beta_2(LQ_{it}) + \beta_3(ID \times LQ_{it}) + \beta_4(BS_{it}) + \beta_5(CR_{it}) + \beta_6(LPR_{it}) + \beta_7(LR_{it}) + e_{it}$

6. Data Analysis
6.1 Descriptive Statistics

Table 2 displays the statistics of variables inducted to analyze the moderating impact of cash holdings on bank diversification and performance link. The table signifies that the mean value of ROA is (.2274) from (-0.0596 to 0.4424). The average value of PR is 2.0977 with the extreme and least value of 3.9869 and 0.1228. The mean value of TBQ is 23.9074 ranging from −7.4054 to 46.7611. The average value of CIR is 0.6144 with the maximum and minimum value of 0.0469 and 0.7520, respectively. ROA, PR, TBQ and CIR show ±5.63, ±12.48%, ±6.53% and ±3.86% deviations. The mean value of ID is 0.4193 ranging from 0.1470 to 0.8193. The average value of CP is 0.5518 with the extreme and least possible value of 1.8016 and 0.4085, respectively. The mean value of LQ is 0.5651 ranging from 0.1753 to 1.2646. The value of CCC is 17.1409 with the determined and minimum value of 26.8474 and 12.3178. The mean value of BS is 0.8153 which exaggerated from 1.4567 to least value 4.5764. The average value of CR is 4.8015 with the extreme and smallest value of 0.1884 and 15.6128. The outcome shown the mean value of LPR is 0.2354 and it shot up from 0.0599 to downward 0.4424. The average value of LR is 1.0978 with the maximum and minimum value of 3.9871 and 0.1282. ID, CP, LQ, CCC, BS, CR, LPR and LR show ±14.44%, ±39.13%, ±14.35%, ±22.31%, ±44.42%, ±13.33%, ±5.61% and ±12.48% variations respectively.

Table 2: Descriptive Statistics

Variables	N	Mean	Maximum	Minimum	Std. Dev.
ROA	180	0.2274	0.4424	0.0596	0.0563
PR	180	2.0977	3.9869	0.1288	0.1248
TBQ	180	23.9074	46.7611	7.4054	6.5350
CIR	180	0.6144	0.7520	0.0469	0.0386
ID	180	0.4193	0.8193	0.1470	0.1444

CP	180	0.5518	1.8016	0.4085	0.3913
LQ	180	0.5651	1.2646	0.1753	0.1435
CCC	180	17.1409	26.8474	12.3178	0.2231
BS	180	0.8153	4.5764	1.4567	0.4442
CR	180	4.8015	15.6128	0.1884	0.1333
LPR	180	0.2354	0.4424	0.0599	0.0561
LR	180	1.0978	3.9871	0.1282	0.1248

6.2 Correlation Analysis

Table 3 emphasized the Pearson Correlation for all the indicators employed to check the multicollinearity (identical variables) or strong association between factors in the data. The correlation between CIR and ROA is (0.668) which shows no sign of identical variables in the study that can possibly affect does the data which lead towards biased results.

Table 3: Correlations Matrix

Variables	ROA	PR	TBQ	CIR	ID	CP	LQ	CCC	BS	CR	LPR	LR
ROA	1											
PR	0.343	1										
TBQ	0.395	0.177	1									
CIR	0.68	0.220	0.216	1								
ID	0.231	0.207	0.082	0.263	1							
CP	0.363	0.208	0.159	0.392	0.219	1						
LQ	0.270	0.085	0.129	0.205	0.002	0.096	1					
CCC	0.101	0.073	0.003	0.239	0.062	0.010	0.029	1				
BS	0.242	0.117	0.108	0.259	0.005	0.028	0.539	-0.21	1			
CR	0.023	0.017	0.008	0.140	0.015	0.008	0.103	0.018	0.106	1		
LPR	0.345	0.341	0.333	0.343	0.143	0.352	0.353	0.435	0.524	0.343	1	
LR	0.343	0.117	0.108	0.250	0.005	0.028	0.530	0.117	0.108	0.250	0.304	1

6.3 Regression Analysis
6.3.1 Moderation of Cash Holding on ID-ROA Link

Table 4 shows the regression results of M-1 to M-4 for the moderating impact of cash holdings on the relation between ID and ROA. The M-1 in the Table 4.3 confirms that there is positive (β= 0.0341, P= 0.0461) influence of ID on ROA at the significance level of 0.05. If the percentages of ID increase by one percent, the ROA will increase by 3.41 percent. CP likewise has positive (β = 0.0431, p = 0.0146) impact on ROA. The impact is significant at 1 percent level. If the percentages of CP increase than, the ROA will increase up to 4.31 percent. The impact of CCC on ROA is also established positive (β=0.0274, p= 0.0014) at the significance level of 0.01. If the percentage of CCC increases by one percent, the ROA will increase by 2.74 percent. There is also positive (β=.0463, p= .0000) effect of LQ on ROA at the significance level of 0.01. If the percentages of LQ increase by one percent, the ROA will increase by 4.63 percent.

In M-2, the moderating impact of CP on ID-ROA link is analyzed. In M-2, the coefficient of ID increases relative to M-1 with the strong probability value (β = 0.0431, p = 0.0145), indicating that CP positively moderates the link between ID and ROA. The impact of CP in M-2 is also significant positive (β = 0.0567, p = 0.0000) indicating that one percent increase in CP will enhance ROA by 5.67 percent in selected banking firms. The product term (ID×CP) in M-2 is also significant (β = 0.1543, p = 0.0000) at 0.01 level. In M-3, the moderating impact of CCC on ID-ROA link is analyzed.

Table 4: Moderation of Cash Holding on ID-ROA Link

	Dependent Variable: ROA							
Variables	**(M-1)**		**(M-2)**		**(M-3)**		**(M-4)**	
	B	**P-val**	**B**	**P-val**	**β**	**P-val**	**B**	**P-val**
C	0.2468	0.0000[a]	0.2154	0.0000[a]	0.2418	0.0000[a]	0.1374	0.0000[a]
ID	0.0341	0.0461[b]	0.0431	0.0145[a]	0.0631	0.0000[a]	0.0584	0.0000[a]
CP	0.0431	0.0146[a]	0.0567	0.0000[a]				
CCC	0.0274	0.0014[a]			0.0346	0.0000[a]		
LQ	0.0463	0.0000[a]					0.0641	0.0000[a]
ID×CP			0.1543	0.0000[a]				
ID×CCC					0.0564	0.0000[a]		
ID×LQ							0.0641	0.0013[a]
BS	0.0641	0.2496	0.3175	0.2478	0.3246	0.3462	0.0342	0.2541
CR	0.0795	0.0431[b]	0.0374	0.0504[b]	0.0648	0.0274[b]	0.0485	0.0164[a]
LPR	0.0148	0.0742[c]	0.0341	0.0467[b]	0.0485	0.0234[b]	0.0248	0.0024[a]
LR	0.0094	0.6472	0.0942	0.2478	0.4521	0.3486	0.4318	0.1934
R²	0.6314		0.6741		0.6821		0.7034	

In M-3, the coefficient of ID increases with respect to to M-1 with the strong probability value (β = 0.0631, p = 0.0000), indicating that CCC positively moderates the link between ID and ROA. The impact of CCC in M-3 is also significant positive (β = 0.0346, p = 0.0000) indicating that one percent increase in CCC will enhance ROA by 3.46 percent in selected banking firms. The product term (ID×CCC) in M-3 is also significant (β = 0.0564, p = 0.0000) at 0.01 level. In M-4, the moderating impact of LQ on ID-ROA link is examined. In M-4, the coefficient of ID still increases relative to M-1 with the strong probability value (β = 0.0584, p = 0.0000), indicating that LQ positively moderates the link between ID and ROA. The impact of LQ in M-4 is also significant positive (β = 0.0641, p = 0.0000) indicating that one percent increase in LQ will enhance ROA by 6.41 percent in selected banking firms. The product term (ID×LQ) in M-4 is also significant (β = 0.0641, p = 0.0013) at 0.01 level. As concern for control variables, CR and LPR are found to be significantly associated with ROA while BS and LR have non-significant impact on ROA throughout all the models (M1-M4) in Table 4.3. Moreover, the R-squared for M1, M2, M3 and M4 are observed as 63.14%, 67.41%, 68.21% and 70.34%, respectively; showing the models are good fit.

6.3.2 Moderation of Cash Holding on ID-PR Link
Table 5 shows the regression results of M-5 to M-8 for the moderating impact of cash holdings on the relation between ID and PR. The M-5 in the Table 4.4 explained that there is positive (β= 0.0467, p = 0.0401) influence of ID on PR at the significance level of 0.05. If the percentages of ID increase by one percent, the PR will increase by 4.67 percent. CP also has positive (β = 0.0348, p = 0.0246) impact on PR. The impact is considered to be significant at the level of 5. If the percentages of CP increase by one percent, the PR will increase by 3.48 percent. The impact of CCC on PR is also found to be positive (β = 0.0934, p = 0.0507) at the significance level of 0.05. If the percentage of CCC increases by one percent, the PR will increase by 9.34 percent. There is also positive (β = 0.0462, p = 0.0371) impact of LQ on PR at the significance level of 0.05. If the percentages of LQ increase by one percent, the PR will increase by 4.62 percent.

In M-6, the moderating impact of CP on ID-PR link is analyzed. In M-6, the coefficient of ID increases relative to M-5 with the strong probability value (β = 0.0647, p = 0.0000), indicating that CP positively moderates the link between ID and PR. The impact of CP in M-6 is also significant positive (β = 0.0461, p = 0.0000) indicating that one percent increase in CP will enhance PR by 4.61 percent in selected banking firms. The product term (ID×CP) in M-6 is also significant (β = 0.1374, p = 0.0000) at 0.01 level. In M-7, the moderating impact of CCC on ID-PR link is analyzed. In M-7, the coefficient of ID increases with respect to M-5 with the strong probability value (β = 0.0471, p = 0.0000), indicating that CCC positively moderates the link between ID and PR. The impact of CCC in M-7 is also significant positive (β = 0.0241, p = 0.0000) indicating that one percent increase in CCC will enhance PR by 2.41 percent in selected banking firms. The product term (ID×CCC) in M-7 is also significant (β = 0.0941, p = 0.0000) at 0.01 level.

Table 5: Moderation of Cash Holding on ID-PR Link

Variables	Dependent Variable: PR							
	M-5		**M-6**		**M-7**		**M-8**	
	B	**P-val**	**B**	**P-val**	**β**	**P-val**	**B**	**P-val**
C	0.1674	0.0000[a]	0.1647	0.0000[a]	0.2049	0.0000[a]	0.1745	0.0000[a]
ID	0.0467	0.0401[b]	0.0647	0.0000[a]	0.0471	0.0000[a]	0.0341	0.0000[a]
CP	0.0348	0.0246[b]	0.0461	0.0000[a]				
CCC	0.0934	0.0507[b]			0.0241	0.0000[a]		
LQ	0.0462	0.0371[b]					0.0571	0.0000[a]
ID×CP			0.1374	0.0000[a]				
ID×CCC					0.0941	0.0000[a]		
ID×LQ							0.0742	0.0013[a]
BS	0.0341	0.3674	0.3415	0.3333	0.3546	0.3481	0.2597	0.3298
CR	0.0248	0.0284[b]	0.0671	0.0000[a]	0.1574	0.0000[a]	0.0581	0.0147[a]
LPR	0.0934	0.0000[a]	0.0934	0.0648[c]	0.0821	0.0000[a]	0.1127	0.0742[c]
LR	0.1542	0.3472	0.6328	0.2589	0.6821	0.3289	0.0284	0.4128
R²	0.5931		0.6237		0.6631		0.6781	

In M-8, the moderating impact of LQ on ID-PR link investigated. In M-8, the coefficient of ID decreases relative to M-5 but the level of significance is improved from 5% to 1% (β = 0.0341, p = 0.0000), indicating that LQ positively moderates the link between ID and PR. The impact of LQ in M-8 is also significant positive (β = 0.0571, p = 0.0000) indicating that one percent increase in LQ will enhance PR by 5.71 percent in selected banking firms. The product term (ID×LQ) in M-8 is also significant (β = 0.0742, p = 0.0013) at 0.01 level. As concern for control variables, CR and LPR are found to be significantly associated with PR while BS and LR have non-significant impact on PR throughout all the models (M5-M8) in Table 4.4. Moreover, the R-squared for M5, M6, M7 and M8 are observed as 59.31%, 62.37%, 66.31% and 67.81%, respectively; showing the models are good fit.

6.3.3 Moderation of Cash Holding on ID-TBQ Link

Table 6 shows the regression results of M-9 to M-12 for the moderating impact of cash holdings on the relation between ID and TBQ. The M-9 in the Table 4.5 enlights that there is insignificant (β =.0631, p=0.1346) impact of ID on TBQ. CP has positive (β = 0.0541, p = 0.0192) impact on TBQ. If the percentages of CP increase, then the TBQ will also be increasing by 5.4%. The impact of CCC on TBQ is also found to be positive (β = 0.0671, p = 0.0637) at the significance level of 0.10. If the percentage of CCC increases by one percent, the TBQ will increase by 6.71 percent. There is also positive (β = 0.1172, p = 0.0213) impact of LQ on TBQ at the significance level of 0.05. If the percentages of LQ increase by one percent, the TBQ will increase by 11.72 percent. In M-10, the moderating impact of CP on ID-TBQ link is investigated. In M-10, the coefficient of ID becomes significant (as compare to M-9) with the probability value of less than 0.05 (β = 0.0792, p = 0.0145), indicating that CP positively moderates the link between ID and TBQ. The impact of CP in M-10 is also significant positive (β = 0.0246, p = 0.0034) indicating that one percent increase in CP will enhance TBQ by 2.46 percent in selected banking firms. The product term (ID×CP) in M-10 is also significant (β = 0.0612, p = 0.0460) at 0.01 level. In M-11, the moderating impact of CCC on ID-TBQ link is analyzed. In M-11, the coefficient (β = 0.0371, p = 0.0294) of ID becomes significant (p < 0.05) at 5 percent level, indicating that CCC positively moderates the link between ID and TBQ. The impact of CCC in M-11 is also significant positive (β = 0.0349, p = 0.0468) indicating that one percent increase in CCC will enhance TBQ by 3.49 percent in selected banking firms. The product term (ID×CCC) in M-11 is also significant (β = 0.1037, p = 0.0045) at 0.01 level.

Table 6: Moderation of Cash Holding on ID-TBQ Link

Variables	Dependent Variable: TBQ							
	M-9		**M-10**		**M-11**		**M-12**	
	B	**P-val**	**B**	**P-val**	**β**	**P-val**	**B**	**P-val**
C	0.0692	0.0000[a]	0.0389	0.0000[a]	0.0612	0.0000[a]	0.1124	0.0000[a]
ID	0.0631	0.1346	0.0792	0.0145[a]	0.0371	0.0294[b]	0.0476	0.0431[b]
CP	0.0541	0.0192[a]	0.0246	0.0034[a]				
CCC	0.0671	0.0637[c]			0.0349	0.0468[b]		
LQ	0.1172	0.0213[b]					0.0349	0.0060[a]
ID×CP			0.0612	0.0460[b]				
ID×CCC					0.1037	0.0045[a]		

Variables								
ID×LQ							0.0248	0.0018a
BS	0.0328	0.4378	0.0421	0.2112	0.0218	0.3950	0.0349	0.1471
CR	0.3186	0.0034a	0.3412	0.0457b	0.2416	0.0000a	0.2961	0.0027a
LPR	0.2942	0.2487	0.2564	0.2105	0.2048	0.3214	0.2268	0.1379
LR	0.3472	0.3148	0.2974	0.2514	0.3059	0.2019	0.2721	0.1972
R²	0.5239		0.5134		0.5712		0.5631	

In M-12, the moderating impact of LQon ID-TBQ link is explored. In M-12, the coefficient (β = 0.0476, p = 0.0431) of ID becomes significant ($p < 0.05$) at 5 percent level, indicating that LQ positively moderates the link between ID and TBQ. The impact of LQ in M-12 is also significant positive (β = 0.0349, p = 0.0060) indicating that one percent increase in LQ will enhance TBQ by 3.49 percent in selected banking firms. The product term (ID×LQ) in M-12 is also significant (β = 0.0248, p = 0.0018) at 0.01 level.As concern for control variables, CR is found to be significantly associated with TBQ while BS, LPR and LR have non-significant impact on TBQ throughout all the models (M9-M12) in Table 4.5. Moreover, the R-squared for M9, M10, M11 and M12 are observed as 52.39%, 51.34%, 57.12% and 56.31%, respectively; showing the models are good fit.

6.3.4 Moderation of Cash Holding on ID-CIR Link

Table 7 shows the regression results of M-13 to M-16 for the moderating impact of cash holdings on the relation between ID and CIR. The M-13 in the Table 4.6 express that there is progressive (β =0.0142, p=0.0234) influence of ID on CIR at the significance level of 0.05. If the percentages of ID increase with 1 unit, the CIR will also increase by 1.42. CP also has positive (β = 0.0341, p = 0.0467) effect on CIR. If the percentages of CP increase by one percent, the CIR will increase by 3.41 percent. The impact of CCC on CIR is also found to be positive (β = 0.0546, p = 0.0327) at the significance level of 0.05. If the percentage of CCC increases by one percent, the CIR will increase by 5.46 percent. There is also positive (β = 0.0267, p = 0.0333) impact of LQ on CIR at the significance level of 0.05. If the percentages of LQ increase by one percent, the PR will increase by 2.67 percent.In M-14, the moderating impact of CP on ID-CIR link is analyzed. In M-14, the coefficient of ID increases relative to M-13 with the strong probability value (β = 0.0314, p = 0.0061), indicating that CP positively moderates the link between ID and CIR. The impact of CP in M-14 is also significant positive (β = 0.0571, p = 0.0004) indicating that one percent increase in CP will enhance CIR by 5.71 percent in selected banking firms. The product term (ID×CP) in M-14 is also significant (β = 0.0934, p = 0.0000) at 0.01 level.

Table 7: Moderation of Cash Holding on ID-CIR Link

	Dependent Variable: CIR							
Variables	**M-13**		**M-14**		**M-15**		**M-16**	
	B	**P-val**	**B**	**P-val**	**β**	**P-val**	**B**	**P-val**
C	0.2084	0.0000a	0.1937	0.0000a	0.1600	0.0000a	0.2222	0.0000a
ID	0.0142	0.0234b	0.0314	0.0061a	0.0543	0.0000a	0.0437	0.0037a
CP	0.0341	0.0467b	0.0571	0.0004a				
CCC	0.0546	0.0327b			0.0371	0.0000a		
LQ	0.0267	0.0333b					0.0341	0.0008a
ID×CP			0.0934	0.0000a				
ID×CCC					0.0438	0.0000a		
ID×LQ							0.0537	0.0019a
BS	0.0346	0.5281	0.0631	0.3199	0.0698	0.2525	0.0259	0.2915
CR	0.0671	0.0008a	0.0492	0.0674c	0.1118	0.0052a	0.0691	0.0482b
LPR	0.1067	0.0347b	0.0934	0.0000a	0.0629	0.0634c	0.1537	0.0000a
LR	0.2391	0.4128	0.1127	0.1294	0.0592	0.6241	0.2541	0.2287
R²	0.5726		0.6054		0.6245		0.6299	

In M-15, the moderating impact of CCC on ID-CIR link is analyzed. In M-15, the coefficient of ID increases with respect to M-13 with the strong probability value (β = 0.0543, p = 0.0000), indicating that CCC positively moderates the link between ID and CIR. The impact of CCC in M-15 is also significant positive (β = 0.0371, p = 0.0000) indicating that one percent increase in CCC will enhance CIR by 3.71 percent in selected banking firms. The product term (ID×CCC) in M-15 is also significant (β = 0.0438, p = 0.0000) at 0.01 level.In M-16, the

moderating impact of LQon ID-CIR link is investigated. In M-16, the coefficient of ID increases relative to M-13 with higher significance (β = 0.0437, p = 0.0037), indicating that LQ positively moderates the link between ID and CIR. The impact of LQ in M-16 is also significant positive (β = 0.0341, p = 0.0008) indicating that one percent increase in LQ will enhance CIR by 3.41 percent in selected banking firms. The product term (ID×LQ) in M-16 is also significant (β = 0.0537, p = 0.0019) at 0.01 level.As concern for control variables, CR and LPR are found to be significantly associated with CIR while BS and LR have non-significant impact on PR throughout all the models (M13-M16) in Table 4.6. Moreover, the R-squared for M13, M14, M15 and M16 are observed as 57.26%, 60.54%, 62.45% and 62.99%, respectively; showing the models is good fit.

7.   Conclusion and Recommendation

The current study therefore explores the moderating role of cash holdings as cash positions, cash conversion cycle and liquidity in the link between bank diversification and bank performance as return on assets, profitability ratio, Tobinq and cost ratio. For the purpose of doing this, the data for the period of 2009 to 2019 of 18 banking firms are gathered form annual report and business recorder website. Return on assets, profit ratio, Tobin q and cost to income ratio are utilized as dependent, income diversity is taken as independent, cash positions, cash conversion cycle and liquidity are used as moderating while bank size, capital ratio, loan loss provision ratio and loan ratio are used as control variables. Moreover, regression analysis is applied to analyze the impact of cash holdings on the bank diversification and performance link. Findings of the study indicate that income diversification, cash positions, cash conversion cycle and liquidity have positive impact on bank performance (return on assets, profit and cost ratio). Income diversification has non-significant impact on Tobin Q while cash positions, cash conversion cycle and liquidity have significant positive impact on Tobin Q. Moreover, all measures of cash holdings such as cash positions, cash cycle and liquidity have moderate relation between diversification and performance, as the coefficients of income diversity become more significant with the inclusion of moderating forces. The above findings lead to support all the hypotheses of the study. Furthermore, capital ratio and loan loss provision ratio also have shown significance on performance, while bank size and loan ratio show are insignificant on bank performance.

The consequences of the examination infer that, above all else, there is a positive relationship between bank enhancement and money holding and money change long stretches of budgetary establishment firms in Pakistan. Obviously, the relapse examination information show that we can affirm the primary theory of the exploration, recommending that there is a noteworthy connection between the assorted variety of the organization and the nearness of money holding budgetary execution. Also, all relapses show the positive impact of all the free factors on it, demonstrating that the expansion in real money holding assorted variety and other control factors may further reinforce the general monetary presentation. The primary speculation is upheld. Significant issues are examined and arrangements are planned so broadening should affect budgetary execution. Obtained business days, payable turnover days, and poor key approaches of the board and the executives identified with stock day the executives positively affect the money cycle, and these outcomes are similar with (Abdellatif et al., 2021; Kung'u, 2015; Lamptey & Marsidi, 2020; Oberson, 2021). Besides, it has additionally been presumed that connections between money possessions, for example, firms are sure and significant in the times of payable turnover. The explanation for this might be that the CEO may have the alternative of controlling a lower level for a shorter timeframe. Because of operational choices, they are not routinely examined in gatherings or board advisory groups. Powerful approaches for paying records are viable in planning. Official board may have offered credit time to specific purchasers, when the approach was set up, this may not be the situation. This ought to be examined in administration gatherings. Organizations with expanding benefits and deals volume need progressively crude materials to make items that lead to expanded business purchasing. Officially, inquire about outcomes infer that the negative connection between Are. Solid administration and stock turnover day Non-budgetary organizations in Pakistan. The study expresses that money possessions and expansion have a noteworthy association with firms' ID, CIR, PR and TBQ intermediaries. It additionally called attention to that the expansion in real money property and the expansion in income broadening and the general execution of budgetary strength can be additionally upgraded by the residency of the CEO who supports the fourth suspicion. The study found that growing a firm enhances the estimation of cash in both

monetarily unstructured and at risk firms, and that subsidizing for development firms with more prominent points of confinement on financial specialist rights.

The flow of study will assist scientist with exploring more determinants of abundance money holding and test the connection of overabundance money with the estimation of the organization and the investor returns on different areas. For completing better research, the information could be more industry explicit as money necessities for every industry is unique in relation to the next business. Consequently, it will upgrade the learning more that how abundance money holding functions for a particular industry. This examination will comprehend the significance of recognizing the ideal degree of money for an organization so as to maintain a strategic distance from any decay the estimation of the organization and decreased stock worth. There is a lot more relationship which should be concentrates further. That is the impact of corporate administration on the overabundance money holding. How administrators can adequately utilize the overabundance money to make the worth increasingly beneficial. Besides the impact of over venture and under speculation can be seen whether organization is utilizing its overabundance money in the beneficial way or not. The examination built up that regardless of money and money counterparts having positive effect on the exhibition of banks, there were fluctuating patterns throughout the long periods of concentrate. From these discoveries, it is prescribed to business bank directors to institute procedures and plans that anticipate such variances given that money and money counterparts are key resources for banks. Further, the examination uncovered that different ventures influence the money related execution of banks in Pakistan to incredible degree and there was a decrease in the course of recent years. This pattern places the bank into a hazardous situation. Thus, it is prescribed to business bank administrators to survey existing resources broadening plan, explicitly on different interests so as to realign what may be causing such patterns. This ought to include putting crosswise over systems and plans for broadening and using money save such that means positive execution.

8. Suggestions

- As a suggestion, this examination prescribes to the strategy creators and the administration establishments that manage the financial segment in Pakistan to institute helpful guidelines that help resource expansion endeavors by business banks. This ought to include joint impacts by all partners to survey the guidelines, examinations the effect lastly audit them dependent on the findings.
- The study suggests increasing income diversification in banks in order to enhance the bank performance.
- The study recommends considering cash holdings in order to strengthen the interrelation concerning bank diversification and financial health.

9. Limitations of the Study

The fiscal summaries did not mirror the effect situation of three business banks under receivership had on budgetary execution. Placing into record such intercessions could yield changed outcomes. Some worldwide business banks, model standard contracted banks, have their every year budget reports inferred dependent on their activities all-inclusive which neglects to have explicit effect of benefit enhancement and monetary execution. The examination additionally confronted confinement whereby banks wandered into resource enhancement into various territories at various occasions henceforth their effects on the money related execution of business bank may likewise fluctuate. The sample of the study is small, future studies may enhance the sample and may challenge the findings of the current study. The study revealed that cash and cash equivalents as well as other assets had declined over the last year of the study. Hence, the researcher recommends for further research into the cash and cash equivalents, and other investments diversification in banks in order to have a detailed conclusions of causes behind such trends.

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