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Income Diversification and Financial Stability of Nepalese Commercial Banks

Roshani Bist
MBA Scholar, Apex College

Article Info.

Email
roshani.bist@apexcollege.edu.np

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Abstract

This study investigates how income diversification affects the financial performance of Nepalese commercial banks. It uses secondary data from 20 banks spanning fiscal years 2014/15 to 2023/24, totaling 200 observations. The study applied descriptive statistics, trend analysis, correlation, and regression to analyze data sourced from Nepal Rastra Bank's Banking and Financial Statistics, annual supervision reports, and banks' annual reports. Key variables examined include Return on Assets (ROA) and Return on Equity (ROE) as dependent variables, and Net Interest Income, Fee Income, Foreign Exchange Income, Bank Size, and Leverage Ratio as independent variables. Findings show Standard Chartered Bank Nepal Limited (SCBL) had the highest average ROA of 2.04%, while Prabhu Bank Limited (PBL) had the lowest at 1.02%. Regarding ROE, Rastriya Banijya Bank (RBB) topped with 22.23%, and Lumbini Finance Limited (LFL) recorded the lowest at 9.77%. On average, the banks reported 1.44% ROA and 13.69% ROE. Correlation analysis revealed a negative relationship between overall income diversification, bank size, leverage ratio, and profitability measures. However, regression results highlighted that Fee Income and Bank Size positively impact ROA, while Fee Income, Foreign Exchange Income, and Bank Size positively influence ROE. The study suggests focusing on specific income sources—especially fee-based and foreign exchange income—and bank size to enhance profitability. Policymakers and bank managers should emphasize these areas to improve the financial health of Nepalese commercial banks.

Keywords: commercial banks, return on equity, return on assets, net interest income, fees, leverage ratio, foreign exchange income, bank size

Introduction

In Nepal's evolving financial landscape, commercial banks serve as crucial pillars for maintaining economic stability and fostering growth. Amid increasing competition, regulatory reforms, and economic uncertainties, these institutions are progressively embracing income diversification as a strategic approach to enhance financial resilience. By broadening their revenue base beyond traditional interest income to include service fees, foreign exchange operations, investment banking, and digital financial services, banks aim to mitigate risk exposure and achieve more stable earnings streams (Ref. 1). This shift not only bolsters their capacity to absorb economic shocks but also strategically positions them for sustainable growth and enduring

competitiveness in a rapidly changing market environment.

The imperative for diversification is underscored by both domestic and global trends. Market and technological developments have expanded avenues for non-interest income activities, which simultaneously strengthen service quality and customer relationships (DeYoung & Rice, 2004). The declining dominance of deposit-funded lending—due in part to alternative funding mechanisms such as commercial paper and money market instruments—has propelled banks towards enhanced financial diversification and non-bank intermediation (Edward & Mishkin, 1995). Kohler (2013), found that banks oriented toward retail segments achieve greater stability by augmenting income from non-interest sources, particularly fee and commission income, which are less volatile and contribute to risk reduction.

Globally, the liberalization of banking industries combined with prolonged low interest rate environments has accelerated the diversification of income sources among banks. Studies in emerging markets, including India, have demonstrated that diversification into non-traditional revenue streams enhances both profitability and risk management (Ismail et al., 2014; Berry-Stölzle et al., 2012). Similarly, research from the U.S. banking sector reveals that increases in non-interest income bolster overall bank revenue and reduce profit volatility, thereby lowering risk (Stiroh et al., 2006). However, the empirical relationship between income diversification and financial stability remains inconclusive, presenting an ongoing debate particularly relevant to emerging economies like Nepal.

In the Nepalese context, the regulatory framework and monetary policies enforced by Nepal Rastra Bank have influenced commercial banks to transition from predominantly traditional activities toward diversified income sources. This study aims to examine the nature and extent of this diversification and its impact on financial stability and performance among Nepalese commercial banks. Specifically, it investigates how income components such as net interest income, fee income, foreign exchange income, alongside bank-specific factors like size and leverage, relate to key financial performance indicators including return on equity (ROE) and return on assets (ROA).

Problem Statement

Traditionally, Nepalese commercial banks have heavily depended on interest-based income. Nevertheless, ongoing transformations characterized by deregulation, technological progress, and intensified competition have prompted these banks to diversify into non-interest income segments, including fees and foreign exchange revenues. While income diversification is advocated as a means to enhance profitability and stability, extant international literature reports mixed outcomes; some studies emphasize its risk-mitigating benefits, whereas others highlight potential increases in income volatility if diversification is not prudently managed. The extent and nature of income diversification's effect on the financial stability of Nepalese commercial banks remain under-investigated, constituting a significant gap in empirical knowledge.

This research seeks to fill this gap by systematically analyzing the relationship between income diversification and financial stability in Nepal's commercial banking sector. By exploring patterns and impacts of traditional and non-traditional income sources on financial metrics, this study aspires to provide actionable insights into risk management strategies and performance optimization. Understanding these dynamics is critical for stakeholders aiming to reinforce bank stability and sustain growth in Nepal's increasingly complex financial environment.

Research Objective

This study assesses the relationship between income diversification and financial stability in Nepalese commercial banks. It examines the trends, structure, and patterns of income sources and financial performance, focusing on net interest

income, fee income, foreign exchange income, bank size, leverage, return on assets (ROA), and return on equity (ROE). The study ultimately identifies the key factors driving the financial resilience of Nepalese commercial banks.

Literature Review

The financial landscape of the global banking sector has witnessed significant transformation over recent decades, with increasing emphasis on income diversification as a strategic approach to enhance financial stability and profitability. Income diversification refers to the shift from reliance on traditional interest income towards non-interest income streams, such as fees, commissions, trading income, and other service-related revenues. Mishra and Regmi (2017) investigate the effects of price fluctuations on the financial capacity which might be minimized using diversification through transformative leadership within Nepalese institutions (Mishra et al., 2024).

Global Perspectives on Income Diversification and Bank Performance

Rogers (1998) analyzed U.S. commercial banks and found that institutions generating non-interest income tend to achieve higher efficiency levels, predominantly driven by cost efficiencies associated with fee-based services. Complementing this, Feldman and Schmidt (1999) highlighted the growing dominance of fee income in U.S. banks driven by technological advances. Parallel trends are evident in Indian banks where the share of interest income declines in favor of diversified sources, aligning with global shifts toward income diversification.

DeYoung and Roland (2001) provided further nuance by demonstrating that while fee-based services increase revenue volatility due to higher leverage effects, the enhanced profitability from these services can mitigate associated risks. Similarly, Campa and Kedia (2002) found that banks with a higher proportion of fee income exhibited improved return on assets (ROA) and return on equity (ROE) profiles, especially when credit risk was effectively managed.

In Europe, Smith and Wood (2003) underscored the stabilizing effect of income diversification, with a negative correlation between interest and non-interest income streams, which helps smooth overall earnings volatility. From the nonprofit sector, Deborah and Stater (2010) revealed that revenue diversification reduces volatility, fostering organizational sustainability—a finding conceptually relevant to banking institutions.

Conversely, studies such as Mndeme (2015) in Tanzania raise caution, indicating that increased non-interest income may adversely affect performance, while reliance on net interest income boosts profitability. However, the study warns that exclusive reliance on interest income is increasingly unsustainable due to regulatory and technological changes. Senyo et al. (2015), analyzing Ghanaian banks, similarly noted that although interest income remains the primary profit contributor, non-interest incomes play an increasingly vital role in stabilizing profits during interest revenue shortfalls.

In the United States, studies by Stiroh et al. (2006) corroborate the positive role of non-interest income in increasing bank revenue and reducing profit volatility, which lowers risk. Berry-Stölzle et al. (2012) found similar benefits of revenue diversification on reducing insolvency risk in emerging economies. These findings collectively suggest a nuanced relationship between income diversification and performance, contingent on market maturity, regulatory context, and bank-specific factors.

Insights from Nepalese Banking Sector

Nepal's banking industry has not been immune to these global trends. Uppal (2010), identified a decline in interest income in Nepalese banks amid deregulation, with commodity exchange and brokerage fees comprising substantial portions of non-interest income. Gajurel and Pradhan (2012), emphasized that interest-based income faces stronger competition compared to fee-based income in Nepal and that higher equity capital may negatively impact revenue generation, possibly due to regulatory constraints or market inefficiencies. Kattel (2014), further differentiated

financial stability outcomes, finding private sector banks more financially sound than joint ventures, indicative of operational and governance differences.

Focusing on income structures, Ghimire (2014) compared younger and older insurance firms in Nepal and found that while firm age influences income sources, this does not translate into profitability differences. The study reported negative correlations between income sources and net profit margin and return on assets, but a positive correlation with return on equity, indicating complex interactions between income diversification and performance metrics.

Empirical evidence by Pradhan and Shrestha (2016) confirmed a positive association between ROA, bank size, and financial leverage in Nepalese commercial banks. Panta and Bedari (2015), noted intensified competition due to foreign banks' entry, compelling domestic banks to innovate through diversification and improved customer service to mitigate risk while retaining clients. Pandey and Budhathoki (2020), also documented positive links between liquidity management, bank size, and profitability, underscoring multifactorial influences on performance.

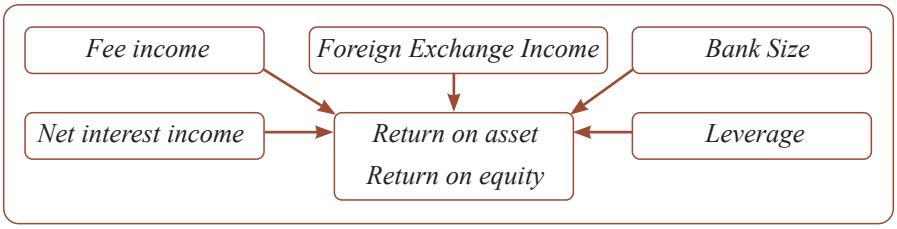
Mishra et al. (2021), reinforced these insights, demonstrating that profitability in Nepalese commercial banks is influenced by income diversification variables such as net interest income and fee income alongside bank size and leverage. Furthermore, Mishra and Aithal (2023) highlighted the significance of diversifying income sources for green banking initiatives, indicating that diversification facilitates sustainable banking practices while enhancing financial outcomes.

Conceptual Framework

Grounded in the above literature, this study adopts a framework positioning financial stability—measured primarily via ROA and ROE—as the dependent variable influenced by income diversification elements and bank-specific factors. The independent variables therefore include net interest income, fee income, foreign exchange income, bank size, and leverage ratio. This conceptual model encapsulates income diversification's multifaceted impact on profitability and stability, allowing for empirical testing of relationships grounded in both global and Nepalese banking sector contexts.

Figure 1

Schematic Diagram on Relationship Between Income Diversification and Financial



Methodology

Research Design

The study adopts a descriptive research design to address income diversification and financial stability within Nepalese commercial banks. This design facilitates fact-finding and comprehensive exploration of variables impacting financial stability. The research relies on secondary data, considering all 20 commercial banks operating in Nepal until mid-july 2024 generating 200 observations spanning the fiscal years 2014/2015 through 2023/2024. The 10-year time frame enables an in-depth analysis of income diversification and financial stability practices among commercial banks. The study utilizes secondary data collected from the annual and Basel reports of the selected banks. Employing a quantitative research method, the research formulates hypotheses based on

existing literature. Independent variables Net Interest Income(NII), Fees, Foreign Exchange Income (FOREX), Bank Size (BS), and Leverage Ratio (LR), while the dependent variable are Return on Assets (ROA), Return on Equity (ROE) E-views, and Microsoft Excel are employed for data analysis. Descriptive statistics, correlation, regression, and hypothesis testing contribute to the interpretation and presentation of findings.

Description of the Sample

The study focuses on the overall commercial banks in Nepal, comprising a sample of 20 banks. The data cover a 10-years period (2014/2015 to 2023/2024), resulting in 200 observations. The table below outlines the selected sample banks, their years of observation, and the corresponding number of observations:

Table 1

List of Sample Banks

S. N.	Name of the banks	Study period	Observations
1	Everest Bank Limited	2014/15-2023/24	10
2	Prime Bank Limited	2014/15-2023/24	10
3	Siddhartha Bank Limited	2014/15-2023/24	10
4	Nepal SBI Bank Limited	2014/15-2023/24	10
5	Machapuchhre Bank Limited	2014/15-2023/24	10
6	NMB Bank Limited	2014/15-2023/24	10
7	Kumari Bank Limited	2014/15-2023/24	10
8	Rastriya Banijya Bank Limited	2014/15-2023/24	10
9	Nepal Bank Limited	2014/15-2023/24	10
10	NIC Asia Bank Limited	2014/15-2023/24	10
11	Nabil Bank Limited	2014/15-2023/24	10
12	Agriculture Development Bank	2014/15-2023/24	10
13	NIMB Bank Limited	2014/15-2023/24	10
14	Citizen Bank Limited	2014/15-2023/24	10
15	Prabhu Bank Limited	2014/15-2023/24	10
16	Laxmi Sunrise Bank Limited	2014/15-2023/24	10
17	Himalayan Bank Limited	2014/15-2023/24	10
18	Global IME Bank Limited	2014/15-2023/24	10
19	Sanima Bank Limited	2014/15-2023/24	10
20	Standard Chartered Bank Limited	2014/15-2023/24	10
	Total Observation 200		

Data Collection Procedure

A time series study covering 10 years (2014/2015 to 2023/2024) was conducted, collecting secondary data from 20 commercial banks in Nepal. The study focuses on variables such as Net Interest Income, Fees, Foreign Exchange Income, Bank Size, Leverage ratio, Return on Assets and Return on Equity gathered from the Annual Reports of the selected banks.

Data Analysis

Data analysis involves arranging, processing, and interpreting information. Statistical tools such as E-views, and Microsoft Excel are employed. Descriptive statistics, graphical tools, mean,

median, standard deviation, regression, and correlation aid in drawing inferences with help of given Model.

Financial Stability = f (NII, FEE, FOREX, SIZE and LEV)

Model 1

The impact of independent variables (Net Interest Income, Fees, Foreign Exchange Income, Bank Size and Leverage Ratio) on dependent variable (Return on Assets) is shown in the below model.

$$ROA = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \ldots (1)$$

Model 2

The impact of independent variables (Net Interest Income, Fees, Foreign Exchange Income, Bank Size and Leverage Ratio) on dependent variable (Return on Equity) is shown in the below model

$$ROE = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \ldots (2)$$

Where,

β_0 = Regression constant with ROA and ROE

β_1 = Coefficient of the independent variable with ROA and ROE

X_1 = Net interest income

X_2 = Fee income

X_3 = Foreign exchange income

X_4 = Bank Size

X_5 = Leverage Ratio

ε = Error term

Table 2

Description of Variables

S. N.	Variables	Description	Measurement
1	NII	Net Interest Income	Difference between interest revenue and interest expenses.
2	FEE	Fee Income	Fee income defined as income generated from fee based activities.
3	FOREX	Foreign Exchange Income	Income generated from foreign currency exchange.
4	SIZE	Bank Size	Total asset of bank.
5	LEV	Leverage Ratio	Total Debt / Total Equity
6	ROA	Return on Assets	Net Profit / Total Assets
7	ROE	Return On Equity	Net Profit / Total Equity

Structure and Pattern of Financial Stability Variables

This section analyzes the structure and pattern of Return on Assets for overall Nepalese commercial banks 2014/15 to 2023/2024. Table 3 illustrates the Return on Assets (ROA) structure and pattern for the mentioned period.

Table 3

Structure and Pattern of Return on Assets (In Percentage)

Banks	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Mean	S.D
EBL	1.53	1.52	1.72	1.78	1.80	1.36	0.93	1.10	1.34	1.25	1.43	0.29
PCBL	1.63	2.05	1.89	1.82	2.15	1.48	1.72	1.33	0.47	1.31	1.59	0.48
SBL	1.53	1.70	2.74	1.47	1.47	1.17	1.25	1.10	1.11	1.04	1.46	0.50

Banks	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Mean	S.D
NSBL	1.80	1.70	1.54	1.71	1.94	1.17	0.7	1.07	1.06	0.96	1.37	0.42
MBL	1.26	1.51	1.89	1.47	1.61	1.02	1.02	0.94	0.87	0.55	1.21	0.41
NMB	1.17	1.54	1.77	1.33	1.37	0.95	1.17	1.29	1.12	1.09	1.28	0.24
KBL	1.06	1.69	1.86	1.26	1.17	0.79	1.04	1.22	0.14	0.56	1.08	0.50
RBB	3.33	3.55	1.55	1.85	2.23	1.64	1.10	1.30	0.91	0.50	1.80	0.99
NBL	0.55	2.79	2.68	1.34	1.51	1.22	1.33	1.12	1.16	0.49	1.42	0.77
NICA	1.12	1.33	1.32	0.78	1.39	1.24	0.94	1.18	1.22	0.34	1.09	0.32
NABIL	1.77	2.21	2.51	2.47	2.11	1.46	1.55	1.01	1.33	1.11	1.75	0.55
ADBL	3.57	2.2	2.02	2.7	2.77	1.86	1.59	0.90	0.50	0.93	1.90	0.96
NIMB	1.88	1.97	2.06	2.13	1.79	1.19	1.56	1.55	0.83	1.05	1.60	0.45
CBL	1.74	1.98	1.63	1.59	1.62	1.08	1.07	1.03	0.94	0.59	1.33	0.44
PBL	2.19	1.64	1.76	0.81	1.29	0.71	0.80	0.82	0.08	0.14	1.02	0.69
LSL	0.95	1.32	1.36	1.39	1.49	1.10	1.04	0.87	0.63	0.74	1.09	0.29
HBL	1.34	1.94	2.13	1.61	2.08	1.66	1.68	1.09	0.47	0.35	1.44	0.63
GBIME	1.39	1.58	1.77	1.63	1.82	1.06	1.21	1.38	1.27	1.02	1.41	0.28
SANIMA	1.55	1.79	1.97	1.85	2.07	1.41	1.44	1.09	1.21	1.03	1.54	0.37
SCBL	1.99	1.98	1.84	2.64	2.61	1.71	1.22	1.83	2.29	2.32	2.04	0.43
Mean	1.67	1.90	1.90	1.68	1.81	1.26	1.22	1.16	0.95	0.87		
S.D	0.74	0.53	0.40	0.48	0.40	0.30	0.30	0.19	0.39	0.34		

Note. Annual Reports of Respective Banks

From the table shows that SCBL has highest average ROA (2.04%) followed by ADBL (1.90%), Nabil (1.75%), NIMB (1.60%) PCBL (1.59%), NMB (1.28%), MBL (1.21%), and KBL (1.08%). The ROA percentage varies within individual banks, increasing or decreasing over the years. For example, EBL'S ROA percentage decreased from 1.53% in 2014 to 1.25% in 2023. Conversely, SCBL ratio increased from 1.99% in 2014 to 2.32% in 2023.

The standard deviation (S.D) reveals that NMB has the lowest variation in ROA, followed by EBL, NMB, NICASIANABILHBL, NIMB, ADBL, and SCBL. The analysis also highlights specific years where certain banks experienced the highest NPL, providing insights into the dynamics within the industry.

"This section analyzes the Return on Equity of Nepalese commercial banks from 2014/15 to 2023/24, as shown in Table 4."

Table 4

Structure and Pattern of Return on Equity (In Percentage)

Banks	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Mean	S.D.
EBL	20.68	20.32	17.38	16	17.33	13.5	9.38	10.88	13.25	13.32	15.20	3.78
PCBL	17.21	20.65	17.40	15.40	16.40	10.97	13.65	10.32	12.51	12.50	14.70	3.27
SBL	20.68	20.29	14.03	13.9	15.02	13.39	13.99	13.44	12.51	10.97	14.82	3.17
NSBL	18.87	19.25	14.78	15.81	16.2	10.44	6.26	9.57	10.77	10.28	13.22	4.35
MBL	15.44	16.82	15.03	12.07	15.1	10.92	12.5	11.64	10.06	6.11	12.57	3.17
NMB	15.86	16.83	22.03	13.65	11.24	8.18	11.32	12.25	11.33	7.75	13.04	4.28

Banks	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Mean	S.D.
KBL	11.79	17.75	19.07	9.89	10.50	6.71	10.43	12.28	2.75	6.22	10.74	4.98
RBB	69.59	27.37	26.48	19.19	23.38	19.01	11.94	13.14	7.09	5.08	22.23	18.32
NBL	12.63	16.51	18.41	14.03	8.87	7.77	8.92	8.24	9.41	4.38	10.92	4.35
NICA	12.37	14.45	17.27	11.44	20.24	17.97	15.59	16.97	15.12	4.58	14.60	4.38
NABIL	22.04	24.26	25.63	19.34	18.28	13.39	13.31	8.03	11.25	10.56	16.61	6.14
ADBL	22.21	13.6	11.77	14.07	14.78	11.70	11.20	6.67	3.92	8.02	11.79	5.04
NIMB	20.00	15.66	16.65	14.71	13	8.92	11.04	11.17	6.69	8.48	12.63	4.15
CBL	19.26	20.55	11.49	11.2	11.71	8.93	9.55	9.83	8.89	6.12	11.75	4.60
PBL	27.57	17.37	19.29	7.45	12.45	7.76	10.06	9.93	0.89	1.57	11.43	8.17
LSL	10.33	12.75	9.95	10.57	12.57	10.1	9.33	8.93	5.98	7.21	9.77	2.10
HBL	15.98	21.94	19.49	13.27	17.28	14.71	14.89	10.76	4.65	3.38	13.64	5.95
GBIME	13.12	15.88	18.23	15.48	16.91	10.09	12.73	13.14	11.34	9.99	13.69	2.84
SANIMA	18.19	18.68	15.14	15.74	18.83	13.86	15.53	12.38	13.45	11.46	15.33	2.61
SCBL	21.69	17.18	11.98	15.73	16.31	13.16	8.62	12.44	17.2	15.96	15.03	3.61
Mean	20.28	18.41	17.08	13.95	15.32	11.57	11.51	11.10	9.45	8.20		
S.D	12.39	3.56	4.37	2.94	3.55	3.31	2.52	2.33	4.30	3.66		

Note. Annual Reports of Respective Banks

The Return on equity varies widely within the individual banks. It decreased from 20.68 % in 2014 to 13.32% in 2023 for EBL. It decreased from 17.21% in 2014 to 14.70% in 2023 for PCBL. ROE decreased from 20.68% in 2014 to 10.97%, from 18.87% in 2014 to 10.28 % in 2023 for SBL and NSBL. It decreased from 20% in 2014 to 8.48 % in 2023 for NIMB, from 19.26% in 2014 to 6.12 % in 2023 for CBL, from15.98% in 2014 to 3.38% in 2023 for HBL, from18.19% in 2014 to 11.46% in 2023 for SANIMA, and from 21.69% in 2014 to 15.96% in 2023 for SCBL.

The structure and pattern of return on equity for Nepalese commercial banks revealed that ROE is highest RBB (22.23%), SANIMA (15.33%), followed by EBL (15.20%), SBL (14.82 %), GBIME (13.69), HBL (13.64%), MBL (12.57%) , ADBL (11.79%), CBL (11.75%), PBL (11.43%), NBL (10.92%), and LSL (9.77%).

The variation in the return on equity indicated by S.D is lowest for LSL followed by SANIMA, GBIME, SBL, MBL, PCBL, SCBL, NMB, NBL, NICA, ADBL, HBL, NABIL, and RBB respectively.

Trend Analysis

In this analysis spanning from 2014 to 2023 A.D., the trends of key variables are presented through line graphs, facilitating a comprehensive understanding of each variable's trajectory over time.

Average ROA of Overall Commercial Banks

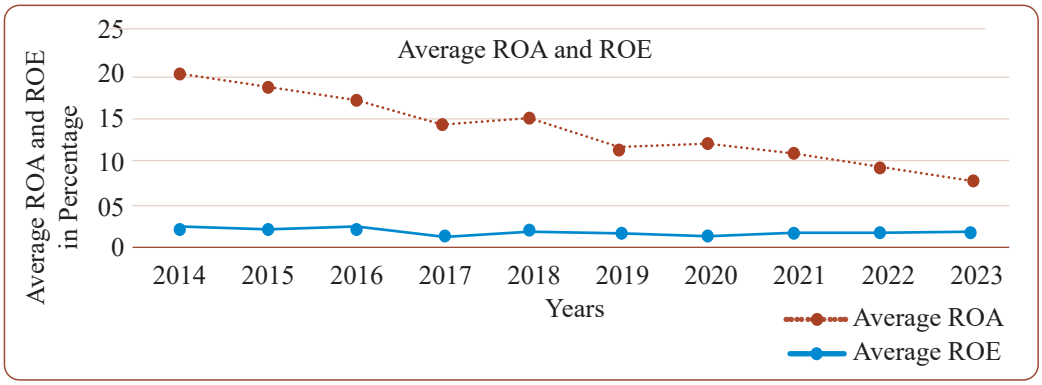
The figure shows the decreasing trend of return on assets. The average return on assets has increased from 1.67 percent in year 2014 to 1.90 percent in year 2016 but it has decreased to 1.68 percent, 1.81percent and 1.26 percent in 2017, 2018 and 2019. In 2020 it has decreased to 1.22 percent and reached to 0.87 percent in 2023.

Average ROE of Overall Commercial Banks

Figure shows the decreasing trend of average return on equity computed across the years. The average return on stock has decreases from 20.28% in year 2014 to 17.08% in year 2016. In 2017 it has decreased to 13.95% but, it has slightly increased to 15.32% in year 2018. It has slightly increased to 11.57% in year 2019 but it has slightly decreased to 11.51% in year 2020. However, return on equity has decreased to 8.20% in 2023.

Figure 2

Average ROA &ROE of Overall Commercial Banks



Average NII of Overall Commercial Banks

The line chart illustrates the trend of Average Net Interest Income (NII) from 2014 to 2023. Initially, NII remained relatively stable, followed by a steady increase from 2016 onward. The growth accelerated significantly after 2021, reaching its peak in 2023. This indicates a strong upward trajectory in NII over the years, with notable growth in recent periods.

Average Fees of Overall Commercial Banks

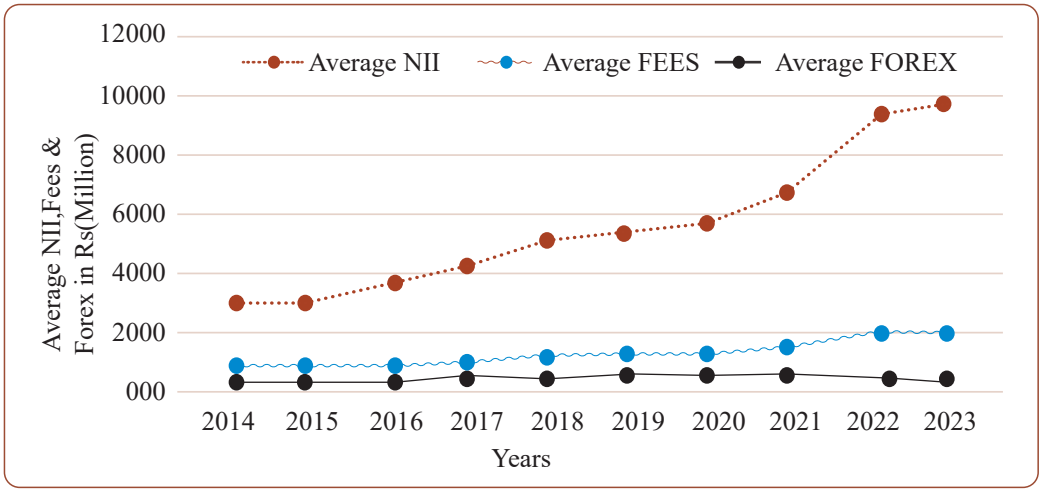
The line chart shows the trend of Average Fees from 2014 to 2023, indicating a consistent upward growth. The increase is gradual from 2014 to 2020, followed by a steeper rise from 2021 onward, reaching its highest point in 2023. This suggests a steady and accelerating growth in average fees over the years.

Average Forex of Overall Commercial Banks

The line chart depicts the trend of Average FOREX from 2014 to 2023. It shows a steady increase until 2019, peaking in 2020. Afterward, there is a sharp decline from 2021 to 2022, followed by a slight recovery in 2023. This indicates volatility in FOREX earnings, with a notable drop after 2020.

Figure 3

Average NII, FEES & FOREX of Overall Commercial Banks

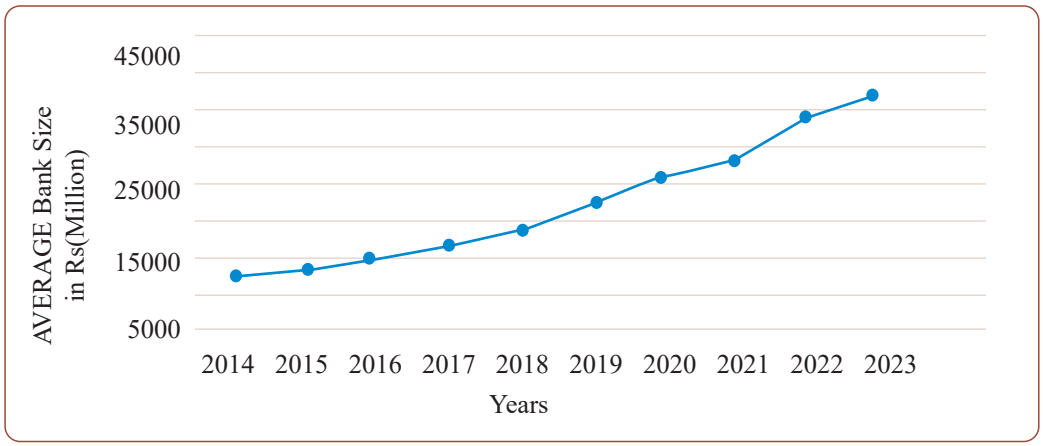


Average Size of Overall Commercial Banks

The line graph illustrates the trend in the average bank size (measured in million Nepali Rupees) from 2014 to 2023. The data shows a steady increase in bank size over the years, with a notable acceleration in growth after 2020. This suggests consolidation, expansion, or increased financial activity within the banking sector. The sharp rise after 2021 indicates significant growth, possibly due to economic recovery, mergers, or policy changes.

Figure 4

Average BANK SIZE of Commercial Banks



Average LEV of Overall Commercial Banks

The line graph shows the trend in average leverage (LEV) from 2014 to 2023. It starts at a high level around 11 in 2014-2015, then declines sharply until 2017, reaching its lowest point. After 2017, leverage gradually increases, stabilizing around 2020-2022, with a slight upward trend in 2023. This pattern suggests a period of deleveraging followed by a slow recovery, possibly influenced by regulatory changes, risk management strategies, or economic conditions.

Figure 5

Average LEV of Commercial Banks

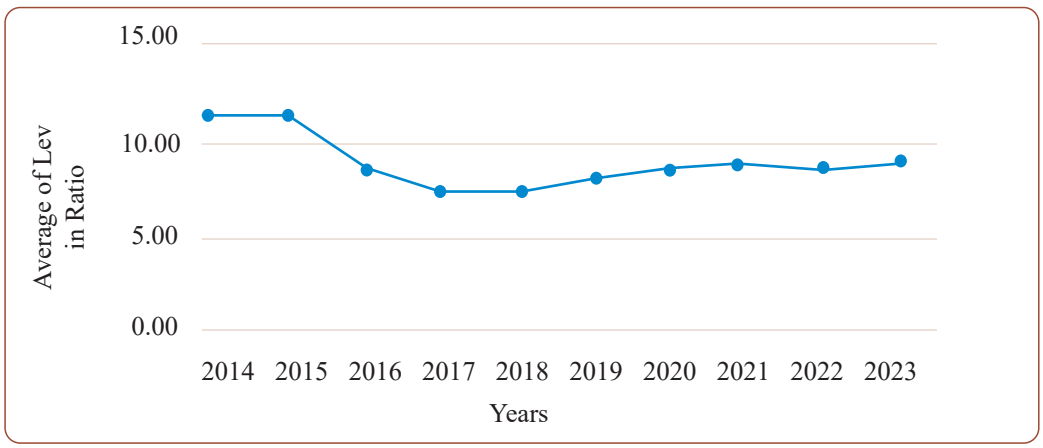


Table 5

Descriptive Statistics of Overall Commercial Banks

	Minimum	Maximum	Median	Mean	Std. Deviation	C.V
ROA	0.80	3.57	1.36	1.44	0.59	40.97
ROE	0.89	69.59	13.14	13.69	6.28	45.87
NII	126	17748	4873.50	5446.33	3270.36	60.05
FEEs	69	3983	947	1061.27	630.17	59.37
FOREX	-5.00	890	272	311.23	190.78	69.30
SIZE	37374	604518	152211	180434.2	111885	62.01
LEV	4.20	29.20	8.50	8.82	2.89	34

Note. E-views result outcome

The result shows the descriptive statistics of dependent and independent variables for the selected commercial banks. Clearly, the return on assets ranges from a minimum of 0.80 percentage to 3.57 percentage maximum leading to an average 1.44 and return on equity to a maximum 69.59 percentage leading to an average 13.69 percentage.

The net interest income ranges from minimum Rs 126 million to a maximum of Rs 17748 million leading to an average of Rs 5446.33 million. Similarly, fee income spans from minimum Rs 69 million to a maximum of Rs 3983 million leading to an average of Rs 1061.27 million. Similarly, the foreign exchange income varies from Rs -5 million to a maximum of Rs 890 million leading to an average of Rs 311.23 million. Likewise, the bank size ranges from Rs 37374 million to a maximum of Rs 604518 million leading to an average of Rs 180434.2 million. The leverage vari from minimum of 4.2 times to a maximum of 29.20 times leading to an average of 8.82 times.

Correlation Analysis

Correlations measure the strength and direction of the linear relationship between the two variables. The correlation coefficient can range from -1 to +1, with -1 indicating a perfect negative correlation, +1 indicating a perfect positive correlation, and 0 indicating no correlation at all. A variable correlated with itself will always have a correlation coefficient of 1.

Table 6

Correlation Coefficient Between the NII, FEES, FOREX, LEV, SIZE, ROA, ROE

	NII	FEES	FOREX	SIZE	LEV	ROA	ROE
NII	1						
FEES	0.824949	1					
FOREX	0.118294	0.273111	1				
SIZE	0.908724	0.851175	0.163674	1			
LEV	-0.02225	-0.02443	-0.30337	-0.01364	1		
ROA	-0.30015	-0.30015	0.073275	-0.48696	-0.05133	1	
ROE	-0.26666	-0.26666	-0.1117	-0.41133	0.326388	0.720992	1

The correlation matrix reveals notable patterns in the relationships among the financial variables under study. A strong positive association among Net Interest Income, FEES, and SIZE suggests that larger banks are more likely to generate higher revenues from both interest-based and non-interest income sources, reflecting economies of scale in financial operations. Conversely, foreign exchange

income appears to be relatively independent, showing only weak associations with other variables, and indicating that it may be influenced by distinct operational or market factors. Leverage exhibits minimal correlation with most variables, although its moderate positive link with Return on Equity may imply a potential role in enhancing shareholder returns. Interestingly, both Return on Assets and Return on Equity demonstrate negative correlations with income and size variables, suggesting that higher income or larger size does not necessarily equate to greater profitability.

Hausman Test

The Hausman test, which is based on the null hypothesis in favor of the random effect model estimator, is a formal test used to determine whether the fixed or random effect model is utilized. Fixed effects are preferred if the p-value is less than 0.05, which indicates that the effect is significant, whereas random effects are preferred if the p-value is greater than 0.05, which indicates that the effect is unimportant (Gujrati, 2004). The Hausman test is a statistical hypothesis test used in econometrics that bears the names of Jerry A. Hausman, De-Min Wu, and James Durbin. The Hausman test assesses the consistency of an estimator by comparing it to an alternative estimator that is less efficient but known to be consistent. It is used to determine whether a statistical model accurately reflects the data. In panel data analysis, the Hausman test helps distinguish between the fixed effects and random effects models. The hypothesis for the Hausman test is as follows:

H1: Random effect model is appropriate

H2: Fixed effect model is appropriate

For Dependent Variable Return on Assets and Return on Equity

Table 7

Test Cross-section Random Effects of Return on Assets

Test Summary	Chi-Sq Statistics	Chi-Sq.d.f	Prob.
Cross-Section Random	17.407568	5	0.0038

Here, the Chi-Square statistic is 17.407568 with 5 degrees of freedom, and the p-value is 0.0038, which is below 0.05. This indicates there is no significant correlation between dependent and independent variables.

Table 8

Test Cross-section Random Effects of Return on Equity

Test Summary	Chi-Sq Statistics	Chi-Sq. d.f	Prob.
Cross-Section Random	25.566783	5	0.0001

Here, the Chi-Sq. statistic is 25.566783 with 5 degrees of freedom, and the p-value is 0.0001, which is below 0.05. This indicates there is no significant correlation between dependent and independent variables.

Table 9

Results of Panel Data Regression of Dependent Variable ROA

Variable	Coefficient	Std. Error	t-statistic	Prob.
FEES	0.000407	0.000115	3.540848	0.0005
FOREX	0.0000272	0.000288	0.094589	0.9247
LEV	-0.009694	0.012156	-0.797455	0.4263
NII	0.0000297	0.000024	1.215606	0.2258
SIZE	2.021701	0.000000733	-8.299744	0.0000

The result shows that there is significant relationship of fees on return on assets because the probability is less than 5%. Forex has no significant relationship with return on assets because the probability is greater than 5%. The result shows that there is no significant relationship between leverage ratio on return on assets. Similarly, there is no significant relationship between net interest income to return on assets. There is positive relationship between size to return on assets. The significant positive coefficients reveal that bank size has positive impact on return on assets.

Table 10

Results of Panel Data Regression of Dependent Variable ROE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FEES	0.004972	0.001298	3.830465	0.0002
FOREX	-0.002938	0.003249	-0.904470	0.3670
LEV	0.365464	0.137343	2.660968	0.0085
NII	0.0000620	0.000276	0.224831	0.8224
SIZE	-0.0000577	0.00000828	-6.970253	0.0000

The result shows that there is significant relationship of fees on return on equity because the probability is less than 5%. Forex has no significant relationship with return on assets because the probability is greater than 5%. The result shows that there is significant relationship between leverage ratio on return on assets. Similarly, there is no significant relationship between net interest income to return on assets. There is positive relationship between size to return on assets. The significant positive coefficients reveal that bank size has positive impact on return on assets.

Table 11

Panel Unit Root Test Results

	Level		First Difference		Conclusion
Variables	Levin,lin&Chut	Prob	Levin,lin& Chut	Prob	
FEES	-3.86519	0.0001			Stationary
FOREX	-10.1820	0.0001			Stationary
LEV	-48.1309	0.0001			Stationary
NII	-3.62062	0.0001			Stationary
SIZE			-4.09130	0.0001	Stationary
ROA	-21.1229	0.0001			Stationary
ROE	-9.06923	0.0001			Stationary

The results of the Levin, Lin & Chu unit root test indicate that all variables (FEES, FOREX, LEV, NII, SIZE, ROA, and ROE) are stationary at their levels, as evidenced by their p-values being well below the 0.05 threshold. This suggests that the mean, variance, and auto covariance of these variables do not change over time, ensuring the stability and reliability of the data. The SIZE variable becomes stationary after the first difference, further supporting the consistency of the data. Since all variables are stationary, they are suitable for modeling and subsequent analysis.

Conclusion

This study has comprehensively examined the relationship between income diversification and financial stability in Nepalese commercial banks, focusing on key income components such as net interest income, fee income, foreign

exchange income, alongside bank-specific variables including size and leverage. Utilizing secondary data from 15 commercial banks over a ten-year period (2014–2023), and employing descriptive statistics, correlation analysis, and multiple regression techniques, the study provides robust empirical insights into the dynamics of bank profitability and stability within the Nepalese financial sector.

The findings reveal important variations in financial performance among Nepalese banks. Notably, Standard Chartered Bank Limited (SCBL) recorded the highest average return on assets (ROA) at 2.04 percent, while Nepal Bank Limited (NBL) exhibited the lowest at 1.02 percent. Return on equity (ROE) demonstrated a declining trend throughout the study period, decreasing from 20.28 percent in 2014 to 8.20 percent in 2023. Among individual banks, Rastriya Banijya Bank (RBB) achieved the highest average ROE of 22.23 percent, whereas Laxmi Sunrise Bank (LSL) reported the lowest at 9.77 percent. Trend analyses indicated that while profitability measures (ROA and ROE) declined, average bank size, net interest income (NII), and fee income showed consistent growth, particularly after 2020. Foreign exchange income peaked in 2020 but subsequently declined sharply, and leverage ratios decreased until 2017 before stabilizing.

Correlation analysis highlighted a strong positive relationship among net interest income, fee income, and bank size, suggesting that larger banks tend to generate more revenue from diversified sources. In contrast, foreign exchange income appeared largely independent, affected by separate market dynamics. Leverage exhibited weak overall correlations but showed a moderate positive association with ROE. Interestingly, profitability indicators were negatively correlated with income and bank size, implying that expansion in scale does not inherently guarantee greater profitability.

The multiple regression results further elucidate these patterns. Fee income demonstrated a significant positive impact on both ROA and ROE, underscoring its critical role in sustaining bank profitability. Bank size similarly showed a positive and significant relationship with both profitability measures, reinforcing the advantage of scale in commercial banking performance. Leverage was found to have a significant association with ROE but was not significant for ROA. Conversely, net interest income and foreign exchange income did not exhibit statistically significant impacts on either ROA or ROE at the 5% significance level, indicating their relatively limited direct influence on financial stability metrics during the study period.

The overarching conclusion drawn from this study is that fee income, leverage, and bank size serve as the principal determinants of financial stability among Nepalese commercial banks. The evidence suggests that increasing fee-based income, prudent use of leverage, and growth in bank size collectively contribute to higher returns on assets and equity, thereby enhancing financial resilience. These results also imply that diversified income structures—particularly through non-interest income streams—promote stability by reducing reliance on traditional interest income, which can be more volatile.

Consequently, Nepalese commercial banks are encouraged to strategically emphasize the expansion of fee-based service offerings as a means to bolster profitability and reduce income volatility. While traditional interest-generating activities remain essential, the growing prominence of non-interest income sources necessitates a balanced approach that leverages modern banking innovations such as digital banking, service fees, and commission-based activities. This dual focus can help mitigate risks associated with income concentration and support sustained financial stability.

Ultimately, this study advances the understanding of income diversification's role in enhancing the financial soundness of Nepalese banks, providing valuable guidance for bank managers, regulators, and policymakers seeking to foster a robust and resilient banking sector in a progressively competitive and evolving market landscape.

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