
DECOMPOSING POST-MERGER PERFORMANCE: A BENCHMARK-ADJUSTED DUPONT ANALYSIS OF BANK SYARIAH INDONESIA

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Abstract

This study evaluates the financial performance of Bank Syariah Indonesia (BSI) over 2017–2024 using DuPont analysis and benchmarking against the Islamic and conventional banking industries. The analysis compares the pre-merger and post-merger periods using pooled-period and annual ratios, complemented by accounting decomposition, exploratory Mann–Whitney U tests, and sensitivity analysis. The pooled profit margin of BSI went up from 9.96% to 23.53%, while the Return on Equity (ROE) increased from 8.41% to 14.05%. However, asset turnover and the equity multiplier went down, which suggests that the better returns for shareholders came mainly from higher margin, rather than from the greater asset utilization or financial leverage. Industry benchmarking further shows that BSI's relative profit-margin and return-on-equity positions improved compared to both groups, with the mean annual ROE gap shifting from negative to positive in the merger/post-merger period. In contrast, asset turnover and return on assets remained below both industry benchmarks throughout the observation period. The exploratory pre/post differences did not remain statistically significant after Holm adjustment, while sensitivity checks confirmed the direction of the principal findings under alternative aggregation and observation windows. Overall, BSI exhibited stronger profitability and shareholder returns alongside persistent limitations in asset utilization.

Keywords: *DuPont Analysis, Bank Syariah Indonesia, Bank Merger, Islamic Banking, Industry Benchmark.*

A. INTRODUCTION

BRI Syariah, Bank Syariah Mandiri and BNI Syariah came together on February 1, 2021 to create Bank Syariah Indonesia (BSI). The merger was expected to make operations better and make the bank stronger by having a larger presence and benefits from working together (Fitch Ratings, 2020). However, empirical evidence on bank merger outcomes remains mixed. In Indonesia, Fahlevi (2022) found significant performance improvements post-M&A as measured by ROA, ROE, and the cost efficiency ratio, while Meilani and Dana (2023) found no significant pre- and post-merger changes in CAR, CR, ROA, DER, and TATO. On the other hand, the research by Ayagre et al. (2024) in Sub-Saharan Africa reporting a decline instead in post-merger profitability as proxied by ROA, ROE, and net interest margin.

These different results mean that looking at a single profitability proxy might hide what is really happening behind it. The DuPont framework helps by breaking down ROE into three parts: profit margin, asset turnover, and equity multiplier (Brigham & Houston 2019). This method is well-applied in banking sector, including studies by Collier et al. (2010), Almazari (2012), and AlAli (2019). More recent work has used it to analyze Islamic banking performance. Demirtaş (2024), for instance, used the DuPont method to Islamic banking data across 14 countries to examine the roles of operational efficiency, asset efficiency, and leverage in supporting equity profitability. In Indonesia, Fitriyah et al. (2023) used DuPont analysis on state-owned banks, while Subagio et al. (2024) and Chyntia et al. (2025) used the method to analyze BSI performance after the merger using a relatively short observation period. However,

the works of Selvi (2023) proved that even while mergers are usually targeted at enhancing synergy and efficiency, improvement in profitability and leverage efficiency does not always occur immediately.

Building on these studies, this research adds three things. First, a longer observation period helps to see what happened in the early years of the merger within a bigger picture of financial performance. Second, benchmarking against both conventional and Islamic banking industry will make it easier to see if BSI's performance changed or if it was just part of a bigger change in the whole industry. Third, looking at how ROE changed helps to see how changes in profit margins, assets utilization, and financial leverage helped in contributing to the shareholder return. Accordingly, this study examines BSI from 2017 to 2024, which includes four years before the merger (2017 to 2020) and four years after the merger (2021 to 2024). It assess changes in financial performance, identify the DuPont components underlying the change in ROE, and evaluate its performance relative to the Islamic and conventional banking industries. By extending the observation years and incorporating industrial benchmarks, the study also gives a better idea about how BSI's position in the banking industry has changed.

B. LITERATURE REVIEW

Islamic banking in Indonesia was strengthened through Law No. 10 of 1998, which amended Law No. 7 of 1992 on Banking and provided a legal foundation for banks operating under Sharia principles. Unlike conventional banking, Islamic banking work using profit-and-loss-sharing models, like *mudharabah* and *musyarakah*, where both the bank and its customers share the returns and risks (Chong & Liu, 2009). The system was further strengthened by Law No. 21 of 2008 on Islamic Banking, which acknowledges the business and social roles of Islamic banks and Sharia Business Units (UUS), placing Islamic banking as part of Indonesia's larger financial and socioeconomic development framework.

Mergers are often pursued to increase operational and financial efficiency, boost institutional strength, and improve competitiveness (Gaughan, 2017). According to Gitman and Zutter (2015), reason for mergers may include growth, risk diversification, synergy, access to additional financing, improvements in management and technology, tax benefits, and better liquidity. In Indonesia, the merger of BRI Syariah, Bank Syariah Mandiri, and BNI Syariah into Bank Syariah Indonesia (BSI) is a strategic move aimed at building a stronger Islamic banking environment, making operations more efficient, and increasing competitiveness in both local and global markets. However, these benefits must be clearly shown through the financial results of the newly formed bank.

The DuPont model is a way to look at financial performance by breaking down Return on Equity (ROE) into its three main parts—Profit Margin (PM), Asset Turnover (AT), and Equity Multiplier (EM). This helps to find out if changes in performance come from how well the business makes money, how well it uses its assets, or how it is financed. Within this framework, PM reflects the amount of net income generated from operating income, AT represents the ability of assets to generate operating income, and EM captures the degree to which the asset base is supported by equity. Return on Assets (ROA), represented by the interaction between PM and AT, captures the profitability generated from the asset base, while the inclusion of EM extends the analysis to shareholder returns through ROE (Brigham & Houston, 2019).

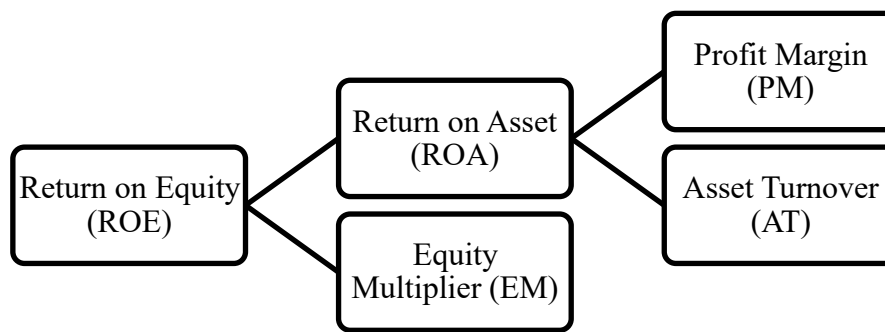


Figure 1. DuPont Analytical Framework

Source: Brigham and Houston (2019)

Empirical studies show how the DuPont model works in various industries and different economic conditions. Endris and Babu (2026) used a modified five-step version of the DuPont model to study 49 manufacturing companies in Ethiopia from 2020 to 2024, and found that tax burden, interest burden, and the equity multiplier are key factors affecting ROE. In the pharmaceutical sector, Ayustin et al. (2023) applied the DuPont analysis to several listed Indonesian pharmaceutical companies, using both time-series and cross-sectional methods. Jiang (2023) also used the model on a Chinese pharmaceutical company to find issues related to profitability and how well assets are used. In real estate, Ayaba et al. (2023) adapted the model into a seven-step version to assess listed South African REITs.

Minz et al. (2024) used a modified five-step DuPont model to look at how three big Indian banks—SBI, HDFC Bank, and ICICI Bank—performed from 2017/18 to 2022/23. They broke down Return on Equity into five parts: asset turnover, equity multiplier, tax burden, interest burden, and operating margin. The results showed that each bank had different reasons for its profits, which shows how useful the extended DuPont model is for comparing bank performance. In Islamic banking, Demirtaş (2024) used the DuPont method across 14 countries. Yoshanti and Kurnia (2024) also used it to check the financial performance of Islamic banks in Indonesia and found that different banks had different results. All these studies show that the DuPont analysis is still a valuable tool for understanding how banks make profits by looking at their operations, how they use assets, and how much they rely on debt, no matter what kind of banking system they're in.

In the banking sector, the DuPont framework has also been used in merger and acquisition situations. Minz and Bhowmik (2024) studied the Bank of Baroda merger and used an expanded version of the DuPont model. They found that after the merger, the return on equity (ROE) went up, but asset turnover and tax burden went down. Their statistical work shows a big change in operating margin, but no big changes in asset turnover, equity multiplier, tax burden, interest burden, or ROE. Bansal and Singh (2024) also used both three-step and five-step versions of the DuPont analysis to look at IDBI Bank before and after an acquisition. They found that the improvement in ROE after the acquisition was linked to a rise in net profit margin, while financial leverage went down. These findings show how useful the DuPont analysis is in mergers, where overall returns might improve even if some of the parts of the model change in different or opposite ways.

In Indonesia, Fitriyah et al. (2023) and Ripai et al. (2023) have used DuPont analysis in evaluating financial performance, although their studies covered only short time frames. More specifically, Faizah et al. (2024) and Subagio et al. (2024) used the DuPont analysis on Bank Syariah Indonesia after a merger. However, most existing studies on BSI use only two or three years of financial data. These short time periods give some insight into the early performance after the merger but might not fully show how profitability, asset use, and

financial leverage develop over time.

This gap creates an opportunity for a more detailed look at BSI's financial performance over time. By looking at a longer period, the continuity of the early patterns after the merger will be analyze. Comparing BSI's performance with the broader banking industry at the same time can also help understand if the changes in BSI are similar to or different from those in other banks. This study builds on previous work by combining firm-level DuPont analysis with comparisons to both Islamic and conventional banking sectors from 2017 to 2024.

C. METHOD

This study examines the financial performance of Bank Syariah Indonesia (BSI) relative to the Islamic banking industry and the conventional banking industry from 2017 to 2024. The time period is split into two parts: the four years before the merger (2017 to 2020) and the four years after the merger (2021 to 2024). For the years 2017 to 2020, the financial information from BRI Syariah, Bank Syariah Mandiri, and BNI Syariah is combined to show what BSI was like before it merged. From 2021 to 2024, BSI's own financial data is used. The year 2021 is included in the main analysis because it was the year the merger happened, but it's left out in a test to see how sensitive the results are. The data obtained from bank financial statements and banking statistics released by the Financial Services Authority (OJK).

To measure financial performance, five indicators from the DuPont method is used to analyze profitability, asset utilization, and financial leverage. The operational measurement of each indicator is presented in Table 1.

Table 1. Measurement of DuPont Indicators

Indicator	Measurement	Unit	Financial Dimension
Profit Margin (PM)	Net Income/Operating Income	%	Profitability
Asset Turnover (AT)	Operating Income/Total Assets	times	Asset utilization
Return on Assets (ROA)	Net Income/Total Assets	%	Overall asset profitability
Equity Multiplier (EM)	Total Assets/Total Equity	times	Financial leverage
Return on Equity (ROE)	Net Income/Total Equity	%	Equity profitability

Source: Developed by the author (2026) based on the DuPont framework

The analysis uses both annual ratios and pooled-period ratios because they each serve a different purpose. Annual ratios help explain how performance changed from one year to the next and are used for comparing each year equally against a standard. Pooled-period ratios are used to show the overall performance during the time before and after the merger. These ratios are made by applying the DuPont method to all the financial numbers from each four-year period. This way, the relationships between PM, AT, ROA, EM, and ROE are kept, while also considering how the size of the financial numbers changed each year. Differences in performance between the two periods are shown as percentages, and differences between percentage-based ratios are shown in percentage points (pp).

Industry benchmarking is conducted for all five DuPont indicators. For indicator k , benchmark j , and year t , the annual benchmark gap is defined as:

$$g_{jkt} = r_{kt}^{BSI} - r_{kt}^j$$

where r_{kt}^{BSI} is BSI's value for DuPont indicator k in year t and r_{kt}^j is the corresponding value for benchmark j , representing either the Islamic banking industry or the conventional banking industry. The change in BSI's relative position between the two periods is calculated as:

$$\Delta g_{jk} = \bar{g}_{jk,post} - \bar{g}_{jk,pre}$$

where $\bar{g}_{jk,post}$ and $\bar{g}_{jk,pre}$ denote the arithmetic means of the annual benchmark gaps in 2021–2024 and 2017–2020, respectively. A positive Δg means the company improved

compared to the benchmark, while a negative value means it got worse. Equal-weight annual means are used so that each year contributes equally to the benchmark comparison.

To identify the accounting sources of the change in pooled ROE, the change is decomposed into the contributions of PM, AT, and EM using an order-independent allocation. Each factor is moved from its pre-merger value to its post-merger value across all six possible replacement sequences, and its contribution is defined as the average incremental effect across those sequences. For PM, the contribution is:

$$C^{PM} = \Delta PM [AT_0 EM_0 / 3 + (AT_1 EM_0 + AT_0 EM_1) / 6 + AT_1 EM_1 / 3]$$

where subscripts 0 and 1 denote the pre-merger and merger/post-merger pooled values, respectively, and $\Delta PM = PM_1 - PM_0$. Analogously, the contributions of AT and EM are calculated as:

$$C^{AT} = \Delta AT [PM_0 EM_0 / 3 + (PM_1 EM_0 + PM_0 EM_1) / 6 + PM_1 EM_1 / 3]$$

$$C^{EM} = \Delta EM [PM_0 AT_0 / 3 + (PM_1 AT_0 + PM_0 AT_1) / 6 + PM_1 AT_1 / 3]$$

The three contributions satisfy $\Delta ROE = C^{PM} + C^{AT} + C^{EM}$ and are reported in percentage points of ROE. This decomposition allocates the observed ROE change among profitability, asset utilization, and financial leverage while incorporating interaction effects.

As a further check, the differences between the two time periods are compared using exact two-sided Mann–Whitney U tests. This method compares the four years before the merger (2017–2020) to the four years after (2021–2024) for each DuPont indicator. The rank-biserial correlation is used to measure how big the effect is for these tests (Kerby, 2014). Positive values mean better performance in the post-merger period, and negative values mean worse performance. Since five indicators are tested simultaneously, the results are adjusted to account for multiple comparisons using Holm’s method, with the overall level of significance is set at 5% (Holm, 1979). Additional checks are done using arithmetic annual means instead of pooled-period ratios and by removing the years 2020 and 2021 to see if the results stay the same. This helps check if the findings hold even when the last pre-merger year, which was affected by the pandemic, or the merger/transition year is excluded.

D. RESULT AND DISCUSSION

1. BSI’s Performance

To assess the financial performance of Bank Syariah Indonesia (BSI) over the study period, the DuPont analysis is used to examine the main components underlying the bank’s return on equity (ROE). The analysis decomposes ROE into profitability, asset utilization, and financial leverage, providing a more comprehensive view of how changes in these components contributed to BSI’s overall financial performance. The DuPont ratios for the period 2017–2024 are presented in Table 2.

Table 2. BSI DuPont Ratios, 2017–2024

Year/Period	PM (%)	AT (times)	ROA (%)	EM (times)	ROE (%)
2017	5.82	0.0862	0.501	11.24	5.63
2018	7.83	0.0813	0.636	10.24	6.52
2019	12.30	0.0773	0.950	10.77	10.24
2020	12.81	0.0713	0.913	11.02	10.06
2021	17.00	0.0671	1.141	10.61	12.11
2022	21.71	0.0642	1.393	9.12	12.71
2023	25.63	0.0629	1.613	9.13	14.72
2024	27.69	0.0619	1.715	9.07	15.55
2017–2020 Pooled	9.96	0.0781	0.778	10.81	8.41
2021–2024 Pooled	23.53	0.0637	1.500	9.37	14.05

Source: Author’s calculations (2026)

BSI's PM went up every year, starting at 5.82% in 2017 and reaching 27.69% in 2024. However, AT went the other way, dropping steadily from 0.0862 to 0.0619. ROA rose from 0.501% to 1.715%, with a small drop in 2020 compared to 2019. ROE also increased, from 5.63% to 15.55%. The EM went down from 11.24 times in 2017 to 9.07 times in 2024, though the trend wasn't perfectly steady before the merger. Consequently, the annual data already reject the simple narrative that all DuPont components improved together.

On a pooled-period basis, PM rose from 9.96% to 23.53%, which is an increase of 13.57 percentage points or 136.28%. ROA went up from 0.778% to 1.500%, which is a 0.722 percentage point gain or 92.84%. ROE increased from 8.41% to 14.05%, a gain of 5.65 percentage points or 67.14%. On the other hand, AT dropped from 0.0781 to 0.0637, a 18.39% decrease, and EM fell from 10.81 to 9.37 times, a 13.33% decline. Even though BSI didn't make as much profit per asset and had less financial leverage, it still made more profit compared to its assets and equity.

These changes happened because of the actual numbers. Average annual net income went from IDR 1.51 trillion to IDR 5.00 trillion, an increase of 231.13%. Operating income rose from IDR 15.16 trillion to IDR 21.25 trillion, or 40.17%. Assets grew from IDR 194.15 trillion to IDR 333.31 trillion, a 71.68% increase. Equity went from IDR 17.96 trillion to IDR 35.58 trillion, which is a 98.07% increase. This means both profit and assets expanded much faster than operating income, while equity grew faster than assets.

2. Attribution of the Change in ROE

To further examine the factors underlying changes in BSI's return on equity (ROE), an exact decomposition is applied to identify the contribution of each DuPont component to the overall change in ROE. The decomposition uses an order-averaging approach to minimize the effect of the sequence in which individual components are changed. This provides a more balanced attribution of the observed variation in pooled ROE over the study period. The results of the decomposition are presented in Table 3.

Table 3. Order-Averaged Exact Decomposition of Pooled BSI ROE

Component	Pre-period value	Post-period value	ROE contribution (pp)
Profit Margin	9.96	23.53	+9.731
Asset Turnover	0.0781	0.0637	-2.410
Equity Multiplier	10.81	9.37	-1.686
Total ROE Change	8.41%	14.05%	+5.635

Source: Author's calculations (2026)

The breakdown shows that the increase in ROE was mainly because of higher profit margins, which added 9.731 points. However, there were other effects too: asset turnover dropped by 2.410 points and equity multiplier went down by 1.686 points. Their sum is the observed +5.635 pp ROE change. The rise in margins was the biggest factor, but lower turnover and less leverage reduced some of that gain. This pattern suggests that the improvement in BSI's performance came from better profit margins rather than from using assets more efficiently. The higher ROE wasn't because the company used more debt. In fact, the equity-to-assets ratio rose from 9.25% to 10.67%, meaning that equity made up a larger portion of the total assets after the merger. BSI improved its returns for shareholders without increasing its financial leverage, which shows that margin expansion played a key role in the overall improvement.

3. Comparison with the Banking Industries

To place BSI's financial performance in a broader context, its pooled DuPont ratios are compared with relevant banking industry benchmarks. This comparison provides an indication of how BSI's profitability, asset utilization, financial leverage, and overall, ROE relate to the broader performance of the banking industry during the study period. The comparative results are presented in Table 4.

Table 4. Pooled DuPont Ratios: BSI and Industry Benchmarks

Bank/Industry	Ratio	2017–2020	2021–2024	Relative Change (%)
BSI	PM (%)	9.96	23.53	+136.28
BSI	AT (times)	0.0781	0.0637	-18.39
BSI	ROA (%)	0.778	1.500	+92.84
BSI	EM (times)	10.81	9.37	-13.33
BSI	ROE (%)	8.41	14.05	+67.14
Islamic Banking	PM (%)	11.75	20.50	+74.36
Islamic Banking	AT (times)	0.1034	0.0837	-19.06
Islamic Banking	ROA (%)	1.216	1.716	+41.13
Islamic Banking	EM (times)	8.63	7.85	-9.04
Islamic Banking	ROE (%)	10.49	13.47	+28.37
Conventional Banking	PM (%)	17.92	23.01	+28.44
Conventional Banking	AT (times)	0.0956	0.0803	-15.97
Conventional Banking	ROA (%)	1.712	1.848	+7.93
Conventional Banking	EM (times)	6.18	6.39	+3.41
Conventional Banking	ROE (%)	10.58	11.81	+11.60

Source: Author's calculations (2026)

When compared to Islamic and conventional banking, BSI had the strongest growth in PM, ROA, and ROE. PM rose by 136.28% for BSI, compared to 74.36% for Islamic banks and 28.44% for conventional banks. ROA went up by 92.84%, compared to 41.13% and 7.93%. ROE increased by 67.14%, surpassing Islamic banks at 28.37% and conventional banks at 11.60%. Even though BSI's AT was still lower than the banking industry and its EM fell by 13.33%, its ROE was still higher than both. Islamic banks also had a lower EM, while conventional banks saw a slight increase. This supports the idea that BSI's strong returns came from better margins, not from higher asset turnover or greater leverage.

Equal-weight annual means underpin Table 5. BSI's PM gap improved from -1.867 to +2.763 pp against Islamic banking and from -8.282 to +0.188 pp against conventional banking. Its ROE gap also turned positive: from -2.093 to +0.446 pp against Islamic banking and from -2.513 to +2.092 pp against conventional banking. Thus, BSI moved from an average ROE below both industry benchmarks before the merger to an average ROE above both benchmarks in 2021–2024.

Table 5. Annual-Mean BSI-Minus-Industry Benchmark Gaps

Benchmark	Ratio	Pre mean gap	Post mean gap	Gap change
Islamic Banking	PM (pp)	-1.867	+2.763	+4.630
Islamic Banking	AT (times)	-0.0253	-0.0200	+0.0053
Islamic Banking	ROA (pp)	-0.437	-0.228	+0.209

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Islamic Banking	EM (times)	+2.150	+1.570	-0.580
Islamic Banking	ROE (pp)	-2.093	+0.446	+2.539
Conventional Banking	PM (pp)	-8.282	+0.188	+8.469
Conventional Banking	AT (times)	-0.0168	-0.0159	+0.0008
Conventional Banking	ROA (pp)	-0.977	-0.363	+0.614
Conventional Banking	EM (times)	+4.640	+3.087	-1.553
Conventional Banking	ROE (pp)	-2.513	+2.092	+4.605

Source: Author's calculations (2026)

The analysis shows that BSI improved its relative profitability compared to both Islamic and conventional banks. Against the Islamic banking industry, BSI's mean ROE gap shifted from -2.093 pp in the pre-merger period to +0.446 pp in the merger/post-merger period, representing an improvement of 2.539 pp. A stronger shift was observed relative to conventional banking, where the ROE gap changed from -2.513 pp to +2.092 pp, an improvement of 4.605 pp. However, BSI's ROA remained below both benchmarks, although the gaps narrowed from -0.437 pp to -0.228 pp against Islamic banking and from -0.977 pp to -0.363 pp against conventional banking. BSI also kept a higher EM than both benchmarks, but the gap between BSI and Islamic banks decreased by 0.580 times, and with conventional banks by 1.553 times, meaning BSI became less reliant on debt. Meanwhile, AT was still below both benchmarks throughout the time period. Overall, BSI improved its PM and ROE, even though it had ongoing issues with AT and ROA. The improvement in ROE happened along with a smaller gap in leverage, not because BSI used more debt.

4. Exploratory Pre/Post Tests

To further examine whether the observed changes in BSI's financial performance are statistically distinguishable across the pre- and post-periods, exploratory Mann–Whitney tests are conducted for the main DuPont components and ROE. The exact test is used to assess differences between the two periods without relying on normality assumptions. The results are exploratory and are intended to complement the descriptive and decomposition analyses presented in the preceding sections. The test results are presented in Table 6.

Table 6. Exploratory Exact Mann–Whitney Tests for BSI

Ratio	Pre median	Post median	U (post)	Exact p	Holm p	Rank-biserial r
PM	10.06	23.67	16	0.0286	0.1429	+1.000
AT	0.0793	0.0636	0	0.0286	0.1429	-1.000
ROA	0.774	1.503	16	0.0286	0.1429	+1.000
EM	10.90	9.13	1	0.0571	0.1429	-0.875
ROE	8.29	13.72	16	0.0286	0.1429	+1.000

Source: Author's calculations (2026)

All four merger/post-merger observations for PM, ROA, and ROE are higher than the pre-merger observation. This result is confirmed by a U-statistic of 16, with a two-sided exact p-value of 0.0286 and rank-biserial correlation of +1.000, showing a complete positive separation between the two periods. In contrast, the four merger/post-merger asset turnover values are all lower than their pre-merger counterparts. This is shown by a U-statistic of 0, a two-sided exact p-value of 0.0286, and a rank-biserial correlation of -1.000, indicating a

complete negative separation between the periods. EM also drops a lot, but it's not completely separated ($U = 1$; exact $p = 0.0571$; rank-biserial $r = -0.875$), because the 2021 EM is higher than the 2018 value. So, the rank-biserial correlations show clear differences between the two time periods, with positive signs for PM, ROA, and ROE, and negative signs for AT and EM.

After Holm adjustment across the five DuPont indicators, all the adjusted p-values are 0.1429, which is above the 5% significance level. This means the results are not statistically significant after considering the multiple comparisons. The large effect sizes show strong separation in the annual rankings, but the adjusted p-values suggest there isn't enough evidence to confirm the results as statistically significant. Therefore, these results are seen as exploratory and are used to complement the DuPont decomposition and descriptive benchmark analysis.

5. Sensitivity Analysis

The sensitivity analysis indicates that the direction of BSI's main findings is robust to alternative period summaries. Using arithmetic means of the annual ratios rather than pooled-period ratios, PM increases from 9.69% in the pre-merger period to 23.01% in the merger/post-merger period, ROA from 0.750% to 1.466%, and ROE from 8.11% to 13.77%. In contrast, AT decreases from 0.0790 to 0.0640 times and EM from 10.82 to 9.48 times. Thus, the directional findings are consistent with the pooled-period results reported in Table 2: PM, ROA, and ROE increase, whereas AT and EM decline.

The directional findings also remain consistent under alternative observation windows that account for the 2020 pandemic year and the 2021 merger-transition year. Excluding 2020 from the pre-merger period results in increases of 14.36 pp in PM, 0.770 pp in ROA, and 6.31 pp in ROE. Excluding 2021 from the merger/post-merger period produces corresponding increases of 15.32 pp, 0.824 pp, and 6.22 pp, while excluding both 2020 and 2021 results in increases of 16.37 pp, 0.878 pp, and 6.87 pp. AT and EM decline under all three alternative specifications. These results indicate that the direction of BSI's principal DuPont findings is not driven solely by either the 2020 pandemic year or the 2021 merger-transition year.

The industry benchmark results show greater sensitivity for AT. The annual-mean AT gap relative to conventional banking improves by only 0.0008 times in the main specification but changes to approximately -0.0013 times when 2021 is excluded. Thus, the observed narrowing of BSI's AT gap relative to conventional banking is not robust to the exclusion of the merger-transition year. Nevertheless, BSI's AT remains below both the Islamic and conventional banking benchmarks throughout the observation period.

The findings from BSI show a different pattern across the DuPont components. The big increase in PM supported higher ROE, while falling AT and a lower EM partially offset this improvement, showing that BSI's higher ROE was mainly margin-led rather than driven by greater asset utilization or financial leverage. Extending evidence from the initial post-merger years (Faizah et al., 2024; Chyntia et al., 2025), the results further show that the improvement in PM, ROA, and ROE persisted through 2024 despite the continued decline in AT. This is in line with the results found by Minz and Bhowmik (2024) on the Bank of Baroda which shows that ROE went up after the merger, but AT. Bansal and Singh (2024) also found that IDBI Bank show an improvement in ROE after the acquisition which was linked to a rise in net profit margin, while financial leverage went down. These findings show how useful the DuPont analysis is in mergers, where overall returns might improve even if some of the parts of the model change in different or opposite ways.

There's also a multidimensional pattern in the banking merger literature. Akhavein et al. (1997) found that profitability in large U.S. bank mergers improved mainly through higher revenues and changes in the mix of outputs. Hagendorff and Keasey (2009) found different changes in post-merger operations across banking systems: European banks became more efficient by reducing labor costs and lending, while U.S. banks increased both interest and non-

interest income. On the other hand, Behr and Heid (2011) found that German bank mergers had mostly neutral effects on profitability and cost efficiency after accounting for selection bias. Together, this shows that post-merger performance doesn't improve the same way in all financial areas or through the same business activities.

The industry benchmarks also help give more context to BSI's firm-level improvements. BSI improved its relative PM and ROE compared to both Islamic and conventional banking sectors, but its AT and ROA were still lower than the industry standards. BSI's own EM dropped after the merger, but it stayed above the industry average. The results suggest that BSI's better shareholder returns were mainly because of higher profitability rather than better use of assets or more leverage. Also, the benchmark results show that BSI's financial improvements are different from the overall performance of the banking industry.

These findings have direct managerial implications. For BSI management, sustaining profitability should be accompanied by greater attention to the income-generating productivity of the asset base. The persistent decline in AT indicates that operating income has not expanded at the same pace as total assets, warranting closer evaluation of earning-asset productivity and the underlying drivers of margin improvement, including operating income, funding costs, operating expenses, and impairment. For boards and investors, higher ROE should be interpreted together with its underlying components: BSI achieved higher ROE despite lower AT and EM, indicating that stronger shareholder returns were primarily associated with higher profitability rather than greater asset utilization or increased financial leverage. The persistent AT and ROA gaps relative to both industry benchmarks further show that higher ROE does not imply improvement across all dimensions of financial performance.

These findings have important implications for BSI's management. To keep making profits, they need to focus more on how effectively their assets generate income. The fact that asset turnover has been going down means that operating income hasn't grown as much as total assets, so they should look more closely at how well their earning assets are performing and what factors are causing the increase in profit margins, such as operating income, costs of funding, expenses, and loan losses. For the board and investors, higher ROE should be considered along with its parts. BSI achieved higher ROE even though AT and EM were lower, showing that better returns came from higher profitability, not from better asset use or more leverage. The fact that AT and ROA stayed below the industry standards shows that higher ROE doesn't mean all financial aspects improved.

This study has some limitations. First, even though the 2017–2024 period gives a longer view than previous studies, the analysis is based on only eight yearly observations—four before the merger and four after—making it hard to draw strong conclusions or separate merger effects from broader trends like economic changes, regulations, and banking industry shifts. Second, the benchmark for Islamic banking includes BSI and its former banks, so it gives relevant sector information but isn't entirely separate from the institution being studied. Third, the analysis only looks at accounting-based financial performance and doesn't consider risk-adjusted returns, cost of equity, asset quality, liquidity, service quality, or social impacts related to Sharia principles. Future research could look at a longer time frame, use more detailed quarterly data, include more independent comparison groups, and design studies that better separate merger effects from industry and economic changes. Expanding the analysis to include financial risk, asset quality, and non-financial performance would give a more complete picture of post-merger performance.

E. CONCLUSION

BSI's financial performance from 2017–2024 shows a clear but different pattern after the merger. Overall profit margin rose from 9.96% to 23.53%, and return on equity went up from 8.41% to 14.05%. However, asset turnover dropped from 0.0781 to 0.0637 times, and the

equity multiplier fell from 10.81 to 9.37 times. Using DuPont analysis, it's clear that the rise in return on equity was mostly because of higher profits, which overcame the negative effects of lower asset turnover and reduced leverage. Therefore, the improvement in shareholder returns wasn't uniform across all parts of the DuPont model.

Industry benchmarking further shows that BSI improved its relative profit margin and return on equity compared to both the Islamic and conventional banking sectors, while asset turnover and return on assets were still lower than the industry average. The gap in return on equity shifted from negative to positive against both sectors, but BSI's equity multiplier remained above industry standards, even though it declined after the merger. These findings show that BSI's better profitability and returns for shareholders came alongside a continued weakness in asset usage.

The direction of the main findings remains consistent under alternative aggregation and observation-window specifications. However, the exploratory pre/post-tests do not reach the 5% level of significance threshold after Holm adjustment, and the descriptive research design does not establish a causal merger effect. Overall, the study shows that BSI's post-merger financial improvement was primarily associated with stronger margins rather than higher asset turnover or increased financial leverage. For management, the findings highlight the importance of sustaining profitability while improving the income-generating productivity of the asset base.

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