
Impact of Income Diversification on the Financial Stability and Performance of Banking Sector

M.H.A.N. Lakmali ^{a,*}, D.C.P. Ranaweera ^a

^a Department of Finance, Faculty of Management and Finance, University of Ruhuna, Sri Lanka

A B S T R A C T

The evolving banking landscape in Sri Lanka necessitates the strategic diversification of income sources to enhance resilience and sustain profitability. Nevertheless, there is scant empirical research in the context of domestic licensed commercial banks regulated by the Central Bank of Sri Lanka. Thus, this paper investigates how bank income diversification impacts the risk-adjusted performance and financial stability among banks. The study employed a quantitative research method using secondary data from 13 banks from 2015 to 2024. The study is supported by modern portfolio theory, resource-based theory, and risk-return trade-off theory. The three measures used are the Herfindahl-Hirschman Index, financial performance and its risk-adjusted versions (RAROA and RAROE), and financial stability (Z-score). The results indicate that diversification of income positively influences financial performance. In contrast, these findings indicate that income diversification among domestic licensed commercial banks in Sri Lanka has a significant negative impact on financial stability during the study period. This suggests that greater income diversification is associated with a higher likelihood of banks defaulting on their financial obligations. These findings explain the rationale for having a balanced and well-measured approach to diversifying the income of bank managers, regulators, government authorities and policymakers.

Keywords: Financial Performance, Herfindahl-Hirschman Index, Income diversification, Risk-adjusted performance, Banking Sector

1. Introduction

Sri Lanka's banking system has experienced a tremendous transformation in recent years owing to increased competition, regulatory requirements, and volatility in traditional interest-related income sources (Jayasena & Amarasinghe, 2018). Opportunities and threats have been developed on the diversification of the income streams of banks to sustain profitability and risk management (Gürbüz et al., 2013). The last two decades have witnessed the rise and expansion of the non-banking revenue-generating activities, which include services based on fees, trading, investment banking, and online financial solutions, both locally and internationally

* Corresponding author: lakmaliaruni95@gmail.com

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(Addai et al., 2022). Although findings vary depending on market structure and institutional context, various studies have shown that revenue diversification can have an impact on financial stability and risk-adjusted returns (Nisar et al., 2018; Hunjra et al., 2020).

In the Sri Lankan banking sector, significant reforms such as the implementation of Basel III, digital transformation, and increased competition from fintech companies have encouraged banks to diversify their income streams (Wijethilaka & Basnayake, 2022). In this regard, the activities of non-interest-based income have increased, and there are doubts about whether these activities increase profitability, decrease risks, or create new volatility (Gürbüz et al., 2013; Mamun et al., 2023). Regulators, bank managers, and investors should therefore be knowledgeable about this association in order to cope with a fast-evolving financial environment. Therefore, it is important to investigate the income diversification among commercial banks in Sri Lanka.

1.1 Research Problem

The banking sector has played a major role in the financial system and plays a critical role in ensuring economic stability in Sri Lanka. Banks have been diversifying their income beyond interest income because of high global competition and macroeconomic instability (Antao & Karnik, 2022; Mamun et al., 2023). According to Gürbüz et al. (2013), income diversification increases the risk-adjusted financial performance of the bank. Additionally, several studies argue that income diversification grows the probability of default and earnings volatility (Stiroh & Rumble, 2006). Increasing income diversification in South Asian banking sectors has raised important questions regarding its impact on performance and stability (Chowdhury et al., 2024; Rahman & Abbas, 2025). Specifically, it is unclear how diversification into non-interest income lines of business improves bank performance or increases banks' exposure to other risks (Lee et al., 2014; Edirisuriya et al., 2015; Dilrukshi, 2018; Wijethnuga, 2020).

According to the Central Bank of Sri Lanka (2024) Annual Report, net interest income accounted for 32.8%, and non-interest income accounted for 8% of the total income. In the Sri Lankan context, there is limited empirical evidence on how income diversification affects the performance of licensed commercial banks in terms of risk-adjusted returns. These loopholes present the necessity of conducting empirical research on the ramifications of income diversification on the stability and performance of licensed commercial banks based in Sri Lanka.

Research questions

1. How does income diversification impact the risk-adjusted performance of Sri Lanka's domestic licensed commercial banks?
2. How does income diversification impact the financial stability of Sri Lanka's domestic licensed commercial banks?

Research objectives

1. To test the impact of income diversification on the risk-adjusted performance and profitability of Sri Lanka's domestic licensed commercial banks.
2. To examine the impact of income diversification on the financial stability of Sri Lanka's domestic licensed commercial banks.

2. Literature Review

2.1 Theoretical Review

2.1.1 The Modern Portfolio Theory (MPT)

The modern portfolio theory is an essential concept of finance that is used to highlight the advantages of diversification in maximising the risk-reward characteristics of a portfolio, which was developed by Harry Markowitz (1952). It describes the way in which a portfolio of assets can be built to provide maximum expected returns in relation to a certain risk level. Accordingly, the application of MPT to banking suggests that banks can reduce their reliance on interest income and manage risk more effectively by diversifying across a wide range of unrelated income streams (K. Stiroh, 2004). This paper examines whether licensed commercial banks in Sri Lanka that adopt a higher income diversification strategy demonstrate higher profitability and stability.

2.1.2 Resource-Based View (RBV) theory

The resource-based view introduced by Barney (2001) states that a firm's competitive advantage stems from its rare and non-imitable internal resource capabilities. Similarly, a study by Brahmana et al. (2018) indicates that banks have been able to attain a high level of non-interest revenues and profits due to their successful use of internal resources and capabilities. The results of diversification depend not only on the act of diversification but also on how effectively a bank uses its internal resources to manage and maintain these revenue streams.

2.2.3 Risk-return trade-off theory

The Risk-Return Trade-Off theory states that investors should accept higher levels of risk in order to obtain higher expected returns from financial institutions (Sharpe, 1964). Accordingly, these three theories show the fundamental trade-off between profitability and stability, whereby each potential gain in return is associated with a proportional increase in risk exposure. Accordingly, this relationship is particularly relevant when the banking system is diversified into non-traditional activities such as banking income and source trading fee-based services and investments, which, although these activities may improve profitability, may at the same time expose the bank to market fluctuations and operational uncertainties. Baele et al. (2007) observed that income diversification improved profitability but created more exposure to market-related risks, thereby reducing overall stability. Accordingly, this provides an important framework for examining whether risk-return trade-offs in the Sri Lankan context contribute to stable profits or increase risk exposure.

2.2 Empirical Review

2.2.1 Income diversification on bank performance

Return on Assets (ROA) gives a clear picture of the performance of banking operations but fails to consider the risk exposure differences between institutions (Hunjra et al., 2022). According to Saunders and Allen (2011) risk-adjusted performance measures like RAROA are essential for understanding how effectively institutions convert risk-bearing assets into stable earnings. K. Stiroh (2004) contends that risk-adjusted returns balance the trade-off between the advantages of diversity and volatility. Ahmed and Khan (2007) also note that risk-adjusted profitability indicators improve the evaluation of financial stability. Accordingly, RAROA is widely used as a critical measure for evaluating the balance between risk and return in the banking industry.

Return on Equity (ROE) is a common indicator of the profitability of a bank that reflects the effectiveness of a bank in generating profit using the equity of the shareholders' equity

(Munteanu & Miloş Ilie, 2021) . The ROE does not take into consideration variations in risk exposure among banks, although it represents general profitability (Moussu & Petit-Romec, 2018). According to Saunders and Allen (2011), risk-adjusted measures like RAROE provide a more accurate assessment of long-term value creation by linking profitability with risk exposure. The empirical evidence of European and U.S. banking markets demonstrates that diversification enhances the stability of bank profit streams by reducing exposure to credit and interest rate risks (DeYoung & Roland, 2001; De Jonghe, 2010). Moreover, it has been discovered that banks that have diversified income portfolios have better earnings persistence, which implies that the balanced combination of interest and non-interest revenue is helpful in generating stronger performance of banks in the long run (Dilrukshi, 2018; Jayasena & Amarasinghe, 2018; Fernando, 2023; Pasha & Lewaaelhamd, 2024).

Studies in emerging markets also provide strong support for a positive relationship between income diversification and risk-adjusted returns (Ashraf & Nazir, 2023). The study analyses data from 20 Nepalese commercial banks over 2009-2015 and finds that non-interest income and a higher Herfindahl-Hirschman diversification index are positively correlated with risk-adjusted ROA and ROE, suggesting that banks that diversify their income sources can achieve better risk-return trade-offs. These results show that diversification enhances profitability and is a crucial risk management strategy, especially in nations with unstable credit markets.

2.2.2 Income diversification on financial stability

The Z-score is a measure that is extensively used in banking research to evaluate bank stability and default risk, since it indicates a bank's ability to absorb losses. Leaven and Leven (2009) state that a higher Z-score is a more capable way of enduring losses and being reactive to financial shocks, whereas a lower Z-score is riskier and more prone to defaulting. Cross-country analysis has shown that income diversification may increase bank stability by reducing risk concentration in a single revenue stream and increasing Z-scores; nevertheless, further diversification is not recommended after an optimal level because this may decrease stability (Adem, 2023; Ben Lahouel et al., 2023). Accordingly, the Z-score is used as a key variable in analysing the relationship between income diversification and the financial stability of licensed commercial banks.

Nisar et al. (2018) examined a panel of 200 South Asian banks (one of them being Sri Lanka) during the 2000-2014 period. They establish that diversification of income into total non-interest income has a positive effect on stability, but the effect of the non-interest income is dependent on the nature of the non-interest revenue: fee and commission income are negatively associated with stability, and the other non-interest income (like trade and service income) has a positive association. Conversely, a more recent cross-country survey of 565 banks (50 countries) by Siddika et al. (2025) reveals that income diversification is negatively correlated with both bankruptcy risk and liquidity risk. For example, non-interest income contributes to decreasing the risk of failure of a bank and enhancing its liquidity buffer. Studies in emerging markets also demonstrate that effective income diversification can have a positive impact on stability. In line with the regional findings, Adem (2023) examined South Asian commercial banks and found that revenue diversification had a significant positive impact on profitability but a negative relationship with financial stability.

2.3 Analysing the Research Gap

Despite the fact that income diversification has been extensively researched throughout the world's banking systems, especially in developing nations, the empirical results regarding its impact on risk-adjusted performance and financial stability are still unclear. Past research

demonstrates inconclusive findings. Some researchers believe diversification reduces operational and market risk because banks experience higher profitability and lower volatility in earnings (Mercieca et al., 2006; Meslier et al., 2014), whereas others claim that this process leads to a greater level of operational and market risk and, consequently, lower profitability stability (DeYoung & Roland, 2001; K. J. Stiroh, 2004). Few studies have examined diversification in Sri Lanka, and those that have mostly concentrated on profitability using conventional metrics like ROA and ROE (Edirisuriya et al., 2015; Ekanayake & Wanamali, 2017; Dilrukshi, 2018; Jayasena & Amarasinghe, 2018; Kumanayake et al., 2019; Wijethnuga, 2020; Fernando, 2023). Nevertheless, there is a significant lack of empirical data regarding the impact of income diversification on risk-adjusted performance indicators, including RAROA and RAROE, and bank-level financial stability of the bank at the bank level in terms of Z-scores. This is despite evidence that macroeconomic shocks can influence diversification outcomes (Nisar et al., 2018). Therefore, there is a substantial research gap in determining whether diversification increases stability and profitability or exposes Sri Lankan commercial banks to new risks, particularly in the post-Basel III and digital banking period.

3. Methodology

The study used the quantitative approach within the positivist paradigm to examine the effects of income diversification on the financial stability and performance of licensed commercial banks in Sri Lanka. Secondary data were obtained from annual reports, financial statements, and regulatory publications for the ten years (2015–2024). Bank income diversification (BID) was measured using the inverse of the Herfindahl-Hirschman Index (HHI). Thus, a higher BID value represents greater income diversification, whereas a lower BID value represents greater income concentration. Risk-adjusted performance and financial stability were measured using Risk-Adjusted Return on Assets (RAROA), Risk-Adjusted Return on Equity (RAROE) and the Z-score, respectively. The study selected 13 domestic licensed commercial banks from the population using purposive sampling based on the availability of complete financial data for the study period. The sample included both state-owned and privately owned domestic banks, while foreign-owned banks were excluded. Both listed and unlisted domestic commercial banks were included. The study used a balanced panel covering all 13 banks throughout the 2015–2024 period. The panel data analysis was conducted using Stata software. Both fixed-effects and random-effects regression models were estimated, and the Hausman specification test was employed to determine the appropriate model for each dependent variable.

3.1 Conceptual Diagram

H₀: There is no impact of bank income diversification on profitability and risk-adjusted bank performance.

H₁: There is an impact of bank income diversification on profitability and risk-adjusted bank performance.

H₀: There is no impact of bank income diversification on financial stability.

H₂: There is an impact of bank income diversification on financial stability.

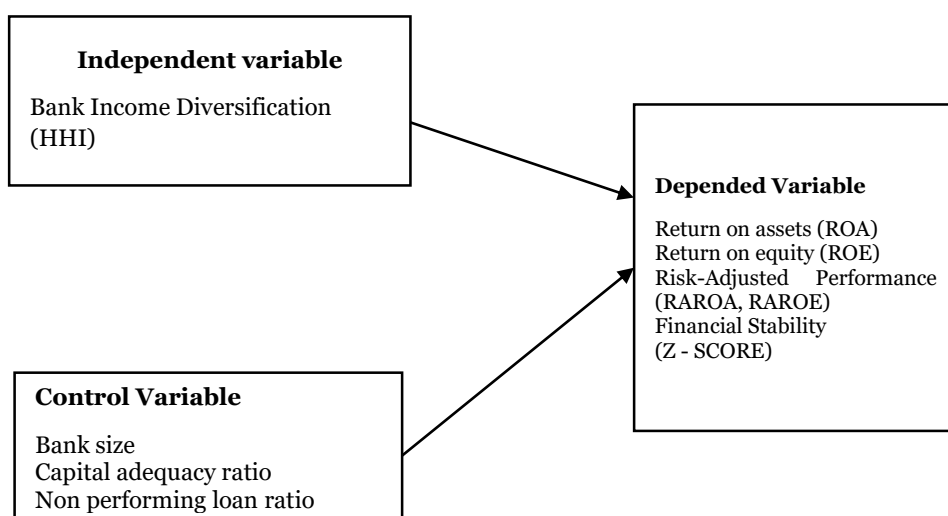


Figure 3.1 Conceptual Diagram

4. Data Analysis and Discussion

The Shapiro-Wilk tests conducted on the regression residuals confirm that residuals are normally distributed across all five models: the lnZSCORE model ($W = 0.990, p = 0.451$), the ROA model ($W = 0.981, p = 0.069$), the ROE model ($W = 0.989, p = 0.416$), the RAROA model ($W = 0.990, p = 0.447$), and the RAROE model ($W = 0.985, p = 0.151$). Since all residual p-values exceed the 0.05 threshold, the normality assumption for regression is satisfied across all models. The results of the other diagnostic tests and the Hausman test are presented in the Appendix.

Table 1: Pairwise Correlation Matrix

Variables	ROA	ROE	RAROA	RAROE	LnZ SCORE	BID	CAR	NPL	B SIZE
ROA	1.000								
ROE	0.635	1.000							
RAROA	0.744	0.382	1.000						
RAROE	0.650	0.810	0.575	1.000					
lnZ SCORE	-0.044	-0.211	0.098	0.010	1.000				
BID	0.375	0.012	0.465	0.136	-0.128	1.000			
CAR	-0.135	-0.356	-0.130	-0.319	-0.003	-0.208	1.000		
NPL	-0.252	-0.357	-0.183	-0.345	0.248	0.051	0.222	1.000	
BSIZE	0.220	0.625	0.075	0.389	-0.298	-0.064	-0.301	-0.121	1.00

4.1 Model 1 Income Diversification and Traditional Performance

Part A

Income Diversification and Return on Assets (ROA)

The diversification of income has a positive and significant impact on the bank's profitability, which means that the more diversified the income, the higher the returns on assets generated by the bank (Dilrukshi, 2018; Jayasena & Amarasinghe, 2018). This contributes to the view that non-interest income is capable of improving profitability due to its complementarity with conventional lending activities (Nisar et al., 2018). The capital adequacy ratio is one of the control variables that has a significant positive impact on ROA, indicating that well-capitalised banking institutions have a greater impact on profit and financial stability (Nisar et al., 2018).

Non-performing loan ratio demonstrates a high negative correlation ($\beta = 0.049, p = 0.023$), which proves the fact that an increase in credit risk decreases profitability (Yaparathne & Senarathne, 2024). The size of the bank exerts a very strong negative impact ($\beta = -0.254, p = 0.007$), which shows that larger banks have some inefficiencies that decrease returns. The model has an explanatory power of 31.4%, showing moderate strength.

Table 2: Fixed Effects Regression Results – ROA

ROA	Coef.	St. Err.	T-Value	P-Value	95% Conf	Interval
BID	2.747	.47	5.84	.000	1.814	3.679
CAR	.042	.014	3.09	.003	.015	.069
BSIZE	-.254	.092	-2.76	.007	-.436	-.071
NPL	-.049	.021	-2.31	.023	-.091	-.007
Constant	4.425	1.717	2.58	.011	1.022	7.827

Part B

Income Diversification and Return on Equity (ROE)

Nevertheless, BID does not have a strong relationship with ROE, which implies that diversification does not positively affect shareholder returns directly.

4.2 Model 2 Income Diversification and Risk-Adjusted Performance

Part A

Income Diversification and Risk-Adjusted Return on Assets (RAROA)

Table 3: Fixed Effects Regression Results – RAROA

RAROA	Coef.	St. Err.	T-Value	P-Value	[95% Conf	Interval]
BID	6.959	1.348	5.16	.000	4.287	9.63
CAR	.121	.041	2.93	.004	.039	.203
BSIZE	-.574	.266	-2.16	.033	-1.101	-.047
NPL	-.148	.061	-2.43	.017	-.269	-.027
Constant	9.903	4.946	2.00	.048	.105	19.701

Income diversification significantly improves RAROA, which implies higher risk-adjusted returns on assets (K. Stiroh, 2004). CAR has a positive effect on RAROA, while NPL has a negative effect on risk-adjusted performance (Hunjra et al., 2022). The size of the bank has a negative impact on RAROA, which implies difficulties in efficiency.

Part B

Income Diversification and Risk-Adjusted Return on Equity (RAROE)

Table 4: Random Effects Regression Results – RAROE (with Robust SE)

RAROE	Coef.	St. Err.	t-value	p-value	95% Conf	Interval
BID	1.844	1.406	1.31	.19	-.912	4.601
CAR	.01	.038	0.26	.793	-.064	.084
BSIZE	.274	.151	1.81	.07	-.022	.569
NPL	-.308	.058	-5.28	.000	-.423	-.194
Constant	-2.197	3.037	-0.72	.469	-8.15	3.756

Income diversification does not have a statistically significant impact on RAROE.

4.3 Model 3 Income Diversification and Financial Stability (LnZSCORE)

Table 5: Fixed Effects Regression Results – LnZSCORE

LnZSCORE	Coef.	St. Err.	T-Value	P-Value	95% Conf	Interval
BID	-1.169	.4	-2.93	.004	-1.96	-.377
CAR	.024	.012	2.04	.044	.001	.047
BSIZE	-.099	.078	-1.27	.206	-.254	.055
NPL	-.005	.018	-0.26	.798	-.04	.031
Constant	5.186	1.458	3.56	.001	2.297	8.075

The obtained regression implies that the statistically significant negative impact of income diversification (BID) is on the financial stability measured by LnZSCORE (Wijethnuga, 2020). This finding implies that the increase in dependence on non-interest income can potentially make the risk more exposed, instead of making the bank more stable, potentially because the non-traditional banking operations are volatile (Lepetit et al., 2008). The same results are also indicated by other researchers (Liang et al., 2020; Adem, 2023), according to whom diversification can escalate the fluctuations in the earnings of the emerging banking markets. The capital adequacy ratio (CAR) has a positive and significant effect, indicating that well-capitalised banks are more stable in the face of financial hardship.

5. Conclusion and Recommendation

This research has examined how income diversification has impacted the financial performance and stability of the licensed commercial banks in Sri Lanka between the years 2015 and 2024. The panel-data analysis was used to investigate the impact of income diversification on profitability, with the use of Return on Assets (ROA) and Return on Equity (ROE); risk-adjusted performance using Return on Assets Risk- Adjusted (RAROA) and Return on Equity Risk- Adjusted (RAROE); and financial stability measured by the natural logarithm of the Z-score (LnZ-score), with the control variables of capital adequacy, bank size, and non-performing loan Ratio. The findings suggest that income diversification has a mixed impact on bank performance, with positive effects outweighing the negative ones. Income diversification in particular would have a positive influence on Return on Assets (ROA) and Risk-Adjusted Return on Assets (RAROA), so that banks might be able to expand into non-interest income-generating activities like fees and commissions and investment activities. The results are consistent with the other studies, which have found a positive relationship between income diversification and bank profitability and risk-adjusted returns (Brahmana et al., 2018; Dilrukshi, 2018; Jayasena & Amarasinghe, 2018; Nisar et al., 2018; Fernando, 2023; Rahman & Abbas, 2025). The present study, however, extends the previous studies by exploring income diversification among domestic licensed commercial banks in Sri Lanka from various perspectives such as conventional profitability, risk-adjusted performance, and financial stability. The use of the Herfindahl-Hirschman Index (HHI) also gives a more complete measure of income concentration and diversification than using just the share of non-interest income.

These other sources of revenue help maximise asset utilisation and generate more stable income on a risk-adjusted basis. Nonetheless, the findings indicate that diversification has no significant effect on Return on Equity (ROE) and Risk-Adjusted Return on Equity (RAROE), suggesting that the benefit of diversification is not fully passed on to stockholders. Conversely, the analysis indicates that diversification has a significant negative impact on financial stability by a large margin, as indicated by the Z-score (Wijethnuga, 2020). This observation indicates that greater reliance on non-interest income may elevate the level of earnings volatility and

expose banks to greater market-related risks. Nonconventional sources of income are usually more prone to macroeconomic fluctuations, which can undermine stability in times of financial strain. Thus, diversification can be effective in increasing profitability; however, it can also undermine financial stability when it is not managed carefully. The findings also supported the significance of bank-specific factors. The Capital Adequacy Ratio (CAR) is positively associated with performance and stability, which highlights the importance of robust capital buffers to absorb financial shocks. On the other hand, Non-Performing Loans (NPL) have a negative influence in most models, and thus effective credit risk management is of paramount significance. Bank size is observed to have a negative impact on performance, indicating that larger banks may experience operational inefficiencies. Altogether, the results back up important theoretical views, such as Modern Portfolio Theory and the risk-return trade-off. Although diversification has the potential to increase risk-adjusted returns, overall risk might increase if banks become more exposed to fluctuating sources of income. Income diversification is therefore a trade-off between profitability and stability, requiring banks to maintain an appropriate balance between the two.

5.1 Implications and Recommendations

This paper has some significant implications for banking practice and policy. In the management aspect, banks are advised to diversify income on a balanced and strategic basis instead of resolving to diversify aggressively into high-risk non-interest activities. The focus should be put on the fixed sources of income, i.e., fee-based services, and reduce the exposure to fluctuating trading income. Furthermore, the banks need to toughen their risk management systems to deal with the complications of diversified operations. New risk exposures should be effectively monitored inflation controlled to avoid instability. It is also important to maintain sufficient levels of capital since good capitalisation increases performance and resiliency. Regulation-wise, regulators are supposed to be watchful of diversification of banks to ensure that they do not take too much risk. There should be enhancement of regulations, especially concerning capital adequacy and non-traditional income activities. Improved transparency and disclosure standards will also facilitate improved evaluation of the risk profile of banks.

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