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# *CAPITAL ADEQUACY ANALYSIS AND RESILIENCE OF BANK PERKREDITAN RAKYAT (BPR) IN MALANG CITY*

# CAPITAL ADEQUACY ANALYSIS AND RESILIENCE OF PEOPLE'S CREDIT BANKS (BPR) IN MALANG CITY

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***ABSTRACT***

*In the context of Indonesia's banking sector, Rural Banks (BPRs) play a vital role in supporting community development and small businesses in rural areas, though they face challenges like declining numbers, limited national economic contribution, and low capital levels. This study examines the capital adequacy of Rural Banks (BPR) in Malang City, focusing on the Capital Adequacy Ratio (CAR) and its implications for bank resilience. This quantitative research uses financial statement data from seven BPRs in Malang City during 2023 as the population and sample. The data were analyzed using descriptive statistics to assess the adequacy of capital and sensitivity to a 5% and 10% increase in Risk-Weighted Assets (RWA). The findings indicate that all BPRs maintain CARs above the minimum threshold of 12%, even under increased RWA conditions. The findings emphasize the need for robust capital management to ensure BPR resilience under varying risk scenarios. This study provides critical insights for Rural Bank managers and regulators, emphasizing the need for robust capital adequacy management to sustain operations, ensure financial stability, and mitigate risks in dynamic economic environments.*
***Keywords**: Capital Adequacy Ratio, BPRs, Resilience, Risk Weighted Assets, Sensitivity Analysis.*

**ABSTRAK**

Dalam konteks sektor perbankan Indonesia, Bank Pedesaan (BPR) memainkan peran penting dalam mendukung pembangunan masyarakat dan usaha kecil di daerah pedesaan, meskipun menghadapi tantangan seperti penurunan jumlah, kontribusi ekonomi nasional yang terbatas, dan tingkat modal yang rendah. Studi ini meneliti kecukupan modal Bank Pedesaan (BPR) di Kota Malang, dengan fokus pada Rasio Kecukupan Modal (CAR) dan implikasinya terhadap ketahanan bank. Penelitian kuantitatif ini menggunakan data laporan keuangan dari tujuh BPR di Kota Malang selama tahun 2023 sebagai populasi dan sampel. Data dianalisis menggunakan statistik deskriptif untuk menilai kecukupan modal dan sensitivitas terhadap peningkatan Aset Tertimbang Risiko (RWA) sebesar 5% dan 10%. Hasil penelitian menunjukkan bahwa semua BPR mempertahankan CAR di atas ambang batas minimum 12%, bahkan dalam kondisi peningkatan RWA. Temuan ini menekankan perlunya manajemen modal yang kuat untuk memastikan ketahanan BPR dalam berbagai skenario risiko. Studi ini memberikan wawasan penting bagi para manajer dan regulator Bank Pedesaan, menekankan perlunya manajemen kecukupan modal yang kuat untuk mempertahankan operasional, memastikan stabilitas keuangan, dan mengurangi risiko dalam lingkungan ekonomi yang dinamis.
**Kata kunci**: Rasio Kecukupan Modal, BPR, Ketahanan, Aset Tertimbang Risiko, Analisis Sensitivitas

## INTRODUCTION

Banking is a crucial economic sector in Indonesia that significantly contributes to the nation's economic development (Puspitasari & Dinuka, 2023). Among the various types of banking institutions in Indonesia, the Rural Bank (Bank Perkreditan Rakyat or BPR) plays a specific role based on its functions. BPRs are designed to support community development, small businesses, and entrepreneurs in rural and peri-urban areas (Buchdadi et al., 2020). Between 2019 and 2023, the number of BPRs declined from 1,542 to 1,402, indicating a downward trend (Otoritas Jasa Keuangan, 2024c).

BPRs encounter challenges, notably their limited economic contribution at the national level. BPRs account for only 2.99% of total banking credit accounts nationwide. Additionally, they struggle with adopting digital technology, particularly

in establishing adequate information technology infrastructure. The most pressing issue is their relatively low capital adequacy, with the majority operating at capital levels below IDR 15 billion (Otoritas Jasa Keuangan, 2024c). Internal capital, retained within the business for an extended period, is vital for ensuring the resilience of banks, enabling them to absorb financial losses (Kishore, 2022). The Capital Adequacy Ratio (CAR) serves as a critical measure of a bank's stability and resilience. Banks that meet CAR standards are deemed resilient, capable of withstanding financial crises while safeguarding both the institution and depositors' funds (Usman et al., 2019).

The CAR comprises core capital (Tier 1) and supplementary capital (Tier 2), calculated based on Risk-Weighted Assets (RWAs). The RWAs are a critical indicator, determining the volume of capital a bank must maintain. Lower levels of RWAs lead to higher CAR values, indicating a stronger capital position (Kishore, 2022). A higher CAR demonstrates a bank's enhanced ability to absorb risks associated with its earning assets, ensuring business resilience (Mahardiyanto & Prajasari, 2024).

The Financial Services Authority (Otoritas Jasa Keuangan or OJK) Regulation No. 5/POJK.03/2015 requires BPRs to maintain a minimum CAR of 12% of their RWAs (Otoritas Jasa Keuangan Republik Indonesia, 2015). Banks with CARs below 12% but above 8% are placed under intensive supervision, while those with CARs below 8% but above 2% fall under special supervision. If a BPR remains under special supervision and the Indonesia Deposit Insurance Corporation (Lembaga Penjamin Simpanan or LPS) opts not to rescue the bank, the OJK revokes its operating license (Otoritas Jasa Keuangan Republik Indonesia, 2017). Between 2019 and 2023, nine BPRs in Indonesia had their licenses revoked for failing to meet the minimum CAR requirements, according to an OJK press release.

Based on publications by the Financial Services Authority, there are 7 Rural Banks in Malang City that routinely publish their financial reports on a quarterly basis. The seven Rural Banks consist of PT BPR Putera Dana, PT BPR Armindo Kencana, PT BPR Gunung Arjuna, PT Bank Perekonomian Rakyat Gunung Ringgit, PT BPR Tugu Artha Sejahtera Kota Malang (Perseroda), PT BPR Trikarya Waranaugraha, and PT BPR Putra Arta Dewata (Otoritas Jasa Keuangan, 2024a). BPRs publish financial reports on a quarterly basis through the OJK website. The published reports include key financial ratios, including CAR, NPL, LDR, and BOPO. The financial statements presented do not always reflect the actual financial condition because Bank Indonesia (BI) and OJK generally only conduct in-depth audits when there are indications of fraud (Miskak, 2019).

BPRs in Malang City have experienced a decline in total CAR over the past year. In 2022, the total CAR of BPRs in Malang City was 123.02%, which decreased to 110.94% in 2023 (Otoritas Jasa Keuangan, 2024b). One government-owned BPR, BPR Tugu Artha, encountered a significant challenge when its proposed capital injection of IDR 1.5 billion was rejected by the Malang City Regional House of Representatives (Dewan Perwakilan Rakyat Daerah or DPRD) (Wicaksana, 2023). This rejection is likely to impact the bank's capital, which is a critical component of CAR.

The need for adequate capital management to mitigate risks associated

with assets, as well as potential changes in RWA that may affect the resilience of BPRs, has prompted researchers to examine capital adequacy and perform sensitivity analyses on RWA. Variations in the minimum CAR thresholds stipulated in the latest Financial Services Authority regulations, combined with the limited focus on BPRs in prior research, form the rationale for conducting this study. This research seeks to provide insights and recommendations for Rural Bank management in Malang City to optimize capital management and ensure compliance with the minimum CAR standards established by OJK.

Previous studies on capital adequacy have been conducted by various researchers. Researcher 1 ??? highlighted that newly established private banks in India demonstrate strong awareness of capital resilience in terms of operational and risk profile management (Kishore, 2022). Similarly, researcher 2 ??? identified a positive relationship between capital adequacy and the resilience of the banking system in Indonesia, applying an 8% CAR threshold for RWA (Mahardiyanto & Prajasari, 2024). However, these studies did not address the capital adequacy of BPRs, which are subject to a higher minimum CAR requirement of 12%, nor did they explore RWA sensitivity analysis to assess its role in supporting BPR resilience.

Both studies ???? primarily focus on commercial banks, which are subject to a minimum CAR of 9% for private banks in India and 8% for commercial banks in Indonesia. However, these studies do not address the capital adequacy conditions specific to BPRs which are required to maintain a higher minimum CAR of 12%. Additionally, sensitivity analysis on RWA to evaluate its role in supporting the resilience of BPRs has not been explored.

Although numerous studies have discussed the CAR in the banking sector, research on CAR in BPRs remains limited. Moreover, most studies do not incorporate sensitivity analysis to assess the impact of increases in RWA on CAR. This study fills that gap by conducting a sensitivity analysis on RWA at 5% and 10% and recalculating CAR using OJK accounting standards to provide a more accurate depiction of capital adequacy in BPRs in Malang. These findings offer new insights for regulators and BPR management in maintaining capital resilience amid economic uncertainty.

This study aims to analyze the capital adequacy of BPRs in Malang City recalculated through CAR based on the BPRs accounting made by OJK and its implications for bank resilience. Specifically, it seeks to assess the sensitivity of RWA to determine how increases in RWA affect CAR levels. This research is essential, as BPRs that fail to meet the minimum CAR threshold and remain under special supervision are at risk of having their operating licenses revoked by the OJK.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Agency theory posits that agency relationships are contractual arrangements in which principals engage agents to perform services on their behalf by delegating decision-making authority to the agents. To mitigate potential conflicts of interest, principals may incur costs, such as monitoring fees, to ensure agents act in the principals' best interests or compensate for losses resulting from fraudulent behavior (Jensen & Meckling, 1976). An agency relationship arises when one or more

individuals (principals) hire another individual (agent) to provide a service and delegate decision-making authority. Transparency in fund management is critical, as principals need assurance regarding the actions undertaken by the agent. However, agents may have incentives to manipulate accountability reports to present favorable outcomes. To prevent such behavior, the involvement of independent third parties, such as auditors, is essential. Auditors enhance the accuracy and transparency of accountability reports, thereby reducing the risk of fraud by agents (Purba et al., 2023).

Indonesia's capital framework adopts the Basel III framework. Basel III is a banking regulatory standard issued by the Basel Committee on Banking Supervision (BCBS). This standard is a regulatory reform in the banking sector in response to the 2008 global financial crisis caused by a lack of capital adequacy, high variation in Risk Weighted Assets between banks, very high leverage levels, and a liquidity crisis. The implementation of Basel III in Indonesia has been implemented in stages starting January 2019. The Financial Services Authority encourages the implementation of the Basel III framework in Indonesia by prioritizing national interests (Otoritas Jasa Keuangan, 2019).

BPR is a bank which in conducting its activities does not provide services in payment traffic. This means that the activities of Rural Banks are much narrower when compared to those of Commercial Banks (Otoritas Jasa Keuangan, 2019). Business activities that can be carried out by Conventional BPR include: Collection of funds in the form of deposits in the form of time deposits and savings from the public; Lending; Placement of funds in the form of Bank Indonesia Certificates, time deposits, certificates of deposit and savings at other banks (Setiasih et al., 2022).

Bank capital is the amount of funds invested by bank owners to finance bank operations in a predetermined amount. Bank capital exists as a bank reserve fund if at any time the bank experiences difficult conditions. The more bank capital, the better the bank's growth will be even though the bank's capital has exceeded the rules set by the central bank (Sukmayadi, 2020).

The structure and level of bank capital reflects the strength and capacity of the bank to carry out its intermediation function, as well as a measure of the bank's resilience to various potential risks. As a financial institution, BPRs are required to maintain their capital adequacy. The Financial Services Authority (OJK) requires every BPR to maintain its capital structure and adequacy. The capital structure of a BPR consists of several main components, namely core capital and supplementary capital (Otoritas Jasa Keuangan Republik Indonesia, 2015).

Core capital is divided into two parts. First, the main core capital, which includes paid-up capital and additional capital reserves. Second, additional core capital, which includes additional capital beyond the main core capital under certain conditions. Meanwhile, supplementary capital consists of several components. The first component is capital that must meet a number of conditions, such as not being guaranteed by the BPR concerned and being fully paid. Other components include surplus from fixed asset revaluation and general Provision for Earning Assets, with a maximum limit 1.25% of RWA (Otoritas Jasa Keuangan, 2019).

Provision for Earning Assets is a reserve that must be established at a certain percentage of the outstanding balance based on the quality classification of Earning Assets. BPRs are required to form PPAP consisting of general PPAP and special PPAP for each Earning Asset. The provision for allowance for possible losses on earning assets (PPAP) is determined as follows. General PPAP is determined at a minimum of 0.5% of earning assets that have current quality. Meanwhile, special PPAP is determined based on the quality level of earning assets after deducting the value of collateral. For earning assets with special mention quality, special PPAP is set at a minimum of 3%. For earning assets with substandard quality, the provision is at least 10%. Furthermore, for earning assets with doubtful quality, the special PPAP is set at 50%. For earning assets with loss quality, the provision is 100% (Otoritas Jasa Keuangan, 2018).

The CAR serves as a key metric to evaluate a bank's capacity to absorb risks associated with its assets. This ratio ensures that banks maintain sufficient capital to cover potential losses arising from their operations and measures their ability to finance risky assets effectively (Komarudin et al., 2024). According to Financial Services Authority Regulation No. 5/POJK.03/2015, BPRs are mandated to maintain a minimum CAR of at least 12% of RWA (Otoritas Jasa Keuangan Republik Indonesia, 2015). CAR ratings are classified into five categories: highly adequate capital adequacy, adequate capital adequacy, quite adequate capital adequacy, inadequate capital adequacy, and not adequate capital adequacy (Otoritas Jasa Keuangan, 2022). These classifications serve as benchmarks for assessing the financial health and resilience of BPRs.

In accordance with Financial Services Authority Regulation Number 5/POJK.03/2015, RWA represent the total balance sheet assets of a BPR, assigned specific weights based on the risk level of each asset item as outlined in regulatory provisions (Otoritas Jasa Keuangan Republik Indonesia, 2015). Regulators assess a bank's assets by weighing their risk levels to determine the required capital allocation. Safe assets, such as cash, are excluded from risk calculations, whereas riskier assets, such as loans to other institutions, are assigned higher weights. The greater the proportion of risky assets, the higher the potential reduction in earnings or capital, necessitating increased capital reserves (Ramirez, 2017). Credit risk factors affecting RWA include Exposure at Default, Probability of Default, Loss Given Default, and Default Correlations (Bandyopadhyay, 2016). Unlike previous studies that only discussed CAR in commercial or general banks, this research focuses on BPRs, which have different capital characteristics and a higher minimum CAR requirement (12%). Additionally, this study incorporates a sensitivity analysis approach to changes in RWA, which has rarely been applied in previous studies related to BPRs.

Resilience refers to a bank's ability to remain stable and thrive over the long term by effectively managing capital, liquidity, and risk. Capital allocation should prioritize resilience by maintaining profitability and capital strength across business cycles (Choudhry, 2018).

(Margono et al., 2020) highlight that CAR measures the extent to which a decline in bank assets can be absorbed by available capital. A higher CAR indicates a stronger capacity to withstand financial risks, ensuring better bank performance. Similarly,

(Suyanto, 2021) found that sufficient capital enables banks to cover bad loans, thereby enhancing financial resilience. (Mahardiyanto & Prajasari, 2024) analyzed Bank Muamalat and concluded that capital adequacy positively influences resilience and strengthens the overall banking system.

(Rustendi, 2019) specifically analyzed the performance of BPRs and concluded that BPRs with strong capital adequacy exhibit better financial stability. Conversely, insufficient capital adequacy leads to financial instability. Similarly, (Kishore, 2022) conducted a sensitivity analysis of RWA on nine private banks in India. The findings revealed that banks maintaining capital adequacy well above the minimum threshold remain resilient despite an increase in risky assets. This underscores the critical role of capital adequacy in ensuring bank resilience.

Previous research has consistently highlighted the significance of capital adequacy and CAR in promoting bank stability and resilience. However, the majority of these studies have focused on commercial or private banks, which operate under lower minimum CAR thresholds compared to BPRs. Additionally, sensitivity analyses of RWA are rarely conducted on BPRs. This study seeks to address this gap by examining the capital adequacy of BPRs in Malang City and assessing their sensitivity to RWA increases in sustaining bank operations and long-term performance.

## RESEARCH METHODS

This study utilizes secondary data, comprising quarterly financial reports from seven BPRs in Malang City for the 2019–2023 period. The data were obtained from official publications available on the Financial Services Authority website. The seven banks analyzed in this research are PT. BPR Putera Dana, PT. BPR Armindo Kencana, PT. BPR Gunung Arjuna, PT. BPR Gunung Ringgit, PT. BPR Tugu Artha Sejahtera Kota Malang (Perseroda), PT. BPR Trikarya Waranugraha, and PT. BPR Putra Arta Dewata. The primary method employed in this study involves the calculation and analysis of the CAR, which serves as the key metric to evaluate the capital adequacy of these banks.

According to the Circular Letter of the Financial Services Authority of the Republic of Indonesia Number 11/SEOJK.03/2022, capital adequacy is measured using the CAR. The CAR is classified into five categories to evaluate the bank's capital adequacy level and its implications for resilience (Otoritas Jasa Keuangan, 2022). The key components of capital adequacy are Core Capital (Tier 1), Supplementary Capital (Tier 2), and RWA.

**Table 1. Classification of Capital Adequacy Ratio**

| Rank | CAR Tiers | Notes |
|---|---|---|
| 1st rank | CAR ≥ 15% | Very adequate |
| 2nd rank | 13% ≤ CAR < 15% | Adequate |
| 3rd rank | 12% ≤ CAR < 13% | Quite adequate |
| 4th rank | 8% ≤ CAR 12% | Inadequate |
| 5th rank | CAR < 8% | Not adequate |

Source: Circular Letter of the OJK Number 11/SEOJK.03/2022.

Table 1 outlines the five classifications of the CAR, which reflect a bank’s capital sufficiency and its ability to withstand financial risks. Banks with a CAR of 15% or higher are classified as having very adequate capital. This level signifies a strong financial position and the ability to absorb significant risks effectively. Banks with a CAR between 13% and

less than 15% are considered to have adequate capital. While still stable, this level provides slightly less risk coverage compared to the very adequate category. Those with a CAR between 12% and less than 13% fall into the quite adequate category, indicating that their capital is sufficient but with a narrower margin for managing potential risks.

Banks with a CAR between 8% and less than 12% are classified as having inadequate capital. This level suggests that the bank needs to strengthen its capital to maintain financial stability. Lastly, banks with a CAR below 8% are considered to have not adequate capital. This category reflects a critical deficiency in capital, posing a high risk of financial instability and potentially requiring regulatory intervention. These classifications, as defined by the Financial Services Authority (OJK), provide a clear framework for evaluating the capital adequacy and financial health of banking institutions. This research ensures that the analyzed CAR accurately reflects the financial condition of BPRs in accordance with OJK regulations, unlike previous studies that relied solely on published financial reports without recalculating the CAR.

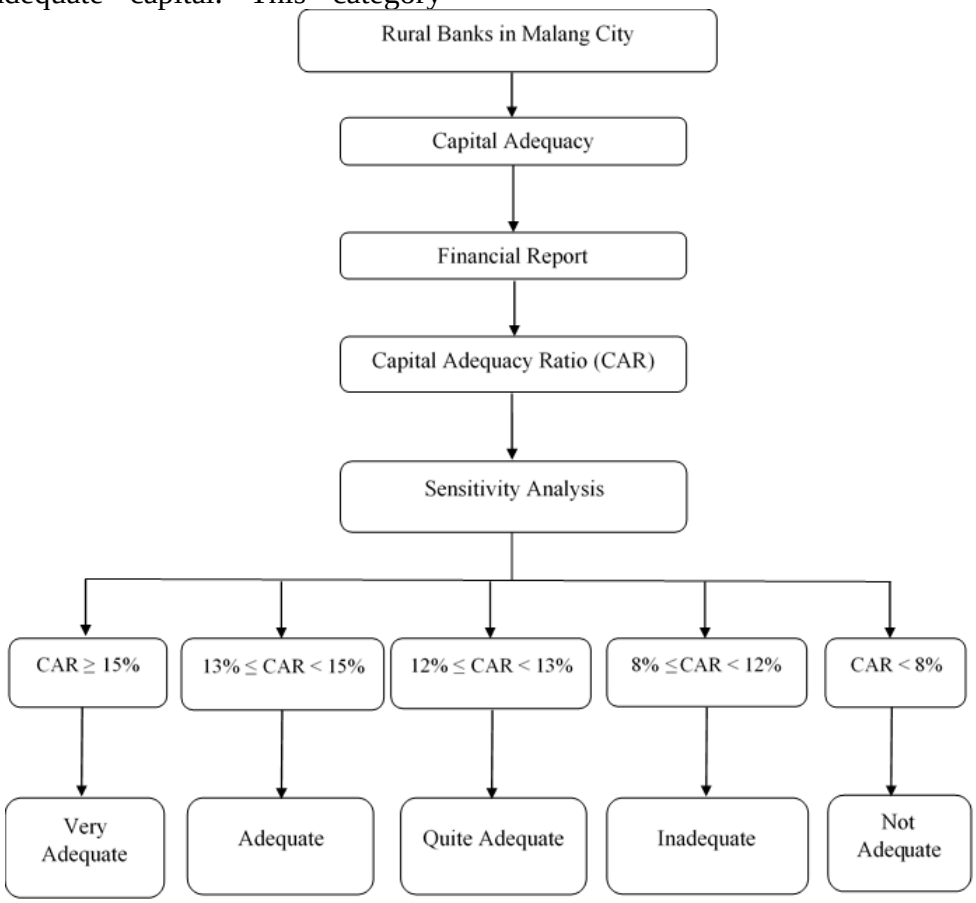


**Figure 1. Conceptual Framework**

This conceptual framework describes the flow of analysis used in the study to evaluate the capital adequacy of BPR in Malang City. This study uses BPR financial statements as the basis for calculating the CAR. The CAR is calculated by dividing the core capital and supplementary capital owned by the BPR with Risk Weighted Assets. Based on Financial Services

Authority Regulation No. 5/POJK.03/2015, the minimum CAR limit that must be met is 12%. As a further step, a sensitivity analysis was conducted to evaluate the impact of changes in RWA on the CAR calculation results, with scenarios of an increase of 5% and 10%. The results of the CAR calculation are then classified into five capital adequacy ratings according to the guidelines set by the Financial Services Authority, ranging from very adequate to not adequate.

The data analysis in this study employs descriptive statistics to evaluate the minimum, maximum, and mean values of the CAR for the period 2019 to 2023. The calculations also involve a recalculation of CAR values for 2023 and a sensitivity analysis to predict how CAR would be affected by potential increases in RWA. This approach provides insights into the overall capital adequacy trends and the potential impacts of changes in risk exposure on the financial stability of BPRs.

$$\boldsymbol{CAR} = \frac{\boldsymbol{Core\ Capital + Supplementary\ Capital}}{\boldsymbol{RWAs}}$$

**(1)**

$$\boldsymbol{CAR} = \frac{\boldsymbol{Core\ Capital + Supplementary\ Capital}}{\boldsymbol{5\%\ RWAs}}$$

**(2)**

$$\boldsymbol{CAR} = \frac{\boldsymbol{Core\ Capital + Supplementary\ Capital}}{\boldsymbol{10\%\ RWAs}}$$

**(3)**

The Equations presented describe the calculation of the CAR and its sensitivity analysis under varying conditions of RWA. Equation (1) represents the general calculation of CAR, which is determined by dividing the sum of Core Capital and Supplementary Capital by the total RWAs. This Equation evaluates a bank's ability to absorb risks and maintain financial stability based on its capital relative to the weighted risks of its assets.

Equations (2) and (3) extend this calculation to conduct sensitivity analysis. This analysis is used to predict the results of specific actions or decisions taken under certain conditions (Ichsan et al., 2019). In Equation (2), the denominator is adjusted to include a 5% increase in RWAs, simulating the impact of a moderate rise in asset risk. Similarly, Equation (3) incorporates a 10% increase in RWAs to examine the effects of a higher level of risk. These sensitivity analyses help assess the robustness of a bank's capital position under varying levels of risk exposure.

To complete this research, there are several steps taken. The first step is to provide an overview of the capital conditions of seven BPRs in Malang City based on the CAR contained in the financial statements of each BPR, however, the financial statements are only accounted for in the General Meeting of Shareholders. The presentation of the published financial statements also does not fully refer to the BPR accounting guidelines set by the Financial Services Authority. This condition is the basis for recalculating the CAR based on BPR accounting guidelines.

Furthermore, this research is continued by recalculating the CAR of the seven BPRs, through recalculation of Risk-Weighted Assets and capital based on accounting provisions set by the Financial Services Authority. After that, the resilience of the BPRs is explained by referring to the results of the CAR rating which has been classified into five capital adequacy ratings by the Financial Services Authority. The final step is to conduct a sensitivity analysis to measure the effect of a 5% and 10% increase in RWA on the CAR results. The results of this

sensitivity analysis are then reclassified according to the capital adequacy rating set by the Financial Services Authority.

## RESULTS AND DISCUSSIONS

### Descriptive Statistics of BPRs in Malang

Table 2 presents the descriptive statistical results of the CAR for seven BPRs in Malang City during the 2019–2023 period. The table includes the minimum, maximum, and mean CAR values for each BPR, highlighting variations in capital adequacy across the institutions. The CAR minimum values range from as low as 0.00% for PT. BPR Putra Arta Dewata to a higher minimum of 82.53% for PT. BPR Trikarya Waranugraha.

The maximum CAR values show significant variability, with PT. BPR Gunung Arjuna achieved the highest value at 233.29% and PT. BPR Gunung Ringgit recorded a maximum of 96.75%. The mean CAR values further reflect these differences, with PT. BPR Gunung Arjuna maintained the highest average CAR of 110.63% and PT. BPR Gunung Ringgit has a mean of 48.30%. These statistics provide critical insights into the overall capital adequacy performance of BPRs in Malang City, illustrating the disparities in their ability to maintain sufficient capital to cover risk-weighted assets. Such information is valuable for regulators and bank management in ensuring compliance with the minimum CAR standards and sustaining financial stability.

**Table 2. Descriptive Statistical Results of CAR BPR in Malang City 2019-2023**

| BPR Name | Minimum | Maximum | Mean |
|---|---|---|---|
| PT. BPR Putera Dana | 16.06 | 45.26 | 34.78 |
| PT. BPR Armindo Kencana | 41.37 | 76.18 | 61.44 |
| PT. BPR Gunung Arjuna | 34.78 | 233.29 | 110.63 |
| PT. BPR Gunung Ringgit | 12.91 | 96.75 | 48.30 |
| PT. BPR Tugu Artha Sejahtera (Perseroda) | 72.90 | 111.78 | 90.62 |
| PT. BPR Trikarya Waranugraha | 82.53 | 136.91 | 113.86 |
| PT. BPR Putra Arta Dewata | .00 | 126.20 | 77.98 |

Sourced: Processed Data

### Capital Adequacy Ratio Result

Table 3 presents the CAR results for seven BPRs in Malang City for the year 2023. The findings indicate that all seven BPRs consistently meet the minimum CAR requirement of 12%, as mandated by the Financial Services Authority (OJK). This highlights that the capital owned by these banks is sufficient to cover the Risk-Weighted Assets (RWAs) throughout the year, reflecting strong financial resilience.

The CAR values across the BPRs demonstrate that they are well-prepared to manage risk-generating assets, including loans to Micro, Small, and Medium Enterprises (MSMEs), interbank loans, and placements with other banks. Notably, the CAR remains above the minimum threshold even when RWAs are increased by 5% and

10%, as shown in the sensitivity analysis. This underscores the robustness of these banks in maintaining financial stability under varying risk conditions.

Among the seven BPRs, PT. BPR Gunung Arjuna and PT. BPR Trikarya Waranugraha exhibit remarkable capital adequacy, with the highest CAR values recorded across multiple quarters. For instance, PT. BPR Gunung Arjuna achieved a CAR of 163% in the fourth quarter, while PT. BPR Trikarya Waranugraha reached 120% during the same period. These values significantly exceed the regulatory requirement and reflect exceptional capital strength.

On the other hand, BPRs such as PT. BPR Putera Dana and PT. BPR Gunung Ringgit display relatively lower CAR values, but they remain within the "1st Rank" classification, indicating compliance with OJK standards. For instance, PT. BPR Putera Dana recorded a CAR of 19% in the fourth quarter, maintaining sufficient capital adequacy despite its lower relative position compared to other banks.

Overall, the results illustrate the capacity of BPRs in Malang City to sustain their financial operations and meet regulatory requirements. The ability of these banks to maintain CAR values above the minimum threshold, even under increased RWA conditions, aligns with previous research findings (Andriyani et al., 2018; Buchdadi et al., 2020; Gede & Ratnawati, 2020; Margono et al., 2020), which emphasize that strong CAR values are indicative of better financial health and operational stability. These results reaffirm the importance of capital adequacy in ensuring the resilience of BPRs.

**Table 3. Capital Adequacy Results 2023**

| BPR Name | Quarter | CAR | CAR +5% RWAs | CAR +10% RWAs | Description |
|---|---|---|---|---|---|
| PT. BPR Putera Dana | 1 | 25% | 24% | 23% | 1st Rank |
| | 2 | 22% | 21% | 20% | 1st Rank |
| | 3 | 21% | 20% | 19% | 1st Rank |
| | 4 | 19% | 18% | 18% | 1st Rank |
| PT. BPR Armindo Kencana | 1 | 70% | 67% | 64% | 1st Rank |
| | 2 | 72% | 68% | 65% | 1st Rank |
| | 3 | 64% | 61% | 59% | 1st Rank |
| | 4 | 61% | 58% | 56% | 1st Rank |
| PT. BPR Gunung Arjuna | 1 | 153% | 146% | 139% | 1st Rank |
| | 2 | 152% | 144% | 138% | 1st Rank |
| | 3 | 158% | 150% | 143% | 1st Rank |
| | 4 | 163% | 155% | 148% | 1st Rank |
| PT. BPR Gunung Ringgit | 1 | 64% | 61% | 58% | 1st Rank |
| | 2 | 67% | 64% | 61% | 1st Rank |
| | 3 | 63% | 60% | 57% | 1st Rank |
| | 4 | 61% | 58% | 55% | 1st Rank |
| PT. BPR Tugu Artha Sejahtera | 1 | 69% | 66% | 63% | 1st Rank |
| | 2 | 64% | 61% | 58% | 1st Rank |
| | 3 | 63% | 60% | 57% | 1st Rank |

| BPR Name | Quarter | CAR | CAR +5% RWAs | CAR +10% RWAs | Description |
|---|---|---|---|---|---|
| | 4 | 63% | 60% | 58% | 1st Rank |
| PT. BPR Trikarya Waranugraha | 1 | 99% | 94% | 90% | 1st Rank |
| | 2 | 106% | 101% | 96% | 1st Rank |
| | 3 | 117% | 112% | 107% | 1st Rank |
| | 4 | 120% | 114% | 109% | 1st Rank |
| PT. BPR Putra Arta Dewata | 1 | 95% | 90% | 86% | 1st Rank |
| | 2 | 99% | 94% | 90% | 1st Rank |
| | 3 | 80% | 76% | 73% | 1st Rank |
| | 4 | 76% | 73% | 69% | 1st Rank |

Sourced: Processed Data

**Operational Resilience of BPRs**

Table 3 illustrates the CAR rankings of seven Rural Banks (BPRs) in Malang City for 2023, showing that all BPRs achieved a "Rank 1" classification in every quarter by maintaining a CAR ratio of ≥15%. This demonstrates that BPRs in Malang City possess highly adequate capital quality and sufficiency relative to their respective risk conditions. Furthermore, this reflects the robustness of their capital management, which aligns with the specific characteristics, business scale, and operational complexity of each BPR.

BPRs classified as "Rank 1" exhibit several defining characteristics. They maintain highly sufficient levels of capital that allow them to effectively anticipate and mitigate risks. Additionally, these banks are well-positioned to support future business expansion while maintaining resilience in their operations. The BPRs also benefit from excellent access to capital resources and strong financial backing provided by shareholders.

These findings align with previous studies by (Mahardiyanto & Prajasari, 2024) and (Kishore, 2022), which highlight the crucial role of capital adequacy in enhancing banking resilience. Adequate capital levels not only bolster financial stability but also provide a solid foundation for growth, ensuring the long-term operational resilience of banks. This underscores the importance of maintaining robust capital management strategies to adapt to the dynamic challenges of the banking industry.

**Sensitivity Analysis**

Table 4 illustrates the results of the sensitivity analysis of CAR for seven BPRs in Malang City in 2023. The analysis evaluates the impact of a 5% and 10% increase in RWAs on the CAR values. Despite the simulated increase in RWAs, all BPRs consistently maintain CAR values above 15%, retaining their "Rank 1" classification as defined by the Financial Services Authority (OJK). This indicates that these BPRs exhibit a high degree of financial resilience.

The sensitivity analysis demonstrates a gradual decline in CAR values as RWAs increase, primarily because the growth in risk assets outpaces the growth in capital. For example, PT. BPR Gunung Arjuna, which records one of the highest CARs at 163% in the fourth quarter, sees its CAR reduced to 155% and 148% under 5% and 10% RWA increases, respectively. Similarly, PT. BPR

Trikarya Waranugraha, another high-performing BPR, maintains a CAR of 120% in the fourth quarter, which decreases to 114% and 109% under the same conditions.

Lower-performing BPRs, such as PT. BPR Putera Dana, also managed to retain their "Rank 1" status, despite their CAR dropping from 19% in the fourth quarter to 18% and 18% under the 5% and 10% RWA increases, respectively. This highlights the adequacy of their current capital levels in meeting regulatory standards, even under stressed conditions.

These results align with previous research (Kishore, 2022) and (Mayes & Stremmel, 2014), which emphasizes that banks with well-maintained CARs demonstrate strong resilience and robustness in the face of increasing risks. The analysis underscores the effectiveness of capital management among BPRs in Malang City, ensuring their resilience and financial stability even under adverse scenarios. This ability to adapt to increased risk exposure highlights the strength of their capital strategies and positions them for future expansion.

**Table 4. Sensitivity Analysis of CAR 2023 Result**

| BPR Name | Quarter | CAR | CAR +5% RWAs | CAR +10% RWAs | Description |
|---|---|---|---|---|---|
| PT. BPR Putera Dana | 1 | 25% | 24% | 23% | 1st Rank |
| | 2 | 22% | 21% | 20% | 1st Rank |
| | 3 | 21% | 20% | 19% | 1st Rank |
| | 4 | 19% | 18% | 18% | 1st Rank |
| PT. BPR Armindo Kencana | 1 | 70% | 67% | 64% | 1st Rank |
| | 2 | 72% | 68% | 65% | 1st Rank |
| | 3 | 64% | 61% | 59% | 1st Rank |
| | 4 | 61% | 58% | 56% | 1st Rank |
| PT. BPR Gunung Arjuna | 1 | 153% | 146% | 139% | 1st Rank |
| | 2 | 152% | 144% | 138% | 1st Rank |
| | 3 | 158% | 150% | 143% | 1st Rank |
| | 4 | 163% | 155% | 148% | 1st Rank |
| PT. BPR Gunung Ringgit | 1 | 64% | 61% | 58% | 1st Rank |
| | 2 | 67% | 64% | 61% | 1st Rank |
| | 3 | 63% | 60% | 57% | 1st Rank |
| | 4 | 61% | 58% | 55% | 1st Rank |
| PT. BPR Tugu Artha Sejahtera | 1 | 69% | 66% | 63% | 1st Rank |
| | 2 | 64% | 61% | 58% | 1st Rank |
| | 3 | 63% | 60% | 57% | 1st Rank |
| | 4 | 63% | 60% | 58% | 1st Rank |
| PT. BPR Trikarya Waranugraha | 1 | 99% | 94% | 90% | 1st Rank |
| | 2 | 106% | 101% | 96% | 1st Rank |
| | 3 | 117% | 112% | 107% | 1st Rank |
| | 4 | 120% | 114% | 109% | 1st Rank |
| PT. BPR Putra Arta Dewata | 1 | 95% | 90% | 86% | 1st Rank |
| | 2 | 99% | 94% | 90% | 1st Rank |
| | 3 | 80% | 76% | 73% | 1st Rank |

| | | | | |
|---|---|---|---|---|
| 4 | 76% | 73% | 69% | 1st Rank |

Sourced: Processed Data

## CONCLUSION AND SUGGESTION

This study offers a new perspective in assessing the capital resilience of BPRs through two main approaches: (1) CAR recalculation based on OJK accounting guidelines, and (2) sensitivity analysis of RWA increases. The findings indicate that BPRs in Malang continue to maintain CAR above the minimum threshold despite an increase in risk-weighted assets. The implications of these findings can help regulators and bank management develop capital strategies that are more adaptive to changing risks.

This study concludes that the capital adequacy of the seven BPRs in Malang City has met the minimum limit set by OJK. Recalculation of CAR based on BPR accounting made by OJK in this study is necessary, because the published financial reports do not always reflect the actual financial conditions. The recalculated CAR shows that all seven BPRs consistently rank first, indicating very adequate capital adequacy and strong resilience against risk conditions, supported by robust capital management. Sensitivity analysis further demonstrates that these BPRs are capable of maintaining resilience despite increases in Risk Weighted Assets (RWA), reinforcing their ability to handle financial challenges effectively.

This research highlights the importance of accurate financial reporting and recalculating CAR to ensure compliance with OJK regulations and to provide a clearer understanding of a bank's financial health. Practical insights are provided for BPR management in Malang City to optimize capital management, identify banks requiring additional capital, and develop strategies to strengthen resilience against risk fluctuations. The study is limited by its scope, focusing only on seven BPRs. Future research could expand the analysis to include BPRs in other regions or incorporate additional ratios, such as the ratio of Tier 1 Capital to Net Non-Performing Earning Assets (MIAPB), for a more comprehensive evaluation of capital management and bank resilience.

## REFERENCES

Andriyani, I., Mayasari, R. P., & Aryani, D. S. (2018). Soundness Rating of Commercial Banks Before and After Implementation of RGEC Method In Indonesia. *Jurnal Keuangan Dan Perbankan*, *22*(1). https://doi.org/10.26905/jkdp.v22i1.1549

Bandyopadhyay, A. (2016). *Managing Portfolio Credit: Risk in Banks*. Cambridge University Press.

Buchdadi, A. D., Nguyen, X. T., Putra, F. R., & Dalimunthe, S. (2020). The effect of credit risk and capital adequacy on financial distress in rural banks. *Accounting*, *6*(6), 967–974. https://doi.org/10.5267/j.ac.2020.7.023

Choudhry, M. (2018). *The Moorad Choudhry Anthology Past, Present and Future Principles of Banking and Finance*. John Wiley & Sons Singapore Pte. Ltd.

Gede, I. K., & Ratnawati, T. (2020). Analisis Tingkat Kesehatan Bank dengan Menggunakan Pendekatan RGEC (Risk Profile, Good Corporate Governance, Earnings, Capital) Studi pada PT BPR Sinar Kuta Periode 2016-2018. *Jurnal*

*Ekonomi & Manajemen*, *11*(1), 17–24.

Ichsan, R. N., Nasution, L., & Sinaga, S. (2019). *Studi Kelayakan Bisnis (Business Feasibility Study)*. CV. Manhaji.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, *4*, 305–360. http://hupress.harvard.edu/catalog/JENTHF.html

Kishore, K. (2022). Sustainability and Bank Capital A Study of Indian Private Banks. *Acta Universitatis Bohemiae Meridionalis*, *25*(2), 99–111. https://doi.org/10.32725/acta.2022.012

Komarudin, P., Astiti, N. P. Y., Mahyuddin, M., Damanik, H. M., Wardhana, A., Nurhidayah, Pramayuda, A., Kusumawardhani, A. P., Lamaya, F., Bintari, V. I., Indiyah, K., & Gultom, N. B. (2024). *Bank dan Lembaga Keuangan Lainnya* (S. Bahri, Ed.). CV. Media Sains Indonesia.

Mahardiyanto, A., & Prajasari, A. C. (2024). Disclosure of Bank Muamalat's Capital Adequacy Ratio to Support Sustainability and Strengthening the Banking System in Indonesia. *Journal of IEB (Islamic Economics and Business)*, *3*. https://doi.org/https://doi.org/10.19109/ieb.v3i1.22360

Margono, H., Wardani, M. K., & Safitri, J. (2020). Roles of Capital Adequacy and Liquidity to Improve Banking Performance. *Journal of Asian Finance, Economics and Business*, *7*(21), 075–081. https://doi.org/10.13106/jafeb.2020.vol7.no11.075

Mayes, D. G., & Stremmel, H. (2014). The Effectiveness of Capital Adequacy Measures in Predicting Bank Distress. *Larcier*.

Miskak, S. (2019). Kegagalan Analisis Laporan Keuangan Dalam Memprediksi Kebangkrutan BPR/BPRS di Indonesia. *Kajian Ekonomi Dan Keuangan*. https://doi.org/http://dx.doi.org/10.31685/kek.V3i1.476

Otoritas Jasa Keuangan. (2018). *Salinan Peraturan Otoritas Jasa Keuangan Republik Indonesia Nomor 33/POJK.03/2018 Tentang Kualitas Aset Produktif dan Pembentukan Penyisihan Penghapusan Aset Produktif Bank Perkreditan Rakyat*.

Otoritas Jasa Keuangan. (2019). *Buku 2 Perbankan Seri Literasi Keuangan Perguruan Tinggi*. Otoritas Jasa Keuangan.

Otoritas Jasa Keuangan. (2022). *Salinan Surat Edaran Otoritas Jasa Keuangan Republik Indonesia Nomor 11/SEOJK.03/2022 Tentang Penilaian Tingkat Kesehatan Bank Perkreditan Rakyat dan Bank Pembiayaan Rakyat Syariah*.

Otoritas Jasa Keuangan. (2024a). *Laporan Publikasi Keuangan Perbankan*. https://cfs.ojk.go.id/cfs/Report.aspx?BankTypeCode=BPK&BankTypeName=BPR%20Konvensional

Otoritas Jasa Keuangan. (2024b). *Otomasi Informasi Individu BPR/BPRS*. https://ibpr-s.ojk.go.id/home

Otoritas Jasa Keuangan. (2024c). *Roadmap Pengembangan dan Penguatan Industri BPR dan BPRS (RP2B) 2024 - 2027*.

Otoritas Jasa Keuangan Republik Indonesia. (2015). *Salinan Peraturan Otoritas Jasa Keuangan Nomor 5/POJK.03/2015 Tentang Kewajiban Penyediaan Modal Minimum dan Pemenuhan Modal Inti Minimum Bank Perkreditan Rakyat*.

Otoritas Jasa Keuangan Republik Indonesia. (2017). *Salinan Peraturan Otoritas Jasa Keuangan Nomor 19/POJK.03/2017 Tentang Penetapan Status dan Tindak Lanjut Bank Perkreditan Rakyat dan Bank Pembiayaan Rakyat Syariah*.

Purba, R., Nugroho, L., Santoso, A., Hasibuan, R., Munir, A., Suyati, S., Azmi, Z., & Supriadi, Y. (2023). *Analisis Laporan Keuangan* (D. P. Sari, Ed.). PT Global Eksekutif Teknologi. www.globaleksekutifteknologi.co.id

Puspitasari, D. D., & Dinuka, V. K. (2023). Analysis Of Bank Health Level Assessment Using The RGEC Method Before And During The Covid-19 Pandemic. *Accounting Analysis Journal*, *11*(2), 119–129. https://doi.org/10.15294/aaj.v11i2.59677

Ramirez, J. (2017). *Handbook of Basel III Capital Enhancing Bank Capital in Practice* (1st ed.). Wiley.

Rustendi, T. (2019). Pengaruh Kecukupan Modal Terhadap Stabilitas Keuangan Bank Perkreditan Rakyat. *Jurnal Riset Akuntansi Dan Keuangan*, 531–544. https://doi.org/10.17509/jrak.v7i3.18030

Setiasih, R., Asfaroyani, N., Nasution, A. A., Wulandari, R., Abdi, W., Cahyadi, F. H., Sitepu, W. E. K., Prasandi, S., Caesarina, J. M., Rosyemary, K., Bari, R. F., Octafian, O., Irawan, F., Yeriesca, A., Sukmawati, R. A., Hafsari, S., Rizky, D. A., Syahminati, D. A., Pranadhani, D., … Meutia, S. (2022). *Booklet Perbankan Indonesia* (9th ed.). Otoritas Jasa Keuangan.

Sukmayadi. (2020). *Manajemen Perbankan Untuk Akademisi dan Praktisi* (1st ed.). Alfabeta Bandung.

Suyanto. (2021). The Effect of Bad Credit and Liquidity on Bank Performance in Indonesia. *Journal of Asian Finance, Economics and Business*, *8*(3), 451–458. https://doi.org/10.13106/jafeb.2021.vol8.no3.0451

Usman, B., Lestari, H. S., & Puspa, T. (2019). Determinants of Capital Adequacy Ratio on Banking Industry: Evidence in Indonesia Stock Exchange. *Jurnal Keuangan Dan Perbankan*, *23*(3). https://doi.org/10.26905/jkdp.v23i3.2981

Wicaksana, Y. S. W. (2023, November 8). *DPRD Kota Malang Tolak Penyertaan Modal Dua BUMD - Radar Malang*. https://radarmalang.jawapos.com/kota-malang/813234762/dprd-kota-malang-tolak-penyertaan-modal-dua-bumd