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An Analysis of Firm-Specific, Industry Specific, And Macroeconomic Determinants Influencing Bank Profitability in Indonesia

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Abstract

This study investigates the key determinants of bank profitability in Indonesia by analyzing both internal and external factors. Utilizing a comprehensive dataset and rigorous statistical methods, the results reveal that bank size t = 2.93, capital adequacy t = 2.72, management efficiency t = 2.24, and economic growth t = 2.08 exert significant and positive influences on profitability. Larger banks tend to gain from economies of scale, diversified financial products, and enhanced market power. Adequate capital buffers bolster financial resilience and investor trust, while efficient management optimizes resource allocation and strengthens risk mitigation. Furthermore, robust economic growth contributes to higher profitability by stimulating credit demand and reducing default risks. Conversely, credit risk t = 1.39, market concentration t = -1.63, and inflation t = -1.08 do not demonstrate statistically significant effects. The muted impact of credit risk may reflect improved risk management practices and diversified revenue streams. Market concentration appears insufficient to ensure profitability, potentially due to operational inefficiencies or regulatory limitations. Inflation's influence may be indirect, affecting profitability through increased costs and heightened credit risk. These findings underscore the importance of sound capital structure, managerial efficiency, and macroeconomic stability. Policymakers should also promote competitive banking environments and implement macroeconomic policies that enhance sustainable profitability in Indonesia's dynamic financial sector.

Keywords: bank size, bank profitability, capital adequacy, credit risk, management efficiency

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INTRODUCTION

The stability and development of the banking sector play a pivotal role in fostering economic growth, particularly in developing countries such as Indonesia. As key financial intermediaries, banks are not only responsible for channeling funds from surplus to deficit units but also serve as indicators

of broader macroeconomic performance. Among the various metrics used to evaluate banking performance, profitability remains one of the most critical. It reflects managerial efficiency, capital structure, and the institution's capacity to manage both risks and opportunities in the market. In Indonesia, the banking sector operates within a complex and evolving environment, characterized by stringent regulatory frameworks, increasing competition from non-bank financial institutions, and rapid technological advancement. As vital pillars of financial stability and economic development, banks are expected to maintain robust financial performance to facilitate credit creation, investment, and sustained economic expansion. Profitability, in this regard, stands out as a key indicator, as it captures a bank's ability to generate income in excess of its associated costs and risks. Bank profitability is shaped by a combination of internal managerial factors and external macroeconomic conditions. Prior empirical studies have emphasized the critical role of internal attributes such as capital adequacy, credit risk management, operational efficiency, and liquidity position in determining bank profitability (Athanasoglou et al., 2008).

Capital adequacy not only reinforces financial resilience but also reflects a bank's capacity to absorb unexpected losses. Similarly, credit risk often proxied by the level of non-performing loans directly influences the bank's ability to generate income. Managerial efficiency, commonly assessed using the cost-to-income ratio, indicates how effectively a bank utilizes its resources to generate profits. Liquidity risk, another fundamental component, reflects the bank's capacity to meet its short-term obligations, thereby influencing depositor confidence and the bank's operational sustainability. it is essential to examine the interplay between internal and external factors influencing financial performance. Previous research has yielded inconsistent results regarding the impact of internal variables such as capital adequacy, credit risk, managerial efficiency, liquidity risk, market concentration, and bank size and external factors such as economic growth on bank profitability. The novelty of this study lies in its comprehensive assessment of both internal and external determinants of profitability. The findings are expected to provide more targeted managerial policy recommendations, enabling banks to adjust their operational strategies and risk management practices in response to evolving macroeconomic conditions and competitive market dynamics. Therefore, an empirical investigation into how capital adequacy, credit risk, managerial efficiency, liquidity risk, market concentration, bank size, and economic growth influence the profitability of banks operating in Indonesia is both timely and necessary.

Previous empirical investigations on the relationship between bank size and profitability within the industrial economics framework have produced mixed and inconclusive results. Several studies have reported a weak or even non-existent relationship between bank size and banking profitability, as evidenced by the findings of Carbó-Valverde et al. (2021); Shome et al. (2025); Torku & Laryea (2021). In contrast, other scholars have identified a significant positive relationship between bank size and profitability, as highlighted in the works of Firmansyah & Kartiko (2024); Kwaku Mensah Mawutor et al. (2023); Muhammad et al. (2021); Phan et al., 2022; Widarjono et al. (2022). Given the inconclusive nature of these findings, further empirical research is warranted to examine the potential influence of bank size on profitability, particularly within the context of the Indonesian banking sector.

Capital adequacy refers to the bank's ability to maintain sufficient capital to support its risk exposure and promote sustainable growth. A robust capital base enables banks to expand their portfolio of profitable investments while safeguarding their financial stability. It represents the capacity of bank management to ensure that the capital held is not only sufficient but also efficiently

utilized to absorb potential losses and meet regulatory standards. The capital adequacy ratio (CAR) is a key indicator used to assess a bank's solvency specifically, its ability to withstand financial stress and fulfill its obligations. This ratio serves as a buffer against unexpected losses, helping to maintain depositor confidence and systemic stability. Regulatory authorities, particularly central banks, establish minimum capital requirements to mitigate solvency risks and reduce the likelihood of financial crises. These requirements are periodically revised to align with evolving global financial conditions and to reinforce the resilience of the banking sector. Capital adequacy plays a central role in evaluating a bank's risk-bearing capacity by comparing its capital levels to risk weighted assets. A higher capital adequacy ratio indicates a stronger ability to absorb losses, ensure operational continuity, and protect depositors' interests. Consequently, well-capitalized banks are perceived to have better creditworthiness and are more likely to fulfill both short-term and long-term obligations. Empirical studies on the relationship between capital adequacy and bank profitability have yielded mixed results. Several researchers have reported a weak or statistically insignificant relationship between the two variables. Conversely, other studies have demonstrated a positive association, suggesting that adequate capitalization enhances profitability by reducing funding costs and improving risk management efficiency (Anwar et al., 2023; Dsouza et al., 2024; Muhammad et al., 2021; Akhtar et al., 2024; Nurwulandari et al., 2022).

Given these divergent findings in the existing literature, the impact of capital adequacy on profitability remains an open question, particularly in the context of emerging economies such as Indonesia. Therefore, this study seeks to re-examine the influence of capital adequacy on bank profitability by using recent data from Indonesian commercial banks. By doing so, it contributes to a more nuanced understanding of how capital structure shapes financial performance in a rapidly developing banking sector.

Credit risk refers to the potential loss arising from a borrower's failure to fulfill their debt obligations. Effective credit risk management involves the systematic efforts to mitigate such losses by evaluating a bank's capital adequacy and loan loss reserves at any given time. This process represents a critical and ongoing challenge for financial institutions. The global financial crisis and the ensuing credit turmoil brought credit risk management into sharper regulatory focus. Consequently, regulators have imposed greater demands for transparency, requiring banks to possess comprehensive insights into their customers and the credit risks involved. This shift has led to an increased regulatory burden for banking institutions. In response to more stringent compliance requirements and the need to absorb higher capital charges associated with credit risk, many banks have restructured their approaches to credit risk governance. However, institutions that treat these reforms merely as regulatory box-ticking exercises risk overlooking broader strategic benefits. Enhanced credit risk management not only fulfills regulatory expectations but also presents opportunities to improve overall performance and secure long-term competitive advantage.

The relationship between credit risk and bank profitability has been widely examined in prior empirical studies. Several researchers have identified a weak or even non-existent negative association between credit risk and profitability. Conversely, other studies have reported a positive correlation, indicating that higher credit risk may be associated with increased profitability under certain conditions. Given the mixed findings in the existing literature, further investigation is warranted to explore the effect of credit risk on bank profitability, particularly in the context of Indonesia's banking sector (Djalilov & Piesse, 2016; Islam & Nishiyama, 2016; Louhichi & Boujelbene, 2016; Pervan et al., 2015; Tan, 2017b; Trad et al., 2017; Afriyie & Akotey, 2013;

Alshatti, 2015; Chaibi & Ftiti, 2015; Petria et al., 2015; Poghosyan & Hesse, 2016; Tan, 2017a).

Management efficiency represents a critical aspect of operational performance within the national banking industry. It is an essential consideration for bank executives striving to maintain sound and sustainable financial performance. According to Wang et al. (2023) and Zhao et al. (2022); efficiency serves as a fundamental indicator of a bank's operational condition and is widely recognized as one of the key predictors of banking success. Further emphasize that banking efficiency is important from both microeconomic and macroeconomic perspectives. From a microeconomic viewpoint, in an environment of intensifying competition, banks must operate efficiently to survive and grow. Efficient operations enable banks to reduce operational costs, optimize resource allocation, and enhance service quality. At the macroeconomic level, a more efficient banking industry contributes to lowering intermediation costs and supports overall financial system stability. This macro-level importance arises from the strategic role of banks as financial intermediaries and providers of essential financial services. As Weill (2003) argues, higher levels of efficiency enable banks to allocate financial resources more effectively, thereby stimulating investment activities and contributing to long-term economic growth. Bank efficiency is influenced by both internal and external factors. Internal factors are managerial in nature and fall within the bank's control. These include decisions related to fund management, capital allocation, liquidity management, and expense control. In contrast, external factors are largely shaped by macroeconomic conditions such as inflation and interest rates. Inflation, a key indicator of macroeconomic stability, is closely linked to interest rates and consequently affects both the cost and revenue of interest-based financial activities. Macroeconomic instability, in general, poses significant risks to the performance of the banking sector. In periods of high inflation, banks may face increased cost pressures and reduced income from interest, which undermines operational efficiency. Furthermore, inflation erodes consumers' purchasing power, diminishing their capacity to save in the banking system. A decrease in deposits, coupled with high operational expenses, constrains a bank's ability to operate efficiently. Similarly, high interest rates have a dual impact: while they may attract depositors seeking higher returns, they also discourage borrowing and loan disbursement. This imbalance may reduce banks' intermediation activities and increase cost inefficiencies. In summary, management efficiency is a multidimensional construct influenced by internal strategic decisions and external economic dynamics. Enhancing efficiency not only improves individual bank performance but also reinforces the resilience and stability of the broader financial system (Khalifaturofi'ah, 2023; Zhong et al., 2021).

The impact of management efficiency on bank profitability has been extensively examined in prior research. Some studies have reported either a weak negative association or no significant relationship at all. Conversely, other researchers have identified a positive correlation between management efficiency and banking profitability. Hese mixed empirical findings indicate that the relationship between management efficiency and bank profitability remains inconclusive, thereby presenting an opportunity to further investigate this linkage within the context of Indonesia's banking sector (Alhassan, 2023; Proença et al., 2023; Robin et al., 2018; (Caby et al., 2022; López-Penabad et al., 2023; A. T. L. Nguyen et al., 2022; Rakshit & Bardhan, 2022; Zhu & Guo, 2024).

Liquidity risk is one of the key risks faced by banks as financial intermediaries. This risk is primarily associated with the potential inability of a bank to meet withdrawal demands, especially when depositors attempt to withdraw funds in amounts that exceed normal expectations. Such situations often arise during periods of economic turbulence such as exchange rate volatility which

can trigger panic withdrawals not only from financially unstable banks but also from otherwise sound institutions, ultimately leading to a bank run. To mitigate this risk, governments often implement deposit insurance schemes to safeguard depositors' funds. These guarantees help to maintain public confidence in the banking system. Additionally, the government may act as a lender of last resort by providing emergency liquidity support to banks experiencing short-term funding difficulties. When the banking sector lacks sufficient resilience, it becomes increasingly vulnerable to systemic risks. In extreme cases, the erosion of public trust in a bank's ability to meet its obligations can accelerate the onset of a full-scale banking crisis.

The influence of liquidity risk on bank profitability has been widely investigated in prior literature. Some studies have reported either a weak negative relationship or no significant correlation. In contrast, other researchers have found a positive association between liquidity risk and bank profitability. These mixed empirical findings suggest that the relationship between liquidity risk and profitability remains inconclusive. Therefore, further investigation into this relationship specifically within the Indonesian banking context remains both relevant and necessary (Abdelaziz et al., 2022; Ben Lahouel et al., 2024; (Canh et al., 2021; Jallali & Zoghlami, 2021; Kalash, 2023; Tran & Nguyen, 2025).

Market concentration reflects the degree of market power held by a bank within the banking industry. One commonly used indicator is the market share based on third-party funds, which represents a bank's proportion of total third-party deposits relative to all banks in the sector. According to the relative market power theory, banks with higher market concentration and differentiated products are better positioned to exert pricing power, allowing them to set interest rates that favor profitability. However, empirical findings are mixed. For instance, Santoso et al. (2021) found that market power, as measured by the Lerner index, did not significantly influence bank profitability in Macau. Meanwhile, Yin (2021) argued that competition intensity and strategic choices significantly affect firm performance. In highly competitive markets, banks must adopt deliberate strategic decisions to sustain profitability. Drawing from the relative market power theory and prior studies Nguyen & Nguyen (2022); Rahaman et al. (2022), it can be inferred that a larger deposit market share (DPK) tends to have a positive impact on bank profitability.

The effect of market concentration on bank profitability has been widely explored in previous studies. Several researchers have reported either a weak negative relationship or no significant association at all. In contrast, other studies have found a positive link between market concentration and bank profitability. These divergent empirical findings suggest that the relationship remains inconclusive. Accordingly, there is a valuable opportunity to further examine the impact of market concentration on bank profitability within the specific context of Indonesia's banking industry. Inflation is generally regarded as an indicator of overall economic activity and is frequently used to reflect the condition of a nation's economy. More specifically, inflation refers to a macroeconomic measure that captures the average increase in the prices of goods and services produced within an economy. The relationship between inflation and bank profitability has been the subject of extensive empirical research. Several studies have reported either a weak negative association or no significant correlation at all. Conversely, other scholars have documented a positive relationship between inflation and bank profitability. Given these mixed empirical findings, further investigation is warranted particularly in the context of Indonesia's banking sector to better understand the influence of inflation on profitability. (Bueno et al., 2024; Chen et al., 2023; Chen, 2022; Cho & Chen, 2021; Elfeituri, 2022; (Molyneux et al., 2019; Nair & Vinod, 2019; Tan, 2020; (Bambe et al., 2024;

Chalabi-Jabado & Ziane, 2024; Guo & Lim, 2024; Nasim & Downing, 2023; Valogo et al., 2023).

The nexus between economic growth and profitability has long garnered scholarly attention, owing to its pivotal role in shaping business performance. This continued interest is justified, as the interplay between growth and profitability is central to corporate strategy and financial resilience. Traditionally, growth has been utilized as a key performance indicator, underpinned by the notion that sustained expansion fosters competitive advantage and long-term profitability. Nonetheless, growth that is not supported by profitability may ultimately be unsustainable. Firms prioritizing expansion at the cost of earnings often become dependent on external financing, thereby heightening their vulnerability to financial distress. The impact of economic growth on bank profitability has been the subject of extensive empirical inquiry. Some studies have reported either a weak negative relationship or no statistically significant correlation. In contrast, other researchers have identified a positive association between economic growth and bank profitability. These conflicting findings underscore the necessity for continued investigation, particularly within the context of Indonesia's banking sector. This study seeks to enhance the existing literature by analyzing the principal determinants of commercial bank profitability in Indonesia over a seven-year period. The remainder of this paper is structured as follows: Section 2 reviews the relevant literature on profitability determinants; Section 3 presents the research methodology; Section 4 discusses the empirical findings; and Section 5 concludes with a summary of results and their implications (Klein & Weill, 2022; Mashamba et al., 2023; Obiora et al., 2022; Adalessossi, 2023; Baffour Gyau et al., 2024; Lian et al., 2022; Ma & Zhang, 2023).

LITERATURE REVIEW AND HYPOTHESES

Early research on bank performance primarily focused on industry structure and market competition. Over time, the scope of inquiry expanded to include bank profitability, particularly from the perspective of efficiency effects. Seminal works by Bourke (1989) and Short (1979) were among the first to examine the determinants of bank profitability. Given that profit is a critical factor for the survival and sustainability of banks as well as a key indicator of financial performance the academic literature on bank profitability has sought to identify and explain its drivers through both internal and external variables. Internal variables, often referred to as bank-specific factors, are under the direct control of bank management, while external variables are shaped by the broader macroeconomic environment and are beyond the control of individual banks.

Building on the foundational studies by Bourke (1989) and Short (1979), a substantial body of research has since emerged to identify the key predictors of bank profitability. These investigations have either focused on individual banking systems or employed cross-country analyses (Le et al., 2022). In this context, several scholars such as Bibi & Canelli (2023); Dotsis & Loizos (2023); Górajski & Kuchta (2024); Junttila & Nguyen (2022); Mayer & Schnabl (2021); Rodríguez et al. (2023); Son et al. (2023) have conducted panel data analyses. Similarly, researchers like Chrysanthopoulou et al. (2023); Fernandes et al. (2021); Gangopadhyay & Nilakantan (2021); Jacques et al. (2023); Lamperti et al. (2021); Piacentini (2021); Wang et al. (2025). Have carried out studies at the country level. This section will elaborate on the theoretical foundations underpinning bank profitability, particularly focusing on Keynesian theory and signaling theory.

Keynesian Theory

This theory, introduced by John Maynard Keynes, is known as the liquidity preference theory

of interest. According to Keynes, the interest rate is determined by the demand for and supply of money. Liquidity preference refers to the desire to hold cash rather than invest it, which is driven by three primary motives: the transaction motive, the precautionary motive, and the speculative motive. The profitability or income-generating ability of a bank is influenced by various factors, among which interest rates and inflation play a significant role. When interest rates are high, they may trigger inflationary pressures, which can reduce overall productivity and discourage investment especially in high-risk sectors. This situation often deters banks from allocating funds to the real sector, leading to higher operational costs and ultimately weakening their role as financial intermediaries. This theory, proposed by John Maynard Keynes, is referred to as the liquidity preference theory of interest. According to Keynes, interest rates are determined by the demand for money (liquidity preference) and the supply of money. Liquidity preference is defined as the desire to hold cash rather than invest it, driven by three motives: the transaction motive, the precautionary motive, and the speculative motive. The profitability of a bank its ability to generate earnings is influenced by numerous factors, including interest rates and inflation. High interest rates tend to stimulate inflationary pressure, which can negatively affect economic productivity and deter investment. When faced with increased risk and uncertainty, banks may become reluctant to channel funds into the real sector. Consequently, the cost of funds rises, and banks may lose their core function as financial intermediaries.

Keynesian theory offers a valuable framework, particularly in understanding decision-making under uncertainty and the role of expectations. Keynes emphasized that economic behavior, especially in the financial sector, is significantly shaped by market participants' expectations of future conditions, which are often speculative and influenced by sentiment. Within the banking industry, a high capital adequacy ratio signals resilience and the ability to withstand economic shocks, aligning with Keynes's notion of *liquidity preference*, where agents prioritize security in uncertain times. Conversely, elevated credit risk may erode market confidence, triggering precautionary behavior such as reduced investment and a shift toward liquid assets. Furthermore, management efficiency contributes to shaping stakeholders' expectations about the bank's long-term viability and operational soundness.

Thus, from a Keynesian perspective, financial indicators not only reflect objective financial conditions but also function as signals that influence subjective market expectations. These expectations, in turn, play a critical role in determining a bank's profitability, as they affect the behavior of investors, depositors, and other economic agents. This underscores the importance of perception and sentiment in financial decision-making, particularly in sectors highly sensitive to trust and stability such as banking.

Signaling Theory

Signaling theory suggests that highly profitable firms are more likely to disclose superior and more extensive information to the market. According to Zelalem & Abebe (2022), a higher level of capital serves as a positive signal of a bank's market value. Lower leverage indicates that a bank is performing better than its competitors, particularly those unable to raise equity without adversely affecting their profitability. Conversely, the bankruptcy cost hypothesis argues that when unexpected bankruptcy costs are high, banks tend to hold more equity to mitigate potential financial distress (Vu, 2024). Both signaling theory and the bankruptcy cost hypothesis support a positive relationship between capital levels and profitability. On the other hand, the risk-return hypothesis posits that firms

expecting higher returns may assume greater risk, typically by increasing leverage. However, if banks anticipate higher profitability and respond by taking on additional risk, the equity-to-assets ratio (capital) may decline as a result. In examining how capital adequacy, credit risk, and management efficiency influence bank profitability, Signaling Theory helps explain how banks communicate their internal strength to the outside world. In situations where information is not equally shared such as between bank managers and external stakeholders signals become essential. These signals help reduce uncertainty and build trust. Capital adequacy is one such signal. A high capital adequacy ratio shows that a bank is financially strong and capable of withstanding potential losses. It reassures investors, regulators, and depositors that the bank operates on a solid foundation. On the other hand, credit risk, often indicated by the level of non-performing loans, tells a story about how well the bank manages its lending activities. A low ratio reflects careful risk management, while a high one may raise concerns about the bank's financial health. Management efficiency also sends a clear message. When a bank can control costs and operate efficiently, it signals competence and discipline qualities that matter to anyone assessing the bank's long-term potential. In short, these financial indicators act as messages to the market. Beyond numbers, they shape perceptions. And in banking, perception is powerful it can influence decisions, attract investment, and ultimately affect profitability.

Market Power and Efficiency Structure Theories

The Market Power and Efficiency Structure theories provide distinct explanations for the relationship between bank size and profitability. According to Olweny & Shipho (2011), the Market Power theory suggests that a bank's performance is influenced by the structure of the banking industry, particularly its level of market concentration. In contrast, the Efficiency Structure hypothesis posits that banks earn higher profits because they operate more efficiently than their peers. Specifically, the Market Power theory views bank profitability as a function of external market conditions, whereas the Efficiency Structure theory attributes profitability to internal operational efficiency.

Bank Size and Bank Profitability

One of the most critical factors underlying bank policy is firm size, which plays a significant role in optimizing profitability. In general, the impact of bank size on profitability has been found to be positive due to economic rationale. Empirical evidence suggests that larger banks tend to pose greater individual and systemic risks compared to smaller banks, especially when their capital levels are inadequate and their funding structures are unstable. Larger banks are more likely to engage in complex market-based operations, thereby increasing organizational risk exposure. The relationship between bank size and profitability suggests that larger banks benefit from economies of scale in financial transactions, which can lead to enhanced profitability. Moreover, large banks may exercise market power through regulatory advantages or strong brand recognition. This indicates a likely positive association between bank size and profitability. Based on the above discussion, the first hypothesis of this study is proposed as follows (Abu Khalaf & Awad, 2024; Al-Matari, 2023; Athari & Bahreini, 2023; Eka Handriani & Robiyanto, 2018; Marques & Alves, 2021; Ramlall, 2025):

H_1: Bank size has a positive effect on the profitability of banking firms in Indonesia.

Capital Adequacy and Bank Profitability

A bank's soundness serves as a mechanism for evaluating its financial performance, particularly in assessing its financial condition or profitability. Prior studies have demonstrated that capital

adequacy, a key indicator of bank soundness, significantly influences financial performance metrics. For instance, Andersen & Juelsrud (2024) found that capital adequacy, as proxied by shareholders' equity, has a positive impact on bank profitability, total assets, total deposits, return on assets, earnings per share, loans and advances, and credit risk. Similar findings have been reported in earlier empirical studies by Nsanyan Sandow et al. (2021); Pham et al. (2022); Yakubu & Bunyaminu (2023) all of which confirmed a positive relationship between capital adequacy and bank performance. Based on this theoretical and empirical foundation, the second hypothesis of this study is formulated as follows:

H_2: Capital adequacy has a positive effect on the profitability of banking firms.

Credit Risk and Bank Profitability

Credit risk is a critical factor in the banking industry. Previous literature has commonly assessed credit risk through the level of non-performing loans. Empirical studies have shown that higher potential loan losses are associated with lower bank profitability. Similarly, Tan & Luo (2021) identified a negative relationship between credit risk and bank profitability. Alternatively, the loan-to-asset ratio is often used as a proxy for credit risk. Within this framework, the risk-return hypothesis posits that banks with higher loan-to-asset ratios are more exposed to credit risk. This condition necessitates effective fund management to achieve higher returns, which in turn could enhance profitability. Based on this reasoning, the third hypothesis of this study is proposed as follows (Almaskati, 2022; Kesraoui et al., 2022; Sharma et al., 2024; Kwashie et al., 2022; Taylor et al., 2024):

H_3: Credit risk has a negative effect on bank profitability.

Management Efficiency and Bank Profitability

Studies on bank performance generally utilize comprehensive financial statement data to identify determinants of bank profitability, typically measured by return on assets (ROA or return on equity (ROE). Previous research, such as that by Badunenko et al., (2022); Bushashe, (2023); Nguyen & Le, (2022); Yakubu & Musah, (2024). has focused on bank-specific profitability factors, including size, revenue growth, risk exposure, and cost control. Other studies, including those by Ho et al. (2023); Nguyen et al. (2023); Oanh et al. (2023); Yang & Masron (2023), have incorporated external factors such as inflation, market concentration, and GDP growth alongside internal determinants. This study adopts the cost-to-income ratio as a proxy for management efficiency. A higher operational cost relative to a bank's income reflects inefficiency and tends to reduce profitability. Thus, a negative relationship is expected between management efficiency and profitability, consistent with the findings of Pham & Nguyen, (2023). Based on the above rationale, the fourth hypothesis of this study is formulated as follows:

H_4: Management efficiency has a positive impact on bank profitability.

Liquidity Risk and Bank Profitability

Liquidity risk refers to a bank's inability to meet its short-term financial obligations. It is one of the critical variables affecting bank performance, as it indicates the probability of incurring losses due to a borrower's failure to fulfill repayment commitments. In the literature, liquidity risk is often proxied by the loan loss reserve ratio measured against either gross or net loans provided by the bank. Additionally, the equity to total assets ratio reflects the portion of a bank's assets financed by equity and illustrates its capacity to absorb unexpected losses. This ratio is commonly employed to examine the relationship between profitability and bank capitalization, or in broader terms, capital adequacy and solvency. A higher equity-to-asset ratio reduces reliance on external financing, whereas a lower

capital ratio may amplify leverage and risk, thereby increasing the bank's borrowing costs. Given this rationale, the relationship between liquidity risk and bank profitability is expected to be positive, aligning with previous empirical findings. Based on the discussion above, the fifth hypothesis of this study is formulated as follows (Dat & Nguyen, 2023; Khemiri, 2025; Sharma et al., 2022; Xia et al., 2024):

H_5: Liquidity risk has a positive impact on bank profitability.

Market Concentration and Bank Profitability

According to the theories of market power and strategic management, bank performance is influenced by both market structure and the bank's strategic choices. Given the central role of banks in the financial system, increased demand for banking services often arises, subsequently attracting more competitors into the industry. Banks may exploit their market power to offer lower deposit rates and impose higher lending rates. Competition among banks refers to the dynamic rivalry among financial institutions striving to capture a larger share of market demand. As in other industries, banking competition is expected to yield greater efficiency, foster innovation, and result in diverse product offerings, reduced prices, broader financial inclusion, and improved customer service. Analyzing market structure and the competitive landscape enables banks to develop effective business strategies and enhance their market positioning. The essential role of banks within the financial system tends to increase the demand for banking services, which, in turn, encourages new entrants into the sector. This is consistent with previous empirical studies that have established a positive relationship between market concentration and bank profitability, including the works of Ali et al. (2022); Khazaei (2021); Nyangu et al. (2022); Patra et al. (2023). Based on this discussion, the sixth hypothesis of this study is proposed as follows:

H_6: Market concentration has a positive impact on bank profitability.

Inflation and Bank Profitability

Previous studies have concluded that high levels of inflation can have adverse consequences for both real economic growth and the long-term sustainability of real economic activity. In recent years, the banking sector has benefited from a number of structural and technological advantages that appear to enhance its capacity to generate profits. Like other industries, banking institutions may face potential diseconomies of scale due to geographic expansion, particularly in the form of agency costs related to monitoring managers stationed at remote locations. However, advances in information processing and telecommunications technology have significantly reduced these agency costs by enhancing the ability of senior management at headquarters to oversee and communicate effectively with distant staff and subsidiaries. The impact of inflation on bank profitability has been widely investigated in the academic literature. Several studies have reported either a weak negative correlation or no significant relationship between inflation and profitability, as evidenced in the works of Akhter (2023); Batayneh et al. (2021); Hendrawan et al. (2023); Taylor & Barbosa-Filho (2021). In light of the above, the seventh hypothesis of this study is formulated as follows:

H_7: Inflation has a negative effect on bank profitability.

Economic Growth and Bank Profitability

Bank profitability is significantly influenced by various external factors, particularly macroeconomic conditions. Economic growth commonly measured by gross domestic product

(GDP) per capita plays a crucial role in shaping banking activity. An expanding economy typically leads to increased customer deposits, higher loan disbursements, and wider interest margins, all of which contribute positively to bank profitability. Conversely, during periods of economic downturn, both the demand for loans and the volume of deposits tend to decline, leading to compressed profit margins. Macroeconomic indicators such as inflation also show a positive relationship with banking performance, particularly when inflation is anticipated, as it often results in higher lending rates. The literature also highlights mixed evidence regarding the benefits of economies of scale in banking. explored the role of bank size but found no significant effect. Apergis (2022), analyzing data from the world's 100 largest banks between 1969 and 1977, reached similar conclusions. These findings are consistent with more recent studies by (Al-Qudah et al., 2022; Antoun et al., 2021; Cheong & Hoang, 2021; Kumar & Bird, 2022; Nguyen-Thi-Huong et al., 2023).

Economies of scale are generally defined as cost reductions achieved per unit of output as production increases. Economic theory suggests that if an industry is subject to economies of scale, larger institutions should operate more efficiently and offer services at lower costs, ceteris paribus. Larger banks, therefore, are presumed to benefit from operational efficiencies that allow them to deliver services more economically than smaller competitors. This can translate into higher profitability, particularly in markets with significant barriers to entry. However, the impact of economies of scale on profitability remains a topic of debate in banking literature, partly due to the endogeneity between growth and profitability, which complicates causal inference. In favorable economic conditions, the interplay between economic growth and profitability becomes even more critical, and the nature of this relationship may vary depending on the specific economic environment in which banks operate. Given these considerations, the eighth hypothesis of this study is formulated as follows:

H_8: Economic growth has a positive effect on bank profitability.

METHODS

This study employs an observational research design, particularly based on the method of data collection. The data used are secondary in nature and derived solely from the financial statements of banking institutions listed on the Indonesia Stock Exchange (IDX). No primary data or additional external information is gathered, as the research focuses exclusively on observable and publicly available financial records. The variables used in this study are categorized into exogenous and endogenous types. Exogenous variables include: bank size, capital adequacy, credit risk, management efficiency, liquidity risk, market concentration, inflation, and economic growth. The endogenous variable is: bank profitability.

The data for this study were obtained from the Indonesian Capital Market Directory (ICMD), covering the observation period from 2013 to 2021. During this period, it was reported that there were 22 banking institutions in Indonesia, yielding a total of 176 firm-year observations. This research utilized a sample comprising 176 financial statements from Indonesian banking companies.Table 1 presents the descriptive statistical results of the dataset.

Table 1. Research Variables

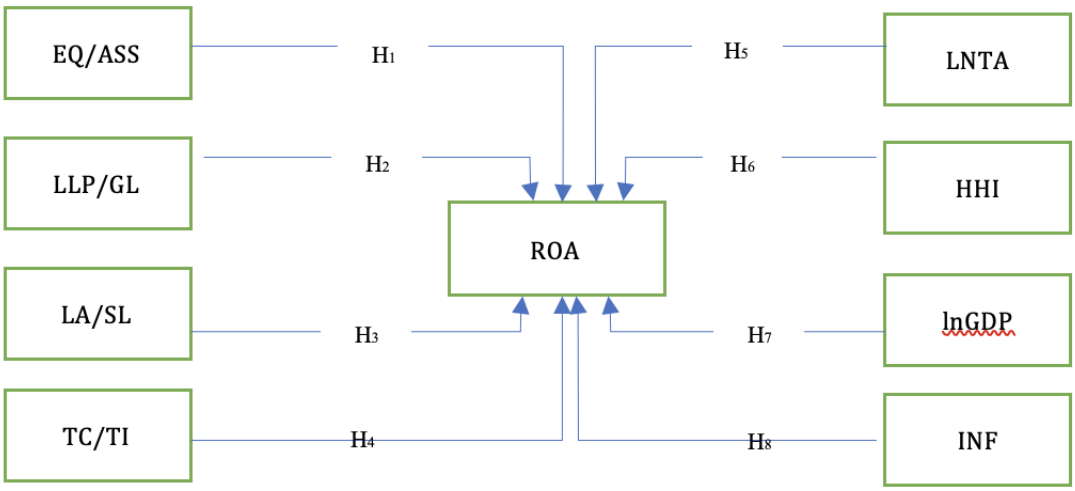
Variables		Measure	Source
Dependent			
Profitability	ROA	The return on assets (%)	Mensi et al. (2023); Sharma et al. (2024); Zelalem & Abebe (2022)
Independent			
Internal (Bank specific)			
Capital Adequacy	EQ/ASS	Equity over total assets (%)	Kalbuana et al. (2022)
Credit Risk	LLP/GL	Loan loss provisions over gross loans (%)	Silva et al., (2022)
Liquidity	LA/SL	Liquid assets over short term liabilities (%)	Jiang et al. (2021)
Management Efficiency	TC/TI	Total costs to total income (%)	Gong & Wang (2021)
Bank Size	LNTA	Logarithm of total assets	Liu et al. (2025); Wang & Mao (2022)
External (Industry specific and macroeconomic)			
Market Concentration	HHI - Assets	Herfindahl–Hirschman Index for Assets	Fernandes et al. (2024); Radulović & Kostić (2024); Zhao et al. (2025)
Economic Growth	lnGDP	Logarithm of gross domestic product	Adefolake & Omodero (2022); Fazekas & Czibik (2021); Hatmanu et al. (2022)
Inflation	INF	Annual percentage increases in the Consumer Price Index	Li et al. (2022); Moessner (2025)

Source: Previous research findings

Path analysis is employed in this study to examine and evaluate the influence of exogenous variables on the endogenous variable. This method requires adherence to several assumptions for data processing, which include: (1) the relationships between variables are linear and additive; (2) the residuals are uncorrelated with one another; (3) the model is recursive in nature, implying that causal relationships are unidirectional and non-reciprocal; and (4) the measurement level of all variables is at least on an interval scale. The path analysis follows a four-step procedure, as applied in this study. First, a theoretical model is developed based on relevant literature. Second, a path diagram is constructed to visually represent the hypothesized causal relationships. Third, the path diagram is translated into a set of structural equations and a clearly specified measurement model. Fourth, the

appropriate input matrix and estimation technique are selected for model evaluation. Following these steps, regression equations can then be formulated accordingly.

Research Model



RESULT AND DISCUSSION

This section presents the descriptive statistics of the research variables, namely bank size, capital adequacy, credit risk, management efficiency, liquidity risk, market concentration, inflation, and economic growth.

Table 2. Descriptive Statistics

Variables	N	Mean	Std. Deviation	Minimum	Maximum
ROA (%)	176	21.062	447.778	-28.25	1.32769792
EQ/ASS (%)	176	201.543	2.017.677	0.1867	85.75
LLP/GL (%)	176	172.192	7.382.844	0.0000	19.1917674
LA/SL (%)	176	2.309.898	121.681.349	0.5999	14237.32
TC/TI (%)	176	743.253	2.041.775	0.3386	144.65
LNTA (%)	176	64.334	0.92754	0.1922	0.33517361
HHI – Assets	176	10.084.543	2.084.596	41.1484	43.3338438
lnGDP	176	87.813	0.07065	0.3837	0.39536806
INF (%)	176	83.430	145.795	0.2825	0.41452083

Source: Data processed by the author

This study proposes 8 hypotheses. The results of the hypothesis testing are contingent upon the t-value. Table 3 presents the results of the direct effect tests.

The research findings empirically demonstrate that bank size significantly affects financial performance, as indicated by a t-value of 2.93. Bank size is one of the internal factors that can

influence a bank's financial performance, particularly in terms of profitability. In the context of the Indonesian banking industry, larger banks generally possess notable competitive advantages over their smaller counterparts. These advantages stem from their ability to leverage economies of scale, diversify financial products and services, and maintain stronger competitiveness in attracting both customers and investors. Banks with substantial asset bases tend to operate more efficiently, as they can reduce the operational costs per unit of service, thereby improving overall efficiency and expanding profit margins. Furthermore, larger banks often have easier access to lower-cost funding sources and greater bargaining power in financial markets. Their extensive geographic reach and widespread service networks also allow them to target a broader market segment, ultimately increasing their revenue potential.

Table 3. Results of Direct Effect Test

	Unstandardized Estimate	Standardized Coefficient	t-Value
EQ/ASS→ ROA	0.05	0.01	2.93*
LLP/GL→ ROA	0.43	0.10	2.72*
LA/SL → ROA	0.24	0.21	1.39*
TC/TI→ ROA	0.02	0.17	2.24**
LNTA→ ROA	-1.14	-0.23	-1.24*
HHI→ ROA	-0.09	-0.16	-1.63*
INGDP→ ROA	0.32	0.01	-1,08**
INF→ ROA	0.31	0.01	2.08*

Note:

*) significant on α = 5%

**) significant on α = 10%

Source: Data processed by the author

This study investigates the impact of capital adequacy on the profitability of banking institutions. The empirical results reveal a t-value of 2.72, indicating that the hypothesis is statistically supported. The positive relationship between capital adequacy and bank profitability can be explained from two primary perspectives. First, banks with higher capital adequacy ratios are generally perceived as having a more robust financial structure. This perception enhances trust among customers and investors, which in turn facilitates greater intermediation activities and the growth of productive assets. Second, strong capital reserves provide banks with the flexibility to pursue investment opportunities and business expansion without overreliance on external funding sources. Furthermore, a high level of capital adequacy reflects effective risk management capabilities, enabling banks to mitigate the potential losses associated with non-performing loans. With lower risk exposure, the need for large loan-loss provisions is reduced, thereby positively affecting net income. In the context of Indonesian banking, institutions with a Capital Adequacy Ratio exceeding the regulatory minimum tend to exhibit superior financial performance. Thus, capital adequacy not only signifies resilience against financial risks but also plays a vital role in fostering long-term profitability.

Hypothesis 3 of this study aims to empirically examine the influence of credit risk on bank profitability, specifically the proposition that credit risk negatively affects profitability. However, the empirical findings do not support this hypothesis, as indicated by a t-value of 1.39, which fails to

demonstrate statistical significance. In the context of the Indonesian banking sector, the insignificant impact of credit risk on profitability can be understood through both theoretical frameworks and empirical conditions. Conceptually, credit risk refers to the potential loss a bank may incur when borrowers fail to meet their financial obligations. Typically, a higher level of credit risk is associated with greater potential losses, which should theoretically lead to lower profitability. Nevertheless, the empirical evidence from Indonesia suggests that this relationship is not consistently significant. Several factors may account for this finding. First, Indonesian banks have increasingly implemented robust risk management strategies. Many institutions have strengthened their internal control systems, adopted risk-based credit assessments, and enforced more stringent lending policies. These efforts in credit risk mitigation help reduce the probability of loss from non-performing loans, thereby weakening the direct impact of credit risk on profitability. Second, credit portfolio diversification plays a critical role. Banks in Indonesia do not solely depend on interest income from loans but also generate revenue from non-interest sources such as fee-based services and other financial products. As the contribution of non-credit income grows, fluctuations in credit risk exert a diminished effect on overall profitability. Third, macroprudential policies and regulatory support from financial authorities such as the Financial Services Authority (OJK) and Bank Indonesia have contributed to maintaining financial system stability. With external conditions relatively under control, credit risk does not appear to be a dominant factor influencing profit performance. Finally, from a quantitative analysis perspective, the insignificance of credit risk may also be attributed to multicollinearity or the presence of mediating variables not captured in the current model. Credit risk may interact with other factors such as managerial efficiency or bank liquidity, thus diminishing its direct observable effect in linear regression analysis. Considering these aspects, the lack of a significant relationship between credit risk and bank profitability in Indonesia should not be interpreted as a sign of irrelevance. Rather, it reflects the resilience of the banking system, which has developed effective mechanisms to manage and absorb the impact of credit-related risks on financial performance.

The fourth hypothesis in this study seeks to empirically verify that management efficiency has a positive influence on bank profitability. Based on the results of the hypothesis testing, the obtained t-value was 2.24, indicating that the hypothesis is statistically supported. In the banking context, management efficiency refers to the ability of a bank's management team to utilize resources effectively this includes controlling operational costs, allocating assets efficiently, and making timely and strategic decisions. High levels of efficiency enable banks to minimize expenses without compromising service quality, thereby enhancing profit margins.

In Indonesia, where the banking sector operates in a highly competitive and dynamic environment, efficient management allows banks to respond swiftly to market and regulatory changes, as well as to seize emerging business opportunities. Moreover, managerial efficiency plays a critical role in improving labor productivity and leveraging technology, which in turn accelerates and refines service delivery. Enhanced service performance contributes to greater customer satisfaction and market share expansion, ultimately leading to increased revenue and profitability. Competent management also supports better risk management practices, particularly in managing credit and operational risks, thereby contributing to more stable long-term income streams. Consequently, managerial efficiency has a positive impact on the profitability of banks in Indonesia by promoting cost optimization, productivity improvements, and more effective risk mitigation. Over the long term, efficiently managed banks tend to demonstrate more stable and favorable financial performance compared to their less efficient counterparts.

The fifth hypothesis of this study empirically examines the positive influence of management efficiency on bank profitability. The hypothesis is supported by the statistical test, which yielded a t-value of 2.24, indicating significant empirical evidence. In the banking sector, management efficiency refers to the ability of management to optimally utilize available resources, including effective control of operational costs, efficient asset allocation, and timely, targeted strategic decision-making. High levels of efficiency enable banks to reduce expenses without compromising service quality, thereby improving profit margins. In Indonesia's dynamic and competitive banking environment, institutions with efficient management are better positioned to adapt swiftly to market fluctuations and regulatory changes. These banks are also more adept at seizing emerging business opportunities. Moreover, managerial efficiency enhances labor productivity and facilitates the effective use of technology, leading to faster and more accurate service delivery. This not only improves customer satisfaction but also expands market share, ultimately contributing to increased revenues and profitability. Additionally, competent management teams are better equipped to manage various types of risks, such as credit and operational risks, which supports the long-term stability of income streams. Consequently, management efficiency positively affects bank profitability in Indonesia by driving cost optimization, improving productivity, and strengthening risk management. Over the long term, efficiently managed banks tend to achieve more stable and profitable financial performance compared to their less efficient counterparts.

The sixth hypothesis in this study proposes that market concentration has a positive influence on bank profitability. However, the statistical testing produced a t-value of -1.63, indicating that this hypothesis is not statistically supported. Market concentration reflects the extent to which market share is dominated by a small number of large banks within the banking industry. In highly concentrated markets, a few dominant banks control a significant portion of assets, loans, or deposits. Although such dominance may seem advantageous in terms of market control, its impact on overall bank profitability can be adverse. High market concentration tends to reduce competitive pressure among banks. In such environments, large banks often feel little urgency to enhance operational efficiency or to innovate their financial products and services. As a result, operational costs remain elevated, while income from banking services stagnates. Reduced efficiency directly affects profit margins. Furthermore, a high level of market concentration can lead to a phenomenon known as "market complacency," where dominant banks become overly comfortable with their position and less responsive to market changes or customer needs. Over time, this can erode competitiveness and hinder revenue growth. From a regulatory standpoint, large banks operating in concentrated markets are frequently subject to stricter oversight by financial authorities. Increased regulatory complexity raises compliance costs, which in turn reduces net earnings. Additionally, smaller banks in such environments face significant barriers to growth, particularly in terms of credit distribution and fund acquisition, due to the dominance of major players. This imbalance limits opportunities for collaboration and collective industry advancement, ultimately diminishing sector-wide profitability. Therefore, while market concentration may signal strength and dominance on the surface, in practice, it can lead to a less dynamic and less efficient market structure, which negatively affects bank profitability.

Hypothesis seven of this study posits that inflation negatively affects bank profitability. The statistical analysis yields a t-value of -1.08, indicating that this hypothesis is empirically supported. Inflation, as a key macroeconomic indicator, plays a significant role in influencing the performance of the banking sector, particularly its profitability. Generally, high inflation exerts downward pressure

on bank earnings through multiple channels. One of the primary channels is the erosion of consumers' purchasing power. As inflation rises, the prices of goods and services also increase, which may impair borrowers' ability to meet their debt obligations. This raises the likelihood of credit defaults or non-performing loans (NPLs), which ultimately diminishes banks' net interest income. In addition, inflation tends to drive up operational expenses such as labor costs, building leases, and other service-related expenditures. These cost increases are not always matched by a corresponding rise in revenue, especially when loan interest rates cannot be adjusted proportionally due to regulatory constraints or intense market competition. As a result, banks' profit margins become compressed. From a Keynesian perspective, inflation creates heightened uncertainty in the economy, which undermines business confidence and reduces the willingness of both firms and individuals to engage in investment or long-term borrowing. Keynes emphasized the role of expectations in shaping economic decisions, and inflation especially when volatile can distort those expectations. As uncertainty rises, the preference for liquidity increases, leading to reduced credit demand and lower financial intermediation. This directly affects banks' core income-generating activities. Moreover, when inflation outpaces nominal interest rates, real interest returns turn negative, thereby eroding the real value of banks' financial assets and savings products. In sum, inflation contributes to reduced operational efficiency, heightened credit risk, and diminished attractiveness of banking products. Therefore, sustained and uncontrolled inflation, particularly in the Keynesian context of unstable expectations and liquidity preference, is generally detrimental to bank profitability.

Hypothesis eight in this study posits that economic growth has a positive influence on bank profitability. The test results show a t-value of 2.08, indicating that this hypothesis is empirically supported. Generally, positive economic growth reflects an increase in a country's overall economic activity, including rising household incomes, expansion in the real sector, and greater demand for goods and services, including financial services. In the banking context, such conditions present broader opportunities for banks to extend credit and diversify their financial offerings. As economic growth accelerates, credit demand from both households and corporations tends to rise, driven by increased optimism toward investment and consumption. Loans extended by banks become a major source of revenue in the form of interest income. Provided that credit quality remains stable and default risks are minimal, banks are likely to see an increase in net interest income, thereby enhancing profitability. Moreover, in a growing economy, the level of non-performing loans (NPLs) typically declines as borrowers' repayment capacities improve, which helps reduce credit risk provisioning costs. Economic expansion also facilitates income diversification opportunities, such as increases in fee-based revenues derived from non-lending services. Higher economic activity boosts the volume of banking transactions including fund transfers, treasury services, and trade finance which contribute positively to bank earnings. From a theoretical standpoint, a stable and growing macroeconomic environment sends a favorable signal by reducing market uncertainty. This instills greater confidence among investors and the public in the financial system, including the banking sector, ultimately strengthening the banks' financial positions and competitive edge in the long term. Therefore, both logically and empirically, economic growth is positively associated with bank profitability.

CONCLUSION AND SUGGESTION

This study provides comprehensive empirical evidence on the determinants of bank profitability in the Indonesian banking sector, examining both internal and external factors. The findings indicate that bank size, capital adequacy, managerial efficiency, and economic growth

significantly and positively influence profitability, while credit risk, market concentration, and inflation do not demonstrate consistent or statistically significant effects. The positive impact of bank size affirms that larger institutions benefit from economies of scale, product diversification, operational efficiency, and stronger market positioning. Capital adequacy emerges as a critical determinant, highlighting the dual role of capital in ensuring financial resilience and enabling strategic expansion. The significance of management efficiency underscores the importance of effective governance and resource optimization in driving financial performance. Moreover, the positive association between economic growth and profitability reaffirms the procyclical nature of banking, whereby macroeconomic expansion enhances credit demand and reduces default risk. Conversely, the lack of statistical significance for credit risk suggests that enhanced risk management systems and income diversification strategies have mitigated its direct impact on profitability. Similarly, the non-significant influence of market concentration implies that dominance in market share does not inherently lead to superior financial performance, possibly due to inefficiencies and regulatory burdens associated with large-scale operations. The observed negative but statistically unsupported relationship between inflation and profitability indicates that inflationary pressures may affect performance through indirect and complex channels.

Several policy recommendations can be derived from the study's findings: (1) Strengthen Capital Standards: Regulators should continue to encourage banks to maintain capital levels well above the regulatory minimum, as capital adequacy not only buffers against financial shocks but also enhances profitability through increased investor confidence and strategic flexibility. (2) Support Bank Scaling and Consolidation: Policies that facilitate the growth or consolidation of smaller banks into more robust entities could enhance industry competitiveness and profitability, particularly through scale efficiencies and broader service capabilities. (3) Enhance Managerial Capabilities: Investment in human capital, leadership development, and digital transformation should be prioritized to improve management efficiency. Supervisory bodies could consider implementing competency based assessments and incentives for performance-oriented governance. (4) Leverage Macroeconomic Stability: Macroeconomic policies that foster sustainable economic growth should be synchronized with financial sector development. By maintaining stable and growth-oriented economic conditions, policymakers indirectly support a more profitable and resilient banking industry. (5) Monitor Credit Risk Beyond Traditional Metrics: While credit risk may not show a direct impact on profitability, it remains essential to monitor through forward-looking indicators and stress testing, especially considering the potential for structural or macroeconomic shifts. (6) Encourage Competitive but Inclusive Market Structures: Efforts to reduce excessive concentration and promote fair competition such as fintech integration, open banking frameworks, and SME banking support can improve sectoral efficiency and foster innovation without compromising profitability. (7) Address Inflationary Pressures with sector specific policies: given the nuanced effect of inflation, targeted interventions such as flexible interest rate policies, indexed financial products, and cost-efficiency programs can help banks manage inflation-related risks more effectively. In conclusion, enhancing bank profitability in Indonesia requires a balanced approach that strengthens internal capabilities while fostering a supportive macroeconomic and regulatory environment. By aligning institutional strategies with policy frameworks, stakeholders can ensure the long-term sustainability and competitiveness of the banking sector.

Limitations and Directions for Future Research

While this study contributes to the growing body of literature on bank profitability by examining the roles of capital adequacy, credit risk, management efficiency, and inflation, it is not without limitations. First, the analysis is confined to a specific national context and timeframe, which may limit the generalizability of the findings across different banking environments or economic cycles. Banking behavior is often shaped by institutional settings, regulatory frameworks, and macroeconomic conditions that vary significantly across countries and time periods. Second, the study primarily employs secondary quantitative data, which although statistically robust may not fully capture the nuanced managerial judgments or strategic considerations that influence financial outcomes. The exclusion of qualitative dimensions could overlook important contextual insights that numbers alone cannot convey. Third, the use of linear regression techniques, while appropriate for the current model, may oversimplify the complex, possibly nonlinear relationships among macroeconomic indicators and bank performance. Economic phenomena such as inflation often interact with firm-level dynamics in ways that evolve over time and may not be immediately evident in static models.

Future research could enrich this study by adopting a cross-country or longitudinal comparative approach, allowing scholars to explore the interplay between structural differences and bank profitability. Incorporating qualitative methods, such as interviews with bank executives or case studies, could also provide a more holistic view of decision-making processes under economic pressure. Moreover, applying dynamic or nonlinear econometric models may uncover hidden patterns and better reflect real-world complexities. Finally, integrating behavioral and institutional variables could open new avenues for understanding how banks navigate uncertainty, particularly in volatile macroeconomic environments.

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