



EFFECTS OF INCOME DIVERSIFICATION ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED IN SIERRA LEONE

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Abstract:

The aim of this study was to determine the effect of income diversification on the financial performance of commercial banks in Sierra Leone. A descriptive research design was adopted. A census targeting the listed commercial banks in Sierra Leone from the year 2018 to 2022 was conducted. The statistical significance of each independent variable was tested by performing a t-test at a 5% level of significance. The significance of the regression model was tested by performing an F-test at a 5% significance level. The independent variables' explanatory power was evaluated using the coefficient of determination, R^2 . The study found that income diversification was negatively related to financial performance. The results of the t-test indicated that the effect was not statistically significant. It also found that size and capital adequacy had a positive effect, which was statistically significant, while liquidity had a negative impact on financial performance and was not statistically significant. The coefficient of determination for the regression was found to be 35.7%. This implies that the independent variable explained only 35.7% of the changes in the dependent variable. The study concluded that income diversification is a costly affair for commercial banks since it has a negative impact on financial performance. It also concluded that size and capital adequacy had a positive impact on financial performance while liquidity had a negative impact. This study recommends that commercial banks should not commit resources to diversifying their income because diversification appears to be a costly affair. Also, investors should not be concerned about a bank's income diversification in selecting investment opportunities as diversification of income does not generate positive financial performance.

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1. Introduction

The continuous development of non-interest earning activities identifies that the traditional interest-earning ways are reducing in importance and therefore banks entering new markets and diversifying their income sources. Ebrahim and Hasan (2008) defined income diversification as the growth of banks into innovative products and services, contrary to the normal intermediation forms that they were using. Banks by expanding into new services and products are able to enter new markets and thus diversify their incomes into new sources.

Income diversification has become an important aspect, as banks are able to diversify the risks that they face while carrying their businesses and thus gain competitive advantage over their competitors. Penrose (1959) referred to income diversification as the increase by a firm in its business lines regardless the lines are related or not. Banks therefore by increasing their business lines, are able to expand their income from the traditional net income to the non-interest income.

According to Markowitz (1952), the basis of portfolio theory is risk reduction through diversification. Revenue from interest-earning actions is mostly stable than those from non-interest-bearing activities, therefore banks are able to diversify their income by investing in different business portfolios thus reducing the volatility for banks (Koponen, 2003). The resource-based view approach (Wernerfelt 1984) assumes that deliberate managerial efforts are undertaken by firms which are steered towards gaining a sustainable competitive advantage. Banks gaining a competitive advantage over their competitors and controlling their resources helps them to enter into new markets and thus diversifying their income. The market power theory is based on the opinion of Porter (1980) of setting strategies that will distinguish a firm's position in the environment from the positions of other competitors. Therefore market power theory prescribes diversification as an improvement tool of the profitability and financial performance of a firm.

The Sierra Leone banking sector consists of 14 commercial banks (Cyttonn Investments report, 2016). Bank of Sierra Leone regulates all the banks and the Capital Markets Authority has further oversight over the listed banks licensing, regulation and supervision of all capital markets participants. The financial sector in Sierra Leone is mainly based on banks as the capital market is still regarded as narrow and shallow (Ngugi *et al.*, 2006). Financial intermediation depends heavily on commercial banks as they dominate the financial sector in Sierra Leone (Kamau, 2009). Oloo (2009) depicted the Sierra Leonean banking sector as the link that holds the economy of the country together.

According to Cyttonn Investments report (2017), income diversification has increased due to increased use of alternative channels, internet and agency banking, substitute banking channels such as mobile and network development strategies in Sierra Leonean and in the West African region, such as agency, cashless cards, mobile and internet banking use has also been increasing in recent times. Non-interest income is set

to benefit from new programs such as mobile banking and banc assurance which will enhance the diversity of income.

Income diversification helps in reducing the idiosyncratic risk which is the shocks that affect the net interest margins which arises from changes in the rates of lending (Lin, Chung, & Hsiehming, 2012). Lepetit, Rous, and Tarazi (2008) found that diversification of banks into fee-based services lowered the rates of lending, concluding that income diversification influences the interest rate margins and loan pricing which curbs bank earnings volatility. Income diversification also play a significant part in the reduction of banking crises, as they are able to depend on different sources of income rather than the traditional interest income. Tabak, Fazio and Cajueiro (2011) found that lending to a specific loan activity is another reason for the crisis in banks in the last five years.

Stiroh and Rumble (2006) noted that income diversification is measured through the Herfindahl Hirschman Index (HHI) and the Entropy Index which explains the breakdown variations of net operating income into interest and non-interest income. HHI considers income diversification as a relative measure which exposes every source of income equally. It also assists in verifying and estimating the level of diversity and concentration of the sources of income in banks. The HHI measures the diversification of banks from interest income to non-interest income earning activities. A high Herfindahl-Hirschman Index (HHI) means that the bank is more focused and concentrated on a single source of income and thus becoming less diversified, while a small HHI index reflects that the bank is well diversified and focuses on both the net and non-interest income.

The financial performance of an organization can be measured through various methods such as the Net interest margin (NIM), the Return on assets (ROA) and the Return on equity (ROE). Net interest margin is described as the ratio of net interest income to total earnings assets (Gull *et al.*, 2011). Khrawish (2011) defined ROA as the firm's profitability which is calculated as net income divided by total assets and is also another financial ratio that measures financial performance. Khrawish (2011) also defined Return of equity as net income divided by total equity capital.

Diversification of income in banks can be enhanced through foreign exchange earnings, government securities income, commissions and fees on advances and loans, sales and leasing of assets income (Cytonn Investments report, 2016). Amihud and Lev (1981) noted that agency costs may be high for banks that are highly diversified, as diversification may assist in reducing the personal risk that the firm encounters rather than value creation for the interest of the shareholders. Kiberia (2012) noted income diversification and profitability were positively correlated and therefore assisting in reducing the profitability problem and stiff competition that banks face and thus improving their financial performance. Kiweu (2012) noted that net interest earning and non-interest earning were positively correlated; a result that advocates that noninterest earning may not be an important factor in stabilizing the total operating income. The above studies show the connection between the performance and diversification of banks but it appears to be no agreement with the findings aiding both studies. In addition to

the different result in the studies, majority of the documented empirical evidence regarding income diversification was on developed economies, with much less discussion and insight on the influence of diversification on the banking industry in developing economies. It is this knowledge gap that this study addressed hence the question: what is the effect of income diversification on the financial performance of commercial banks listed on the Sierra Leone Securities Exchange?

2. Literature Review

2.1 Theoretical Review

This section examined the theoretical foundation where the following theories which the study anchors on have been discussed: Modern Portfolio Theory (Markowitz, 1952), Resource Based Theory (Wernefelt, 1984) and Market Power Theory (Porter, 1980).

2.1.1 Modern Portfolio Theory

Modern Portfolio Theory (MPT), a theory put forward by Markowitz (1952) is a finance theory which depends on the concept that investors who fear risk can create portfolios to maximize the returns that the investors expect depending on a certain degree of market risk and therefore underlining that, for an investor to achieve higher reward than risk is an essential part of it. The Modern Portfolio Theory, an upgrade upon the old investing models, is a significant improvement on the investment models of finance. It supports the diversification of assets so as to evade both the market risk and the unique risks that affect specific types of companies. The theory (MPT) is a complex investment model that helps in classifying, estimating, and controlling both the type and rate of expected returns and risks and thus known as Portfolio Management Theory. Portfolio theory aids in quantifying the risk-return relationship and the hypothesis that investors will be reimbursed for accepting the risk. Portfolio theory moved from the characteristic analysis of single investments to establishing the statistical correlation between the individual investments which make up the portfolio (Edwin and Martins 1997). It is one of the important and significant theories which deal with investment and finance (Kaplan & Schoar, 2005). It is a mathematical model for constructing a portfolio of investments in a way that the returns that are expected is optimized for a certain rate of risk, known as variance. The likelihood of this to happen can be brought by the differences in the types of assets which often differ in value in a contradicting manner (Markowitz, 1959). Higher volatility of returns is related to the increased dependence on non-interest revenue which is consistent with the portfolio theory, but a lesser volatility is associated with a more highly diversified returns portfolio.

The modern portfolio theory is hinged on this study because by diversifying the income source, banks are able to optimize the expected return of the portfolio for a certain level of risk, or subsequently reduce the risk for a certain rate of expected return, by carefully selecting the dimensions of a variety of assets. While income from intermediation activities is likely to be more stable than those from non-intermediation

activities, there could also be an advantage through diversification as it would reduce bank's volatility through the subsequent share of noninterest earnings in net operating income (Koponen, 2003). Therefore, banks' reliance on intermediation business activities has increased as it would help them in generating trading revenue, fee revenue, and other forms of non-interest income. Portfolio risk is intended to be reduced by holding portfolio combinations that are not positively correlated.

2.1.2 Resource Based Theory

The resource-based approach was put forward by Wernerfelt (1984) and it assumes that deliberate managerial efforts are undertaken by firms so as to attain a sustainable competitive advantage over their competitors in the market. By attaining a competitive advantage over their competitors, firms are able to diversify their business and enter into new markets and by diversifying their businesses they tend to diversify their income leading to income diversification. Barney (1991) argues that diversification based on resource capabilities can cause economies of scope by sharing core competences and activities and thus becoming a factor in sustaining competitive advantage. Uniqueness or heterogeneity of resources is regarded as an essential situation for a resource bundle in gaining competitive advantage and thus diversifying their income. The argument is that if all the firms in a given market have similar resources, then no strategy will be applicable to one firm and fail to be applied to the competing companies in the market thus making the resource-based theory a significant aspect in the diversification of income (Cool & Dierickx, 2002).

The relevance of the resource based theory to this study is that it provides a way for improving a firm's financial performance and also suggests diversification by building on the resource capability to enter new markets or what is known as the sequential entry strategy (Wernerfelt, 1984). This diversification in resource capacities will lead the firm to diversify their incomes which is brought by entering into new markets. Therefore, positioning of resources of a firm is not only beneficial by generating entry barriers but by also directly aiding diversification in associated activities which offers cost benefits to the business and which will finally lead to diversification of the income earned.

2.1.3 Market Power Theory

Market power theory is based on Porter's (1980) view of strategically positioning the firm in its environment through a set of strategies that differentiates the position of a firm from its competitors. According to Shepherd (1970), Market Power Theory is anchored on the capability of a company to manipulate or influence the price, the nature or the quality of the product in the marketplace. According to this perspective, Caves (1981) and Miller (1973) noted that diversification increased opportunities for reciprocal buying and predatory pricing and reduces competition of industries if a number of large conglomerates face one another in many markets.

(Barney, 1991; 2002) noted that diversification is one of the significant strategies

which aid firms in overcoming competition and gaining power in the market which assists them to access conglomerate powers. Montgomery (1994) named three ways in which companies can gain power in the market through diversification and these are: cross-subsidizing by investing earnings from another market to reinforce predatory pricing in a different market; bilateral restraint of thorough rivalry among competitors and lastly reciprocal purchasing between components of multi-business companies that locks out small competition. Palich *et al.*, (2000) also agreed that companies with power in the market can manage easily the prices of the market by cross subsidizing, giving discounts, engaging in reciprocal selling and buying as a form of preventing potential contender entering the business. Through this strategy, they overcome competition and thus earning profits which are above the average profits that the market offers.

Therefore, this theory sees diversification as a device for improving the profits and performance of the firm. The relevance of the market power theory to this study is that through diversification firms are able to enter into new markets and thus gaining competitive advantage over its competitors not only as a result of their specific standing in the market but also because of their standing in other different markets. This makes the firms to have different business lines and these lines will bring income to the firm which will be diversified in nature. Gribbin (1976) argued that, for a firm to attain conglomerate power, it must first have supremacy in its own market. This supremacy drives the company to go into new other markets through predatory strategies aided by its resources, power and position in its present market. This will also propel the firm into new sources of income that they were not getting before thus leading to income diversification.

2.2 Empirical Studies

Esho, Kofman and Sharpe (2005) investigated on the relationship between the earnings of credit unions and its pricing policy, risk and product mix on 198 Australian credit unions using a cross-sectional linear least squares regression analysis and six risk control measures. Results confirmed that greater dependence on non-intermediation earnings is linked with greater risk. Credit unions that have their revenues highly concentrated were also found to have increased rate of returns and risk. Furthermore, credit unions with a lower percentage of revenues in interest on personal loans and with a greater percentage of total income in the shape of residential loans interest have considerably lesser returns and risk, thus making it uniform with modern portfolio theory. Nevertheless, credit unions which diversify by reducing the proportion of interest on personal loans and paired by an increase in the returns proportion of transaction fees on loans and deposits would reduce its returns and increase its risk. Most importantly the study revealed that diversification may enhance larger credit union's X-efficiencies if they are able to employ good managers.

Huang and Chen (2006) studied if the dependence on diverse sources of non-interest earnings affects the efficiency of banks. The study was carried on the domestic commercial banks in Taiwan, in year 1992 to 2004. It employed the Data Envelopment

Analysis (DEA) to compute the cost efficiency of the banks. The banks were grouped into three sub-samples equally, according to the proportion of the non-interest and interest earnings to the net operating income.

The Kruskal-Wallis pairwise comparison test was used so as to investigate if there were major disparities within the sub-sample groups. The result showed that the efficiency of banks tended toward severe contrary cases. The banks with intermediate proportion of interest and non-interest income to operating income were outperformed by those with high and low percentage. This implied that banks with high and low concentrations in non-interest and interest earnings always operated with cost efficiency. Banks with the middle percentage of interest and non-interest earnings to operating income, which have more diversified income sources, were less cost-efficient.

Mercieca, Schaeck and Wolfe (2007) examined whether the change to non-interest earnings boosts the performance of small credit unions in Europe. The study used 755 small banks as a sample from 1997 to 2003, the result portrayed an inverse correlation between non-interest earnings and bank performance while there is no absolute diversification gain across and within business lines. The results also showed that small banks that possess distinctive comparative advantages within their existing business lines can boost their performance by increasing their resources in those business lines.

Goddard, Mckillop, and Wilson (2008a) investigated the effect of diversifying revenue on the credit unions' financial performance in the US from 1993–2004. The effect of switching through different strategies which changes the proportion of non-interest revenue was brought by an indirect contact influence that shows the influence of the firm's own level of diversification, a direct exposure impact and showing the diversity between non-interest and interest activities.

The findings showed that; a direct and positive contact influence is overshadowed by a direct and negative contact influence for the majority except the biggest credit unions, on both the unadjusted returns and risk-adjusted measures. This implied that small and big credit unions should have different diversification strategies and the similarity of diversification strategies is not appropriate. They concluded that smaller credit unions must avoid diversification and sustain it by functioning as a loan and savings institution, whereas larger credit unions should continue to diversify and venture into new product and service opportunities around their core expertise.

Goddard, Mckillop and Wilson (2008b) carried a study on a big sample of credit unions in US so as to classify the sources of differences in performance. Analysis of variance was used and was measured by both growth of assets and membership. The findings suggested that charter effects, state and common bond all make fairly little though statistically noteworthy additions in the clarification of the changes in performance growth. The findings of the study also showed that for large credit unions, increase in diversification and performance are positively related while it was negative for smaller CUs.

Barry and Laurie (2010) investigated the impact of non-interest income on bank's returns and risk. They found that income derived from non-interest income is riskier

compared to those that were derived from the traditional sources. Though non-interest earning as a basis of diversification of revenue was found to be riskier than margin revenue but it offered gains to the stockholders of the banks by reducing bank exposure to interest incomes. Though it improves the bank's tradeoff of risk and return, these are of less significance to the bigger negative effect of poor asset quality on stockholder returns.

Kiweu (2012) used a sample consisting of 35 commercial banks in Kenya from 2000 – 2012 to investigate how income diversification and focus impact on the bank's performance (as measured by ROA and ROE). The study investigated whether income source diversification for Kenyan commercial banks leads to reduced individual bank and systematic risks and better earnings. The study found that income diversification from traditional banking has a few benefits, if any, to be expected. The importance of the growth of non-intermediation income did not appear to entirely neutralize the rise in risk that originates from non-intermediation activities. The findings showed that non-interest and interest income were positively correlated, thus suggesting that non-interest earning may be an inappropriate substitute to steady the total income.

Kiberia (2012) investigated the effects of income source diversification on the financial performance of commercial banks in Kenya. The aim of the research was to establish the influence of income source diversification on the performance of commercial banks. The findings showed that when commercial banks diversify their income generating activities then problems such as competition and profitability in the market will reduce drastically and thus improving the bank's financial performance. Intermediation income, non-intermediation income, fees on loans and advances and commission, foreign exchange trading earnings, other fees and commissions, and other earnings have a positive effect on bank's financial performance.

Otieno and Moronge (2014) studied the impact of product diversification on the bank's financial performance in Sierra Leone. The aim of the research was to examine the impact of product diversification on the bank's financial performance in Sierra Leone. The precise purpose was to find out how information flow, new markets, creativity and technology affect their performance financially. The results indicated that creativity, new markets, information flow and technology had an impact on financial performance. Creativity was noted to be an aspect with the utmost impact as its significance of coefficient was the highest.

Nguyen, Vinh Vo and Nguyen (2015) carried out a study on the effects of diversification of income on risks of banks in Vietnam, 32 Vietnamese domestic banks were sampled from 2005 – 2012 using the Panel regression model, random and fixed effects model with Hausman test robust check. The results found that a rise in non-interest earnings will reduce the risk compared to the ones with high-interest earnings. In regards to the effects of size, the result was generally accurate for bigger banks compared to smaller banks. However, the effects of income diversification are not clearly established for small banks. The paper examined both the listed and unlisted banks. The

findings showed that there is a positive correlation between diversification and risks in banking of these categories.

3. Research Methodology

3.1 Research Design

The study adopted a descriptive research design which is defined as a design that is used when the researcher needs to depict specific behavior as it occurs in the environment (Greener, 2008). Zikmund (2003) notes that, the main quality of this design is that the variables cannot be controlled by the researcher as he can only describe what is occurring or has occurred. The design is deemed suitable since the main aim is to determine the possible relationship and explain how the issues support matters under study.

3.2 Target Population

The study population consisted of the 14 listed commercial banks on the Sierra Leone Securities Exchange for the years 2018 to 2022. This period was chosen because of the quick growth of non-intermediation activities in the banking sector. Capping of interest rates in this period also encourages banks to look at other sources of income and thus diversifying their incomes (Kiweu, 2012).

3.3 Data Collection

Secondary data was adopted in the study which was obtained from audited financial statements of listed commercial banks in Sierra Leone. The audited financial statements were acquired from each banks websites. The study used a longitudinal approach to study the trend of diversification of income sources for 5 years. The specific data collected for each bank was net operating income from net interest and noninterest sources, total assets, capital adequacy ratio and liquidity ratio.

3.4 Data Analysis

Data was analysed through multiple regression to determine the impact of diversification of income on financial performance. The relationship of the equation is a multiple linear where the financial performance was the dependent variable and the Herfindahl-Hirschman Index was used to determine the diversification of income which was the independent variable. Total assets, capital adequacy ratio and banks liquidity ratio were the control variables. The equation is as shown;

$$Y = \alpha + \beta_0X_1 + \beta_1X_2 + \beta_2X_3 + \beta_3X_4 + \mu_t$$

Where;

Y = financial performance,

α = constant term,

$-\beta$ = Beta coefficients (Intercepts for independent variables);

X_1 = Herfindahl- Hirschman Index,
 X_2 = Natural logarithm of size,
 X_3 = Liquidity ratio,
 X_4 = Capital adequacy ratio and
 ε = Error term.

The main measure of evidence of income diversification accounted for the difference in the net operating income breakdown into two groups: net interest earnings, NET, and non-interest earnings.

4. Data Analysis and Interpretation

4.1 Descriptive Statistics

The following Table 4.1 reports the descriptive statistics of the financial performance of the banks listed in Sierra Leone:

Table 4.1: Summary of Descriptive Statistics

	ROE	HHI	SIZE	LR	C_A_R
Mean	0.210625	0.401563	12.23438	0.359531	0.165397
Median	0.215000	0.425000	12.33500	0.340600	0.165000
Maximum	0.340000	0.500000	13.13000	0.502000	0.227000
Minimum	0.010000	0.220000	11.11000	0.283000	0.113000
Std. Dev.	0.063598	0.059844	0.527862	0.057000	0.024908
Skewness	-1.045644	-1.099113	-0.337766	1.027598	0.391045
Kurtosis	5.188225	3.975060	2.160368	3.197410	3.108976
Observations	32	32	32	32	32

As shown in Table 4.1, panel data was obtained from 11 listed banks over a five year time period totaling to 32 observations that was analyzed in the study. The average performance as measured by ROE was 0.210625 with a standard deviation of 0.063598. The mean of income diversification was 0.401563 and a standard deviation of 0.059844, while size had an average of 12.23438 and a standard deviation of 0.527862, the Liquidity ratio had a mean of 0.359531 and a standard deviation of 0.057000 and finally capital adequacy ratio had a mean of 0.165397 and a standard deviation of 0.024908.

4.2 Correlations

Table 4.2 expresses the outcome of correlation analysis on all the independent variables used in the study. This analysis was conducted to test how the independent variables were related to each other in order to ascertain the presence of multicollinearity.

Table 4.2: Correlation matrix

Correlation					
Probability	ROE	HHI	SIZE	LR	C_A_R
ROE	1.000000				

HHI	0.405465	1.000000			
	0.0213	-----			
SIZE	0.264747	0.457568	1.000000		
	0.1431	0.0085	-----		
LR	0.044044	-0.065980	-0.116876	1.000000	
	0.8108	0.7198	0.5241	-----	
C_A_R	0.227296	-0.074696	0.351344	0.068061	1.000000
	0.2109	0.6845	0.0486	0.7113	-----

The findings in Table 4.2 showed that diversification of income, bank size, liquidity ratio and capital adequacy ratio were highly correlated. This shows that there was evidence of multicollinearity among the independent variables where one predictor variable can be used to predict the other which justifies their inclusion into the regression model as they are without transformation would lead to spurious regression results. These were therefore transformed using the first differences before being entered into the regression equation for analysis.

4.3 Effect of income diversification on the financial performance of commercial banks

To evaluate the impact of diversification on the bank's financial performance, the Herfindahl Hirschman Index (HHI) was regressed against financial performance. Three control variables, namely; bank size, liquidity and capital adequacy were included.

Table 4.3: Regression Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HHI	-0.200522	0.193571	1.035908	0.3094
SIZE	0.023199	0.023795	0.974959	0.0000
LR	-0.117160	0.174624	0.670931	0.5080
C_A_R	1.024030	0.442797	2.312642	0.0286
C	-0.365214	0.244473	-1.493884	0.1468
R-squared	0.357495	Mean dependent var		0.210625
Adjusted R-squared	0.262309	S.D. dependent var		0.063598
S.E. of regression	0.054624	Akaike info criterion		-2.834086
F-statistic	3.755756	Durbin-Watson stat		0.943595
Prob(F-statistic)	0.014850			

Table 4.3 above indicates the regression coefficients for the regression of financial performance on HHI, size, capital adequacy and liquidity. The regression model had a constant of -0.737 while HHI, size, liquidity and capital adequacy had coefficients of -0.3652, 0.20052, -11716 and 1.02403 respectively. The resulting regression equation was:

$$Y = -0.365214 - 0.200522\text{HHI} + 0.023199\text{SIZE} - 0.117160\text{LR} + 1.024030\text{C.A.R}$$

HHI had a regression coefficient of -0.20052. This indicates that, diversification had a negative impact on financial performance which implies that the more diversification a commercial bank sought; the resulting financial performance would be lower. The coefficient of HHI had a significance probability of 0.3094; since the p-value is more than 0.05 then the effect of income diversification on financial performance was not statistically significant. Size had a coefficient of 0.023199 with a significance probability of 0.000. This result indicated that size had a positive correlation with financial performance and its effect was statistically significant as the p-value was less than 0.05. Liquidity had a coefficient of -0.117160. This indicates a negative impact on financial performance. Maintaining high liquidity ratios would result in declining financial performance. Liquidity ratio had a significance probability of 0.5080 and thus showing that its effect on financial performance was not statistically significant. Capital adequacy had a coefficient of 1.024030 with a significance probability of 0.028. Thus capital adequacy ratio had a positive impact on financial performance, maintaining higher capital adequacy ratios served to raise the bank's financial performance. It had a significance probability of 0.028, since the p-value is less than 0.05, then the effect of capital adequacy ratio on financial performance is statistically significant.

As reported in Table 4.3 the regression equation was found to have an adjusted coefficient of determination R^2 of 0.357. This indicates that income diversification, size, liquidity ratio and capital adequacy ratio jointly explained just 35.7% of the variation in the financial performance. The model therefore explains only 35.7% of the variation while the remaining variation is explained by other variables.

Table 4.4.2: Analysis of Variance

Model	Sum of square	df	Mean square	F	Sig.
Regression	.095	4	.024	5.720	0.0001
Residual	.209	50	.004		
Total	.304	54			

Table 4.4 indicates the results of analysis of variance. The F ratio for the regression was found to be 5.720 with a significance probability of 0.001. Since the p-value is less than 0.05 then the effect of income diversification, size, liquidity ratio and capital adequacy ratio on financial performance was statistically significant.

4.4 Discussion of Findings

The study investigated the effect of income diversification on the financial performance of listed commercial banks in Sierra Leone. Income diversification was the independent variable in the study. The findings showed that income diversification had a weak negative correlation with the financial performance of listed commercial banks in Sierra Leone. It implied that a high income diversification led to a low financial performance banks. This showed that focusing on income diversification was a costly affair for the

banks as it reduced their financial performance. This agrees with the results of Kiweu (2012). The study examined the effect bank's size on the financial performance of listed commercial banks in Sierra Leone. The bank's size was used as a control variable in the study. Findings indicated that bank's size had a strong positive correlation with the financial performance of listed banks. It implied that an increase in one unit of bank's size will lead to an increase of 0.073 units in financial performance. Therefore size had a positive influence on the financial performance of the listed banks. This agrees with the results of Goddard (2004).

The study also examined the effect of liquidity ratio on the financial performance of listed commercial banks in Sierra Leone. Liquidity was also used as a control variable in the model. Results showed that liquidity had a weak negative correlation with the financial performance of listed commercial banks. Therefore this implied an increase in one unit in liquidity led to a 0.106 unit decrease in the financial performance of listed banks. This suggested that financial performance is negatively influenced by liquidity. This result is inconsistent with the findings of Dang (2011).

The study also assessed the effect of the capital adequacy ratio on the financial performance of listed commercial banks. Capital adequacy was also used as a control variable in the model. The findings showed that capital adequacy had a strong positive effect on the financial performance of listed commercial banks. Therefore an increase in one unit of capital adequacy ratio will lead to an increase of 1.024030 units in financial performance. This implied that financial performance of listed commercial banks was positively influenced by the level of capital adequacy.

5. Summary, Conclusions and Recommendations

The study found that income diversification had a negative effect on the financial performance of commercial banks and its effect was statistically insignificant. It was found that, the impact of size on financial performance was positive and its effect was statistically significant. Liquidity had a negative impact on financial performance and its effect was not statistically significant. Further, capital adequacy ratio had a positive influence on financial performance and its effect on financial performance was statistically significant. The adjusted coefficient of determination R^2 was 0.357. Accordingly, income diversification, size, liquidity ratio and capital adequacy ratio explained 35.7% of the variation in financial performance of commercial bank while the other variation was explained by other factors. Analysis of variance showed that the F ratio for the regression was found to be 5.720 and had a significance probability of 0.001. This model was therefore good enough to explain how income diversification influences the performance of the listed banks in Sierra Leone.

The result of regression indicated that diversification of income had a weak negative impact on financial performance and thus the higher the banks its income then the lower its financial performance. Thus, the study concludes that income diversification has a weak influence on the financial performance of listed commercial banks in Sierra

Leone. Findings indicated that size had a strong positive correlation with financial performance and therefore an increase in size will increase the financial performance of the bank. Therefore, the study found that size had a strong positive correlation on the financial performance of listed commercial banks in Sierra Leone.

The study examined the impact of liquidity on the financial performance of listed commercial banks in Sierra Leone. The findings indicated that liquidity had a weak negative impact on financial performance and thus a higher liquidity ratio will lead to a lower financial performance of the bank. The study concluded that liquidity has a weak negative effect on the financial performance of listed commercial banks in Sierra Leone.

Results indicated that capital adequacy had a strong positive impact on financial performance and therefore a higher capital adequacy ratio will lead to higher financial performance of the bank. The study concluded that the capital adequacy ratio had a strong positive effect on the financial performance of listed banks in Sierra Leone. The adjusted coefficient of determination, R^2 , indicated that income diversification, size, liquidity ratio and capital adequacy ratio only explained 35.7% of the variation of financial performance while the remaining was explained by factors other than the named before.

This study proposes that banks should not commit resources to diversifying their income because diversification appears to affect their financial performance negatively. The study also recommends that the banks check on their liquidity ratios as the current ratios are negatively affecting financial performance. The size of the firm and capital adequacy ratio indicated that a higher rate in both helped commercial banks to perform much better financially and thus the study recommends banks to maintain or increase on those variables so as to perform better.

Further, the study recommends that Bank of Sierra Leone should offer an atmosphere where the commercial banks process is not hampered with. For example, BSL should ensure the steadiness of interest rates so as to encourage lending. Through enhanced lending, commercial banks are able to gain commissions and fees as they form a significant portion of banks' non-interest earnings.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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References

- Amihud, Y. and Lev, B. (1981). Risk reduction as a managerial motive for conglomerate mergers. *Bell Journal of Economics*, 12(1), 605–617.
- Baele L., De Jonghe O., and Vennet R.V., (2007). Does the Stock Market Value Bank Diversification? *Journal of Banking and Finance*, 31(7), 1999-2023.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Barney, J. (2002). *Gaining and Sustaining Competitive Advantage*. Second Edition, Prentice Hall.
- Barrett, C. B., Bellemare, M. F., Hou, J. Y. (2010). Reconsidering conventional explanations of the inverse productivity–size relationship. *World Development*, 38(1), 88-97.
- Barry, W., & Laurie, P. (2010). Bank risk and return: the impact of bank non-interest income. *International Journal of Managerial Finance*, 6(3), 220 – 244.
- Boot, A. & Schmeits, A. (2000). Market discipline and incentive problems in conglomerate firms with applications to banking. *Journal of Financial Intermediation*, 9, 240–273.
- Bush, R., Kick, T. (2009). Income diversification in the German banking industry, Discussion paper. Series 2: Banking and Financial Studies No 09/2009.
- Chi, J. (2004). Understanding the endogeneity between firm value and shareholders rights. *Financial Management*, 34, 465-476.
- Cool, K, Luis, A.C. & Dierickx, I. (2002). *Constructing Competitive Advantage*, in Pettigrew, Andrew, Thomas, Howard and Whittington, Richard (Eds), *Handbook of Strategy and Management*, Sage publications
- Doumplos M., Gaganis C., & Pasiouras F. (2013). Bank Diversification and Overall Financial Strength: International Evidence around the Crisis, Financial Engineering Laboratory: Technical University of Crete, Working paper No. 3.
- Ebrahim A., & Hasan I. (2008). The Value Relevance of Product Diversification in Commercial Banks, *Review of Accounting and Finance*, 7(1), 24-37, Emerald Group Publishing Limited.
- Edwin J. E. & Martin J. G. (1997). Modern portfolio theory, 1950 to date. *Journal of Banking & Finance*, 21, 1743-1759.
- Esho, N., Kofman, P., & Sharpe, I. (2005). Diversification, Fee Income and Credit Union Risk. *Journal of Financial Services Research*, 27(3), 259–281.
- Goddard, J., Mckillop, D., & Wilson, J. O. S. (2008a). The Diversification and Financial Performance of US Credit Unions. *Journal of Banking & Finance*, 32(2008), 1836–1849.
- Goddard, J., Mckillop, D., & Wilson, J.O.S. (2008b). What drives the performance of cooperative financial institutions? Evidence for US credit unions. *Applied Financial Economics*, 18(2008), 879–893.
- Gribbin, J. D., (1976). The Conglomerate Merger, *Applied Economics*, 8, 19-35.

- Gul, C., Joshua, D., Scalise, B. & Vennet R. V. (2011). Are Mergers Responsible for the Surge in New Bank Charters? Federal Reserve Bank of Kansas City, *Economic Review*, 21-41.
- Hall, B. H. (1987). The relationship between firm size and firm growth in the US manufacturing sector. *Journal of Industrial Economics*, 35(4), 583.
- Helen, S. & Keasey, K. (1999). Managerial ownership and the performance of firms: Evidence from the UK. *Journal of Corporate Finance*, 5, 79-101.
- Huang, L. W. & Chen, Y. K. (2006). Does Bank Performance Benefit from Non-traditional Activities? A Case of Non-interest Incomes in Taiwan Commercial Banks. *Asian Journal of Management and Humanity Sciences*, 1 (3), 359–378.
- Kamau, A. W. (2009). Efficiency in the Banking Sector: An Empirical Investigation of Commercial Banks in Kenya. Unpublished PhD Thesis: University of Nairobi.
- Kamp, A., Pfungsten, A. & Porath, D. (2005). Do banks diversify loan portfolios? A tentative answer based on individual bank loan portfolios. *Banking and Financial Studies*, 8(14),115-129.
- Kaplan, S. N. & Schoar, A (2005). Private equity performance: Returns, persistence and capital flows. *Journal of Finance*, 60 (4): 1791-1823.
- Khrawish, T. (2011). Efficient Banking under Interstate Branching. *Journal of Money Credit and Banking*, 28(4), 1043-1071.
- Kiberia F. M. (2012). The effects of income source diversification on financial performance of commercial banks in Kenya. Unpublished MBA Project: University of Nairobi.
- Kiweu, J. M. (2012). Income diversification in the banking sector & earnings volatility: Evidence from Kenyan commercial banks. Working paper, KBA Centre for Research on Financial Markets and Policy.
- Klein, P. & Saidenberg, M. (1998). Diversification, organization, and efficiency: Evidence from bank holding companies. Working paper, Federal Reserve Bank of New York.
- Koponen, T. M. (2003). Commodities in action: measuring embeddedness and imposing values. *The Sociological Review*, 50 (4), 543 – 569.
- Laeven L. & Levine R. (2007). Is there a Diversification Discount in Financial Conglomerates? *Journal of Financial Economics*, 85, 331-367.
- La Porta, R., Lopez-de-Silanes F., Shleifer A. & Vishny R. (2002). Investor protection and corporate valuation. *Journal of Finance*, 57, 1147-1170.
- Lepetit, L., Nys, E. C., Rous, P. & Tarazi, A. (2008). The expansion of services in European banking: Implications for loan pricing and interest margins. *Journal of Banking & Finance*, 32, 2325–2335.
- Lin, J. R., Chung, H., Hsiehming, H. & Wu, S. (2012). The determinants of interest margins and their effect on bank diversification evidence from Asian banks. *Journal of financial stability*, 8, 96-106.
- Markowitz, H. M. (1952). Portfolio Selection. *The Journal of Finance*, 7 (1), 77–91.
- Markowitz, H. M. (1959). *Portfolio Selection: Efficient Diversification of Investments*. New York: John Wiley & Sons.

- Maubi, A. M. & Jagongo, A. (2014). Corporate loan portfolio diversification and credit risk management among commercial banks in Kenya. *International Journal of Current Business and Social Sciences*, 1(2), 81-111.
- Mercieca, S., Schaeck, K., & Wolfe, S. (2007). Small European Banks: Benefits from Diversification? *Journal of Banking and Finance*, 31(7), 1975–1998.
- Montgomery, C. A. (1994). Corporate diversification. *Journal of Economic Perspectives*, 8(3), 163-178.
- Ongore, V. O. & Kusa, G. B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues*, 3 (1), 237-252.
- Otieno, O. A & Moronge, M. (2014). Influence of product diversification on the financial performance of selected commercial banks in Kenya. *European Journal of Business Management*, 1(11), 336-341.
- Palich L. E., Cardinal, L. B. & Miller, C. C. (2000). Curvilinearity in the Diversification Performance Linkage: An Examination of Over Three Decades of Research. *Strategic Management Journal*, 21, 155-174.
- Penrose E. G. (1959). *The Theory of the Growth of the Firm*. New York: Wiley
- Porter, M. E. (1980). *Competitive Strategy Techniques for Analyzing Industries and Competitors*. The Free Press: New York.
- Rauch, A., Wiklund, J., Lumpkin, G. T. & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761-787.
- Shawn, T. (2002). Firm diversification and asymmetric information: Evidence from analysts' forecast and earnings announcements. *Journal of Financial Economics*, 64, 373-396.
- Stiroh, K. J. & Rumble, A. (2006). The dark side of diversification: The case of USA financial Holding companies. *Journal of Banking and Finance*, 30(8), 2131-2432.
- Tabak B. M., Fazio D. M. & Cajueiro D. O. (2011). The Effects of Loan Portfolio Concentration on Brazilian Banks' Return and Risk, *Journal of Banking and Finance*, 35 (11), 3065-3076.
- Wernerfelt, B. (1984). A resource based view of the firm. *Strategic Management journal*, 5, 171-180.
- Wen W. (2010). *Ownership Structure and Banking Performance New Evidence in China*, Universitat Autònoma de Barcelona Departament D'economia de L'empresa.
- Yi, C. C. & Tzu, H. Y. (2005). The relationship between multinationality and the performance of Taiwan firms. *The Journal of American Academy of Business*, 6(1), 130-134.

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