SLIIT Business Review, 2024
Vol. 04, Issue. 01, pp. 25-53
https://doi.org/10.54389/RDCQ4489

Income Diversification on Human Capital and Banks Financial Performance: Evidence from Sri Lanka

Dammika W.A.D.C[1] and Anuradha P.A.N.S[2]

Abstract

Existing empirical literature and theories on human capital fail to offer a conclusive explanation for its relationship with income diversification and bank financial performance. Consequently, this study fills the gap by investigating whether income diversification moderates the relationship between human capital and bank financial performance in Sri Lanka. This understanding of how income diversification influences the relationship between human capital and bank financial performance, benefits researchers, practitioners, and policymakers alike. This study employs a deductive research approach and quantitative methodology, analyzing panel data from 2010 to 2022 across a sample of 19 banks.

Findings confirmed a significant relationship between human capital, income diversification, and bank financial performance. Thus, competencies, knowledge, and skills of bank's employees play a crucial role in determining its overall success. Additional results indicate that a skilled and capable workforce significantly contributes to a bank's ability to broaden its revenue sources, thereby strengthening its financial stability and resilience. However, it fails to identify a moderating impact of income diversification on the relationship between human capital and bank financial performance. Nonetheless, it underscores the crucial role of human capital in shaping bank financial performance and the strategies of income diversification adopted by banks. This study contributes to the existing literature by investigating the moderating role of income diversification on the relationship between human capital and bank financial performance within the Sri Lankan context, as an aspect often overlooked in previous studies that primarily focused on the direct effects of human capital and income diversification on bank performance.

Keywords: Bank Financial Performance, Income Diversification, Intellectual Capital, Moderation Effect

[1] SAB Campus – Institute of Chartered Accountants of Sri Lanka
[2] University of Sri Jayewardenepura, Email: anuradha@sjp.aclk

Introduction

Financial institutions recognize the significance of intellectual capital in addition to tangible assets, striving to distinguish themselves in the market within today's knowledge-based economies, (Githaiga, 2021). The oversight of Sri Lanka's banking and financial sector, including licensed commercial banks, specialized banks, and finance companies, falls under the purview of the Central Bank. Although these institutions actively contribute to the economy through expanded accessibility and branch networks, challenges such as currency fluctuations and political instability impeded asset growth, (Central Bank report, 2023).

Human capital, comprising human, structural, and customer capital, is pivotal for success in banking, with human capital often considered the most crucial due to its broad impact on service quality and organizational outcomes. However, conflicting findings exist regarding its direct correlation with bank performance, with some studies suggesting indirect effects, (see Aryee et al. 2016). Existing literature highlights the complexities in understanding the relationships among human capital, income diversification, and bank performance. Studies such as Berger, Hasan, and Zhou (2010) and DeYoung and Rice (2004) have explored the direct effects of human capital and noninterest income on bank efficiency and financial performance. Athanasoglou et al. (2008) and Casu and Molyneux (2003) further contribute by analyzing the determinants of bank profitability, emphasizing the role of income diversification alongside bank-specific and macroeconomic factors. Moreover, DeYoung and Roland (2001) and Hryckiewicz and Kozłowski (2011) delve into how income diversification moderates the volatility of earnings and stability in banking institutions. This body of literature underscores the need for further investigation into how income diversification moderates the relationship between human capital and bank performance, a crucial aspect not extensively explored in previous studies focused primarily on direct effects.

To address this gap, we explore the relationship between human capital and bank financial performance, considering the influence of income diversification in Sri Lanka. In this study, human capital refers to the collective skills, knowledge, and experience possessed by a bank's employees, which contribute to the institution's overall productivity and effectiveness. Income diversification denotes the

strategy employed by banks to generate revenue from multiple sources, such as fees, trading, and other non-interest income, rather than relying solely on traditional interest income from loans. Bank financial performance encompasses a variety of metrics that indicate a bank's financial health and operational efficiency, including profitability, return on assets, and stability. By shedding light on this relationship, the study aims to provide valuable insights for researchers, practitioners, and policymakers.

Decision-makers in the banking industry highly value diversification, as expanding product lines broadens the range of services banks offer beyond loans and interest payments. However, consensus on the correlation between a bank's success and its income diversification remains elusive Aryee et al. (2016). Understanding this link is crucial for bank management, regulators, investors, and industry stakeholders. Despite extensive research globally, few studies focus on the Sri Lankan context, highlighting the need to explore how income diversification impacts the performance of banks in the country. This study bridges this gap by investigating the moderating role of income diversification on human capital and bank financial performance in Sri Lanka.

This is the introduction. The subsequent section reviews the literature on human capital and income diversification in the banking sector performance. This is followed by the methodology section detailing the research approach. Section IV presents the data analyses and findings, while the succeeding section discusses the findings. Finally, section VI presents the conclusion of the study.

Literature Review

The seminal paper by Markowitz (1952) on "Portfolio Selection" laid the foundation for Modern Portfolio Theory (MPT), which suggests that investors should maximize expected returns while managing risk across their entire portfolio. Diversification plays a central role in MPT, as it allows investors to achieve higher returns without necessarily increasing overall risk. Resource-Based View Theory (1991) posits that firms with unique resources can gain a competitive advantage, Barney (1991). The trend of trade openness, increased competitiveness, and relaxation of bank regulations have prompted banks to explore income diversification to sustain profitability and maintain a competitive edge. Consequently, banks engage in non-banking activities such as

investment, advisory services, securities brokering, and underwriting to generate non-interest income (Doan et al. 2018). The theoretical rationale for income diversification lies in generating consistent operational income and reducing risk through imperfectly correlated revenue streams, as advocated by Modern Portfolio Theory (Markowitz, 1952; Sharma & Anand, 2018).

Non-interest operations contribute to bank earnings (Paltrinieri et al. 2021), mitigate risk (Pennathur et al. 2012), and enhance overall bank performance (Doan et al. 2018). However, conflicting findings suggest that income diversification may lead to less stable income and increased risk due to the unpredictability of non-traditional businesses (Delpachitra & Lester, 2013). Some studies suggest that revenue diversity has no significant effect on bank performance, implying that banks should prioritize lending activities (Lee et al. 2014). Recent research indicates a growing trend towards integrated financial services, with non-interest income comprising a larger share of banks' total revenues (Paltrinieri et al. 2021).

Literature provides varied perspectives on the relationship between intellectual capital and banks' financial performance across different contexts. Cahyaningrum et al. (2020) investigated this relationship in Indonesian banks and found no direct link between intellectual capital and financial performance. However, they observed that intellectual capital heightened market and operational risks. Conversely, Mohapatra et al. (2019) revealed a positive correlation between intellectual capital and profitability, productivity, and competitive advantage in Indian banks. Ismail et al. (2011) suggested a significant influence of intellectual capital, particularly its human, structural, and capital efficiency components, on financial performance in Bahraini banks. Rehman et al. (2022) identified a negative impact of human capital efficiency on overall performance in Islamic banks, alongside significant factors such as bank size and foreign ownership. In US banks, Meles et al. (2016) highlighted the positive influence of effective intellectual capital utilization on financial performance, particularly emphasizing the role of human capital. Hay et al. (2018) found factors like foreign ownership and size influencing voluntary human capital disclosures in Lebanese commercial banks, while leverage and profitability did not play significant roles. Paltrinieri et al. (2021)

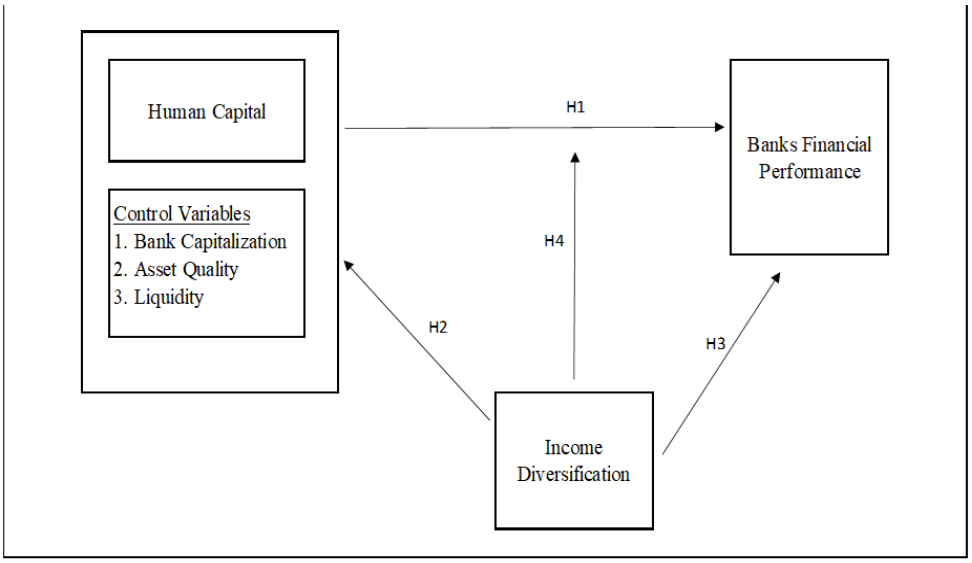
suggested a notable association between human capital and capital-employed efficiency with bank performance in Bangladeshi commercial banks. In the Sri Lankan context, Fernando et al. (2020) discovered a connection between human capital and organizational effectiveness in Sri Lankan banks, particularly through effective leadership practices.

Further, a diverse array of studies offers insights into the relationship between income diversification and bank performance across various contexts. Berger et al. (2010) found that diversification, whether sectoral or geographical, was associated with lower profitability and increased costs in Chinese banks, albeit with mitigating effects observed for banks with foreign ownership or conglomerate affiliations. Brahmana et al. (2018) highlighted income diversity's positive impact on performance in Malaysian banks, particularly in less integrated markets like Malaysia, where the proliferation of Islamic banking could enhance diversification benefits. Turkmen et al. (2012) found regional diversity to negatively affect overall performance in Turkish banks. Conversely, Ngoc Nguyen and Khanh (2019) discovered that diversification had adverse effects on profitability and increased risk in Vietnamese banks. Meng et al. (2018) identified various factors influencing income diversification decisions in Chinese banks, emphasizing managerial competencies and risk considerations. Adam (2014) showed a positive correlation between diverse financial elements and bank performance in Erbil Bank in Iraq's Kurdistan Region. Hakimi et al. (2017) highlighted the significant influence of liquidity risk on bank efficiency in Tunisian banks. Li et al. (2013) indicated income diversification's positive effect on overall performance in Vietnamese banks. Githaiga (2021) explored the intricate relationship between income diversity, human capital, and bank performance in Kenya, utilizing panel data from 53 banks spanning from 2010 to 2018. Their findings suggest that while both human capital investment and income diversity influence bank performance, the interaction between these factors complicates the scenario. Although investing in human capital generally yields favorable outcomes, income diversification appears to have a negative impact on bank performance. The study revealed that income diversification moderates the link between human capital and bank performance, indicating a complex interplay between these variables.

Further Vidyarthi (2020) examined the association between income diversification and performance across 38 listed Indian banks during 2004-2005 and 2015-2016, employing various efficiency metrics. Their analysis revealed a positive correlation between income diversification and bank performance. Interestingly, their Tobit regression analysis unveiled an inverted U-shaped pattern between income diversification and anticipated efficiency, indicating that while moderate levels of diversification may enhance efficiency, excessive diversification could lead to diminishing returns. This association was held for both government-owned and private-sector banks, highlighting the robustness of the findings across different bank ownership structures. Hoang et al. (2021) employed the System Generalized Method of Moments on panel data from Vietnamese commercial banks to investigate the impact of diversification strategies on overall bank performance. Their research lends support to the mutual forbearance theory, suggesting that exposure to multiple markets enhances performance. Specifically, they found that income diversity positively correlates with both bank profitability and overall profitability. Given the conflicting findings from studies worldwide, further research is warranted to elucidate the relationship between income diversification and bank financial performance among banks.

Numerous studies in literature have examined the direct relationships between human capital and financial performance, as well as income diversification and bank performance. However, it is challenging to find many studies that test the moderating impact of income diversification on the relationship between human capital and bank performance. Accordingly, Figure 1 presents the conceptual framework developed to address the identified research gap. This framework tests the direct relationship between human capital components and financial performance, as well as the moderating effect of income diversification on the relationship between human capital and bank performance.

Figure 1: Conceptual framework



Source: Author Compiled Based on the literature

Hypotheses Development

The impact of intellectual capital on the performance of Indian banks was investigated by Mohapatra et al. (2019). According to the regression results, only human capital had a positive and substantial effect on performance; structural capital and finance capital had a negative impact. Specifically, they found that banks with higher levels of human capital tended to exhibit superior economic performance. Further, Soewarno and Tjahjadi (2020) investigated the impact of intellectual capital on the financial performance of publicly traded Indonesian banks. The study results demonstrate that human capital efficiency had a negative, though slight, influence on return on assets, whereas structural capital efficiency and capital efficiency had a positive on return on assets. The study showed that physical capital is more important to Indonesian banking organizations than intangible assets like human capital. Building upon these insights, the following hypothesis is developed to provide a nuanced understanding of how investments in human capital can bolster a bank's overall success.

H1: *Human Capital has a significant impact on the bank's financial Performance.*

Lee et al. (2014) conducted a detailed examination of the Chinese banking sector, focusing on the interplay between diversification, staff expertise (serving as a proxy for human capital), and bank performance. Their research shed light on the intricate connections between these variables, revealing a compelling relationship between employee knowledge and bank diversification decisions. The study uncovered that the expertise of bank employees exerts a positive influence on the diversification strategies adopted by banks. Specifically, banks with a competent workforce were more inclined to pursue diversified revenue streams. This strategic approach, in turn, had a beneficial impact on the overall performance of the banks. Further supporting this, Berger and Mester (1997) demonstrated that banks with higher levels of human capital tend to exhibit greater efficiency and profitability. Similarly, DeYoung and Rice (2004) found that noninterest income, as a part of income diversification, is significantly influenced by the skill level of bank employees. Athanasoglou et al. (2008) also highlighted the importance of human capital and income diversification in enhancing bank performance, emphasizing that skilled employees contribute to more effective diversification strategies. Moreover, Hryckiewicz and Kozłowski (2011) explored the stability of banks in relation to foreign ownership and income diversification, finding that well-diversified income streams supported by knowledgeable staff lead to greater financial stability. DeYoung and Roland (2001) added that diversification, moderated by human capital, can reduce earnings volatility and enhance overall performance. Drawing from these findings, the following hypothesis is formulated to elucidate the role of human capital in shaping the income diversification strategies of banks.

H2: *Human Capital has a significant impact on the Income diversification of banks.*

The rise in trade openness, competitive pressures, and relaxed bank regulations have spurred banks to explore income diversification strategies, aiming to sustain profitability and secure a competitive advantage (Doan et al., 2018). These strategies involve diversifying into non-banking operations such as investment, advisory services, securities broking, and underwriting, which generate non-interest income. The theoretical foundation supporting income diversification

lies in its potential to provide stable operational income and reduce risk through the utilization of imperfectly correlated revenue streams, as outlined by modern portfolio theory (Sharma & Anand, 2018). Empirical studies support this notion by demonstrating that non-interest operations positively contribute to bank earnings (Paltrinieri et al., 2021), mitigate risk (Pennathur et al., 2012), and enhance overall bank performance (Doan et al., 2018). However, counterarguments exist suggesting that income diversification may lead to less stable income and heightened risk due to the unpredictability of non-traditional businesses (Delpachitra & Lester, 2013). Nonetheless, some studies have found no significant impact of revenue diversity on bank performance, advocating for a continued focus on traditional lending activities (Lee et al., 2014; L. Li & Zhang, 2013). Recent research highlights a growing trend towards integrated financial services, with non-interest income progressively constituting a larger share of banks' total revenues. Given the conflicting findings from studies conducted across various regions, further research into the relationship between income diversification and bank performance among banks is warranted to provide valuable insights. Consequently, the following hypothesis is tested.

H3: *Bank income diversification has a significant impact on the bank's performance.*

While the resource-based view and knowledge-based view theory of Barney (2001), propose that intellectual capital significantly influences business performance, empirical research has produced mixed results. Advocates of the dynamic capabilities perspective argue that merely possessing intellectual capital resources is insufficient for gaining a competitive advantage and achieving superior performance (Eisenhardt & Martin, 2000). They assert that firms need dynamic tools to reinforce existing resources, restructure them, and develop new long-term competitive advantages. The literature also suggests that diversification enables organizations to deploy and utilize their strategic assets and competencies (Rehman et al. 2022). Additionally, strategic management theorists advocate for enterprises to diversify into related businesses to identify, develop, and leverage resources and talents for competitive advantage and prosperity (Neffke & Henning, 2013). Given the challenges facing the traditional lending sector, banks

should consider leveraging their intellectual capital resources to capitalize on non-lending operations to compensate for lost interest earnings. Similarly, expanding into related fields enhances the exploitation of current resources and their capability configuration, whereas diversifying into unrelated businesses or markets requires the development of new resources and capability configurations (Eisenhardt & Martin, 2000). Furthermore, research has shown that revenue diversification improves bank performance (Li et al. 2019) and increases lending activities through cross-subsidization and cross-selling (Abedifar et al. 2018). Other literature suggests that lending businesses can benefit from informational and synergy advantages associated with non-lending activities. Consequently, the following hypothesis is tested to investigate whether income diversity moderates the relationship between human capital and bank performance.

H4: *Income diversification moderates the relationship between human capital and bank Performance.*

Methodology

The sample comprises a panel of 19 commercial banks spanning the period from 2010 to 2022. Bank-specific data primarily originates from bank financial statements and secondary sources. To assess the influence of intellectual capital, banks with less than five years of available data are excluded. Furthermore, the focus is exclusively on commercial banks due to their prominence in the market. This results in a final sample size of 228 observations.

The profitability of banks is used to gauge their performance. Return on Assets (ROA) and Return on Equity (ROE) are the profitability measures most used in past literature (Berger, Hasan, Korhonen, & Zhou, 2010). ROA indicates the value of the property relative to one unit of bank-controlled assets. Following is the formula for calculating the ROA.

$$ROA_{i,t} = Total\ Net\ Return_{\ it} / Total\ Assets_{\ t}$$

ROE is defined as the entire profit that can be allocated to the bank's owners or common shareholders. ROE is computed by using the formula.

$$ROE_{it} = Total\ Net\ Return_{it} / Total\ Equity_{it}$$

Where ROE_{it} and ROA_{it} are performance indicators for bank i in year t. The total Net Return of bank i in the year t is calculated by dividing profit after tax by the total assets and total equity of bank i in the year t to obtain ROA_{it} and ROE_{it}.

As a basis for assessing human capital the Value-Added Intellectual Coefficient (VAIC) model developed by Pulic (2004) has been used. VAIC is a framework for assessing the efficiency of human capital and intellectual capital within an organization. The VAIC model comprises three main components: Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employed Efficiency (CEE). Each of these components provides insights into different aspects of a company's intellectual capital and overall performance. VAIC represents the aggregate of three indicators. HCE is the evaluation of the efficacy of employed human capital resources. SCE is a measure of structural capital, which consists of innovation capital, process capital, and consumer capital. CEE illustrates the value produced for each monetary unit invested in financial or physical capital and is a metric for measuring capital productivity.

Value-Added (VA) is the starting point for calculating the VAIC. It represents the value created by the bank and is calculated as follows.

$$VA = Output - Input$$

Output is the total revenue generated by the bank. Input includes all operating expenses excluding employee costs (since human capital is measured separately).

HCE measures the efficiency of human capital in generating value. It is calculated as follows.

$$HCE = \frac{VA}{HC}$$

HC represents the total investment in human capital, which typically includes all employee-related expenses such as salaries, benefits, and training costs.

SCE evaluates the efficiency of structural capital, which includes innovation, process, and consumer capital. It is calculated as follows.

$$SCE = \frac{SC}{VA}$$

SC (Structural Capital) is derived by subtracting Human Capital (HC) from Value-Added (VA).

$$SC = VA - HC$$

CEE measures the efficiency of financial and physical capital in generating value. It is calculated as follows.

$$CEE = \frac{VA}{CE}$$

Where CE (Capital Employed) represents the total investment in physical and financial capital.

The VAIC is the aggregate of the three efficiency indicators.

$$VAIC = HCE + SCE + CEE$$

The VAIC model provides a comprehensive view of how effectively a company utilizes its human, structural, and capital resources to create value. By assessing these components, firms can identify strengths and areas for improvement in their intellectual capital management. A high coefficient indicates that the firm's resources, including its intellectual capital, contribute to increased value creation.

The moderating variable is income diversification. The income of banks is made up of interest income (from lending activities) and non-interest income (earned from nonlending activities). The Herfindahl-Hirschman Index (HHI) of income specialization is built from these two revenue streams (Nepali, 2018). As indicated below, HHI is computed as follows.

$$HHI = \left(\frac{NET^2}{NOI}\right) + \frac{NON^2}{NOI}$$

Where NON stands for non-interest income, and NET is net interest income (NET). The calculation for NET (net interest income) involves deducting total interest expenses from total interest revenues, whereas the calculation for NON (non-interest income) involves adding up all of the different types of income that are not related to interest. The total of a bank's net interest income and its income from other sources is equivalent to the bank's net operating income. The bank gets more consolidated and less diverse as HHI grows. HHI ranges from 0 to 1.0. (Mercieca et al. 2007; Stiroh & Rumble, 2006). The study measures income diversification as follows.

$$HHI = 1 - \left(\frac{NET^2}{NOI}\right) + \frac{NON^2}{NOI}$$

Control Variables

Size

Size, or market capitalization, is measured as the natural logarithm of total assets and is used to account for the bank's size. Larger banks may engage in more activities, which can be riskier, potentially leading to higher margins and improved performance (Maudos & Solís, 2009). Conversely, other research suggests that smaller banks might reduce asymmetric information concerns, thereby enhancing their profitability (Dietrich & Wanzenried, 2014).

Liquidity

Liquidity is the ratio of liquid assets to total assets (LA/TA), which is employed to control liquidity risk (Sharma et al., 2013). According to several research, banks that maintain more liquid assets typically generate a smaller profit. Other research, however, contends that an increase in banks' relative liquid assets lessens the likelihood of default, hence boosting bank profitability (Bourke,1989).

Asset Quality

As highlighted by Berger et al. (2010), the condition of a bank's assets is a critical determinant of its likelihood of failure. Poor asset quality can significantly impact a bank's risk-adjusted performance, making it an important indicator of banking oversight. Moreover, when an institution's asset quality declines, it may seek alternative revenue sources to offset the decrease in loan quality and thereby reduce

income volatility (Saona, 2016). The ratio of nonperforming loans (NPLs) to total loans and advances serves as a gauge of asset quality.

Considering that the primary purpose of this study was to examine the moderating effect of income diversification on the relationship between human capital and bank performance, the following multiple regression equations were developed.

Model 1: Testing the effect of the independent variable on the dependent variable.

$$BP = a + \beta_1 Size + \beta_2 AQ + \beta_3 LQ + \beta_4 VAIC$$

Model 2: Testing the effect of the predictor variable and the moderator on the dependent variable.

$$BP = a + \beta_1 Size + \beta_2 AQ + \beta_3 LQ + \beta_4 VAIC + \beta_5 HHI$$

Model 3: Testing the moderating effect.

$$BP = a + \beta_1 Size + \beta_2 AQ + \beta_3 LQ + \beta_4 VAIC + \beta_5 HHI + \beta_6 VAIC * HHI$$

The researcher utilized STATA to empirically analyze the dataset. Once the hypotheses were validated, a regression analysis was performed to investigate the relationship between income diversification and bank performance.

Results and Discussion

Table 01 provides descriptive statistics on the variables. The bank performance (ROA) mean is 1.18 and (ROE) mean is 12.84. VAIC has an average value of 7.914 suggesting a high level of income diversification.

Table 01: Descriptives

	Observations	Mean	SD	Minimum	Maximum
ROA	228	1.182	0.612	- 0.340	2.130
ROE	228	12.841	7.385	- 4.105	27.950
VAIC	228	7.914	2.851	2.036	15.178
HHI	228	0.833	0.258	0.593	1.443

AQ	228	3.926	2.075	0.500	8.680
Size	228	38.9	40.8	1.28	138.0
Liquidity	228	0.655	0.074	0.5136	0.749

In Table 01, ROA, ROE, VAIC, HHI, AQ, and Size represent the return on assets, return on equity, human capital, income diversification, bank capitalization, and asset quality respectively. As Table 01, ROA has reached a high of 2.13 percent and a low of -0.34 percent, while ROE has reached -4.11 percent of the minimum value and 27.95 percent of the maximum. Asset quality has a maximum value of 8.68 and a minimum value of 0.50 when considering the control variables. The market capitalization reached a high of Rs.138,000 Mn and a low of Rs.1,280 Mn during the designated period. The minimum value for bank liquidity during the 2010-2022 period was 0.513 percent, while the maximum growth rate was 0.749 percent.

The presence of multicollinearity among variables was assessed using the variance inflation factor (VIF), revealing that all coefficients exceeded 0.8. The correlation analysis for the variables used in this study is shown in Table 2.

Table 02: Correlation Analyses

	ROA	ROE	VAIC	HHI	AQ	Size	LQ
ROA	1.000						
ROE	0.845	1.000					
VAIC	0.178**	0.225**	1.000				
HHI	-0.403**	-0.332**	0.428**	1.000			
AQ	-0.153	-0.133	0.049	0.276	1.000		
Size	0.408	0.253	-0.174	-0.228	0.134	1.000	
LQ	-0.043	0.024	0.157	-0.024	-0.450	-0.356	1.000

*Notes: *p < 0.05; **p < 0.01* *Source: Analyzed Data (2023)*

The correlation analysis from Table 2 reveals several significant associations among variables in Sri Lanka's licensed commercial banks. Firstly, the correlation between human capital (VAIC) and bank performance yields coefficients of 0.178 for ROA and 0.225 for ROE, indicating a weak positive link. This association is statistically significant at the 0.01 level (p-value = 0.000), underscoring a meaningful relationship between these variables. Secondly, the

correlation between VAIC and bank income diversification (HHI) is notably higher at 0.428, suggesting a moderately positive relationship. Like the previous association, this link is statistically significant at the 0.01 level (p-value = 0.000), reinforcing a robust connection between VAIC and HHI. Lastly, the correlation between HHI and bank performance shows negative coefficients of -0.403 for ROA and -0.332 for ROE. This indicates a negative relationship between these variables among Sri Lanka's licensed commercial banks. Again, this association is statistically significant at the 0.01 level (p-value = 0.000), highlighting the importance of considering bank income diversification's impact on bank performance. In summary, these findings underscore statistically significant associations between human capital, bank income diversification, and bank financial performance in Sri Lanka's licensed commercial banks.

Regression Analyses

Regression analyses were conducted to assess the impact of independent variables on return on assets (ROA) and return on equity (ROE) in Sri Lanka's licensed commercial banks. The Hausman test was employed to choose between fixed effect and random effect regression methods, resulting in the utilization of random effect regression for the ROA model and fixed effect regression for the ROE model. Linear regression was then employed to investigate the influence of the composite independent variable (Human Capital) and the moderating variable (Income Diversification) on bank performance. Table 03 presents the results of the ROA regression model.

Table 03: Results ROA Model

OLS Regression				
R^2 = 0.4506			Adj R-squared	= 0.4276
Root MSE = .46339				
F (6, 143) = 19.55				Prob > F = 0.0000
Variables	Coefficient	Standard error	t	P>|t|
VAIC (Human Capital)	0.097	0.048	1.99	0.048
Asset Quality	-0.033	0.021	-1.5	0.135
Market Capitalization (Size)	0.000	0.000	5.49	0.000
Liquidity	-0.347	0.677	-0.51	0.609

Income diversification (HHI)	-1.177	0.463	-2.54	0.012
Human Capital*Income diversification	0.003	0.047	0.07	0.947
Constant	1.515	0.502	3.01	0.003

Source: Author compiled based on secondary data

As per the results of Table 03, the overall model of the ROA regression is statistically significant, with a probability F statistic value less than 0.05. The R-squared value, indicating the model's quality of fit, suggests that income diversification, asset quality, bank liquidity, and market capitalization explain 45.06% of the variance in return on assets. While all variables except Asset quality and bank liquidity are statistically significant with p-values less than 0.05, the specific relationships to ROA reveal a negative association with income diversification, bank liquidity, and asset quality, while other factors exhibit a positive link. However, the association between bank liquidity variables is not statistically significant.

Table 04: Results ROE Model

Fixed-effects (within) regression
$R^2 = 0.3037$
F (6, 134) = 11.48
Prob > F = 0.0000
corr(u_i, Xb) = -0.1120

Variables	Coefficient	Standard error	t	P>|t|
Human Capital (VAIC)	1.216	0.6943298	1.75	0.082
Asset Quality	0.130	0.3150471	0.41	0.680
Market Capitalization (Size)	0.000	0.000	3.40	0.001
Liquidity	3.988	9.105	0.44	0.662
Income diversification (HHI)	-13.78	6.429	-2.14	0.034
Human Capital*Income diversification	0.226	0.698	0.32	0.746
Constant	8.233	7.334	1.12	0.264

Source: Author compiled based on secondary data

As Table 04, the ROE regression model demonstrates overall statistical significance, evident from the probability F statistic value being less than 0.05. The R-squared value reflects the model's quality of fit, indicating that income diversification explains 30.37 percent of the variance in return on equity. While all variables except for asset quality and bank liquidity show statistical significance with p-values below 0.05, individual relationships reveal a negative association between income diversification and ROE, whereas other factors exhibit a positive link. However, the association between asset quality and bank liquidity factors is not statistically significant.

Discussion

H_1: *Human Capital has a significant impact on the bank's Performance.*

The regression model results for both ROA and ROE indicate a significant positive impact of human capital on bank performance. In the ROA model, the human capital coefficient is 0.0965, which is statistically significant. Similarly, in the ROE model, the income diversification coefficient is 1.216, which is also statistically significant. The p-value for the ROA model is significant at the 95% level (0.048), confirming the acceptance of hypothesis 1. However, for the ROE model, the P-value of 0.082 is considered negligible. Therefore, while hypothesis 1 is supported by the significant p-value in the ROA model, it is not conclusively supported in the ROE model due to the negligible p-value.

Human capital plays a crucial role in influencing the performance of banks. As we found, human capital significantly contributes to improving financial performance in the banking sector which is consistent with Cahyaningrum et al. (2020). Factors such as knowledge, skills, and experience are essential determinants of financial performance in banks. Our findings confirm Hypothesis 1, illustrating a substantial positive correlation between human capital and bank performance. In their 2023 study, Tedi et al. (2023) delved into how human capital impacted the performance metrics of a selection of Chinese banks. They discovered that human capital exerted a favorable influence on both return on assets (ROA) and return on equity (ROE) within the studied banks. Essentially,

businesses boasting higher levels of human capital tended to yield superior economic outcomes.

Human capital variables exhibit varying impacts on Return on Assets (ROA) and Return on Equity (ROE) due to several factors. For instance, Goran et al. (2018) highlight the positive influence of human capital on financial performance, particularly on earning capacity and asset efficiency. However, Al Taleb et al. (2016) reveal that while the number of employees positively affects net income, the number of branches negatively impacts both net income and ROA. Additionally, Ismaila et al. (2013) suggest that human capital efficiency does not significantly impact ROE in Nigerian banks. Moreover, Mehrdad et al. (2015) emphasize that human capital efficiency significantly and positively affects sales growth and ROA in listed companies. These findings collectively indicate that the type, quality, and utilization of human capital, as well as contextual factors like organizational risk and size, play crucial roles in determining the diverse impacts of human capital variables on ROA and ROE. These findings align with previous studies underscoring the pivotal role of adept and knowledgeable employees in bolstering operational efficiency, risk management, and customer service within banks. Consequently, the implication is that banks prioritizing investments in the training and development of their workforce stand a greater chance of attaining improved financial results.

H_2: *Human Capital has a significant impact on the Income diversification of banks.*

The Pearson correlation coefficient between human capital and bank income diversification is 0.4281, indicating a moderately positive association. This link is statistically significant at the 0.01 level (sig. = 0.000), affirming a significant relationship between human capital and bank income diversification. Therefore, the hypothesis is accepted at the 5 percent significance level. Li and Zhang (2013) delved into the Chinese banking sector, exploring the interplay between diversification, staff expertise (as a proxy for human capital), and bank performance. Their research revealed that the expertise of employees wielded a positive influence on the diversification choices made by banks, subsequently enhancing their overall performance. This finding echoes existing studies that underscore the pivotal role of a

knowledgeable workforce in identifying and leveraging diverse avenues for revenue generation. In this context, human capital emerges as the driving force behind innovation and strategic decision-making, facilitating the expansion of income streams for banks.

H_3: *Bank Income diversification has a significant impact on the Bank's performance.*

According to the regression models for both ROA and ROE, income diversification exhibits a significant negative impact on bank performance. In the ROA model, the income diversification coefficient is -1.177, while in the ROE model, it is -13.786, both statistically significant. Consequently, the hypotheses were accepted. It is imperative to distinguish the relationship between bank income diversification and bank performance by categorizing diversification levels into high and low. Income diversification ranging between 0.50 and 1.00 indicates varying degrees of diversification, with 0.50 representing total diversification and 1.00 indicating minimal diversification. A value between 0.5 and 0.75 suggests significant diversification, whereas a value between 0.75 and 1 indicates low diversification. The empirical findings outlined in this study offer robust support for Hypothesis 3, affirming the substantial impact of income diversification on the financial performance of banks. In their investigation, Meng et al. (2018) identified a positive relationship between a bank's ability to generate income from a multitude of sources and its overall performance. This discovery resonates with the foundational principles of diversification strategy, wherein banks boasting a diverse income portfolio are better positioned to mitigate risks stemming from fluctuations in specific income streams. Furthermore, income diversification empowers banks to capitalize on synergies among various business lines, thereby amplifying both profitability and stability across the board. In essence, this highlights the strategic advantage of cultivating a multifaceted revenue stream, as it not only fortifies a bank's resilience against market volatility but also fosters opportunities for growth and optimization.

H_4: *Income diversification moderates the relationship between human capital and bank Performance.*

The regression analysis results indicate that both human capital and income diversification have a significant positive effect on the ROA

and ROE models. In the ROA model, the coefficients for human capital and income diversification are 0.003, while in the ROE model, it is 0.226. However, at a 5 percent significance level, their respective p-values are not significant, ROA (p-value=0.947) and ROE (p-value=0.746). Consequently, the hypotheses proposed above are rejected at the 5 percent level of significance. Contrary to our initial expectations, Hypothesis 4, which proposed that income diversification would moderate the relationship between human capital and bank performance, was not supported by the findings. Nepali (2018) examined the Chinese banking industry, investigating the interconnectedness of diversification, staff expertise (as a proxy for human capital), and bank performance. The results revealed that the proficiency of bank employees positively influenced the bank's inclination towards diversification, consequently enhancing its performance. However, our analysis did not uncover a significant interaction effect between income diversification and human capital in shaping bank performance.

While this outcome was unexpected, it adds valuable insights to the ongoing discourse surrounding the dynamics among these variables. It's plausible that contextual factors specific to the Sri Lankan banking sector, where the study was conducted, might have influenced this result. This underscores the importance of considering regional nuances and industry-specific factors when exploring the intricate relationships between human capital, income diversification, and bank performance. Further, the structure and composition of Sri Lanka's banking sector play a pivotal role in shaping how income diversification impacts human capital. Variations among different types of banks, such as state-owned, private, or foreign institutions, can significantly influence their business strategies and approaches to income diversification and human capital development. For instance, state-owned banks may prioritize stability and adherence to government policies, potentially affecting their emphasis on income diversification and investment in human capital differently compared to private or foreign banks, which might prioritize profitability and innovation. Moreover, unique economic conditions in Sri Lanka, such as levels of economic volatility, inflation rates, and interest rates, can also impact the efficacy of income diversification in moderating the relationship between human capital and bank performance. In a robust

economy with stable macroeconomic indicators, the need for income diversification strategies might be perceived differently compared to times of economic uncertainty or instability. In essence, the interplay between the structural dynamics of the banking sector and the broader economic landscape of Sri Lanka shapes the extent to which income diversification strategies interact with human capital development to influence bank performance. Understanding these contextual nuances is crucial for comprehensively evaluating the effectiveness of strategies aimed at optimizing both income streams and human capital within the banking industry.

Conclusion

In conclusion, this study illuminates the intricate nexus between human capital, income diversification, and bank financial performance. The findings underscore the pivotal role of employee competencies, knowledge, and skills in driving a bank's overall success, thereby validating the first hypothesis. Additionally, the confirmed influence of human capital on income diversification highlights the importance of a skilled workforce in expanding revenue streams, bolstering financial stability, and enhancing resilience. Furthermore, the validated effect of bank income diversification on performance emphasizes the necessity of implementing strategies to diversify revenue streams, thereby mitigating risks associated with dependency on a single income source.

Although the hypothesis regarding the moderating role of income diversification on the relationship between human capital and bank performance was not supported, it further underscores the enduring link between human capital and bank performance across varying levels of income diversification. Ultimately, this study underscores the imperative for financial institutions to prioritize investments in human capital development while concurrently diversifying income streams to optimize performance outcomes and navigate evolving market dynamics.

The dismissal of Hypothesis 4 suggests exploring alternative moderating factors impacting the relationship between human capital, income diversity, and bank performance. Investigating variables like technology innovation, regulatory environment, and market

competition could deepen understanding. Further research avenues include examining specific human capital competencies, understanding income diversity's impact, and considering external factors like macroeconomic conditions. Comparative analyses across financial institutions or regions could offer comprehensive insights. These research directions aim to enrich our comprehension of the intricate interplay among human capital, income diversity, and bank performance in a dynamic financial environment.

References

Abedifar, P., Molyneux, P., & Tarazi, A. (2018). Non-interest income and bank lending. *Journal of Banking & Finance*, 87, pp. 411–19. https://doi.org/10.1016/j.jbankfin.2017.11.003

Adam, M.H.M., (2014). Evaluating the Financial Performance of Banks using financial ratios-A case study of Erbil Bank for Investment and Finance. *European Journal of Accounting Auditing and Finance Research*, 2(6), pp.162-177.

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18(2), pp.121-136. https://doi.org/10.1016/j.intfin.2007.11.001

Aryee, S., Walumbwa, F. O., Seidu, E. Y. M., & Otaye, L. E. (2016). Developing and Leveraging Human Capital Resource to Promote Service Quality: Testing a Theory of Performance. *Journal of Management*, 42(2), pp.480-499. https://doi.org/10.1177/0149206312471394

Al Taleb, G. S., & Al Khatib, A. Y. (2016). Human capital and its impact on banking financial performance. *Research Journal of Finance and Accounting*, 7(8), pp.107-115.

Brahmana, R., Kontesa, M. and Gilbert, R.E., (2018). Income diversification and bank performance: Evidence from Malaysian banks. *Economics Bulletin*, 38(2), pp.799-809.

Berger, A.N., Hasan, I. and Zhou, M., (2010). The effects of focus versus diversification on bank performance: Evidence from Chinese

banks. *Journal of Banking & Finance*, 34(7), pp.1417-1435. https://doi.org/10.1016/j.jbankfin.2010.01.006

Berger, A. N., & Mester, L. J. (1997). Inside the black box: What explains differences in the efficiencies of financial institutions? *Journal of Banking & Finance*, 21(7), pp.895-947. https://doi.org/10.1016/S0378-4266(97)00010-9

Barney, J. B. (2001). Is the resource-based "view" a useful perspective for strategic management research? *Academy of Management Review*. 26 (1). pp. 41-56.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America, and Australia. *Journal of Banking & Finance*, 13(1), pp.65–79. https://doi.org/ 10.1016 /0378-4266(89)

Casu, B., & Molyneux, P. (2003). A comparative study of efficiency in European banking. *Applied Economics*, 35(17), pp.1865-1876. https://doi.org/10.1080/0003684032000158109

Central Bank Annual Report, 2022. https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports/annual-report-2022

Cahyaningrum, A.D. and Atahau, A.D.R., (2020). Intellectual Capital and Financial Performance: Banks Risk as the mediating variable. *Journal of Management*, 22(1), pp.21-32.

DeYoung, R., & Roland, K. P. (2001). Product mix and earnings volatility at commercial banks: Evidence from a degree of total leverage model. *Journal of Financial Intermediation*, 10(1), pp.54-84. https://doi.org/10.1006/jfin.2000.0305

Delpachitra, S., & Lester, L. (2013). Non-Interest Income: Are Australian Banks Moving Away from their Traditional Businesses? Economic Papers: *A Journal of Applied Economics and Policy*, 32(2), pp.190–199. https://doi.org/10.1111/1759-3441.12032

Doan, A.-T., Lin, K.-L., & Doong, S.-C. (2018). What drives bank efficiency? The interaction of bank income diversification and

ownership. *International Review of Economics & Finance*, 55, pp.203–219. https://doi.org/10.1016/j.iref.2017.07.019

Dietrich, A., & Wanzenried, G. (2014). The determinants of commercial banking profitability in low-, middle-, and high-income countries. *The Quarterly Review of Economics and Finance*, 54(3), pp.337–354. https://doi.org/10.1016/j.qref.2014.03.001

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10-11), pp.1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

Fernando, W. Heather M. et al. Human capital practices impact organizational performance. (2020). *European Journal of Human Resource Management Studies*, 4 (2). pp. 1-19. http://dx.doi.org/10.46827/ejhrms.v4i2.799

Ghanbari, M., & Ghasemi, M. (2015). The impact of human capital on sales growth and assets return among the companies listed in the Tehran Stock Exchange. *European Online Journal of Natural and Social Sciences*, 4(1), pp.1037-1045.

Githaiga, P.N. (2021), Human capital, income diversification and bank performance–an empirical study of East African banks, *Asian Journal of Accounting Research*, 6(1), pp. 95-108. https://doi.org/10.1108/AJAR-06-2020-0041

Goran, Pavlović., Univerzitet, u, Kragujevcu,, Ekonomski, fakultet,, Srbija. (2018). The influence of human capital on the financial performance of enterprises. Fourth International Scientific Business Conference LIMEN, pp. 293-298. https://doi.org/10.31410/LIMEN.2018.293

Hryckiewicz, A., & Kozłowski, Ł. (2011). Banking stability: Foreign ownership versus income diversification. *Journal of Banking & Finance*, 35(5), pp. 1294-1305. https://doi.org/10.1016/j.jbankfin.2010.10.017

Hakimi, A. and Zaghdoudi, K., (2017). Liquidity risk and bank performance: An empirical test for Tunisian banks. *Business and Economic Research*, 7(1), pp.46-57.

Hay, D.A., Ragab, N.S. and Hegazy, W., (2018). The determinants of human capital voluntary disclosures in the lebanese commercial banks. *Academy of Accounting and Financial Studies Journal*, 22(6), pp.1-18.

Hoang, K., Nguyen, L. and Tran, S., (2021). Multimarket contact, income diversification and bank performance. *International Journal of the Economics of Business*, 28(3), pp.439-455.

Ismaila, Y. (2013). The relationship between human capital efficiency and financial performance: An empirical investigation of quoted Nigerian banks. *Research Journal of Finance and Accounting*, 4(4), pp. 1-12.

Ismail, K.N.I.K. and Karem, M.A., (2011). Intellectual capital and the financial performance of banks in Bahrain. *Journal of Business Management and Accounting*, 1(1), pp.63-77.

Lee, -C.-C., Yang, S.-J., & Chang, C.-H. (2014). Non-interest income, profitability, and risk in banking industry: A cross-country analysis. *The North American Journal of Economics and Finance*, 27, pp. 48–67. https://doi.org/10.1016/j.najef.2013.11.002

Li, L., & Zhang, Y. (2013). Are there diversification benefits of increasing noninterest income in the Chinese banking industry? *Journal of Empirical Finance*, 24, pp.151–165. https://doi.org/10.1016/j.jempfin.2013.10.004

Maudos, J., & Solís, L. (2009). The determinants of net interest income in the Mexican banking system: An integrated model. *Journal of Banking & Finance*, 33(10), pp.1920–1931. https://doi.org/10.1016/j.jbankfin.2009.04.012

Mercieca, S., Schaeck, K., & Wolfe, S. (2007). Small European banks: Benefits from diversification? *Journal of Banking & Finance*, 31(7), pp.1975–1998. https://doi.org/10.1016 /j.jbankfin.2007.01.004

Mohapatra, S., Jena, S. K., Mitra, A., & Tiwari, A. K. (2019). Intellectual capital and firm performance: Evidence from Indian banking sector. *Applied Economics*, 51(57), pp.6054–6067. https://doi.org/10.1080/00036846.2019.1645283

Markowitz, H. (1952). Portfolio Selection, *The Journal of Finance*. American Finance Association, 7, 1.

Meng, X., Cavoli, T. and Deng, X., (2018). Determinants of income diversification: evidence from Chinese banks. *Applied Economics*, 50(17), pp.1934-1951.

Meles, A., Porzio, C., Sampagnaro, G. and Verdoliva, V., (2016). The impact of the intellectual capital efficiency on commercial banks performance: Evidence from the US. *Journal of Multinational Financial Management*, 36, pp.64-74.

Nepali, S. R. (2018). Income diversification and bank risk-return trade-off on the Nepalese commercial banks. *Asian Economic and Financial Review*, 8(2), pp. 279–293. https://doi.org/10.18488/journal.aefr.2018.82.279.293

Neffke, F., & Henning, M. (2013). Skill relatedness and firm diversification. *Strategic Management Journal*, 34(3), pp.297–316. https://doi.org/10.1002/smj.2014

Ngoc Nguyen, K., (2019). Revenue diversification, risk and bank performance of Vietnamese commercial banks. *Journal of Risk and Financial Management*, 12(3), pp.138.

Pennathur, A. K., Subrahmanyam, V., & Vishwasrao, S. (2012). Income diversification and risk: Does ownership matter? An empirical examination of Indian banks. *Journal of Banking & Finance*, 36(8), pp.2203–2215. https://doi.org/10.1016/j.jbankfin.2012.03.021

Paltrinieri, A., Dreassi, A., Rossi, S., & Khan, A. (2021). Risk-adjusted profitability and stability of Islamic and conventional banks: Does revenue diversification matter? *Global Finance Journal*, 50, 100517. https://doi.org/10.1016/j.gfj.2020.100517

Pulic, A. (2004). Intellectual capital–does it create or destroy value? *Measuring Business Excellence*, 8(1). pp. 62- 68. https://doi.org/10.1108/13683040410524757

Rehman, A.U., Aslam, E. and Iqbal, A., (2022). Intellectual capital efficiency and bank performance: *Evidence from Islamic banks. Borsa Istanbul Review*, 22(1), pp.113-121.

Saona, P. (2016). Intra-and extra-bank determinants of Latin American Banks' profitability. *International Review of Economics & Finance*, 45, pp. 197–214. https://doi.org/10. 1016/j.iref.2016.06.004

Sari, Kailaku. (2022). The Impact of Different Intellectual Capital Dimensions on Banks Operational and Financial Performance. Explore Business, Technology Opportunities and Challenges After the Covid-19 Pandemic Conference Paper. pp. 946-956. https://doi.org/10.1007/978-3-031-08954-1_79

Stiroh, K. J., & Rumble, A. (2006). The dark side of diversification: The case of US financial holding companies. *Journal of Banking & Finance*, 30(8), pp. 2131–2161. https://doi.org/10.1016/j.jbankfin.2005.04.030

Sharma, P., Gounder, N., & Xiang, D. (2013). Foreign banks, profits, market power and efficiency in PICs: Some evidence from Fiji. *Applied Financial Economics*, 23(22), pp.1733–1744. https://doi.org/10.1080/09603107.2013.848026

Sharma, S., & Anand, A. (2018). Income diversification and bank performance: Evidence from BRICS nations. *International Journal of Productivity and Performance Management*, 67(9), pp. 1625–1639. https://doi.org/10.1108/IJPPM-01-2018-0013

Soewarno, N., & Tjahjadi, B. (2020). Measures that matter: An empirical investigation of intellectual capital and financial performance of banking firms in Indonesia. *Journal of Intellectual Capital*, 21(6), pp. 1085–1106. https://doi.org/10.1108/JIC-09-2019-0225

Tedi, Setiawan., Agus, Rahayu., Ratih, Hurriyati., Lili, Adi, Wibowo., Erwin, Yulianto. (2023). Millennial human capital development strategy model in improving business performance. *Journal of Namibian Studies: History Politics Culture*, 34, pp. 872–903. https://doi.org/10.59670/jns.v34i.1130

Turkmen, S.Y. and Yigit, I., (2012). Diversification in banking and its effect on banks' performance: Evidence from Turkey. *American International Journal of Contemporary Research,* 2(12), pp.111-119.

Vidyarthi, H., (2020). Dynamics of income diversification and bank performance in India. *Journal of Financial Economic Policy*, 12(3), pp.383-407.