Analysis of Liquidity, Credit and Operational Risk on Financial Performance of Banks in Bhutan (BOBL, BNBL, & DPNBL)

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Abstract

This research has been conducted to provide insight on how liquidity risk, credit risk, and operation risk affect the bank's financial performance in three different banks (BOBL, BNBL, and DPNBL) in Bhutan measured by Return on Asset and Return Equity. This study is based on an exploratory and quantitative approach seeking to explain the impacts of risk components on banks' performance. For this, liquidity risk, credit risk, and operation risk were employed as the independent variables whereas ROA and ROE were used as the dependent variable. The liquidity risk is measured by quick ratio and cash ratio, while credit risk is measured by non-performing loan and capital adequacy ratio, and the operational risk is measured by efficiency ratio and cost to income. Secondary datasets were extracted from the audit annual reports of the selected banks for 10 years (2013-2022). The finding of the study reveals that the operational risk and credit risk has a statistically significant impact on the ROA however, the liquid risk has no significant impact on ROA. In case of ROE, the operational risk has a statistically significant impact but the liquidity risk and credit risk do not have a statistically significant impact.

Introduction

According to Gobat (2012), a bank operates as a financial intermediary where they pool the funds from those with money and lend it to those who need it. The banking sector in Bhutan comprises five commercial banks and plays a significant role in the country's economy. These banks facilitate financial transactions, savings, and investments, contributing to the economic development and stability of Bhutan. The research is conducted to examine the impact of liquidity risk, credit risk, and operational risk on financial performance of Bhutan National Bank Limited (BNBL), Bank of Bhutan Limited (BOBL), and Druk Punjab National Bank Limited (DPNBL). ROA measures the company's profitability in relation to its total asset whereas ROE measures how effectively a bank is using the shareholders' equity to generate profit for the banks.

Problem Statement

The Bhutanese banking sector exhibits vulnerabilities to inherent risks, particularly credit risk, liquidity risk, and operational risk. Credit risk, arising from borrower defaults, poses a significant threat to bank solvency as evidenced by rising non-performing loan (NPL) ratios where it increased from 6.37% in 2022 to 8.23% in 2023 (Department of Financial Regulation and Supervision, 2023). Liquidity risk, the inability to meet short-term obligations, can potentially destabilize the financial system, especially with capital adequacy high rate of ratio which is 11.94% in 2022 and 11.50% in 2023 (Department of Financial Regulation and Supervision, 2023). Additionally, operational risk, stemming from internal processes and human error, has garnered significant attention due to recent embezzlement cases reported in Bhutanese banks, such as those documented by Wangchuk (2018), DPNBL

reported embezzlement cases where the former vice president was alleged to embezzle more than Nu. 2 million. Additionally, an automatic teller machine in charge had embezzled more than Nu. 10 million for around five years (Namgay, 2023). Despite existing research on credit and liquidity risks in Bhutan, a comprehensive analysis of operational risk and its impact on bank performance is lacking. This study addresses this gap by investigating the relationship between credit, liquidity, and operational risks with the financial performance of Bhutan's leading commercial banks (BOBL, BNBL, DPNBL). Through a quantitative analysis of secondary data from audited annual reports, this research aims to establish a more holistic understanding of the risk landscape within the Bhutanese banking sector.

Objectives

- To examine the liquidity risk, credit risk, and operation risk level and the financial performance of BOBL, BNBL, and DPNBL.
- To assess which risk i.e. liquidity risk, credit risk, and operational risk significantly impact the financial performance of BOBL, BNBL, and DPNBL.

Literature Review

According to McCombes (2023), a literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, identifies relevant theories, methods and gaps in the existing research. In this paper, literature reviews regarding the impact of liquidity risk, credit risk, and operational risk on bank's performance are listed respectively.

Liquidity Risk and Financial Performance

Several studies have delved into how risks, especially liquidity risk and credit risk influence the overall performance of a bank. Greuning and Bratanovic (2020), mentioned liquidity risk to be bank's inability to timely meet their financial obligations when they come due. This ensures that a bank can cover any immediate needs, such as customer withdrawals or loan requests, while maintaining normal operations. Similarly, Chaudhary & Sapkota (2023) also stated that bank's liquidity as having money when they need it, particularly to satisfy the withdrawal needs of the customers.

In the study carried out by Malik, et al., (2016), 22 private banks of Pakistan (2009-2013) were examined to see the effect of liquidity risk on the financial performance of these banks by applying linear regression. They set the liquidity ratio as current ratio, and quick ratio as the independent variable and return on asset (ROA), and return on equity (ROE) as the dependent ratio. The result showed that ROA was significantly affected by the independent variables. However, these three ratios did not affect ROE. However, in the study done by Amira et. al. (2023), with 32 commercial banks in Kenya for 10 years (2010- 2019), they found liquidity risk have insignificant negative relation with ROE and ROA which implies that liquidity risk management results to insignificant decrease in both ROA and ROE in the selected commercial banks. Similar results were found with the study done by Zaman (2023), where it was found that there was an insignificant positive impact of liquidity risk on ROA and ROE and concluded that there is no significant relation between liquidity risk and bank's financial performance.

The findings by Ahmed (2020), suggested that while liquidity risk may not be directly proportional to financial stability, it is still a pressing factor that requires monitoring in risk management strategies. Moreover, Mennawi (2020), discovered there was no notable effect on the profitability of Sudanese banks when liquidity is

measured by cash ratio (CR). Contrary, liquidity risk as evaluated by liquid assets ratio (LQTA) was found to have significant and positive effect on profitability by ensuring sufficient liquid assets to meet depositors' demands and enhance investment strategies (Mennawi, 2020). This result matched with the findings of Tirwa et al., (2022) where the financial performance was measured by ROA and ROE on BOB. To check the association between variables and performance, a regression model was adopted. However, the study argued that liquidity has a substantial impact on BOB's financial performance.

Credit Risk and Financial Performance

According to Srivastav (2024), credit risk is the risk of financial losses to the bank due to the borrower defaulting on the loans borrowed by them. The study done on Islam banks in Sudan for the period of ten years from 2008–2018 revealed credit risk having a significant and detrimental impact on the performance of these banks (Mennawi, 2020). However, a study done on 26 commercial banks operating in Turkey between the years 2005 - 2017 using total ratio of non-performing loans to total loans (NPL/TL) as a representation of credit risk found impacting profitability indicators like ROA and ROE negatively. This depicts that as non-performing loans to total loans rises, banks' capital required for investment reduces as well as profit of the bank (Ekinci & Poyraz, 2019).

The study found that higher NPLs are accompanied by lower profitability as mentioned by Ahmend, (2020); Munangi & Sibindi (2020). So, the study concluded that correlation between credit risk and banks' performance is negative. Hence, effective credit risk management strategies were recommended by Munangi & Sibindi (2020), in order to limit credit risk exposure, improve performance and competitiveness in the banking sector.

Similarly, Gizaw et al., (2015) and Bandara et al., (2021) found NPL having significantly negative effect on the financial performance while Boahene et al., (2021) concluded a contradictory result of NPL having significantly positive impact on the financial performance. Moreover, Bandara et al., (2021), discovered that CAR has a negative impact on ROA while Gizaw et al., (2015) found an inverse relationship between CAR and ROE instead of ROA. Such contrasting findings necessitate further investigation to understand their precise effects highlighting the need for comprehensive empirical research.

Kumar & Meena (2022), gathered 10 years data from 2012 to 2021 of NIFTY50-indexed banks from the annual reports to evaluate the relationship between credit risk i.e. capital adequacy ratio (CAR) and net non-performing assets (NNPAs) and financial performance i.e. ROA and ROE. The study employed panel data regression analysis which showed there is a significantly inverse association between NNPAs and financial performance. This indicates, a rise in NNPA can considerably lower ROA and ROE.

Operational Risk and Financial Performance

According to the Basel Committee on Banking Supervision (2004), operational risk includes a broader range of potential losses occurring from internal processes, people, systems, and or from external events. Not only operational risk poses significant challenges to the financial performance of banks but also significantly impacts a bank's financial health, not just through direct losses, but also through a variety of indirect channels.

According to Yousef et al., (2023), operational risk has a negative impact on financial performance of banks where it was found that it has greatly impacted the banks in the MENA region. They have employed multivariate regression analysis

on the data collected for 5 years (2015-2019) from 135 commercial banks in 14 MENA countries to evaluate the influence of CIR on banks' ROA & ROE. Therefore, it was stated that banks with high exposure to risk have lower performance.

This study investigates the relationship between operational risk and profitability in Islamic banks of the MENA region. It examines a 10-year sample (2011-2020) from 20 Islamic banks across 12 MENA countries (Qabajeh et al., 2023). The analysis found a negative correlation between operational risk which was measured by ER and profitability with ROA and ROE. This suggests that a higher frequency of operational risk leads to increase in operating expenses for banks and these expenses may arise from costs associated with resolving the event itself, such as regulatory investigations or customer remediation, or from investments in preventive measures to mitigate future risks.

Unsystematic Risk and Financial Performance

With careful inspection of several studies, there is a complex relationship between liquidity risk, credit risk and operational risk and financial performance. Simamora and Oswari (2019), deduced that credit risk did not have significant impact, meaning higher credit risk levels neither result in improved or worsened financial performance due to minimal impact. Furthermore, operational risk has a significantly inverse impact on performance and by reducing the operational risk will improve banks' profitability and vice versa.

Research Gap

Upon reviewing the literature, it can be deduced that the majority of the studies only examined credit risk and liquidity risk as the two forms of unsystematic risk that affect the performance of the individual banks. Operational risk has thus been identified as a gap in the literature providing an opportunity to expand this

idea and include operational activities in this research. Hence, this study aimed to fill this gap in the literature, especially in Bhutan's commercial banks.

The conclusive impact of unsystematic risks on the financial performance of banks remains elusive (Yeasin, 2023). This study aimed to bridge this research gap by providing a unique perspective on assessing the influence of these risks on the financial performance of selected banks in Bhutan.

Conceptual Framework

Figure 1: *Conceptual Framework*
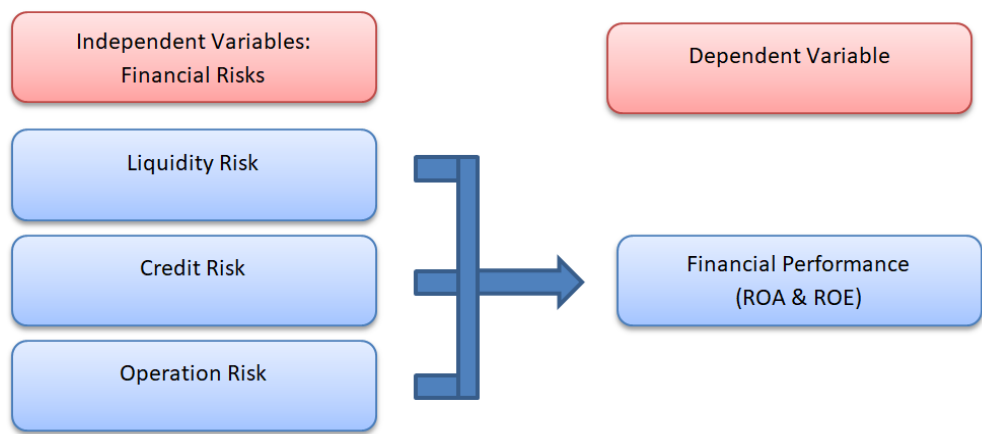
Source: Adapted from Oudat et al. (2024)

The following table 1, 2, and 3 shows the key variable and its Formula.

Table 1: *Independent Variables*

Liquidity Risk	Credit Risk	Operation Risk
Cash Ratio (CADP)	Non- Performing Loan (NPL)	Efficiency Ratio (ER)
Quick Ratio	Capital Adequacy Ratio (CAR)	Cost-to-income Ratio

Table 2: *Dependent Variables and its Measurement*

Sl. No	Dependent Variable	Meaning	Measurement
1	ROA	The ratio of net income to total asset of the company	$\dfrac{PAT}{Total\ Assets}$
2	ROE	The ratio of net income to total equity of the company	$\dfrac{PAT}{Shareholders\ Equity}$

Table 3: *Independent Variables and its Measurement*

Sl. No	Independent Variables	Meaning	Measurement
1	NPL Ratio	The percentage of non-performing loan on total volume of loan	$\dfrac{Non-Performing\ Loans}{Total\ Loans}$
2	CAR	A measurement of a bank's available capital expressed as a percentage of a bank's risk weighted credit exposures.	$\dfrac{Tier\ I\ Capital + Tier\ II\ Capital}{Risk\ Weighted\ Assets}$
3	Cash Ratio	The percentage of deposits that can be settled or withdrawn quickly from bank's accessible cash or cash equivalents.	$\dfrac{Cash\ and\ Cash\ Equivalent}{Operating\ Income}$
4	Quick Ratio	It shows what proportion of the bank's total assets are liquid	$\dfrac{Liquid\ Assets}{Current\ Liabilities}$

| 5 | Efficacy Ratio | Metric that enables business leaders to measure how well a company uses its resources | $\dfrac{Operating\ Expenses}{Total\ Assets}$ |
| 6 | Cost-to-income Ratio | It compares the operating costs of a bank to its operating income | $\dfrac{Operating\ Cost}{Operating\ Income}$ |

Research Methodology

Introduction

Sreekumar (2023), defines research methods as a structured and scientific approach to collect, analyse, and interpret quantitative and qualitative data to answer research questions. Under this chapter, information regarding the risks was identified and analysed to achieve the mentioned objectives.

Research Design

This study employed a descriptive research design with a quantitative approach, emphasizing the analysis of measurable data obtained from financial statements. The primary objective was to assess the influence of liquidity risk, credit risk, and operation risk on the financial performance of banks. Three prominent commercial banks (DPNBL, BOBL, and BNBL) were purposefully selected for analysis based on their market share, size, and their alignment with the research objectives.

Secondary data collection methods were utilized. Specifically, data was extracted from the audited annual reports of the chosen banks for the ten-year period between 2013 and 2022. Essential financial data points, such as profit after tax (PAT) and total assets, were used to calculate relevant ratios like Return on Assets (ROA). Additionally, for some ratios where component data wasn't readily available, manual calculations were performed. Subsequently, the collected data was processed and analyzed using spreadsheet software (Excel) and statistical software (SPSS). Descriptive and inferential analyses, including correlation and regression analyses, were conducted to achieve the research goals.

Finally, ratio scaling served as the primary measurement and scaling technique for the study. This technique involved calculating ratios for each risk indicator, such as the acid-test ratio and capital adequacy ratio, which are commonly employed in similar research endeavors.

Data Analysis Method

SPSS software (Version 20) was used to analyze the collected data and identify relationships between variables. This widely used software facilitates efficient data comparison and rapid result generation. Descriptive statistics (mean, standard deviation, variance) were employed to assess the extent of liquidity risk, credit risk, and operation risk within each bank. Mean provided an initial risk level picture, while standard deviation gauged value distribution around the mean. Variance, calculated by squaring the standard deviation, reflected data variation from the mean. These statistics enabled comparative analysis and conclusions regarding individual bank risk levels.

To address the second research question on the most impactful risk factor, linear regression analysis was conducted using SPSS's statistical tools. Regression analysis is a mathematical technique that isolates variables with significant influence on another. Here, it evaluated the impact of liquidity risk, credit risk, and operation risk on bank financial performance, fulfilling the study's second objective.

Data Analysis and Findings

The data were collected from the audited annual financial report of each bank for the period of 10 years (2013-2022). Descriptive statistics shows the level of risk impact on the financial performance of BOBL, BNBL, and DPNBL with the help of mean value and standard deviation of different risk component. Further, for analyzing the identified liquidity risk, credit risk, and operation risk impact on the financial performance measure through ROA and ROE, the inferential statistics of multi-linear regression analysis has been used to determine the identified risk impact on the selected individuals' banks and for overall impact on financial performance.

Analysis of the Data

	BOBL		BNBL		DPNBL	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Liquidity Risk	20.07	3.43	21.19	5.4	25.75	8.48
Credit Risk	8.57	1.14	11.25	0.82	7.72	0.77

Operational Risk	22.59	9.57	26.32	21.9	22.88	4.78
ROA	1.42	0.75	1.67	1.27	1.22	0.44
ROE	12.66	5.77	10.84	9.27	18.75	13.12

Descriptive Statistics

Table 4: *Descriptive Statistics of Three Banks (BOBL, BNBL, & DPNBL)*

Operational Risk

A lower operational ratio generally indicates lower operational risk. Based on the mean value, it appears that the highest impact of operational risk lies with BNBL (M=26.32 and SD=21.9) and it is followed by DPNBL (M=22.88 and SD=4.78), and BOBL (M=22.59 and SD=9.57). Therefore, the findings show that BNBL is highly impacted by operational risk which is followed by DPNBL and BOBL. Also, among all the banks the risk variation is the highest in case of BNBL as indicated by the highest SD. This involves risks related to employees such as fraud, unauthorized activities or human error along with risks inherent in the product, process, and system.

Liquidity Risk

A higher liquidity ratio generally indicates a lower liquidity risk, because the bank has more assets relative to its short-term liabilities. Based on the mean, it appears that the highest impact of liquidity risk is on DPNBL (M=25.75 and SD=8.48) and it is followed by BNBL (M=21.19 and SD=5.40), and BOBL (M=20.07 and SD=3.43). Therefore, DPNBL has more assets relative to its short-term liabilities as it has the highest risk variation indicated by the SD value. This involves risk

related to the account receivable, cash and cash equivalent and marketable securities, etc.

Credit Risk

A higher credit ratio typically indicates a higher credit risk because the bank has a higher proportion of loans that could potentially go unpaid. Based on the mean, it appears that the highest impact of credit risk is on BNBL (M=11.25 and SD=0.82) and it is followed by BOBL (M=8.57 and SD=1.14), and DPNBL (M=7.72 and SD=0.77). The level of credit risk is highest in case of BNBL but the risk variation is highest for BOBL as indicated by the SD.

Return on Assets (ROA)

ROA is a profitability ratio that measures how much profit a bank generates relative to its total assets. Based on its mean, BNBL has the highest ROA (M=1.67 and SD=1.27) and followed by BOBL (M=1.42 and SD=0.75) and DPNBL (M=1.22 and SD=0.44). In terms of ROA, BNBL is performing better but the risk variation of the DPNBL is lower compared to BNBL as indicated by the SD value suggesting that DPNBL has a good ROA performance.

Return on Equity (ROE)

ROE is a profitability ratio that measures how efficiently the bank is generating profits from the money invested by its shareholders. Higher the ROE, higher the profit generation from the money invested by its shareholders. Based on its mean, DPNBL has the highest ROE (M=18.75 and SD=13.12) and followed by BOBL (M=12.66 and SD=5.77) and BNBL (M=10.84 and SD=9.27). In terms of ROE

performance, DPNBL is generating higher profit but the risk variation of the BOBL is lower suggesting it has a good ROE performance.

In conclusion, it appears that operational risk is showing higher impact and high risk in BNBL and BOBL whereas DPNBL is highly impacted by credit risk. The result obtained thus met the first research objective that is: *"to examine the liquidity risk, credit risk, and operation risk level and the financial performance of BOBL, BNBL, and DPNBL"*

Inferential Statistics

The study employed Multi-Linear Regression to analyze the impact of different types of risks on the financial performance (ROA and ROE) of three banks. Initially, aggregated risk was tested against ROA to assess its effect on the banks collectively. Additionally, credit, liquidity, and operational risks were individually examined for their influence on ROA across each bank. Similarly, the study analyzed the impact of total risk on ROE across the banks, followed by individual assessments of credit, liquidity, and operational risks on each bank's ROE. Overall, the research aimed to determine which specific risks (liquidity, credit, and operational risk) significantly affect the financial performance of BOBL, BNBL, and DPNBL.

Multi-Linear Regression Analysis in terms of ROA

Table 5: *Model Summary of The Three Banks (BOBL, BNBL, & DPNBL)*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.978[a]	.957	.935	.19003

a. Predictors: (Constant), Operational Risk, Credit Risk, Liquidity Risk

Table 6: *ANOVA (BOBL, BNBL, & DPNBL)*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.771	3	1.590	44.037	.000[b]
	Residual	.217	6	.036		
	Total	4.987	9			

a. Dependent Variable: Return on Asset

b. Predictors: (Constant), operational risk, liquidity risk, Credit risk

The model summary summarizes the overall fits of the model. The R value of .978 shows the strong positive association between the independent variables (operational risk, liquidity risk, Credit risk) and the dependent variables (ROA). Further, the R-Square value of .957 shows that 95.7% of the variation in the ROA is being explained by the operational risk, liquidity risk, and the credit risk and this variation is statistically significant: F (3,6) =44.037, P=.000 < 0.05.

Table 7: *Coefficients (BOBL, BNBL, & DPNBL)*

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.308	1.081		-.285	.786
	Liquidity Risk	-.011	.022	-.042	-.486	.644
	Credit Risk	.347	.107	.363	3.262	.017
	Operational Risk	-.051	.008	-.713	-6.526	.001

a. Dependent Variable: Return on Asset

The table 7 shows that the liquidity risk has a negative impact on the financial performance as a reflected by Unstandardized Coefficients B value of -.011. However, this result is not statically significant P=0.644 < 0.05. With regard to the

credit risk, it is shown to be positive impact on the financial performance measure through ROA as unstandardized coefficient B value is found to be 0.347 which is quite unexpected .However, this variation result is statistically significant P=0.017<0.05.The unstandardized coefficient B value of the operational risk is -0.051 indicating that it has the negative impact on the financial performance measure through ROA and also the result is statistically significant P=0.001<0.05.

Table 8: *Model Summary and ANOVA of Three Banks (BOBL, BNBL, & DPNBL)*

	R	R Square	df	F	Sig.
BOBL	.884	.781	(3,6)	7.129	.021
BNBL	.989	.978	(3,6)	86.958	.000
DPNBL	.710	.504	(3,6)	2.031	.211

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Operational Risk, Credit Risk, Liquidity Risk

The R value of BOBL (0.884), BNBL (0.989) and DPNBL (.710) show the strong positive correlation between the dependent and independent variable and the R-Square value of 78.1%, 97.8% and 50.4% show that there is proportional variance of dependent variables which is being explain by the independent variable indicating best model fit. Further, the regression sig. value of ANOVA for BOBL and BNBL is statistically significant: $F_{(3,6)}$ =7.129 & 86.958, P= 0.021 & 0.000 < 0.05. However, the regression sig. value of ANOVA for DPNB show that the predictor variable does not have the significant impact on ROA as its sig. value: $F_{(3,6)}$ = 2.031, P=0.211 < 0.05. Hence ROA is significantly impacted by operational risk, credit risk, and liquidity risk in case of BOBL and BNBL but not in DPNBL.

Table 9: *Coefficients (BOBL)*

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.616	1.381		1.170	.286
	Liquidity Risk	-.010	.047	-.045	-.210	.841
	Credit Risk	.159	.136	.240	1.164	.289
	Operational Risk	-.060	.017	-.766	-3.445	.014

a. Dependent Variable: Return on Assets

This table shows the impact of each risk component (liquidity risk, credit risk, and operational risk) of BOBL on the ROA. Out of these three components liquidity risk has negative impact (B= -.010) on the ROA. However, this impact is not statistically significant (P= .841). Similarly, operational risk has a negative impact on the ROA (B= -.060) and this impact is statically significant (P=.014). The impact of the credit risk on the ROA however found to be positive which is quite unexpected. However, this impact is not statistically significant (P=.289).

Table 10: *Coefficients (BNBL)*

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.481	1.213		-1.221	.268
	Liquidity Risk	.006	.021	.024	.271	.796
	Credit Risk	.393	.130	.255	3.029	.023
	Operational Risk	-.053	.004	-.909	-14.082	.000

a. Dependent Variable: Return on Assets

This table shows the impact of each risk component (liquidity risk, credit risk, and operational risk) of BNBL on the ROA. Out of these three components only the operational risk has negative impact (B= -.053) on the ROA and it is statistically significant (p=0.000). The impact of credit risk on the ROA is found to be positive impact (B=.393) which is quite unexpected but this impact is found to be statistically significant (p=0.023). Similarly, liquidity risk has a positive impact on the ROA (B= .006). However, this impact is not statistically significant (P=0.796).

Table 11: Coefficients (DPNBL)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.425	2.229		.639	.546
	Liquidity Risk	.012	.032	.237	.378	.718
	Credit Risk	.132	.208	.234	.636	.548
	Operational Risk	-.067	.063	-.739	-1.067	.327

a. Dependent Variable: Return on Assets

The coefficient analysis table of DPNBL shows that the operational risk has the negative impact (B=-0.067) on the financial performance measure through ROA. However, it is not statistically significant (p=0.327). The impact of liquidity risk and credit risk is found to be positive impact (B=.012, .132) which is quite unexpected. However, this impact is not statistically significant (P=.718, .548).

Multi-Linear Regression Analysis in terms of ROE

Table 12: *Model Summary of Three Banks (BOBL, BNBL, & DPNBL)*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.836[a]	.699	.548	5.36370

a. Predictors: (Constant), Operational Risk, Credit Risk, Liquidity Risk

Table 13*: ANOVA of Three Banks (BOBL, BNBL, & DPNBL)*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	400.493	3	133.498	4.640	.053[b]
	Residual	172.616	6	28.769		
	Total	573.108	9			

a. Dependent Variable: Return on Equity

b. Predictors: (Constant), Operational Risk, Credit Risk, Liquidity Risk

The model summary summarizes the overall fits of the model. The R value of .836 shows the strong positive association between the independent variables (operational risk, liquidity risk, Credit risk) and the dependent variables (ROE). Further, the R-Square value of .699 shows that 69.9% of the variation in the ROE is being explained by the operational risk, liquidity risk, and the credit risk however, this variation is statistically insignificant: $F_{(3,6)} = 4.640$, $P = .053 < 0.05$.

Table 14: *Coefficients of Three Banks (BOBL, BNBL, & DPNBL)*

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	24.686	30.520		.809	.449
	Liquidity Risk	-.415	.620	-.154	-.670	.528
	Credit Risk	1.179	3.007	.115	.392	.709
	Operational Risk	-.578	.220	-.754	-2.621	.040

a. Dependent Variable: Return on Equity

Table 14 shows that the liquidity risk has a negative impact (B= -.415) on the financial performance measure through ROE. However, this result is not statically significant (P= .528). Similarly, the operational risk has a negative impact (B= -.578) on the financial performance. However, it is statically significant (P= 0.04). The impact of credit risk is found to be positive impact (B= 1.179) which is quite unexpected. However, this impact is not statistically significant (P= 0.709).

Table 15: *Model Summary and ANOVA of Three Banks (BOBL, BNBL, & DPNBL)*

	Model Summery and ANOVA				
	R	R Square	Df	F	Sig.
BOBL	.939	.882	(3,6)	14.888	.003
BNBL	.869	.756	(3,6)	6.186	.029
DPNBL	.676	.456	(3,6)	1.679	.269

a. Dependent Variable: Return on Equity

b. Predictors: (Constant), Operational Risk, Credit Risk, Liquidity Risk

The R value of BOBL (0.939), BNBL (0.756) and DPNBL (.676) show the strong positive correlation between the dependent and independent variable and the R-Square value of 78.1%, 97.8% and 45.6% show that there is proportional variance of dependent variables which is being explain by the independent variable indicating best model fit. Further, the regression sig. value of ANOVA for BOBL and BNBL is statistically significant: $F_{(3,6)}$ =14.888 & 6.186, P=0.003 & 0.029 < 0.05. However, the regression sig. value of ANOVA for DPNB show that the predictor variable does not have the significant impact on ROE as its sig. value: $F_{(3,6)}$ = 1.679, P= 0.269 < 0.05. Hence ROE is significantly impacted by operational risk, credit risk, and liquidity risk in case of BOBL and BNBL but not in DPNBL.

Table 16: *Coefficients (BOBL)*

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	23.799	7.799		3.052	.022
	Liquidity Risk	-.424	.264	-.252	-1.609	.159
	Credit Risk	.894	.770	.176	1.161	.290
	Operational Risk	-.455	.099	-.755	-4.619	.004

a. Dependent Variable: Return on Equity

Table 16 shows the impact of each risk component (liquidity risk, credit risk, and operational risk) of BOBL on the ROE. Out of these three components liquidity risk has negative impact (B= -.424) on the ROE. However, this impact is not statistically significant (P= .159). Similarly, operational risk has a negative impact on the ROE (B= -.455) and this impact is statically significant (P= .004). The impact of the credit

risk on the ROE is found to be positive however, which is quite unexpected and this impact is not statistically significant (P=.290).

Table 17: *Coefficients (BNBL)*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.145	29.139		.794	.457
	Liquidity Risk	-.174	.494	-.102	-.352	.737
	Credit Risk	.119	3.119	.011	.038	.971
	Operational Risk	-.378	.090	-.894	-4.202	.006

a. Dependent Variable: Return on Equity

Table 17 shows the impact of each risk component (liquidity risk, credit risk, and operational risk) of BNBL on the ROE. Out of these three risk components the operational risk has negative impact (B= -.378) on the ROE and it is statistically significant (P=0.006). Similarly, the liquidity risk has a negative impact (B=-.174). However, it is not statistically significant (P=.737). The impact of credit risk on the ROE is found to be positive (B=.119) which is quite unexpected but this impact is found to be statistically insignificant (P=0.971).

Table 18: *Coefficients (DPNBL)*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	72.948	70.347		1.037	.340
	Liquidity Risk	.150	1.013	.097	.148	.887
	Credit Risk	-1.052	6.551	-.062	-.161	.878

Operational Risk -2.183	1.987	-.796	-1.098	.314

a. Dependent Variable: Return on Equity

Table 18 shows the impact of each risk component (liquidity risk, credit risk, and operational risk) of BNBL on the ROE. Out of this risk operational risk and credit risk has a negative impact (B= -2.183 & -1.052). However, it is not statistically significant (P=.314 & .887). The impact of liquidity risk is found to be positive impact (B= .150) which is quite unexpected. However, this impact is not statistically significant (P= .887).

Findings and Discussion

The study reveals significant differences in the ROA and ROE performance of the three Bhutanese banks. BNBL exhibits the highest ROA (1.671), indicating its efficient use of assets to generate profit. DPNBL, on the other hand, demonstrates the highest ROE (18.745), suggesting its effectiveness in utilizing shareholder equity for profit generation. BOBL's performance falls between the two in terms of both ROA and ROE.

The study identifies statistically significant impacts of various risk factors on the banks' financial performance. Credit and operational risks negatively correlate with ROA, implying that higher levels of these risks lead to lower profitability. Liquidity risk, however, shows no significant effect on ROA, suggesting its potential buffering effect against other risks. Operational risk significantly affects the ROA of BOBL and BNBL, highlighting the importance of managing operational efficiency and minimizing operational disruptions for these banks. Credit risk significantly impacts only BNBL, indicating its vulnerability to loan defaults and the need for robust credit risk management practices.

On ROE, the study finds overall insignificant impacts of the selected risk factors. However, negative unstandardized B values indicate negative correlations, suggesting that higher risk levels could potentially lead to lower ROE. Operational risk significantly influences the ROE of BOBL and BNBL, reinforcing the importance of operational efficiency for these banks. Liquidity and credit risks do not significantly influence any bank's ROE, suggesting their potential mitigating effects on shareholder equity returns.

The findings of this study diverge from those of Zaman (2023) regarding the impact of risk components on ROA. While Zaman (2023) found a positive correlation between credit risk and ROA, this study reveals a negative correlation. This discrepancy could be attributed to differences in the sample size, time period, or specific risk measurement methodologies employed. The study aligns with Tirwa et al. (2022) regarding the insignificance of risk factors on ROE. Both studies suggest that other factors beyond the selected risk components might play a more significant role in influencing ROE. Unlike previous studies that focused exclusively on liquidity and credit risks, this research incorporates operational risk, revealing its significant impact on bank performance. This finding aligns with Apriani et al. (2023), who emphasize the growing importance of operational risk management in the banking industry.

In conclusion, this study sheds light on the distinct performance and risk profiles of three Bhutanese banks. While BNBL excels in ROA, DPNBL demonstrates superior ROE. The study highlights the significant impact of operational risk on the performance of BOBL and BNBL, emphasizing the need for robust operational risk management practices. Additionally, the findings diverge from previous research regarding the impact of credit risk on ROA, suggesting the need for further investigation into the complex interplay between risk factors and bank

performance. Overall, this study contributes valuable insights for stakeholders in the Bhutanese banking industry, enabling them to make informed decisions and navigate the evolving risk landscape.

Limitations

The limitations of this research are:

- ✓ The study examines only the liquid risk, credit risk, and the operational risk of the banks however, there are other unsystematic and systematic risk which impacts the financial performance of the financial institution.
- ✓ This study examines the financial performance of only selected banks (BOBL, BNBL, and DPNBL) limiting in interpreting the overall financial performance of the Bhutanese banking sector.

Recommendations

The research identifies key impacts and recommendations for enhancing financial performance in Bhutanese banks:

- **Operational Risk Management:** Operational risk negatively affects BOBL and BNBL's financial performance. Banks should invest in technology, enhance staff training, and strengthen internal controls. Regular review of operational policies and contingency plans is essential.
- **Credit Risk Management:** BNBL is significantly affected by credit risk, while BOBL and DPNBL show no significant impact. Banks should improve credit appraisal processes, diversify loan portfolios, and adopt advanced risk modelling techniques.
- **Liquidity Risk Management:** The research suggests all three banks (BOBL, BNBL, DPNBL) face liquidity risk. A deeper analysis of their liquidity management practices, including utilized ratios and funding source

diversification, is recommended. This will help identify areas for improvement and potentially lead to the development of more tailored risk mitigation strategies.

- **Enhancing Profitability and Efficiency:** BNBL achieves highest ROA, with DPNBL leading in ROE. Banks can boost profitability by optimizing costs, diversifying revenues, and leveraging technology. Regular performance reviews and benchmarking aid in identifying improvement areas.

Conclusion

This study analyzes liquidity risk, credit risk, and operational risk effects on bank performance using ROA and ROE proxies. Prior studies in Bhutan were limited and inconclusive. To address this gap, a secondary dataset spanning 10 years (2013-2022) for three banks was analyzed using SPSS 20, employing descriptive and inferential statistics, including regression. Results indicate operational risk significantly and negatively impacts BOBL and BNBL. However, credit and liquidity risks show insignificant impacts on the banks' financial performance. Operational risk metrics like efficiency ratio (ER) and cost-to-income ratio notably affect BOBL and BNBL, with no significant impact on DPNBL. The study recommends banks adopt a proactive approach to manage these risks comprehensively.

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