

Risk-Taking Behavior and Trend Analysis of the Ethiopian Banking Sector: An Observation of Selected Banks

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Abstract:- After the occurrence of the 2008 financial crisis studying the risk-taking behavior of banks taking prior attention by researchers. The risk-taking behavior of commercial banks refers to the tendency of banks to assume high or low risk in their operating activity. understanding and managing bank risk-taking behavior is crucial for the stability of the banking sector and the broader economy. purpose of this study was to make a trend analysis of risk-related factors for the bank operating in Ethiopia. Additionally, the researcher assessed the risk-taking intention of selected banks between the years 2016-17 and 2020-21. The trend analysis showed that the risk-taking behavior of banks was not the same. It found that inconsistency results, in both the upward and downward conditions existed. The result also indicates that on average the bank stability of United Bank is higher than the remaining selected banks.

Keywords:- Risk-Taking, Trend Analysis, Bank Stability, Financial Crisis.

I. INTRODUCTION

Bank risk-taking behavior refers to the actions and decisions made by banks that expose them to various types of risks. These risks can include credit risk, market risk, operational risk, liquidity risk, and others. The level of risk a bank is willing to take is often influenced by factors such as the bank's governance structure, regulatory environment, competition, and the overall state of the economy. Banks engage in risk-taking behavior as part of their core business operations. For example, when a bank lends money to a borrower, it takes on credit risk - the risk that the borrower will default on the loan. Similarly, when a bank invests in financial markets, it takes on market risk - the risk of losses due to changes in market prices. However, excessive risk-taking can lead to financial instability and even bank failures, as was seen during the 2008 financial crisis. Therefore, understanding and managing bank risk-taking behavior is crucial for the stability of the banking sector and the broader economy. In the fields of finance and economics, one of the most important areas is the choices that financial institutions

make on the amount of risk that they are willing to take on. Several factors, including bank governance, regulation, competition, diversification, and performance, all have a role in influencing this behavior (Boamah et al., 2021). A profit frontier approach is discussed by García-Alcober et al. (2020) noted that less efficient banks tend to select their borrowers with a higher degree of risk, and the study also implies that higher interest rates do not compensate for this high level of risk management.

The 'risk-taking channel of monetary policy' in the context of monetary policy refers to how changes in policy rates affect perceptions of risk or tolerance for risk. Some studies examine how the risk-taking behavior of economic players including banks, households, and companies is influenced by monetary policy and macroprudential decisions (Triandhari et al., 2017). Ethiopia's financial sector has, over the past decade, been operating under a financial repression framework employed by the government for managing its monetary and exchange policy, and financing of huge infrastructure projects and state-owned enterprises (World Bank, 2019).

II. REVIEW OF LITERATURE

A. Bank Capital Ratio (Capital-Asset Ratio)

The bank capital ratio, or capital adequacy ratio (CAR) or capital ratio, measures a bank's financial health and stability. It represents the proportion of a bank's capital to its risk-weighted assets. The purpose of the capital ratio is to ensure that banks have an adequate buffer of capital to absorb potential losses and maintain financial stability. The capital ratio is a percentage calculated by dividing a bank's capital (numerator) by its risk-weighted assets (denominator). Better-capitalized banks experienced a smaller decline in their equity value during the crisis (Demirguc-Kunt et al., 2013). Louhichi & Boujelbene (2017) also evidenced that high-quality capital help significantly in providing banks with enough soundness and strength enabling them to effectively withstand financial crisis. Risk weighting discourages financial institutions from holding hazardous assets by charging more capital. Banks can raise the risk-weighted ratio without adding

capital by responding to risk-reducing incentives. Unresponsiveness would result in a low risk-weight ratio. Thus, assuming risk weights effectively reflect asset riskiness, the risk-weighted ratio should better distinguish hazardous from safe banks and predict bank collapse better than simple ratios (**Estrella et al., 2000**). **Gambacorta & Mistrulli (2004)** investigated the effect of capital on lending behavior, and the findings suggested that bank capital is a key balance sheet item that causes different types of uncertainty to be lending transactions. This is because there are regulatory capital limitations and flaws in the market for bank fundraising. The total capital ratio has a positive and statistically significant link with bank stability. Additionally, it has a negative relationship with bankruptcy risk, which suggests that capital plays an important part in the overall resilience of the bank. Further, there is a correlation between superior bank performance and banks that have a greater amount of capital (**Velliscig et al., 2023**).

B. Bank Loan Growth Rate

Rapid loan growth can be positive, indicating a strong economy and a healthy banking sector. The loan growth rate is a critical metric that reflects the expansion or contraction of a bank's loan portfolio over a specified period. Excessive or poorly managed loan growth can pose risks if it leads to a deterioration in the quality of loans and increased credit risk. The faster loan growth have a positive contribution for the enhancement of asset valuations (**Niu, 2016**).

Foos et al. (2010) confirmed that the presence of correlation between the growth of loans and an increase in loan loss provisions during the succeeding three years, as well as a decline in relative interest income and a reduction in capital utilization ratios. Following further analysis, it has been determined that the growth of loans also has a detrimental effect on the risk-adjusted interest income. The loan duration is a crucial element for managing loan risks in a bank loan arrangement. The rapid growth of medium- and long-term loans, along with the increasing proportion of these loans compared to total loans, will highlight the challenge of aligning the maturity structure of assets and liabilities for financial institutions. This will lead to heightened liquidity risk and interest rate risk (**Du, 2011**).

Chavan & Gambacorta (2019) studied bank lending and loan quality for an emerging economy perspective and indicated that in the long run, increase in loan growth is associated with an increase in non-performing loan ratios. **Fenech et al. (2014)** credit growth continues to expand in the Chinese banking industry, which is a positive development that does not compromise the country's financial stability. It is true that the banking sector has not been damaged by the persistent rapid expansion; nonetheless, it takes time for loans to mature, and it is possible that non-performing loans will become obvious over time.

C. Loan -to- Deposit Ratio

The Loan to Deposit Ratio is one of the ratios that is utilized in the process of determining liquidity (**Syaputra & Winarso, 2021**). A high ratio indicates a bank with more loans than deposits. This suggests aggressive lending, but it also raises questions about the bank's liquidity and ability to repay loans. With a higher loan-to-deposit ratio banks may need to borrow or raise capital to meet credit demand. A lower ratio means the bank has more deposits than loans. This shows a conservative lending attitude, but it may also mean the bank is not using its funds for revenue-generating loans. With a low loan-to-deposit ratio, liquidity is usually safer. The macroprudential authority would desire to exert some influence over the cycle of the loan to deposit ratio to prevent it from reaching an unsustainable level, which would cause the system to enter a state of equilibrium that is unfavorable (**Van den End, 2016**). It is impossible to separate the primary function of banking from the process of distributing monies to the general population, which is referred to as loan to deposit. Banks that can effectively disperse their capital have the potential to produce higher levels of profit. The higher the Loan to Deposit Ratio, the greater the profits that a bank will be able to acquire because of this ratio (**Steven & Toni, 2020**). Micro-prudential concerns use Loan-to-Deposit Ratio to measure bank liquidity. Third-party deposits are short-term and can be withdrawn whenever depositors wish, while loans are long-term and require a specified repayment period. Banks risk deposit withdrawal obligations by lending more for third-party deposits (**Satria et al., 2016**).

D. Human Capital Efficiency

Human Capital Management involves recruiting, training, managing, and keeping personnel to help the company run smoothly. Organizations can improve performance and competitiveness by recognizing and optimizing human capital. Human resource potential grows with HCM. HCM views employees as riches and future investments that generate revenue (**Kucharčíková et al., 2015**). One of the most important aspects to consider when determining the financial health of a company is the efficiency of its human capital. A company's performance is greatly impacted because of this. It is essential for any business operating in a knowledge-based economy to ensure that they are making effective use of their resources, particularly their intellectual resources. Unfortunately, because intellectual resources are intangible and, for the most part, invisible, it is impossible to measure and manage them (**Veselinović et al., 2021**). Investing in human capital has the potential to improve energy efficiency in developing countries. In addition, research is being conducted to determine the effectiveness of human capital in the process of value creation for organizations, as well as the primary elements that can lead to improvements in human capital efficiency (**Edziah et al., 2021**). **Ghosh & Maji (2014)** was discovered that the factor of intellectual capital and human capital efficiency had a more significant impact on the credit risk of public sector banks than it did on private sector banks.

Nguyen et al.(2021), discovered that the efficiency of human capital, the efficiency of capital used, and the efficiency of structural capital all had a substantial influence on the behavior's associated with risk-taking.

Human capital efficiency is a bank's workforce's capacity to add value and improve performance. Human capital is an organization's employees' skills, knowledge, experience, and talents. Human capital efficiency in a bank refers to how successfully the workforce is used to meet goals, maximize profits, and provide quality services. Assessing and managing human capital risks like succession planning is crucial. Effective human resource management includes hiring qualified candidates for important roles and planning for workforce disruptions. Bank human capital efficiency is measured by employee performance, contentment, and contribution to the organization's goals. This holistic approach includes quantitative and qualitative aspects of banking personnel management.

E. Income Diversification

Bank income diversification is increasing revenue from several sources rather than only lending and capital mobilization. This method is becoming more relevant due to severe rivalry among domestic and foreign banks (**Nguyen et al., 2023**). **Meslier et al.(2014)** studied whether bank income diversification is beneficial or not in an emerging economy and they indicated that contrary to research on Western countries, a move towards non-interest activities boosts bank earnings and risk-adjusted profitability, especially when banks are heavily engaged in trading government assets. They also suggested that international banks gain more advantages from this change compared to domestic banks. **Alhassan (2015)** suggested large banks that are efficient can enhance their efficiency gains by diversifying into non-interest activities. The Dynamics of Income Diversification and Bank Performance in India was researched by **Vidyarthi (2020)**, and the results showed that income diversification had a positive and statistically significant impact on bank performance (computed efficiency metrics as well as ROA and ROE) for the banks that were studied during the period of the study. According to the **Sharma & Anand (2018)**, there is a favorable correlation between diversification and performance, which is evaluated in terms of bank risk and returns for organizations that are of medium and big size. When it comes to smaller banks, however, this link is a negative one.

III. RESEARCH OBJECTIVES

The researchers set the following specific objectives which will be addressed after using appropriate research methodology.

- Examined the trend analysis of bank-specific factors related to bank risk for selected Ethiopian commercial banks.
- Study the risk-taking behavior of selected commercial banks in the Ethiopian banking sector.

IV. RESEARCH METHOD AND MATERIALS

The target population of this study comprises of all the banks which have been issued license by the National Bank of Ethiopia. It consists of commercial banks operating in Ethiopia, both public and private owned banks. As on January 31, 2021, there were 16 commercial banks operating in Ethiopia. The researchers purposively selected seven commercial banks based on the year of establishment. Sampled banks includes Commercial Bank of Ethiopia (CBE), Awash International Bank (AIB), Dashen bank (DB), Bank of Abyssinia (BOA), Wegagen Bank (WB), United Bank (UB), and Nib International Bank (NIB). Secondary data collected from annual reports of commercial banks and the National Bank of Ethiopia from period covered between 2016-17 and 2020-21. Additionally, the researchers used Various published sources such as regulations, proclamations, and directives will also be used as a source of data for assessing the risk-taking behavior of selected banks. For the sake of data analysis, the researchers used trend data analysis.

V. RESEARCH DISCUSSION AND ANALYSIS

A. Bank Capital Ratio (Capital-Asset Ratio)

The bank capital ratio of Wegagen Bank was highest in 2017 at 16.01%. There was a decrease in the ratio from 2017 to 2018, and it reached its lowest point in 2020 at 13.38%. The ratio increased slightly in 2019 before decreasing again in 2020. There was a recovery in 2021 with the ratio increasing to 14.086%. From the data, we can observe the following trends about Commercial Bank of Ethiopia: The bank capital ratio was highest in 2017 at 9.09%. There was a consistent decrease in the ratio from 2017 to 2020, with the lowest point being 5.43% in 2020. The ratio increased in 2021 to 7.17%, showing a recovery from the previous year.

Wegagen Bank maintained the highest average ratio throughout the period at **14.08%**, reinforcing its strong capital position. On the other hand, the **Commercial Bank of Ethiopia** recorded the lowest bank capital ratio of **9.09%** in the same year. This could potentially indicate a higher risk

profile compared to Wegagen Bank. The Commercial Bank of Ethiopia also reported the lowest average ratio of **7.17%** during the given period.

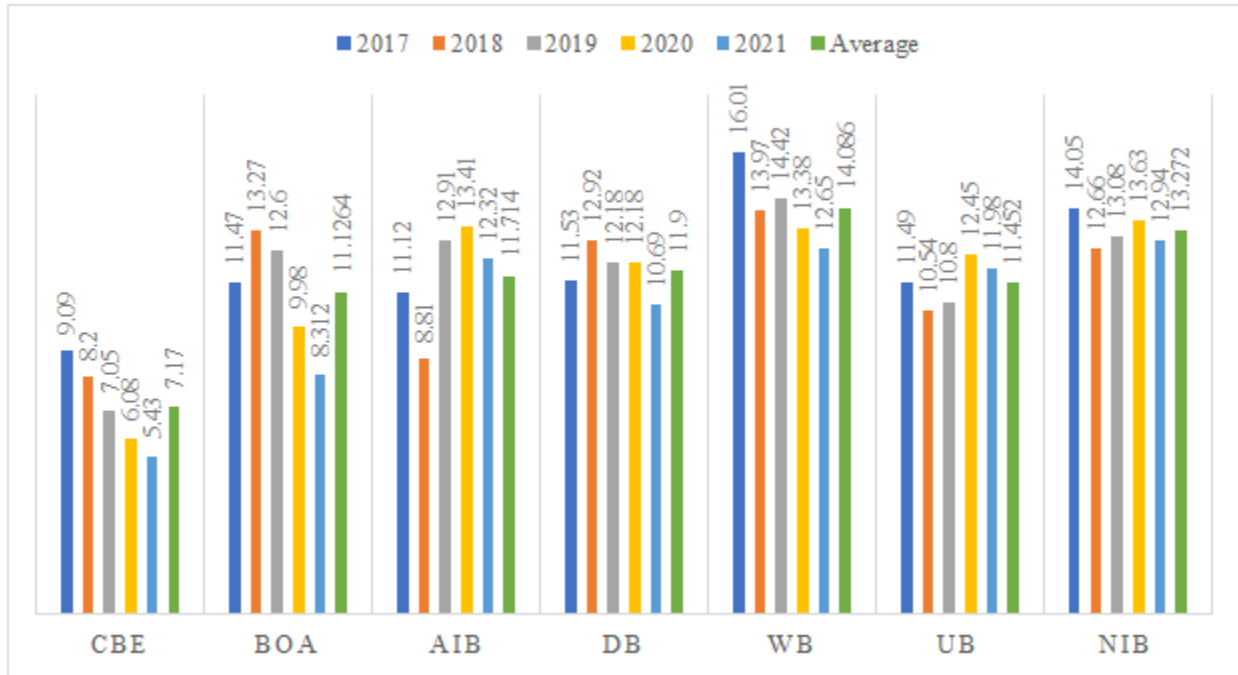


Fig 1: Bank Capital To Asset Ratio
Source: Banks’ annual report, 2024

Nib International Bank recorded the next highest bank capital ratio after Wegagen Bank at **13.272%**. This suggests that while Nib International Bank’s capital base was not as strong as Wegagen Bank’s, it was still relatively robust compared to other banks.

B. Bank Loan Growth Rate

Nib International Bank had the highest loan growth rate in 2017 and 2019 at 0.42. There was a decrease in the rate from 2017 to 2018, reaching its lowest point in 2018 at 0.26.

The rate increased again in 2019 to match the 2017 rate, before decreasing in 2020 and 2021. The loan growth rate for the Commercial Bank of Ethiopia was lowest in 2017 at 0.09. There was an increase in the rate from 2017 to 2018, followed by a slight decrease in 2019. The rate has been increasing consistently from 2019 to 2021, with the highest rate being 0.16 in 2021.

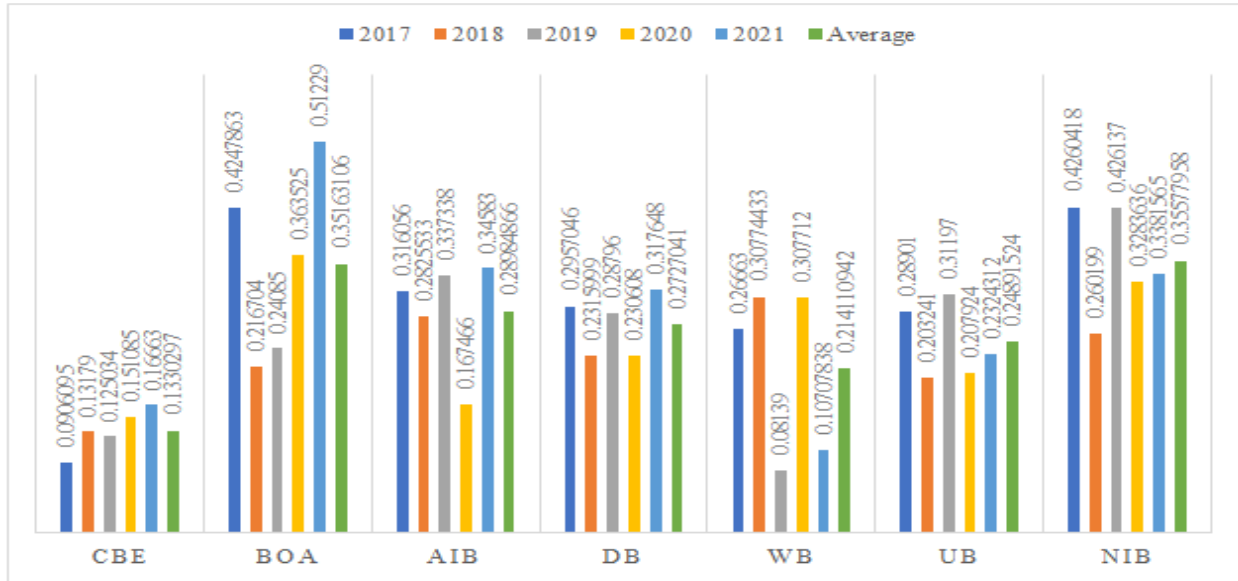


Fig 2: Loan Growth Rate
Source: Banks’ annual report, 2024

Nib International Bank has the highest average loan growth rate at **0.3557**. This suggests that the bank has been expanding its loan portfolio at the fastest pace among the compared banks. **Bank of Abyssinia** follows closely behind with an average loan growth rate of **0.35516**, which is only slightly lower than that of Nib International Bank. **Wegagen Bank** has the next lowest loan growth rate at **0.272**, indicating a slower pace of loan portfolio expansion compared to the first two banks. The **Commercial Bank of Ethiopia** recorded the lowest loan growth rate at **0.133**, which is significantly lower than the other banks. This could suggest a more conservative lending strategy or a smaller market share in the loan market.

C. Loan -to- Deposit Ratio

The loan to deposit ratio of United bank for the years 2017, 2018, 2019, 2020, and 2021 was 72.68,64.43,83.26, 88.81, and 88.86 percent respectively. Apart from a dip in 2018, United Bank’s LDR has been on an upward trend from 2017 to 2021. The loan to deposit ratio for Nib International Bank for the years 2017, 2018, 2019, 2020 and 2021 was 65.25, 62.44, 69.59, 75.99 and 78.59 percent respectively. Apart from a slight dip in 2018, United Bank’s loan to deposit ratio has been on an upward trend from 2017 to 2021.

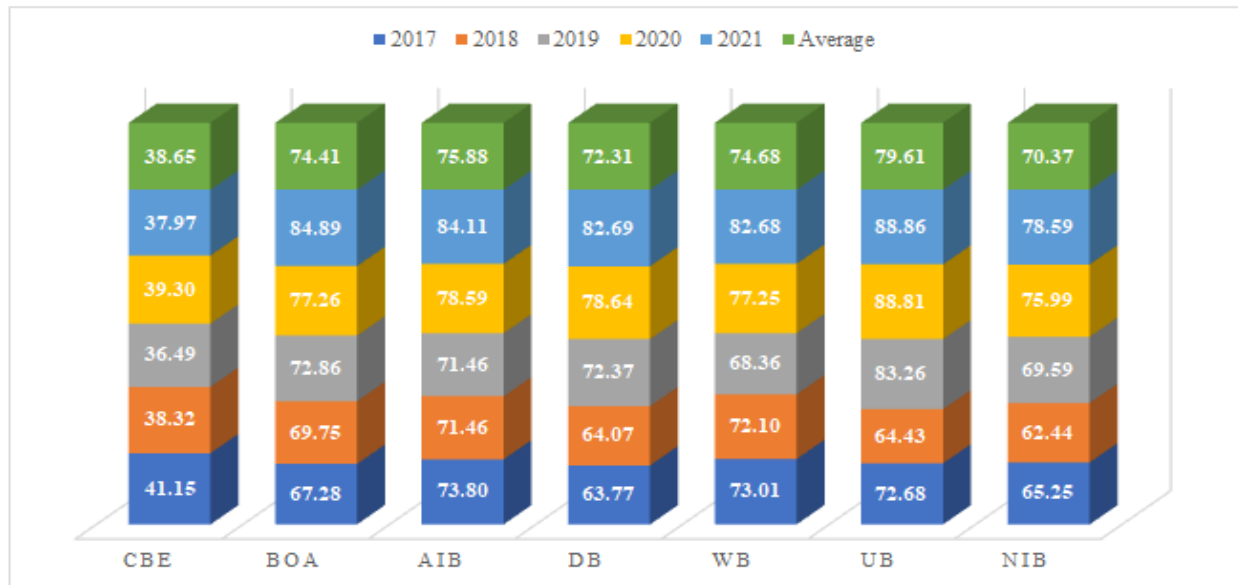


Fig 3: Loan To Deposit Ratio
Source: Banks’ annual report, 2024

From 2017 to 2021, among the sampled banks, **United Bank** had the highest average loan to deposit ratio at **79.61%**. This suggests that United Bank had a higher proportion of its deposits lent out, indicating an aggressive growth strategy. However, it also implies a higher risk as the bank might face liquidity problems if too many loans default at once or if many depositors ask for their deposits back simultaneously. **Awash International Bank** had the next highest loan to deposit ratio at **75.88%**, which is slightly lower than United Bank but still indicates a relatively high level of loans compared to deposits. **Commercial Bank of Ethiopia** had the lowest ratio at **38.65%**. This suggests that the bank is either conservative in lending or has many deposits. This could be seen as a positive sign of financial stability, but it might also indicate missed opportunities to earn interest income from loans. **Nib International Bank** reported the next lowest ratio at **70.37%**, which is significantly higher than that of Commercial Bank of Ethiopia, but lower than both United Bank and Awash International Bank.

D. Human Capital Efficiency

Among the sampled banks, Awash international bank has the highest average human capital efficiency of 2.65. following to AIB, Commercial Bank of Ethiopia record the next highest average human capital efficiency of 2.52. The Bank of Abyssinia reports the lowest average human capital efficiency of 1.85.

Human Capital Efficiency (HCE) is a measure of how effectively a company uses the skills and abilities of its employees. It's calculated by dividing the company's revenue by its total employee costs. A higher HCE indicates that a company is more efficient at generating revenue from its employees. **Awash International Bank** has the highest average HCE at **2.65**. This suggests that AIB is most efficient at generating revenue from its employees among the sampled banks. **Commercial Bank of Ethiopia** has the next highest average HCE at **2.52**, which is slightly lower than AIB but still indicates a high level of efficiency in utilizing its human capital. **The Bank of Abyssinia** reports the lowest average HCE at **1.85**. This suggests that Bank of Abyssinia is less efficient at generating revenue from its employees compared to the other banks in the sample.

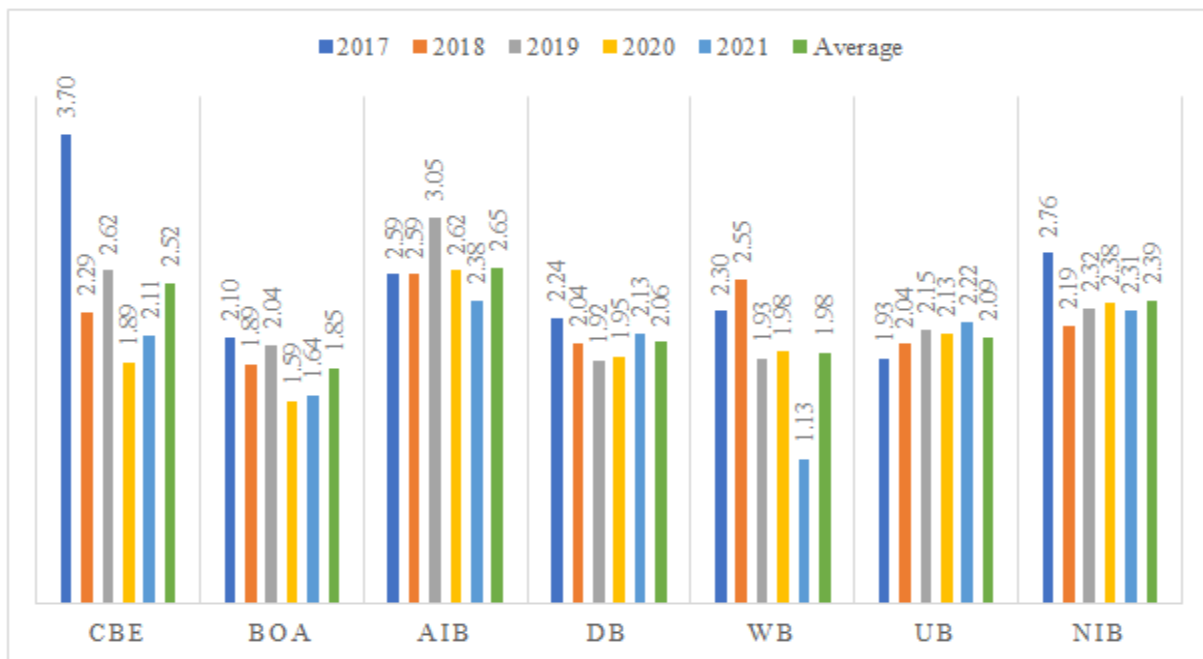


Fig 4: Human Capital Efficiency
Source: Banks' annual report, 2024

E. Income Diversification

Banks might diversify their income to make money from other sources. It entails adding non-traditional or supplementary income sources to a bank's goods and services. This method reduces dependency on a single revenue source, usually loan interest income, and spreads risk across company lines. Banks can control risk by diversifying their income during economic downturns and market shifts. Multiple

revenue streams and other alternatives may help banks overcome issues in one area. Diversified activities must be managed and monitored to meet the bank's risk appetite and regulatory requirements. Banks must also balance income diversification with risk management. The following graph shows the income diversification coefficient for five sampled banks in Ethiopian from 2016-17 to 2020-21. Wegagen bank scores the highest average income diversification coefficient,

which is 0.46. Following Wegagen Bank, Awash International Bank recorded the next highest coefficient of 0.45. the lowest

average coefficient recorded by Nib international bank, which is 0.32.

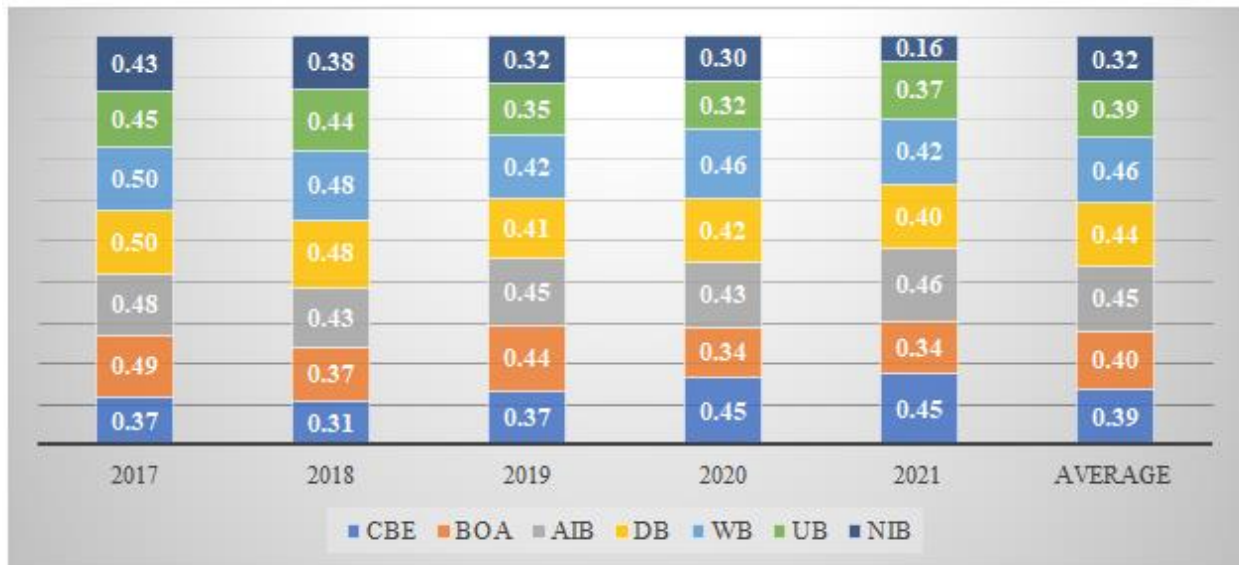


Fig 5: Income diversification coefficient
Source: Banks’ annual report, 2024

The income diversification coefficient is a measure of how diversified a bank’s income sources are. A higher coefficient indicates a more diversified income stream, which can be beneficial for the bank’s financial stability as it is less reliant on a single source of income. In this case, **Wegagen Bank** has the highest average income diversification coefficient at **0.46**. This suggests that Wegagen Bank has a more diversified income stream compared to the other banks mentioned. **Awash International Bank** follows closely with a coefficient of **0.45**, indicating that its income sources are also quite diversified, albeit slightly less so than Wegagen Bank. On the other hand, **Nib International Bank** has the lowest average coefficient at **0.32**, suggesting that its income sources are less diversified compared to Wegagen Bank and Awash International Bank. This could potentially make Nib International Bank more vulnerable to fluctuations in its main income source.

F. Risk Taking Behavior of Commercial Banks

Z score is a popular indicator of individual bank risk taking and on average, Z-score can predict 76% of bank failure (**Chiaramonte et al., 2016**). Compared to other accounting-based risk measures, the z-score measure is a more comprehensive measure of bank risk, as the z-score measure takes account of bank capital levels and return variation (**Hafeez et al., 2022**). The Z-score is inversely related to the probability of banks’ insolvencies. Banks become insolvent if their assets value drops below their debt value. A higher Z-score implies a lower insolvency risk for banks. The Z score calculated using return on assets, equity to total asset ratio, and standard deviation of return on assets.

United Bank has the highest average Z-score of **124.57**, it appears to be the most stable among the sampled banks. This high Z-score suggests that the United Bank is less likely to face insolvency, as it is several standard deviations above the mean. **Awash International Bank** records the next highest with an average Z-score of **98.299**, the Bank also shows relatively high stability. While it is lower than United Bank, it is still significantly above the mean, indicating a lower risk of insolvency. **Commercial Bank of Ethiopia** reports the lowest average Z-score of **14.65**, the Commercial Bank of Ethiopia is potentially at a higher risk of insolvency compared to the other two banks. This low Z-score suggests that the bank’s value is closer to the mean, indicating a higher risk.

The Z score of commercial banks of Ethiopia for the years 2017, 2018, 2019, 2020, and 2021 was 1.219,9.035, 14.616,20.984, and 27.425 respectively. The Commercial Bank of Ethiopia’s Z-score has been on a consistent upward trend from 2017 to 2021. This suggests that the bank’s risk of insolvency has been decreasing over these years, indicating an improvement in its financial stability. Unlike to Commercial Bank of Ethiopia, the Bank of Abyssinia’s Z-score has been on a downward trend from 2017 to 2020, suggesting an increasing risk of insolvency over these years. However, there was a slight improvement in 2021. This indicates a potential turnaround in the bank’s financial stability, but it’s still significantly lower than the 2017 level. For the year 2017, Awash International Bank records the highest Z score of 241.1. The Z score of Awash International Bank for the year 2018, 2019, 2020, and 2021 respectively. After reaching a peak in 2017, Awash International Bank’s Z-score has been on a downward

trend. This suggests that the bank’s risk of insolvency might have increased over these years. All other banks showed the

inconsistency movement of risk-taking behavior measured by Z score.

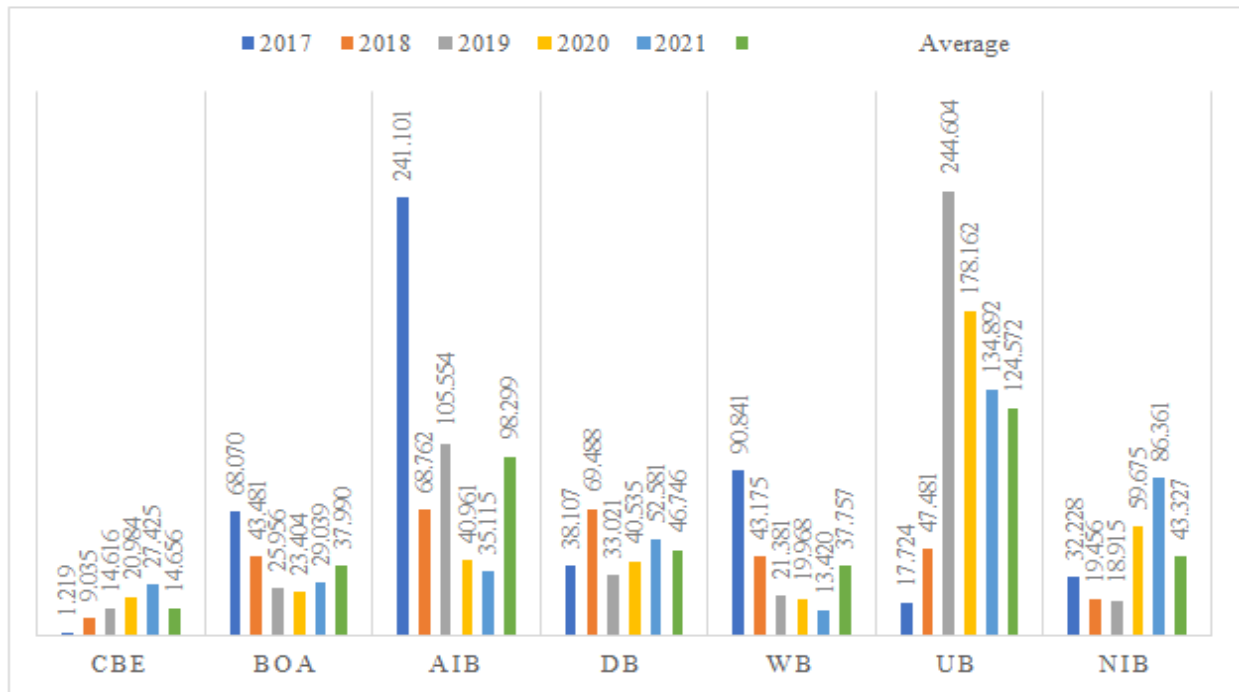


Fig 6: Z Score of Banks
Source: Banks’ annual report, 2024

VI. RESEARCH CONCLUSION

After making brief discussion by graph and trend analysis, the researchers make the following conclusion and possible implication. The fluctuation in the bank capital ratio could be due to various factors such as changes in the bank’s capital structure, profitability, risk profile, or regulatory requirements. Please note that a higher bank capital ratio isn’t always better. It depends on the bank’s strategy, market conditions, and regulatory environment. Banks with higher capital ratios are generally considered more stable and less risky for investors and depositors.

This fluctuation in the loan growth rate could be due to various factors such as changes in the bank’s lending strategy, market conditions, or regulatory requirements. It’s important to note that a higher loan growth rate is not necessarily better, as it could also indicate higher risk if the loans are not repaid. The upward trend of loan to deposit ratio from 2017 to 2021 suggests that the bank is becoming more aggressive in its lending practices, or that it’s experiencing growth in its loan portfolio. However, a consistently increasing loan to deposit ratio might also indicate potential liquidity risks, which the bank should manage carefully. It’s important to note that while income diversification can contribute to financial stability, it’s just one aspect of a bank’s overall financial health. Other factors such as the bank’s capital adequacy, asset quality, and management efficiency also play crucial roles. It’s also

important to note that while the Z-score can provide an indication of a bank’s risk of insolvency, it is not the only measure. Other factors such as the bank’s assets, liabilities, income, and the overall economic environment also play a crucial role.

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