Analyzing the Risk-Return Tradeoff in Commercial Banks' Common Stock: A Case Study of Nepalese Banks

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**ABSTRACT**
This study investigates the risk-return tradeoff in the common stock of Nepalese commercial banks over a five-year period from 2018/19 to 2022/23. By analyzing financial data from four prominent banks listed on the Nepal Stock Exchange (NEPSE) i.e. Global IME Bank Limited (GBIME), Nepal Investment Mega Bank (NIMB), Nabil Bank Limited (NABIL), and Kumari Bank Limited (KBL). The study depends on the closing prices of these four commercial banks, which were generously provided through the NEPSE Index and annual general meeting (AGM) reports of each respective bank. The research aims to provide a comprehensive understanding of their risk profiles and expected returns using the Capital Asset Pricing Model (CAPM). The study employs descriptive statistics like mean, standard deviation, coefficient of variation, and maximum/minimum returns. The findings reveal significant variations in performance and risk levels; GBIME and KBL show positive average returns with high volatility, whereas NIMB and NABIL exhibit negative average returns, indicating losses. GBIME’s stock is slightly less volatile than the market, while NIMB’s low beta suggests it is suitable for conservative investors. NABIL’s and KBL’s higher betas indicate more volatility, appealing to high-risk tolerant investors. The study underscores the importance of portfolio diversification and continuous monitoring of market conditions for informed investment decisions. These insights are valuable for investors, financial regulators, and policymakers in developing effective risk management strategies and enhancing financial stability in Nepal’s banking sector.

**KEYWORDS**
Average rate of return, Banks, CAPM, Coefficient of variation, Common stock, Required rate of return, Standard deviation

1. INTRODUCTION
For investors, especially those interested in the common stock of commercial banks, the Nepalese stock market presents a unique environment. Making wise investing decisions requires an understanding of the risk-return trade-off in this situation. This article seeks to shed light on the variables influencing investment results by examining the complex relationship between risk and return in Nepalese commercial bank equities. The banking industry in Nepal is the backbone of
the country's financial system and is essential to its growth economically. Investing in bank equities, however, entails managing several risks, including as interest rate fluctuations, economic volatility, credit and liquidity issues, and regulatory changes enforced by the Nepal Rastra Bank (NRB). While economic volatility can have an influence on stock prices and market confidence, regulatory changes can also have an impact on bank operations and profitability. Furthermore, a bank's financial health can be impacted by credit risks such as loan defaults and liquidity issues, which can thus have an impact on investor returns. Changes in interest rates affect banks' net interest margins and overall profitability, adding to the complexity. Despite these risks, investing in Nepalese commercial bank stocks can yield attractive returns. Many banks consistently pay dividends, offering investors a steady income. Additionally, as these banks expand and the economy develops, there is significant potential for capital gains. The evolving financial sector in Nepal presents numerous opportunities for substantial growth and profitability, making these stocks a compelling investment option.

According to modern banking theory, it's acknowledged that risk is inherent in banking activities. Banks make deliberate choices about the amount of risk they're willing to assume, expecting higher returns with increased risk. Yet, taking too much risk can result in significant losses. Hence, the primary goals of bank risk management can be divided into two: first, ensuring that the level of risk matches the bank's ability to handle losses during severe adverse circumstances, and second, ensuring that the bank generates satisfactory profits relative to the risks it takes on. To uphold financial stability within the banking sector, regulatory authorities mandate that banks maintain adequate capital reserves to offset unexpected losses, utilizing the Basel Capital Accords as a standardized guideline for capital distribution. Although considerable research has delved into capital requirements and sufficiency, there has been comparatively less attention given to banks' effectiveness in generating profits in proportion to the risks they assume. The return on equity of commercial banks is favorably impacted by risk diversification, Basel compliance, credit monitoring, and credit appraisal techniques, as indicated by the regression model's beta coefficient of risk management strategies (Akani & Ezebunwa, 2021). Navas et al. (2020) mentioned that one essential component of the banking sector is taking risks. Banks carefully consider the risks they incur because they believe that more risk will result in higher profits.

Agworn and Akani (2020) analyzed various Nigerian banks from 2004 to 2008, revealing a notable connection between the credit risk management of these institutions and their performance. Banks carefully weigh the risks and possible profits before deciding which loans or investments to make. Determining the profitability of the bank's operations depends heavily on this risk vs possible return analysis (Marrison & Christopper, 2002). Whitelaw (1994) and Ludvigson and Ng (2007) propose that the interplay between risk and return is influenced by specific macroeconomic variables. Meanwhile, Liu (2017) highlights that this relationship tends to synchronize with the business cycle, fluctuating accordingly. According to Jia and Yang (2017), the trade-off between risk and return is related to the degree of disagreement among market players. They note that an increase in disagreement is associated with a positive connection when it results from variations in whether buyers or sellers begin deals, whereas a decrease in disagreement relates to the reverse.

Some research studies, however, assert that risk and return are positively correlated. For example, Frazier and Liu (2016) used a copula technique and find evidence of a positive risk-return trade-off across four global stock market indexes, principally driven by market skewness and timeliness. According to Christensen et al. (2015), there is a noticeable positive relationship between risk and return in the US, although it is most pronounced during times of crisis. Although risk and return
often have a positive relationship, Kinnunen (2014) argued that this relationship might vary based on how unpredictable the circumstances are. In essence, there is less correlation between risk and return when conditions are less erratic. Wong and Tan (2006) stated that return and systematic risk do not exhibit a clear-cut non-linear association.

1.1 SPECIFIC OBJECTIVES

- To assess the historical risk profile of Nepalese commercial banks’ common stock over a specified period.
- To examine the relationship between risk and return in the context of Nepalese banks’ common stock.

1.2 SIGNIFICANCE OF THE STUDY

The research has importance as it might offer insightful information on the risk-return dynamics of common stock of commercial banks in Nepal, an area that has not received much attention in scholarly works. This study can provide useful implications for investors, financial regulators, and policymakers by thoroughly analyzing the risk-return tradeoff in common stock of Nepalese banks. While regulators may utilize the information to put into place efficient risk management procedures and guarantee financial stability, investors can benefit from knowing the risk-return profile of common stock held by Nepalese banks. The study’s emphasis on Nepalese banks also helps close the knowledge gap regarding empirical research on developing market countries, which enhances the body of knowledge about financial risk management and investment decision-making.

1.3 LITERATURE REVIEW

The literature frequently employs two empirical methods to look into the relationship between risk and return; both methods are congruent with the asset pricing models that were previously mentioned, the static (CAPM) and time-varying (ICAPM). The first approach, closely related to this study, primarily concentrates on index-level data and makes use of the ICAPM model. The link and interaction between conditional variance and conditional mean are investigated in the study using advanced econometric techniques. Conversely, the second approach, which is based on the CAPM, examines particular stock price data and often examines the variance in returns across portfolios with varying levels of volatility (Fifielda, McMillanb, & McMillana, 2020).

For the first strategy, a recent study by Jankular (2024) investigated the risk-return trade-off in Czech banks from 2002 to 2022, finding a significant negative correlation between regulatory risk and risk-adjusted returns. This suggests the risk-return trade-off is not applicable. The link between risk and return is important to investors. While lower returns are usually associated with lesser risk, bigger returns are usually associated with higher risk. Asthana & Ahmed (2023) looked at the link between risk and return for a few sectoral indices in the S&P BSE 500 Index of the Bombay Stock Exchange. The results show no discernible difference between market returns and the monthly returns of the indices, and a modest negative association where larger returns are linked to reduced risk. Badshah et al. (2016) used data from the S&P 500 from September 2003 to December 2011 to examine the intra-day return-volatility relationship over a range of return horizons, including 1, 5, 10, 15, 60 minutes, and one day. They did this by applying a quantile regression technique. They found a strong inverse link between return and risk. They also found an asymmetric connection, in which the effects of positive and negative returns on volatility are different, with the effects being more prominent in the tails of the conditional distribution of volatility changes and for negative returns. However, they also suggested that this asymmetry tends to decrease at the daily return horizon. The discovery of a negative correlation between risk and return is further corroborated by Aslanidis et al. (2016), who utilized a
Markov-switching methodology to investigate 13 European stock markets spanning from 1986 to 2012. On the other hand, several studies assert that risk and return are positively correlated. Lobo and Bhatta (2021) explored the risk-return characteristics of securities in the Indian financial services industry, which is essential for economic growth. It examined the monthly returns of a subset of Standard & Poor's BSE Finance Index businesses from January 2020 to July 2021 using statistical methodologies. The results showed that among the businesses, India Infoline Finance Ltd. is a top performer with notable variations in returns. The study emphasized how crucial it is for prospective investors in the industry to have a well-informed investing strategy. Frazier and Liu (2016) for example, use a copula technique and find evidence of a positive risk-return trade-off depending on market timing and skewness across four global stock market indexes. Chang (2016) discovered evidence in a more recent study that supports a positive association between risk and return, with the strength of this relationship varying according to the state of the stock market. Interestingly, the association seems to be stronger in bad markets than in bull ones. Several traditional financial theories on asset pricing and returns factor in risk premiums or related risks. These theories consistently indicate that higher risk levels correlate with higher expected returns (Wang, Yan, & Yu, 2016).

The study conducted by Bora and Adhikary (2015) examined the relationship between stock returns and market returns within the selected enterprises under examination. Their findings confirmed that market returns and securities returns have a positive association. This suggests that stock returns for the selected companies frequently increase in tandem with market returns and vice versa. These insights are crucial for understanding the nuances of stock market performance for analysts and investors seeking to make well-informed investment decisions. According to Bollerslev et al. (2013), a positive relationship between risk and return can be shown when fractional integration models that can capture longer-term information are used. Similarly, Bali et al. (2009) also found strong evidence for a positive relationship between return and downside risk in an American stock portfolio.

1.4 THEORETICAL MODEL
1.4.1 CAPITAL ASSETS PRICING MODEL

The Capital Asset Pricing Model (CAPM) explains how the risk level of a stock is linked to its potential return. It shows that higher risk is associated with higher expected returns, helping investors understand the trade-off between risk and reward (Putra, Soehaditama, Hernawan, Yulihapsari, & Sova, 2023). A risk indicator that is consistent with portfolio theory is provided by the CAPM. This methodology evaluates a portfolio's unequal risk and contrasts it with the well-diversified portfolio's diversified risk (Bai & Green, 2020). The CAPM model builds on Markowitz's portfolio theory and introduces the concepts of systematic risk and unsystematic risk. In 1990, William Sharpe was awarded the Nobel Prize in Economics for his work on the pricing of financial assets, which led to the development of the Capital Asset Pricing Model (CAPM) (Altay & Calgic, 2019). In investment practices and firms, the systematic risk (beta) of stocks can be estimated using various asset pricing models (Bertomeu & Cheynel, 2016).

2. METHODOLOGY
2.1 DATA COLLECTION

This study delves into the analysis of financial data, specifically focusing on the performance of four prominent commercial banks listed on the Nepal Stock Exchange (NEPSE) index. The dataset utilized in this research spans a considerable timeframe, ranging from the fiscal year 2018/19 to 2022/23. To gather the essential data, the study depended on the closing prices of these four commercial banks, which were generously provided through the NEPSE Index and annual general meeting (AGM) reports of each respective bank. The selection criteria for these specific banks
were twofold. Firstly, they were chosen based on their substantial paid-up capital, which is among the highest within the pool of nineteen commercial banks in Nepal. Secondly, these banks demonstrated a consistent and sustained presence in trading activities on the NEPSE throughout the entire sample period.

### 2.2 DESCRIPTIVE STATISTICS

Descriptive statistics provide key insights into the performance and risk of financial data. The mean (average rate of return) gives an idea of typical performance, while standard deviation measures volatility, indicating investment risk. Coefficient of variation (CV) compares risk to return, and maximum/minimum returns show performance range. These stats offer a clear view of Nepalese commercial banks' stock history, aiding decision-making for investors and stakeholders.

**Capital Asset Pricing Model (CAPM)**

\[
E(R_i) = R_f + (R_m - R_f) \beta_i
\]

\(E(R_i)\) is the expected return of the investment.

\(R_f\) is the risk-free rate.

\(\beta_i\) is the beta of the investment.

\(R_m\) is the market return.

**Sample size**

**Table 1: Banks name and its capital**

<table>
<thead>
<tr>
<th>Banks Name</th>
<th>Short Name</th>
<th>Paid up Capital (In Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global IME Bank</td>
<td>GBIME</td>
<td>36.12</td>
</tr>
<tr>
<td>Nepal Investment Megha Bank Limited</td>
<td>NIMB</td>
<td>34.12</td>
</tr>
<tr>
<td>Nabil Bank Limited</td>
<td>NABIL</td>
<td>27.05</td>
</tr>
<tr>
<td>Kumari Bank Limited</td>
<td>KBL</td>
<td>26.22</td>
</tr>
</tbody>
</table>

**Source: NRB website**

### 3. RESULTS AND DISCUSSION

1. To assess the historical risk profile of Nepalese commercial banks' common stock over a specified period.

**Table 2: Descriptive statistics of rate of return**

<table>
<thead>
<tr>
<th>Banks</th>
<th>Average Rate of Return (ARR)</th>
<th>Standard deviation (SD)</th>
<th>Coefficient of Variation (CV)</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBIME</td>
<td>0.34%</td>
<td>38.65</td>
<td>113.694</td>
<td>72.80%</td>
<td>-36.40%</td>
</tr>
<tr>
<td>NIMB</td>
<td>-19.76%</td>
<td>16.972</td>
<td>-0.859</td>
<td>7.50%</td>
<td>-40.87%</td>
</tr>
<tr>
<td>NABIL</td>
<td>-0.50%</td>
<td>40.91</td>
<td>-81.82</td>
<td>78%</td>
<td>-38.5</td>
</tr>
<tr>
<td>KBL</td>
<td>6.78%</td>
<td>49.96</td>
<td>7.36</td>
<td>99.80%</td>
<td>-46.9</td>
</tr>
</tbody>
</table>


Table 2 shows the historical risk profile of Nepalese commercial banks' common stock was assessed over the five years period from 2018/19 to 2022/23. The data provided includes the Average Rate of Return (ARR), Standard Deviation (SD), Coefficient of Variation (CV), and the Maximum and Minimum returns for each bank. GBIME had a very low average rate of return, indicating minimal profit on investments. However, the high standard deviation suggests significant volatility, and the coefficient of variation indicates a high level of risk relative to the return. The maximum return was quite high at 72.80%, but the minimum return was also significantly negative, showing a wide range of performance. NIMB shows a negative
average rate of return, indicating losses over the period. The standard deviation was relatively lower compared to other banks, indicating less volatility. However, the negative coefficient of variation signifies that the return did not justify the risk taken. The maximum return was quite low, and the minimum return was significantly negative, highlighting poor performance. NABIL also had a negative average rate of return, suggesting losses. The high standard deviation indicates high volatility. The coefficient of variation was negative and very large in absolute terms, indicating a very unfavorable risk-return relationship. The maximum return was relatively high, but the minimum return was substantially negative. KBL had the highest average rate of return among the banks, indicating a positive return on investment. However, it also had the highest standard deviation, suggesting significant volatility. The coefficient of variation was much lower than that of the other banks, indicating a more favorable risk-return relationship. The maximum return was very high, but the minimum return was also quite negative.

The analysis of the historical risk profiles of the Nepalese commercial banks reveals varying levels of performance and risk. GBIME and KBL had positive average rates of return, with KBL being significantly higher. However, both had high volatility, with KBL being the most volatile. NIMB and NABIL exhibit negative average rates of return, indicating that they have been performing poorly. NIMB had the lowest volatility but also the least favorable risk-return relationship. The coefficients of variation for GBIME and KBL suggest that while they were both risky, KBL offers a better return for the level of risk compared to GBIME. The maximum and minimum returns indicate the range of performance, with KBL showing the highest potential return but also the highest potential loss.

2. To examine the relationship between risk and return in the context of Nepalese banks’ common stock.

The Capital Asset Pricing Model may be used to analyze the connection between risk and return for common stock held by Nepalese banks (CAPM). The risk-free rate (Rf), market return (Rm), beta (β), and needed rate of return (E(Ri)) are among the data that are supplied.

<table>
<thead>
<tr>
<th>Banks</th>
<th>Risk free rate (Rf)</th>
<th>Market Return (Rm)</th>
<th>Beta (β)</th>
<th>Required rate of return E(Ri)=Rf+β[E(Rm)−Rf]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBIME</td>
<td>3.86</td>
<td>19.91</td>
<td>0.945</td>
<td>19.02</td>
</tr>
<tr>
<td>NIMB</td>
<td>3.86</td>
<td>19.91</td>
<td>0.38</td>
<td>9.959</td>
</tr>
<tr>
<td>NABIL</td>
<td>3.86</td>
<td>19.91</td>
<td>1.017</td>
<td>20.18</td>
</tr>
<tr>
<td>KBL</td>
<td>3.86</td>
<td>19.91</td>
<td>1.12</td>
<td>21.83</td>
</tr>
</tbody>
</table>

Sources: Annual General Report (2018/19 - 2022/23) and NRB Monetary policy

Table 3 shows the analysis of GBIME, NIMB, NABIL, and KBL in the context of the Capital Asset Pricing Model (CAPM) provided valuable insights into its risk and return profile. The risk-free rate represents the return on an investment with zero risk, typically associated with government bonds. For GBIME, this rate was 3.86%. The market return, which reflects the average return of the market portfolio, was 19.91%. The beta of 0.945 indicates that GBIME’s stock was slightly less volatile than the overall market. A beta value below 1 suggests that the stock experienced less fluctuation in comparison to the market. In other words, GBIME’s stock tends to move more conservatively than the market, though it still closely follows market trends. This required rate of return indicates the return investors expected to earn for the risk they were taking by investing in GBIME’s stock. At 19.02%, this required return was
very close to the market return of 19.91%, reflecting the stock's beta being just below 1.

NIMB’s low beta of 0.38 suggests that its stock was much less volatile than the market. This lower volatility translates to a lower required rate of return, reflecting the reduced risk associated with the investment. Investors who were risk-averse might find NIMB attractive due to its stability and lower expected volatility. The required rate of return of 9.959% was significantly lower than the market return of 19.91%, indicating that investors were willing to accept a lower return due to the reduced risk. This makes NIMB a suitable investment for conservative investors who prioritize capital preservation over high returns.

NABIL’s beta of 1.017 suggests that its stock was marginally more volatile than the market, implying a slightly higher risk. This higher risk was reflected in the required rate of return of 20.18%, which was a bit above the market return. Investors in NABIL can expect returns that were somewhat higher than the market average, compensating for the increased risk. The required rate of return being above the market return indicated that investors demand a premium for taking on the additional risk associated with NABIL’s stock. This made NABIL an appealing investment for those willing to accept slightly higher risk in exchange for potentially higher returns.

KBL’s beta of 1.12 suggests that its stock was more volatile than the market, implying a higher risk. This higher risk was reflected in the required rate of return of 21.83%, which was above the market return. Investors in KBL can expect returns that were higher than the market average, compensating for the increased risk. The required rate of return being above the market return indicates that investors demanded a premium for taking on the additional risk associated with KBL’s stock. This made KBL an appealing investment for those willing to accept higher risk in exchange for potentially higher returns.

4. CONCLUSION AND RECOMMENDATION

4.1 CONCLUSION

The analysis of the historical risk profiles and CAPM-derived expected returns for Nepalese commercial banks' common stocks over a five-year period reveals distinct variations in performance and risk levels across the banks. The key findings from the analysis are as follows:

GBIME exhibited a very low average rate of return, suggesting minimal profitability. The high standard deviation and coefficient of variation indicate significant volatility and a high level of risk relative to the return. With a beta of 0.945, GBIME's stock is slightly less volatile than the market, resulting in a required rate of return of 19.02%, which is close to the market return of 19.91%. NIMB showed a negative average rate of return, indicating overall losses. The relatively lower standard deviation suggests less volatility, but the negative coefficient of variation highlights an unfavorable risk-return relationship. NIMB's low beta of 0.38 translates to a lower required rate of return of 9.959%, suitable for conservative investors seeking stability and lower expected volatility. NABIL also experienced a negative average rate of return, indicating losses. The high standard deviation and large negative coefficient of variation suggest high volatility and an unfavorable risk-return relationship. With a beta of 1.017, NABIL’s stock is slightly more volatile than the market, resulting in a required rate of return of 20.18%, marginally above the market return. KBL had the highest average rate of return among the banks, indicating positive profitability. Despite the high standard deviation indicating significant volatility, the lower coefficient of variation suggests a more favorable risk-return relationship. KBL’s beta of 1.12 implies higher volatility than the market, leading to a required rate of return of 21.83%, the highest among the banks, reflecting the higher risk.

4.2 RECOMMENDATION

Based on the analysis, conservative investors should consider investing in Nepal Investment Mega Bank (NIMB) due to its
lower volatility and stability, while moderate risk-takers might find Global IME Bank Limited (GBIME) interesting for its balance of risk and return. High-risk tolerant investors seeking potentially higher returns should look at Nabil Bank Limited (NABIL) and Kumari Bank Limited (KBL), with KBL offering the highest average and required rates of return. Investors are also advised to diversify their portfolios by including a mix of these stocks to balance risk and return, and to continuously monitor market conditions and bank performance to adjust their investment strategies accordingly.

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