



FINANCIAL EFFICIENCY OF BPRS (SHARIA RURAL BANKS) ACROSS PROVINCES IN INDONESIA

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Abstract

The disparity in BPRS financial efficiency between provinces is an academic challenge that requires data-based solutions and in-depth analysis. This study aims to measure the level of BPRS financial efficiency in various provinces in Indonesia in 2021-2024. The type of research applied is quantitative research with the DEA (Data Envelopment Analysis) approach, which is used to measure the level of BPRS financial efficiency in accumulation per province. Based on the results of the Data Envelopment Analysis (DEA) analysis with three models (CRS, VRS Output, and VRS Input), there are variations in the level of efficiency among provinces in Indonesia. In the CRS model, 5 provinces have high efficiency, 13 provinces are moderately efficient, 5 provinces are lowly efficient, and 1 province is inefficient. The VRS Output model shows an increase, namely 10 provinces with high efficiency, 10 provinces with moderate efficiency, 4 provinces with low efficiency, and 1 province is inefficient. Meanwhile, the VRS Input model produces 11 provinces with high efficiency, 10 provinces with moderate efficiency, and 4 provinces with low efficiency. Overall, the majority of provinces are in the moderate efficiency category. It was found that the province that consistently showed high efficiency for 4 years was DKI Jakarta. Meanwhile, provinces with low and inefficient efficiency (Bangka Belitung, Banten, Bali, East Kalimantan, Central Sulawesi, and West Sulawesi) require improvements in resource allocation to improve their performance.

Keywords: BPRS, financial efficiency, DEA, Provincial Disparity, Resource Allocation.

INTRODUCTION

BPRS (Sharia Rural Banks) are one of the financial institutions that play a vital role in supporting financial inclusion in Indonesia, especially in rural areas or the outskirts of cities. As one of the instruments within Islamic finance, BPRS offers products and services that comply with Sharia principles, such as *mudharabah*, *musyarakah*, *murabahah*, and other contracts. In Indonesia, the presence of BPRS aims to expand the reach of financial services to communities that are underserved by commercial banks, particularly micro, small, and medium enterprises (MSMEs).

As of December 2023, data shows that 59.5% of BPRS are located on the islands of Java and Bali, with the highest concentration in Central Java Province, followed by West Java and East Java. From 2016 to February 2024, the number of BPRS has shown an increasing trend, growing from 166



to 174 units. Meanwhile, during the same period, the number of conventional Rural Banks (BPR) experienced a decline from 1,633 to 1,393 units¹. This decline in the number of BPRS is primarily due to industry consolidation through mergers or integrations. However, this has not yet made BPRS more dominant, as their numbers still lag significantly behind BPR.

It is quite interesting that the number of BPRS has reached hundreds of units when compared to Sharia Commercial Banks (BUS) and Sharia Business Units (UUS). However, the financing distributed by BPRS only accounted for 2.9% of the total financing disbursed by Islamic banks as of May 2022². This data is not much different from the current condition, where BPRS institutions far outnumber BUS and UUS—making up 83.9% of all Islamic banking institutions in 2023. However, it is important to note that BPRS service offices only account for 22.4% of all Islamic banking service offices. Additionally, BPRS assets are still relatively small, making up only 2.5% of total Islamic banking assets. As a result, the financing they distributed as of December 2023 still lags behind that of BUS and UUS, remaining at 2.9%, the same as in May 2022.

In Indonesia's banking system, BPRS (Sharia Rural Banks) function to provide financing services to the public without involving interest (*riba*), in accordance with Sharia principles³. According to the Islamic Banking Statistics for August, the total financing disbursed by BPRS amounted to IDR 18.379 trillion, with the largest portion—IDR 5.961 trillion—distributed in West Java Province⁴. This aligns with the asset value and third-party funds (DPK) of BPRS in West Java, which also rank highest compared to the other 23 provinces. The next highest positions in terms of assets, DPK, and financing distribution are Central Java and East Java. Although the number of BPRS units in West Java is fewer than in Central Java, it's important to note that regional minimum wage (UMR) significantly impacts each region's economy. The highest UMR in Indonesia is in Bekasi City, West Java, at IDR 5,343,430, followed by Karawang Regency, Bekasi Regency, and Jakarta⁵. The high UMR in Bekasi increases the purchasing power of the population, meaning that many individuals and families have greater income potential. This creates opportunities for BPRS to offer consumer financing products, such as financing for household needs, vehicles, or home renovations.

However, ranking highest in financing distribution does not necessarily correlate with higher liquidity. Liquidity refers to a bank's ability to collect funds from the public and redistribute those

¹ Otoritas Jasa Keuangan, *Laporan Perkembangan Keuangan Syariah Indonesia 2023*, 2024.

² Wahyu Wastuti, "Faktor-Faktor Yang Memengaruhi Efisiensi Bank Pembiayaan Rakyat Syariah (BPRS) Di Indonesia: Studi Kasus Masa Sebelum Dan Selama Pandemi Covid-19," *Tesis*, 2023.

³ Abdul Aziiz Ahmad Fauzi, Dedah Jubaedah, and Yulia Fithriany Rahmah, "Peran Bank Pembiayaan Rakyat Syariah (BPRS) Dalam Meningkatkan Ekonomi Masyarakat," *Jurnal Ekonomi dan Keuangan Islam* 4, no. 01 (2024): 34–51.

⁴ Otoritas Jasa Keuangan, "Statistik Perbankan Syariah," 2024.

⁵ Jobstreet, "12 Daerah Dengan UMR Tertinggi Di Indonesia Tahun 2024," *Jobstreet*, 2024, <https://id.jobstreet.com/id/career-advice/article/umr-tertinggi-di-indonesia>.

funds back into the economy. Liquidity is measured using the Financing-to-Deposit Ratio (FDR), which includes total financing (comprising contracts like *ijarah*, *qardh*, *salam*, *istishna*, *murabahah*, *mudharabah*, and *musyarakah*) and third-party funds (DPK), which consist of deposits, demand deposits, and savings (Andrianto & Firmansyah, 2019)⁶. Unlike the regions with the highest financing values, the provinces with the highest FDR in August 2024 were Riau Islands (161.32%), South Sulawesi (157.40%), and Lampung (145.17%).

Meanwhile, regarding the issue of high levels of non-performing financing (NPF), the provinces with the highest NPF were Bangka Belitung (23.84%), Nanggroe Aceh Darussalam (17.14%), and North Sumatra (15.62%). The NPF ratio indicates the risk borne by BPRS when borrowers fail to repay the financing they received. Bank Indonesia sets the maximum NPF threshold at 5%—if a bank exceeds this threshold, it is considered financially unhealthy⁷. Out of the 24 provinces observed, only five had NPF ratios below 5%, namely Bali, South Kalimantan, Central Sulawesi, North Maluku, and West Nusa Tenggara (NTB).

The available data above indicate that financial efficiency remains a major issue for BPRS (Sharia Rural Banks). Several provinces with a higher number of BPRS do not necessarily exhibit higher values in key indicators. Ideally, a greater number of BPRS would correlate with a higher level of efficiency compared to provinces with fewer BPRS. This highlights a gap between expectations and reality. The expectation is that BPRS can contribute evenly and positively to regional economies. In reality, however, this varying efficiency instead creates inequality in achieving that goal.

Previous studies on BPRS financial efficiency have provided important insights but have not fully resolved the issue. For instance, a study by Agustina et al. (2019) aimed to assess the efficiency level of BPRS at the national level⁸. The study only presented a ranking of BPRS efficiency across Indonesia, without specifically exploring efficiency disparities among provinces. Regional competition levels, financing risks, and financial indicators that should be considered in each province remain underexplored areas. Therefore, there is a research gap that needs to be addressed to gain a more detailed understanding of BPRS financial efficiency on a provincial basis.

There are earlier articles that discuss the variables causing inefficiency. Ramadhan et al. (2017) concluded and suggested that inefficient BPRS can improve by optimizing the variables that contribute to inefficiency, such as increasing murabaha receivables, placing funds in other banks, and

⁶ Devi Nur Ramadhani and Vega Wafaretta, “Determinan Risiko Pembiayaan Pada Bank Pembiayaan Rakyat Syariah (BPRS) Di Indonesia Periode 2019-2021,” *Jurnal Maneksi* 12, no. 4 (2023): 791–804.

⁷ Sintia Sri Nurcahyani, Kusnendi, and Aneu Cakhyaneu, “Efisiensi Bank Pembiayaan Rakyat Syariah Di Indonesia: Analisis Pengaruh Kecukupan Modal, Likuiditas Dan Pembiayaan Bermasalah,” *Jurnal Akuntansi* 15, no. 2 (2020): 91–101.

⁸ Dian Agustina, Mahfud Sholihin, and Annisa Fithria, “The Efficiency of Indonesian Islamic Rural Banks: A Stochastic Frontier Analysis,” *International Journal of Islamic Economics and Finance (IJIEF)* 1, no. 2 (2019).

reducing personnel expenses⁹. Additionally, government policies are needed to help improve the efficiency of BPRS, thereby enabling inefficient institutions to become efficient. These suggestions further encourage researchers to examine the efficiency of BPRS across provinces, as this could serve as a reference for local governments in formulating policies that support BPRS in playing an optimal role in driving local economic development.

From a theoretical perspective, the Data Envelopment Analysis (DEA) method has long been used to evaluate the technical efficiency of organizations, including financial institutions. DEA enables the measurement of efficiency by considering multiple inputs and outputs, making it highly suitable for assessing the efficiency of financial institutions that utilize various resources to produce multiple types of outputs. Since it was first introduced by Charnes, Cooper, and Rhodes in 1978, DEA has been recognized as an effective and easy-to-apply methodology for operational modeling to evaluate performance across various sectors¹⁰.

DEA can help identify "best practices" among the BPRS included in the research sample, which can serve as a benchmark for other BPRS whose performance is still below standard. For example, Septiani & Rani (2020) studied BPRS with a minimum total asset of IDR 52,500,000,000 (fifty-two billion five hundred million rupiah) and a minimum core capital of IDR 6,000,000,000 (six billion rupiah), in accordance with the Financial Services Authority Regulation Number 1/SEOJK.03/2017 concerning the Minimum Capital Provision and Fulfillment of Minimum Core Capital of Sharia Rural Banks¹¹. This study found that four BPRS operated with high efficiency, with an average efficiency score of 0.9. These BPRS can serve as references for other BPRS that are still unstable and exhibit low efficiency.

Scientific journals that discuss the efficiency of BPRS in certain regions do exist, but these studies ultimately only result in comparisons of BPRS efficiency levels in the areas being researched. Among them are articles on the efficiency of BPRS in Bandung City written by Hasanah et al.¹², in

⁹ Arif Ramadhan et al., "Mengukur Tingkat Efisiensi Bank Pembiayaan Rakyat Syari'ah Dengan Menggunakan Data Envelopment Analysis (DEA)," *Cakrawala: Jurnal Studi Islam* 12, no. 2 (2017): 113–120.

¹⁰ Nur Khaerat Sidang, "Analisis Efisiensi Kinerja Keuangan Lembaga Amil Zakat (LAZ) Rumah Zakat Indonesia Dengan Metode Data Envelopment Analysis (DEA)" (Universitas Islam Indonesia Yogyakarta, 2020).

¹¹ Erika Septiani and Lina Nugraha Rani, "Analisis Tingkat Efisiensi Bank Pembiayaan Rakyat Syariah (Bprs) Periode 2012-2018 Menggunakan Metode Data Envelopment Analysis (Dea)," *Jurnal Ekonomi Syariah Teori dan Terapan* 7, no. 7 (2020): 1378.

¹² Mutia Nur Hasanah, Ramdan Fawzi, and Andri Ibrahim, "Analisis Efisiensi Bank Pembiayaan Rakyat Syariah (BPRS) Di Kota Bandung Dengan Menggunakan Pendekatan Data Envelopment Analysis (DEA)," *Prosiding Hukum Ekonomi Syariah* 5, no. 2 (2019): 338–347.

the Greater Jakarta area (Jabodetabek) by Naufal & Firdaus¹³, in Bogor Regency by Wijayanti¹⁴, and in the Sumatra region by Uula & Maulida¹⁵. Meanwhile, this research aims to meet the need for a more in-depth analysis of BPRS financial efficiency by considering geographic and socio-economic variations, in other words, by comparing BPRS efficiency levels across provinces in Indonesia. By using the DEA method, this study is expected to make a significant contribution, both academically and practically, to support the optimization of BPRS performance, especially those with low efficiency scores. In addition, the research findings serve as a basis for formulating strategic recommendations for policymakers and Islamic finance industry players to enhance the efficiency and competitiveness of BPRS across Indonesia.

RESEARCH METHODS

The type of research applied is quantitative research using a non-parametric DEA approach, which is used to measure the efficiency level of Decision Making Units (DMUs), in this case, the financial performance of BPRS aggregated by province. The data collected is secondary data, including both internal and external secondary sources. The primary source of data comes from the *Sharia Banking Statistics* published monthly on the official OJK (Financial Services Authority) website. At the time this research was written, the most recent report available was from September 2024. Therefore, the researcher collected input and output data from the accumulated financial reports of BPRS by province for the period of September 2021–2024. Only 24 provinces will be analyzed in this study, as 10 other provinces do not yet have any BPRS. The number of BPRS offices recorded is zero (0) in the following provinces: Jambi, West Kalimantan, North Sulawesi, Gorontalo, Southeast Sulawesi, East Nusa Tenggara, Maluku, Papua, West Papua, and West Irian Jaya.

The input and output variables in this study are selected based on the intermediation approach. According to Berger and Humphrey (1997), the intermediation approach is considered more appropriate for evaluating the overall performance of financial institutions, as they act as intermediaries that collect funds from surplus units and channel them to deficit units¹⁶. This concept aligns with the core characteristics of BPRS, which perform asset transformation by converting

¹³ Fadhil Muhammad Naufal and Achmad Firdaus, “Analisis Efisiensi Bank Pembiayaan Rakyat Syariah (BPRS) Wilayah Jabodetabek Dengan Pendekatan Two Stage Data Envelopment Analysis (Dea),” *EQUILIBRIUM: Jurnal Ekonomi Syariah* 5, no. 2 (2017): 196–220.

¹⁴ Danira Irin Wijayanti, “Analisis Efisiensi Bank Pembiayaan Rakyat Syariah (BPRS) Di Kab. Bogor Menggunakan Data Envelopment Analysis (DEA) Periode 2015,” *Jurnal Akuntansi dan Bisnis Syariah* 1, no. 1 (2024): 94–103.

¹⁵ Mimma Maripatul Uula and Syahdatul Maulida, “The Efficiency of BPR/S Industry in Sumatra, Indonesia: Covid-19 Impact, Dual Banking, And Regional Analysis,” *Tamkin Journal* 1, no. 1 (2022).

¹⁶ Naufal and Firdaus, “Analisis Efisiensi Bank Pembiayaan Rakyat Syariah (BPRS) Wilayah Jabodetabek Dengan Pendekatan Two Stage Data Envelopment Analysis (Dea).”

collected deposits into financing for the community. In accordance with the aggregated financial data per province, this study designates *Total Assets* and *Third-Party Funds* as input variables, while the output variable analyzed is the *total financing disbursed* by each province.

The DEA results present the efficiency scores of BPRS in each province. Efficient units serve as benchmarks for other units. For inefficient units, DEA also provides improvement recommendations (projected values), indicating how inputs or outputs can be adjusted to achieve efficiency. Through this technique, DEA helps objectively assess the relative performance of BPRS and provides a foundation for operational improvements and sharia-based financial policy development at the regional level.

RESULTS AND DISCUSSION

Efficiency Scores of the CRS and VRS Models

Based on the efficiency values of the DEA CRS model over four years, there is an observed improvement in the average efficiency from 2021 to 2024. In 2021, the average efficiency score was 0.633, which increased to 0.723 in 2022. However, in 2023, there was a slight decrease to 0.697 before rising again to 0.737 in 2024. This shows that, in general, the efficiency levels across various provinces have improved, although there were fluctuations from year to year.

Table 1. Efficiency Summary of BPRS Across Provinces - CRS Model

Province	2021	2022	2023	2024	Average	Categorize
Nanggroe Aceh Darussalam	0.666	0.799	0.806	0.829	0.775	Moderate efficiency
Sumatera Utara	0.653	0.714	0.789	0.846	0.751	Moderate efficiency
Sumatera Barat	0.608	0.695	0.708	0.816	0.707	Moderate efficiency
Sumatera Selatan	0.754	0.855	0.742	0.795	0.787	Moderate efficiency
Bangka Belitung	0.440	0.469	0.551	0.575	0.509	Low efficiency
Bengkulu	0.667	0.758	0.745	0.815	0.746	Moderate efficiency
Riau	0.494	0.654	0.726	0.753	0.657	Moderate efficiency
Kepulauan Riau	0.865	1.000	1.000	1.000	0.966	High efficiency
Lampung	0.836	0.976	0.941	0.910	0.916	High efficiency
DKI Jakarta	1.000	1.000	1.000	1.000	1.000	High efficiency
Jawa Barat	0.734	0.878	0.874	0.880	0.842	High efficiency
Banten	0.479	0.539	0.544	0.569	0.533	Low efficiency
Jawa Tengah	0.723	0.811	0.818	0.805	0.789	Moderate efficiency
DI Yogyakarta	0.624	0.761	0.764	0.806	0.739	Moderate efficiency
Jawa Timur	0.649	0.735	0.671	0.696	0.688	Moderate efficiency
Bali	0.448	0.733	0.515	0.489	0.546	Low efficiency
Kalimantan Tengah	0.787	0.614	0.438	0.585	0.606	Moderate efficiency
Kalimantan Timur	0.842	0.282	0.294	0.72	0.448	Low efficiency
Kalimantan Selatan	0.659	0.912	0.769	0.834	0.794	Moderate efficiency
Sulawesi Barat	0.000	0.000	0.000	0.000	0.000	Inefficient
Sulawesi Tengah	0.000	0.762	0.746	0.789	0.574	Low efficiency
Sulawesi Selatan	1.000	1.000	0.903	0.989	0.973	High efficiency
Maluku Utara	0.614	0.652	0.647	0.710	0.656	Moderate efficiency
NTB	0.652	0.744	0.738	0.827	0.740	Moderate efficiency
Mean	0.633	0.723	0.697	0.737	0.697	Moderate efficiency

Source: Processed Data Results (2025)

Provinces with high efficiency, such as DKI Jakarta, Riau Islands, Lampung, West Java, and South Sulawesi, consistently maintained a good efficiency level with average scores above 0.8. DKI Jakarta even achieved perfect efficiency (1.000) for four consecutive years. On the other hand, some provinces fall into the low-efficiency category, such as Bangka Belitung, Banten, East Kalimantan, and Bali, showing scores below 0.6. East Kalimantan saw a significant decline from 0.842 in 2021 to 0.282 in 2022, indicating issues with resource efficiency in that province.

West Sulawesi was the only province categorized as "Inefficient" with a score of 0.000 throughout the period, which indicates a failure to optimally utilize resources. Meanwhile, Central Sulawesi experienced significant improvement after 2021, with a score of zero, rising to 0.762 in 2022 and continuing to improve until 2024. Overall, although some provinces show imbalances in efficiency, the national average trend shows positive growth over time.

Table 2. Efficiency Summary of BPRS Across Provinces - VRS Output Oriented

Province	2021	2022	2023	2024	Average	Categorize
Nanggroe Aceh Darussalam	0.822	0.838	0.897	0.905	0.866	High efficiency
Sumatera Utara	0.727	0.721	0.793	0.846	0.772	Moderate efficiency
Sumatera Barat	0.722	0.708	0.756	0.871	0.764	Moderate efficiency
Sumatera Selatan	0.754	0.859	0.745	0.79	0.789	Moderate efficiency
Bangka Belitung	0.582	0.494	0.571	0.58	0.558	Low efficiency
Bengkulu	0.673	0.759	0.745	0.815	0.748	Moderate efficiency
Riau	0.494	0.654	0.727	0.75	0.657	Moderate efficiency
Kepulauan Riau	0.931	1.000	1.000	1.000	0.983	High efficiency
Lampung	1.000	1.000	1.000	1.000	1.000	High efficiency
DKI Jakarta	1.000	1.000	1.000	1.000	1.000	High efficiency
Jawa Barat	1.000	1.000	1.000	1.000	1.000	High efficiency
Banten	0.631	0.595	0.604	0.632	0.616	Moderate efficiency
Jawa Tengah	0.970	0.936	0.943	0.930	0.945	High efficiency
DI Yogyakarta	0.815	0.835	0.853	0.896	0.850	High efficiency
Jawa Timur	0.890	0.863	0.811	0.807	0.843	High efficiency
Bali	0.448	0.736	0.518	0.490	0.548	Low efficiency
Kalimantan Tengah	0.787	0.625	0.446	0.591	0.612	Moderate efficiency
Kalimantan Timur	0.842	0.282	0.298	0.376	0.450	Low efficiency
Kalimantan Selatan	0.659	0.912	0.769	0.835	0.794	Moderate efficiency
Sulawesi Barat	0.000	0.000	0.000	0.000	0.000	Inefficient
Sulawesi Tengah	0.001	0.762	0.747	0.790	0.575	Low efficiency
Sulawesi Selatan	1.000	1.000	0.903	0.990	0.973	High efficiency
Maluku Utara	0.677	0.655	0.647	0.711	0.673	Moderate efficiency
NTB	0.877	0.824	0.828	0.918	0.862	High efficiency
Mean	0.721	0.752	0.733	0.772	0.745	Moderate efficiency

Source: Processed Data Results (2025)

Based on the DEA efficiency scores using the Output-Oriented VRS model over the four-year period, the average efficiency showed an upward trend from 2021 to 2024. In 2021, the average efficiency score was 0.721, which increased to 0.752 in 2022. Although there was a slight decline to 0.733 in 2023, efficiency rose again to 0.772 in 2024. Overall, this upward trend indicates that various provinces have gradually been able to optimize their outputs relative to the inputs used, even though some regions still experienced fluctuations in performance.

Provinces that consistently demonstrated high efficiency, such as DKI Jakarta, West Java, and Lampung, maintained a perfect efficiency score of 1.000 throughout the entire period. In addition, provinces like Riau Islands, Central Java, and South Sulawesi also performed very well, with average scores above 0.9. On the other hand, some provinces such as Bangka Belitung, East Kalimantan, and Bali fell into the low-efficiency category, with average scores below 0.6. West Sulawesi remained the province with the lowest efficiency, recording a score of 0.000 over the four-year span, indicating a failure to utilize resources optimally in the region. In general, the national average falls within the moderate efficiency category, with a trend that shows gradual improvement over the four-year period.

Table 3. Efficiency Summary of BPRS Across Provinces - VRS Input Oriented

Provinsi	2021	2022	2023	2024	Average	Caterorize
Nanggroe Aceh Darussalam	0.803	0.823	0.892	0.899	0.854	High
Sumatera Utara	0.703	0.714	0.789	0.846	0.763	Moderate
Sumatera Barat	0.677	0.703	0.739	0.861	0.745	Moderate
Sumatera Selatan	0.754	0.859	0.747	0.798	0.790	Moderate
Bangka Belitung	0.508	0.471	0.551	0.575	0.526	Low
Bengkulu	0.667	0.759	0.745	0.815	0.747	Moderate
Riau	0.494	0.655	0.727	0.754	0.658	Moderate
Kepulauan Riau	0.922	1.000	1.000	1.000	0.981	High efficiency
Lampung	1.000	1.000	1.000	1.000	1.000	High efficiency
DKI Jakarta	1.000	1.000	1.000	1.000	1.000	High
Jawa Barat	1.000	1.000	1.000	1.000	1.000	High
Banten	0.610	0.574	0.592	0.621	0.599	Low
Jawa Tengah	0.969	0.931	0.940	0.927	0.942	High
DI Yogyakarta	0.803	0.826	0.849	0.894	0.843	High
Jawa Timur	0.885	0.851	0.789	0.796	0.830	High
Bali	0.448	0.738	0.520	0.491	0.549	Low
Kalimantan Tengah	0.787	0.631	0.455	0.596	0.617	Moderate
Kalimantan Timur	0.842	0.285	0.306	0.384	0.454	Low
Kalimantan Selatan	0.659	0.912	0.769	0.835	0.794	Moderate
Sulawesi Barat	0.000	1.000	1.000	1.000	0.750	Moderate
Sulawesi Tengah	0.000	0.762	0.747	0.790	0.575	Low
Sulawesi Selatan	1.000	1.000	0.903	0.990	0.973	High
Maluku Utara	0.641	0.652	0.647	0.711	0.663	Moderate
NTB	0.860	0.814	0.814	0.916	0.851	High
Mean	0.710	0.790	0.772	0.812	0.771	Moderate

Source: Processed Data Results (2025)

Based on the DEA efficiency results using the Input-Oriented VRS model over a four-year period, the average efficiency score showed a fairly consistent increase from 2021 to 2024. In 2021, the average efficiency score was recorded at 0.710, rising to 0.790 in 2022. Although there was a slight decline to 0.772 in 2023, efficiency increased again in 2024, reaching 0.812. Several provinces, including Lampung, DKI Jakarta, and West Java, achieved a perfect efficiency score of 1.000 throughout all periods, indicating their ability to optimally manage inputs to generate maximum outputs. However, some provinces—such as Bangka Belitung, East Kalimantan, and Central Sulawesi—remained in the low-efficiency category, with average scores below 0.6.

Compared to the Output-Oriented VRS model, the Input-Oriented model showed a slightly higher average efficiency score, at 0.771 versus 0.745 in the output model. This suggests that input management is relatively more optimal than output generation in several provinces. A significant contrast can be observed in West Sulawesi, which scored 0.000 (inefficient) under the output model, yet achieved an average of 0.750 under the input model, even recording full efficiency in the last three years. Meanwhile, provinces categorized as highly efficient in the output model generally maintained strong performance under the input model, though with slight numerical differences. Overall, the input model indicates that resource management is more effective than output achievement, but there are still several regions that need to improve efficiency in both aspects.

Peer Count Value

Peer count is a key DEA indicator showing how often a province serves as an efficiency benchmark for others. The table below presents peer count values of BPRS across Indonesian provinces from 2021 to 2024, highlighting those most frequently referenced as efficient models.

Table 4. Peer Count Values of BPRS Across Provinces

Province	2021	2022	2023	2024	Average
Nanggroe Aceh Darussalam	0	0	0	0	0
Sumatera Utara	0	0	0	0	0
Sumatera Barat	0	0	0	0	0
Sumatera Selatan	0	0	0	0	0
Bangka Belitung	0	0	0	0	0
Bengkulu	0	0	0	0	0
Riau	0	0	0	0	0
Kepulauan Riau	0	11	16	17	11
Lampung	9	8	1	1	5
DKI Jakarta	18	15	16	16	16
Jawa Barat	8	7	9	8	8
Banten	0	0	0	0	0
Jawa Tengah	0	0	0	0	0
DI Yogyakarta	0	0	0	0	0
Jawa Timur	0	0	0	0	0
Bali	0	0	0	0	0
Kalimantan Tengah	0	0	0	0	0
Kalimantan Timur	0	0	0	0	0
Kalimantan Selatan	0	0	0	0	0
Sulawesi Barat	0	8	10	11	7
Sulawesi Tengah	7	0	0	0	2
Sulawesi Selatan	1	3	0	0	3
Maluku Utara	0	0	0	0	0
NTB	0	0	0	0	0

Source: Processed Data Results (2025)

Based on the DEA peer count values over the four-year period, DKI Jakarta consistently had the highest peer count compared to other provinces, with an average of 16 and a peak value of 18 in 2021. This indicates that DKI Jakarta was frequently used as a reference for efficiency by other provinces. Additionally, the Riau Islands showed an increase in peer count from 11 in 2022 to 17 in 2024, with an average of 11, suggesting that this province was increasingly used as a benchmark during that period. Meanwhile, Lampung experienced a significant downward trend, from 9 in 2021 to just 1 in both 2023 and 2024, meaning fewer provinces considered it an efficiency reference.

Other provinces, such as West Java and West Sulawesi, also had relatively significant peer counts, with averages of 8 and 7 respectively. South Sulawesi, which had a peer count of 10 in 2021, saw a drastic decline to 0 in both 2023 and 2024, indicating its diminishing role as an efficiency reference. In contrast, most other provinces such as North Sumatra, West Sumatra, South Kalimantan, and Bali, were never used as a reference throughout the period, maintaining a peer count of 0 each year. This shows that these provinces had efficiency characteristics that could not serve as benchmarks for others within the DEA model applied.

Slack Value of Asset, Third-Party Funds (DPK), and Financing Variables

Based on the slack values of BPRS asset variables across provinces from 2021 to 2024, only a few provinces recorded slack values, while the majority had zero slack throughout the period. South Sulawesi recorded the highest slack value, with a sharp increase from IDR 23,645.764 million in 2023 to IDR 29,988.577 million in 2024, and the highest average slack of IDR 13,408.585 million. This indicates a substantial asset surplus within the BPRS system in that province. East Kalimantan also reported a significant slack value in 2024 at IDR 1,951.529 million, although it had zero slack in the previous years.

Table 5. Slack Values of BPRS Asset Variables Across Provinces (in million rupiah)

Province	2021	2022	2023	2024	Average
Nanggroe Aceh Darussalam	0.000	0.000	0.000	0.000	0.000
Sumatera Utara	0.000	0.000	0.000	0.000	0.000
Sumatera Barat	0.000	0.000	0.000	0.000	0.000
Sumatera Selatan	0.000	0.000	0.000	0.000	0.000
Bangka Belitung	0.000	0.000	0.000	0.000	0.000
Bengkulu	0.000	0.000	0.000	0.000	0.000
Riau	0.000	0.000	0.000	0.000	0.000
Kepulauan Riau	0.000	0.000	0.000	0.000	0.000
Lampung	0.000	0.000	0.000	0.000	0.000
DKI Jakarta	0.000	0.000	0.000	0.000	0.000
Jawa Barat	0.000	0.000	0.000	0.000	0.000
Banten	0.000	0.000	0.000	0.000	0.000
Jawa Tengah	0.000	0.000	0.000	0.000	0.000
DI Yogyakarta	0.000	0.000	0.000	0.000	0.000
Jawa Timur	0.000	0.000	0.000	0.000	0.000
Bali	0.000	0.000	0.000	0.000	0.000
Kalimantan Tengah	0.000	0.000	512.094	0.000	128.024
Kalimantan Timur	0.000	0.000	0.000	1951.529	487.882
Kalimantan Selatan	0.000	0.000	0.000	0.000	0.000
Sulawesi Barat	243.951	0.000	0.000	0.000	60.988
Sulawesi Tengah	0.000	0.000	0.000	0.000	0.000
Sulawesi Selatan	0.000	0.000	23645.764	29988.577	13408.585
Maluku Utara	0.000	0.000	0.000	0.000	0.000
NTB	0.000	0.000	0.000	0.000	0.000

Source: Processed Data Results (2025)

Meanwhile, West Sulawesi had a slack of IDR 243.951 million in 2021 but recorded no slack in the following years, resulting in an average of IDR 60.988 million. Central Kalimantan showed slack only in 2023, amounting to IDR 512.094 million, with an average of IDR 128.024 million. This suggests that BPRS asset surpluses in these provinces were sporadic and inconsistent year over year. Overall, most other provinces, including DKI Jakarta, West Java, and those in Sumatra, had zero slack values, indicating that BPRS assets in those regions were more balanced and did not experience significant surplus during the observed period.

Next, regarding the slack values of the second input variable, namely Third-Party Funds (DPK), it is evident that the province with the highest slack value is East Java, with a sharp increase from 37,683.954 million rupiah in 2021 to 226,853.575 million rupiah in 2023, before decreasing to 130,054.695 million rupiah in 2024. This province also recorded the highest average slack at 122,415.872 million rupiah, indicating a substantial surplus of funds in the BPRS sector. Additionally,

Central Java also reported a significant slack, with the highest figure in 2024 at 123,841.813 million rupiah and an average of 59,744.681 million rupiah.

On the other hand, several provinces only showed slack in certain years, such as Bangka Belitung, which recorded a slack of 24,640.994 million rupiah in 2021 but zero in the following years, resulting in an average of 6,160.249 million rupiah. West Nusa Tenggara (NTB) also displayed fluctuating slack values, with 22,753.235 million rupiah in 2021 and 17,049.926 million rupiah in 2023, but zero in the other years, yielding an average of 9,950.790 million rupiah. Meanwhile, the majority of provinces, including DKI Jakarta, North Sumatra, and South Kalimantan, consistently had zero slack values throughout the period, indicating that third-party funds in their BPRS were more balanced, without significant surplus.

Table 6. Slack Values of Third-Party Funds (DPK) Variable of BPRS Across Provinces (in million Rupiah)

Province	2021	2022	2023	2024	Average
Nanggroe Aceh Darussalam	0.000	0.000	0.000	0.000	0.000
Sumatera Utara	0.000	0.000	0.000	0.000	0.000
Sumatera Barat	0.000	0.000	0.000	0.000	0.000
Sumatera Selatan	0.000	0.000	0.000	0.000	0.000
Bangka Belitung	24640.994	0.000	0.000	0.000	6160.249
Bengkulu	0.000	0.000	0.000	0.000	0.000
Riau	0.000	0.000	0.000	0.000	0.000
Kepulauan Riau	0.000	0.000	0.000	0.000	0.000
Lampung	0.000	0.000	0.000	0.000	0.000
DKI Jakarta	0.000	0.000	0.000	0.000	0.000
Jawa Barat	0.000	0.000	0.000	0.000	0.000
Banten	0.000	0.000	0.000	0.000	0.000
Jawa Tengah	0.000	52853.253	62283.656	123841.813	59744.681
DI Yogyakarta	0.000	0.000	0.000	0.000	0.000
Jawa Timur	37683.954	95071.262	226853.575	130054.695	122415.872
Bali	0.000	0.000	0.000	0.000	0.000
Kalimantan Tengah	0.000	0.000	0.000	0.000	0.000
Kalimantan Timur	0.000	0.000	0.000	0.000	0.000
Kalimantan Selatan	0.000	0.000	0.000	0.000	0.000
Sulawesi Barat	61.741	0.000	0.000	0.000	15.435
Sulawesi Tengah	0.000	0.000	0.000	0.000	0.000
Sulawesi Selatan	0.000	0.000	0.000	0.000	0.000
Maluku Utara	0.000	0.000	0.000	0.000	0.000
NTB	22753.235	0.000	17049.926	0.000	9950.790

Source: Processed Data Results (2025)

Based on the researcher's observation of the DEA summary in the financing variable slack column, it was found that the values show 0 in all years. This usually indicates that there are no excess resources or inefficiencies in the financing aspect across all provinces. This means that the amount of financing used by the BPRS is already optimal according to the needs, with no unused capacity. In the context of DEA, a slack value reflects non-radial inefficiency, meaning that if the slack value is

zero, there is no surplus or shortage of input (in this case, financing) that needs to be corrected to achieve efficiency. Therefore, this condition shows that all provinces in the analysis have used financing with full efficiency in the model used.

However, it is important to note that in the output DEA projection summary section, there are also radial values that indicate the proportion of reduction or increase needed to achieve efficiency proportionally relative to all inputs or outputs. So, even though the slack value for financing is zero, the radial value does not have to be zero. If the radial value has a specific value, it will affect the projected value, meaning there is potential for efficiency improvement proportionally without any specific excess of input or output. In other words, although there is no specific inefficiency in the form of slack in financing, there may still be the possibility that a unit needs to make proportional improvements in input usage or output achievement to reach optimal overall efficiency.

Target Values of Asset, Third-Party Funds (DPK), and Financing

Next, the discussion will focus on the Target Values for Assets, Third-Party Funds (DPK), and Financing based on the results of the Data Envelopment Analysis (DEA). This analysis aims to identify the optimal values that each Decision-Making Unit (DMU) should achieve in order to be more efficient in managing assets, gathering funds, and distributing financing. The target values displayed in this study correspond to the results shown in the "Summary of Targets" column in the VRS Output-Oriented model. Thus, this discussion will provide an overview of how Decision-Making Units can improve their output to achieve higher levels of efficiency.

Table 7. Target Value of BPRS Asset Variable Across Provinces (in million Rupiah)

Province	2021		2022		2023		2024	
	Actual	Projection	Actual	Projection	Actual	Projection	Actual	Projection
Nanggroe Aceh Darussalam	652,706.535	652,706.535	791,065.308	791,065.308	930,822.442	930,822.442	921,651.174	921,651.174
Sumatera Utara	231,661.029	231,661.029	267,341.967	267,341.967	274,061.366	274,061.366	255,935.420	255,935.420
Sumatera Barat	331,966.299	331,966.299	401,066.151	401,066.151	536,224.058	536,224.058	631,211.523	631,211.523
Sumatera Selatan	24,212.477	24,212.477	25,338.753	25,338.753	26,769.148	26,769.148	25,386.930	25,386.930
Bangka Belitung	439,570.508	439,570.508	414,905.381	414,905.381	363,465.851	363,465.851	329,302.239	329,302.239
Bengkulu	103,876.174	103,876.174	123,370.765	123,370.765	136,058.981	136,058.981	147,664.169	147,664.169
Riau	73,867.793	73,867.793	117,508.750	117,508.750	146,573.030	146,573.030	163,857.942	163,857.942
Kepulauan Riau	169,676.796	169,676.796	198,894.400	198,894.400	268,378.673	268,378.673	338,668.757	338,668.757
Lampung	813,576.092	813,576.092	890,512.826	890,512.826	991,489.298	991,489.298	1,073,059.843	1,073,059.843
DKI Jakarta	42,337.665	42,337.665	125,097.745	125,097.745	230,728.535	230,728.535	233,180.144	233,180.144
Jawa Barat	4,762,387.512	4,762,387.512	5,715,479.458	5,715,479.458	6,793,946.409	6,793,946.409	7,234,146.705	7,234,146.705
Banten	1,135,253.071	1,135,253.071	1,219,897.367	1,219,897.367	1,293,728.137	1,293,728.137	1,518,786.826	1,518,786.826
Jawa Tengah	2,316,759.987	2,316,759.987	3,108,288.167	3,108,288.167	3,754,910.582	3,754,910.582	4,087,510.228	4,087,510.228
DI Yogyakarta	1,008,145.605	1,008,145.605	1,140,352.626	1,140,352.626	1,394,804.162	1,394,804.162	1,634,310.538	1,634,310.538
Jawa Timur	2,520,761.364	2,520,761.364	2,685,627.918	2,685,627.918	2,829,574.467	2,829,574.467	3,039,165.163	3,039,165.163
Bali	20,295.753	20,295.753	24,485.276	24,485.276	25,366.438	25,366.438	30,050.939	30,050.939
Kalimantan Tengah	6,562.653	6,562.653	7,331.925	7,331.925	7,011.261	6,499.167	7,010.809	7,010.809
Kalimantan Timur	18,257.281	18,257.281	29,008.494	29,008.494	11,360.645	11,360.645	11,360.370	9,408.841
Kalimantan Selatan	84,680.681	84,680.681	110,749.471	110,749.471	123,303.188	123,303.188	133,239.330	133,239.330
Sulawesi Barat	243.951	-	187.692	187.692	176.750	176.750	43.141	43.141
Sulawesi Tengah	-	-	110,551.035	110,551.035	127,634.822	127,634.822	133,526.958	133,526.958
Sulawesi Selatan	120,512.783	120,512.783	137,178.437	137,178.437	148,302.896	124,657.132	157,172.315	127,183.738
Maluku Utara	211,670.791	211,670.791	217,203.043	217,203.043	226,734.249	226,734.249	235,269.065	235,269.065
NTB	930,405.197	930,405.197	1,104,117.423	1,104,117.423	1,318,238.583	1,318,238.583	1,567,750.107	1,567,750.107

Source: Processed Data Results (2025)

From the table of target values recommended by DEA, it is evident that several provinces have projected asset values that exceed their actual values, indicating untapped growth potential in BPRS

assets within those regions. For instance, South Sulawesi in 2023 had a projected value of IDR 148,302.896 million, while its actual value was only IDR 124,657.132 million. A similar situation occurred in Central Sulawesi, where in 2024 the projected value reached IDR 133,526.958 million, higher than the actual figure. In contrast, East Kalimantan showed a reversed trend in 2024, where the projected asset value was IDR 9,408.841 million—lower than the actual value of IDR 11,360.370 million—indicating a mismatch between DEA recommendations and actual asset realization.

In these provincial cases, the discrepancy between projected and actual values may stem from various factors. External elements such as regional economic conditions, the attractiveness of Islamic banking products, and the specific business strategies adopted by individual BPRS institutions likely play a role. When actual values fall short of DEA projections, it suggests that existing growth potential is not being fully leveraged, and thus, BPRS in those areas may need to reassess their marketing strategies, service quality, and operational efficiency. Conversely, when actual values surpass projections—as observed in East Kalimantan, it indicates that BPRS in the region may already be operating efficiently or possess a competitive advantage that enables asset growth beyond DEA expectations.

Furthermore, based on data for the target values of DPK (Third Party Funds) variables of BPRS across provinces from 2021 to 2024, several provinces show projected values higher than the actual ones. One province requiring attention is Central Java, where the 2022 projected value was IDR 2,042,089.360 million, compared to an actual value of IDR 2,094,942.613 million. This discrepancy continued into 2023, with a projected DPK of IDR 2,378,187.515 million and an actual value of IDR 2,440,471.171 million. This trend suggests that although actual values are increasing, the lower projected figures point to growth potential that hasn't yet been fully realized. East Java shows a similar situation, with a projected DPK in 2022 of IDR 1,785,701.994 million lower than the actual IDR 1,880,773.256 million and this trend continued through 2024.

Another province that warrants attention is West Nusa Tenggara (NTB), which in 2023 recorded an actual value of IDR 955,344.525 million, while the projected value was lower at IDR 938,294.599 million. This indicates that although the growth of third-party funds (DPK) in NTB is relatively strong, the lower projection suggests that the potential for further increase has not been fully realized. Similarly, in West Java, the actual DPK in 2023 stood at IDR 4,174,032.897 million, matching the projection; however, the growth trend indicates opportunities for even greater improvement in the future. Based on this analysis, the DEA recommendations highlight the importance of strengthening DPK strategies in provinces where the target values exceed actual figures—such as Central Java, East Java, and NTB, in order to enhance customer trust in BPRS and ensure the achievement of projected targets.

Table 8. Target Value of Third-Party Funds (DPK) Variable of BPRS Across Provinces (in million rupiah)

Province	2021		2022		2023		2024	
	Actual	Projection	Actual	Projection	Actual	Projection	Actual	Projection
Nanggroe Aceh Darussalam	397,309.045	397,309.045	467,153.475	467,153.475	518,007.010	518,007.010	548,218.022	548,218.022
Sumatera Utara	157,665.569	157,665.569	181,475.215	181,475.215	169,270.806	169,270.806	166,919.938	166,919.938
Sumatera Barat	249,260.496	249,260.496	298,694.398	298,694.398	376,153.622	376,153.622	423,324.833	423,324.833
Sumatera Selatan	11,481.323	11,481.323	13,835.180	13,835.180	15,428.605	15,428.605	15,170.578	15,170.578
Bangka Belitung	389,554.672	364,913.678	377,446.423	377,446.423	326,777.751	326,777.751	311,033.125	311,033.125
Bengkulu	67,177.059	67,177.059	77,271.278	77,271.278	90,032.042	90,032.042	96,532.343	96,532.343
Riau	58,970.469	58,970.469	78,868.261	78,868.261	99,836.041	99,836.041	114,547.247	114,547.247
Kepulauan Riau	99,313.401	99,313.401	120,942.852	120,942.852	147,381.296	147,381.296	182,590.984	182,590.984
Lampung	382,231.499	382,231.499	434,854.199	434,854.199	482,823.313	482,823.313	553,968.605	553,968.605
DKI Jakarta	109,165.350	109,165.350	232,474.342	232,474.342	295,656.602	295,656.602	322,818.921	322,818.921
Jawa Barat	3,148,050.168	3,148,050.168	3,623,621.830	3,623,621.830	4,174,032.897	4,174,032.897	4,644,193.253	4,644,193.253
Banten	788,243.528	788,243.528	855,485.029	855,485.029	917,708.034	917,708.034	1,052,005.818	1,052,005.818
Jawa Tengah	1,526,814.761	1,526,814.761	2,094,942.613	2,042,089.360	2,440,471.171	2,378,187.515	2,825,761.241	2,701,919.428
DI Yogyakarta	689,752.304	689,752.304	776,579.167	776,579.167	901,644.681	901,644.681	1,062,872.934	1,062,872.934
Jawa Timur	1,742,519.773	1,704,835.819	1,880,773.256	1,785,701.994	2,058,235.891	1,831,382.316	2,184,378.980	2,054,824.285
Bali	16,345.068	16,345.068	11,611.730	11,611.730	16,036.345	16,036.345	19,965.976	19,965.976
Kalimantan Tengah	3,472.256	3,472.256	3,968.902	3,968.902	3,534.556	3,534.556	3,951.551	3,951.551
Kalimantan Timur	10,213.700	10,213.700	23,765.394	23,765.394	6,623.625	6,623.625	5,110.131	5,110.131
Kalimantan Selatan	64,022.791	64,022.791	71,799.409	71,799.409	89,869.481	89,869.481	96,111.595	96,111.595
Sulawesi Barat	61.741	-	61.741	61.741	61.741	61.741	61.741	61.741
Sulawesi Tengah	-	-	74,626.541	74,626.541	84,794.292	84,794.292	97,379.531	97,379.531
Sulawesi Selatan	46,332.748	46,332.748	58,847.854	58,847.854	68,437.069	68,437.069	68,594.291	68,594.291
Maluku Utara	121,712.232	121,712.232	142,489.398	142,489.398	145,302.303	145,302.303	156,024.528	156,024.528
NTB	703,678.424	680,925.189	825,419.676	825,419.676	955,344.525	938,294.599	1,101,436.097	1,101,436.097

Source: Processed Data Results (2025)

. Based on the analysis of the target values for the BPRS financing variable across provinces from 2021 to 2024 using the DEA method, several provinces have projected values that exceed their actual figures. For example, West Sumatra recorded an actual financing value of IDR 495,997.101 million in 2024, while the projection was higher at IDR 569,684.947 million. A similar case occurred in Central Java, where the actual financing in 2024 was IDR 3,214,744.633 million, whereas the projected value reached IDR 3,456,784.119 million. Another example is North Maluku, with an actual value of IDR 160,017.546 million and a projection of IDR 225,213.656 million. These cases suggest that BPRS in these regions still have potential for increasing their financing based on DEA recommendations.

Table 10. Target Value of BPRS Financing Variable Across Provinces (in million rupiah)

Province	2021		2022		2023		2024	
	Actual	Projection	Actual	Projection	Actual	Projection	Actual	Projection
Nanggroe Aceh Darussalam	430,121.360	523,269.175	535,469.070	639,032.548	659,018.982	735,022.159	695,924.385	768,583.604
Sumatera Utara	160,790.155	221,030.641	179,715.354	249,392.151	200,656.574	253,043.345	205,708.339	243,098.121
Sumatera Barat	229,308.704	317,433.501	282,099.831	398,645.086	377,855.899	499,703.085	495,997.101	569,684.947
Sumatera Selatan	15,531.012	20,596.026	17,296.980	20,147.182	17,750.856	23,820.762	18,431.623	23,116.447
Bangka Belitung	246,946.708	424,103.744	231,064.382	467,801.118	231,383.536	405,493.337	217,242.009	371,063.005
Bengkulu	71,238.161	105,901.695	82,924.545	109,308.664	97,593.699	131,022.952	114,386.938	140,384.047
Riau	43,217.620	87,532.425	71,779.215	109,696.258	104,250.550	143,470.834	121,193.195	160,820.438
Kepulauan Riau	141,602.990	152,097.064	172,439.001	172,439.001	234,019.052	234,019.052	295,756.716	295,756.716
Lampung	575,583.087	575,583.087	638,804.367	638,804.367	721,664.503	721,664.503	816,316.504	816,316.504
DKI Jakarta	127,911.289	127,911.289	274,263.524	274,263.524	338,464.675	338,464.675	337,181.391	337,181.391
Jawa Barat	3,647,366.382	3,647,366.382	4,490,583.172	4,490,583.172	5,491,253.415	5,491,253.415	6,003,596.542	6,003,596.542
Banten	585,652.420	928,827.053	635,146.957	1,066,590.022	705,130.699	1,168,230.933	844,965.354	1,337,977.086
Jawa Tengah	1,743,709.167	1,797,199.994	2,362,860.565	2,524,214.428	2,928,834.661	3,105,303.430	3,214,744.633	3,456,784.119
DI Yogyakarta	671,839.453	824,555.699	819,680.948	981,698.740	1,013,500.812	1,188,025.408	1,249,773.900	1,394,155.404
Jawa Timur	1,759,247.613	1,975,921.626	1,903,641.422	2,205,440.004	1,929,618.706	2,378,821.145	2,105,584.399	2,608,278.658
Bali	10,847.548	24,197.179	12,911.207	17,532.482	12,273.944	23,716.808	14,073.721	28,735.983
Kalimantan Tengah	4,684.535	5,954.101	3,571.402	5,717.121	2,458.507	5,516.612	3,652.438	6,176.410
Kalimantan Timur	14,431.053	17,135.644	8,911.162	31,554.142	3,006.867	10,098.752	3,076.268	8,180.033
Kalimantan Selatan	63,694.290	96,652.855	91,838.028	100,695.133	96,467.732	125,454.501	110,816.237	132,769.278
Sulawesi Barat	-	-	-	-	-	-	-	-
Sulawesi Tengah	-	-	78,976.459	103,648.691	91,967.036	123,176.382	105,623.452	133,774.653
Sulawesi Selatan	91,358.538	91,358.538	91,884.648	91,884.648	98,082.012	108,615.108	109,939.032	111,045.012
Maluku Utara	124,055.719	183,289.242	130,039.014	198,620.079	138,891.189	214,581.318	160,017.546	225,213.656
NTB	692,740.373	790,089.423	833,799.046	1,011,892.707	987,264.896	1,192,269.872	1,275,999.174	1,389,468.031

Source: Processed Data Results (2025)

Conversely, there are provinces where the projected values are lower than the actual financing figures, indicating that the financing disbursed has already surpassed the DEA model's estimates. For instance, East Kalimantan reported actual financing of IDR 3,076.268 million in 2024, while the projection was only IDR 8,180.033 million. A similar situation occurred in South Sulawesi, with an actual figure of IDR 109,939.032 million, compared to a projected value of only IDR 111,045.012 million. These differences may suggest that BPRS in these areas are more aggressive in disbursing financing, or that external factors are driving financing growth faster than what the model recommends.

Discussion

The comparative analysis of the CRS, output-oriented VRS, and input-oriented VRS models reveals variations in efficiency both across models and provinces. The CRS model consistently demonstrates lower average efficiency scores compared to both VRS models, due to its stricter assumption of constant returns to scale, which requires perfect proportionality between inputs and outputs. In contrast, the VRS models are more flexible, accommodating non-linear operational conditions, and thus tend to yield higher efficiency values.

The province of DKI Jakarta demonstrated optimal performance across all models and throughout the analysis period, despite data showing that DKI Jakarta does not possess the most dominant variable values in Indonesia. Provinces such as West Java and Central Java have higher asset, third-party funds (DPK), and financing values, yet recorded lower efficiency scores. This indicates that operational size and complexity can contribute to inefficiency. In contrast, the relatively smaller operational scale in DKI Jakarta may allow for more focused and effective resource utilization. The consistent achievement of maximum efficiency suggests that BPRS institutions in the region are managed exceptionally well, both in terms of input utilization and output generation. Contributing factors to this success likely include high levels of financial literacy, strong infrastructure support, and optimal operational capacity.

On the other hand, West Sulawesi was among the provinces with the lowest efficiency levels across all models, particularly during the early years of the study. Zero efficiency scores under the CRS and output-oriented VRS models up to 2022 suggest significant challenges, such as limited resources, inadequate infrastructure, or other operational constraints. Similarly, East Kalimantan fell into the low-efficiency category, with a sharp decline in efficiency scores, especially under the CRS model, reflecting difficulties in effectively utilizing inputs or generating adequate outputs.

In addition, Bangka Belitung and Bali also consistently recorded low efficiency scores across all three models, although slight improvements were observed in some years. The poor performance in these provinces may be attributed to geographical constraints, limited market size, or lack of

diversification in Islamic financial products. To enhance efficiency, these regions require strategic interventions such as workforce training, product innovation, and regulatory support. Improvement efforts should focus on strengthening Islamic financial infrastructure, enhancing human resource capacity, and expanding access to Sharia-compliant financial services.

This study presents significant novelty within the Islamic finance literature. It specifically assesses the financial efficiency of BPRS across various Indonesian provinces where BPRS service offices are present. Most previous studies have focused primarily on the efficiency of Islamic Commercial Banks (BUS) or BPRS within specific regions. For example, the study titled *"Analysis of the Efficiency Comparison between BUS and BPRS Financing in West Java from 2017 to 2019"* by Islami et al. (2021) is limited to one region. Comprehensive evaluations of BPRS efficiency across provinces in Indonesia remain scarce.

This study offers a new perspective by comparing BPRS efficiency across provinces, thereby identifying regional disparities in financial performance. This approach differs from previous research that has focused on national or region-specific efficiency analyses without cross-provincial comparison. Accordingly, this study not only enriches the literature on BPRS financial efficiency in Indonesia but also provides practical insights for policymakers and BPRS management in improving operational efficiency based on specific provincial findings. By evaluating BPRS financial efficiency comprehensively across provinces, the study can also inform the development of policies aimed at enhancing BPRS performance, especially in provinces with lower efficiency levels.

In previously reviewed academic journals, peer count and projected values are rarely discussed. Earlier researchers have primarily focused on efficiency scores. For instance, the study titled *"Analysis of the Efficiency Level of Sharia Rural Banks in Greater Bandung Before and After the COVID-19 Pandemic"* by Firjatullah & Hidayat (2024) only presents potential improvements in percentage terms, without showing the nominal target values.

CONCLUSION

Based on the results of the Data Envelopment Analysis (DEA) with three models (CRS, VRS Output, and VRS Input), there is variation in the efficiency levels among provinces in Indonesia. The majority of provinces fall into the moderate efficiency category, with some provinces, such as DKI Jakarta, Lampung, and South Sulawesi, consistently showing high efficiency. DKI Jakarta stands out as the province with the highest efficiency in BPRS performance for four consecutive years, even though its assets, third-party funds (DPK), and financing are not as large as other provinces like West Java. This efficiency is supported by several factors, such as Jakarta's status as the national economic hub with high per capita income, advanced mobility and infrastructure, as well as the implementation of digital transformation and supportive government policies.

Provinces with low efficiency (Bangka Belitung, Banten, Bali, East Kalimantan, Central Sulawesi, and West Sulawesi) in managing BPRS require focused intervention strategies, such as improving managerial capacity, investing in technology, and strengthening market capacity, to optimize performance and promote the equitable development of the Islamic financial sector in Indonesia. The causes of low efficiency in BPRS across some provinces include poor human resource quality, lack of product diversification, dependence on local funding, low technological efficiency, and limited market access. These issues can be addressed through strategies such as human resource training, product innovation, collaboration with other financial institutions, technology investment, market expansion, and improving Islamic financial literacy. Furthermore, these six provinces could consider the target values or projected values recommended by the DEA. Overall, this research provides a significant contribution to understanding the financial efficiency of BPRS in Indonesia and offers guidance for improving the performance of the Islamic banking sector in the future.

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