

A NEW METHODOLOGICAL APPROACH TO ASSESSING THE RISK-BASED PROFITABILITY OF COMMERCIAL BANKS BASED ON THE INTEGRATED RAROC-EVA MODEL

Ismatov Nodirjon Rakhimdjanovich

Independent researcher at the Tashkent International University

Ismatov.nodirjon@mail.ru

Abstract

The growing complexity of banking operations, increasing regulatory requirements, and heightened competition in financial markets have intensified the need for advanced methodologies to assess bank performance. Traditional profitability indicators such as Return on Assets (ROA) and Return on Equity (ROE) provide useful information regarding financial performance but fail to adequately account for the level of risk undertaken to generate returns. Consequently, risk-adjusted performance measurement has become a central component of modern bank management. This study proposes a new methodological approach for assessing the risk-based profitability of commercial banks through the integration of Risk-Adjusted Return on Capital (RAROC) and Economic Value Added (EVA). The integrated RAROC-EVA model combines the strengths of both indicators by simultaneously evaluating risk-adjusted profitability and value creation. The proposed framework enables a more comprehensive assessment of banking performance by incorporating credit risk, market risk, operational risk, capital costs, and shareholder value considerations. The study argues that the integrated model provides a more reliable basis for strategic decision-making, capital allocation, and performance evaluation than traditional profitability measures. The findings suggest that the implementation of the RAROC-EVA framework can improve risk management efficiency, optimize resource allocation, and contribute to the sustainable development of commercial banks.

Keywords

RAROC, EVA, risk-adjusted profitability, commercial banks, economic capital, value creation, banking performance, risk management, financial efficiency, capital allocation.

Introduction

The banking industry has undergone substantial transformation over the past decades due to financial globalization, technological innovation, regulatory reforms, and increasing market volatility. Under these conditions, commercial banks are required not only to generate profits but also to manage risks effectively while creating long-term value for shareholders.

Traditional profitability indicators such as ROA, ROE, and Net Interest Margin (NIM) are widely used to assess bank performance. However, these measures often overlook the risks associated with profit generation. A bank may report high profitability while simultaneously assuming excessive levels of credit, market, or operational risk. Such situations may create a misleading perception of financial performance and potentially threaten long-term sustainability.

To address these shortcomings, risk-adjusted performance measurement methodologies have gained prominence in banking practice and academic research. Among these methodologies, Risk-Adjusted Return on Capital (RAROC) and Economic Value Added (EVA) have emerged as important tools for evaluating financial performance from different perspectives. While RAROC focuses on the relationship between risk and return, EVA measures the extent to which a firm creates value above its cost of capital. This paper proposes an integrated RAROC-EVA framework that combines both dimensions to provide a comprehensive assessment of risk-based profitability in commercial banks.

Theoretical Foundations of RAROC and EVA

Risk-Adjusted Return on Capital (RAROC)

RAROC was originally developed by Bankers Trust in the late 1970s as a tool for evaluating risk-adjusted profitability. The concept gained widespread adoption following the implementation of risk-based capital regulations and advanced risk management frameworks.

RAROC is generally expressed as:

$$\text{RAROC} = \text{Risk-Adjusted Net Income} / \text{Economic Capital}$$

The numerator reflects profits adjusted for expected losses and risk-related costs, while the denominator represents the economic capital required to absorb unexpected losses.

The primary advantage of RAROC is its ability to incorporate risk considerations into performance evaluation. It allows managers to compare the profitability of different business units, loan portfolios, and investment projects on a consistent risk-adjusted basis. Consequently, RAROC serves as an important tool for capital allocation and strategic planning.

However, RAROC focuses primarily on risk-adjusted returns and does not directly measure value creation from a shareholder perspective.

Economic Value Added (EVA)

Economic Value Added was developed by the consulting firm Stern Stewart & Co. as a measure of economic profit. EVA assesses whether an organization generates returns that exceed its total cost of capital.

The basic formula for EVA is:

$$\text{EVA} = \text{NOPAT} - (\text{Capital} \times \text{Cost of Capital})$$

where NOPAT represents Net Operating Profit After Taxes.

A positive EVA indicates that the organization creates value for shareholders, whereas a negative EVA suggests that the returns generated are insufficient to compensate for the cost of invested capital.

EVA addresses a major limitation of conventional accounting measures by explicitly considering capital costs. However, EVA does not directly incorporate risk-adjusted capital requirements and may therefore underestimate the impact of risk exposure on financial performance.

Rationale for Integrating RAROC and EVA

Although both RAROC and EVA provide valuable insights, each measure has limitations when applied independently.

RAROC effectively evaluates risk-adjusted profitability but may overlook shareholder value creation. Conversely, EVA captures value creation but does not explicitly incorporate economic capital requirements derived from risk exposure.

As banking activities become increasingly complex, performance assessment frameworks must simultaneously address profitability, risk management, capital efficiency, and value creation. An integrated RAROC-EVA model can bridge this gap by combining the strengths of both methodologies.

The integration provides several advantages:

First, it aligns profitability assessment with risk-adjusted capital requirements. This ensures that performance evaluations reflect the true economic risks undertaken by the bank.

Second, it incorporates the cost of capital into decision-making processes. Managers can identify whether risk-adjusted returns exceed shareholder expectations.

Third, it supports optimal capital allocation by directing resources toward business activities that generate both superior risk-adjusted returns and positive economic value.

Fourth, it enhances strategic planning by linking risk management objectives with shareholder wealth maximization.

Proposed Integrated RAROC-EVA Methodological Framework

The proposed methodology consists of four stages.

Stage 1: Calculation of Risk-Adjusted Net Income

The first step involves adjusting accounting profits for expected losses and risk-related expenses:

$$\text{Risk-Adjusted Income} = \text{Net Income} - \text{Expected Losses}$$

Expected losses are estimated using probability of default, loss given default, and exposure at default models.

Stage 2: Estimation of Economic Capital

Economic capital represents the amount of capital required to absorb unexpected losses arising from credit, market, and operational risks.

The economic capital calculation should incorporate:

Credit risk capital;

Market risk capital;

Operational risk capital;

Concentration risk adjustments.

This stage ensures that risk exposures are appropriately reflected in performance evaluation.

Stage 3: Calculation of RAROC

The risk-adjusted profitability ratio is determined as follows:

$$\text{RAROC} = \text{Risk-Adjusted Income} / \text{Economic Capital}$$

This indicator measures the efficiency with which the bank utilizes risk capital to generate profits.

Stage 4: Integration with EVA

The final stage incorporates value creation considerations:

$\text{Integrated EVA} = \text{Risk-Adjusted Income} - (\text{Economic Capital} \times \text{Cost of Capital})$

Subsequently, an Integrated RAROC-EVA Index may be constructed:

$\text{Integrated Index} = \text{RAROC} \times \text{EVA}$

This composite indicator simultaneously captures profitability, risk efficiency, and value creation.

Higher index values indicate superior overall performance from both managerial and shareholder perspectives.

Practical Implications for Commercial Banks

The implementation of the integrated RAROC-EVA model offers several practical benefits.

First, it improves capital allocation decisions. Banks can identify business lines that generate the highest risk-adjusted value and allocate resources accordingly.

Second, it strengthens risk management practices by encouraging managers to consider economic capital requirements in strategic decisions.

Third, it supports performance-based compensation systems. Employee incentives can be linked to risk-adjusted value creation rather than short-term accounting profits.

Fourth, it enhances compliance with international regulatory standards, including Basel III requirements related to capital adequacy and risk management.

Fifth, the model improves transparency for investors and regulators by providing a comprehensive measure of financial performance.

In emerging banking markets, where profitability pressures often encourage excessive risk-taking, the integrated framework can contribute to greater financial discipline and long-term stability.

Challenges and Future Research Directions

Despite its advantages, the implementation of the integrated RAROC-EVA model faces several challenges.

One challenge relates to the estimation of economic capital, which requires sophisticated risk modeling techniques and high-quality data. Inaccurate risk estimates may reduce the reliability of performance assessments.

Another challenge concerns the determination of the cost of capital, particularly in emerging economies where financial markets may be less developed.

Furthermore, the integration of multiple risk categories into a unified framework requires advanced technological infrastructure and skilled risk management personnel.

Future research may focus on developing dynamic RAROC-EVA models that incorporate macroeconomic variables, artificial intelligence techniques, and real-time risk monitoring systems. Such developments could further enhance the predictive power and practical usefulness of the framework.

Conclusion

The assessment of commercial bank profitability must extend beyond traditional accounting indicators to incorporate risk and value creation considerations. RAROC and EVA represent two important methodologies for evaluating financial performance, yet each provides only a partial perspective when applied independently.

This study proposes a new methodological approach based on the integration of RAROC and EVA into a unified framework for assessing risk-based profitability. The integrated model combines risk-adjusted returns, economic capital efficiency, and shareholder value creation within a single analytical structure.

The proposed methodology offers significant advantages for performance evaluation, capital allocation, strategic decision-making, and risk management. By aligning profitability with both risk exposure and value creation objectives, the

integrated RAROC-EVA model provides a more comprehensive and reliable measure of banking performance.

The adoption of this framework can contribute to enhanced financial stability, improved resource utilization, and sustainable value creation in commercial banks operating in increasingly complex and competitive financial environments.

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