Financial Performance Divergence between State-Owned and Private Construction Firms: Evidence from Indonesia, 2020–2024

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Abstract. This study examines financial performance differences between state-owned (BUMN Karya) and private construction companies listed on the Indonesia Stock Exchange during 2020–2024, a period encompassing the COVID-19 pandemic and its aftermath. Using a non-parametric comparative framework applied to 60 firm-year observations across twelve financial ratios, the study evaluates differences in liquidity, solvency, profitability, and asset efficiency. The results indicate that BUMN Karya firms exhibit substantially higher leverage, weaker liquidity, lower profitability, and lower asset efficiency than their private counterparts. These differences are not attributable solely to common pandemic conditions, as both ownership groups experienced similar directions of change during the crisis. However, BUMN Karya firms entered the post-pandemic period with structurally weaker financial conditions and demonstrated slower recovery in several performance dimensions. The findings are consistent with agency theory, suggesting that implicit government guarantees, political mandates, and weaker market discipline may contribute to persistent financial performance disparities. The study concludes that the performance gap is structural rather than cyclical, highlighting the need for restructuring measures that address financing burdens, public-service mandates, and governance mechanisms. These findings provide empirical implications for strengthening the financial sustainability, accountability, and governance of BUMN Karya in Indonesia and enhancing long-term competitiveness in infrastructure development.

Keywords: agency theory, construction sector, financial performance, private firms, state-owned enterprises.

1 Introduction

The financial health of construction firms matters for economic development. In Indonesia, the sector contributes approximately 10.4 percent of GDP [3] and serves as the primary vehicle for large-scale public infrastructure investment. Within this sector, four state-owned enterprises known collectively as BUMN Karya (ADHI, PTPP, WIKA, WSKT) carry a dual mandate: commercial performance and national development. Whether this dual mandate imposes a financial cost relative to profit-maximizing private peers is an empirical question of both academic and policy significance. Cross-

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country evidence indicates that state-owned enterprises are typically less profitable and more highly leveraged than their private counterparts [8, 18, 30].

This question is emphasized by two stark stylized realities of the timeframe 2020-2024. First, the substantial cumulative declines in BUMN Karya's stock price over the five-year period vs the near flat performance of listed private rivals (see Results section). Second, BUMN Karya did not pay any dividends in the five-year period whereas 50 percent of private sector firm-years paid dividends. These results are consistent with an agency theoretic perspective where state ownership, with implicit backing by the state and political mandate setting, weakens managerial discipline and diminishes shareholder value. But share prices and dividends are imperfect indicators for underlying financial health. A comprehensive investigation across various dimensions of performance is required.

We have three substantive reasons to focus on the 2020–2024 observation timeframe. First, this timeframe captures a full cycle of exogenous shocks the COVID-19 pandemic (2020-2021) and post-COVID-19 (2022-2024) which allows us to disentangle performance differences into structural and cyclical components. A window terminating before 2022 would only include the shock phase, and not the recovery dynamics. A window starting before 2020 would be prior to the availability of consistent yearly financial statements for numerous of our sample firms under current PSAK standards. Second, the time frame is consistent with the maturation of the Indonesian government's infrastructure acceleration program (Proyek Strategis Nasional), during which BUMN Karya carried the greatest burden of project assignments. The period is therefore uniquely instructive for testing the agency-theoretic predictions of mandate-driven performance divergence [33]. Third, the 2020-2024 window allows for the availability of data for all twelve construction businesses that are continually listed, avoiding the survivorship bias that would develop if the panel was extended to previous years when a number of private firms had incomplete listings.

Prior work on this comparison is limited and inconclusive. Gosyen [13] find no significant performance differences for 2017–2020, a period that captures only the onset of COVID-19. Muhammad & Ulpah [26] document higher leverage and greater bankruptcy risk for state-owned construction firms but do not examine the post-pandemic period. Tiffany [38] find that private enterprises have more stable liquidity and profitability, but restrict their research to data from the epidemic period. Naufal [27] research on business actions and financial restructuring on BUMN Karya for 2017-2023 but do not formally test variations in ownership group. To date, no research has evaluated performance dynamics during the whole pandemic cycle, or if the observed discrepancies are due to structural divergence or common cyclical shocks.

We contribute to this literature in three respects. First, we extend the observation window to 2024 to cover a full pre-to-post pandemic cycle. Second, we apply a broad twelve ratios approach across four performance aspects, namely liquidity, solvency, profitability and asset efficiency, and provide both statistical significance and effect sizes. Third, we split performance differences into level effects (are the groups different in their ratio values?) and change effects (are the groups different in their response to the pandemic shock?). This breakdown helps us to separate structural from cyclical reasons.

2 Literature Review

2.1 Theoretical Framework

Jensen & Meckling [19] illustrate that the managers control resources for the advantage of owners, and here conflicts arise between agents and principals. In private firms the discipline of management is the equity markets, boards and danger of takeover. In state-owned firms, the chain of principals is more complex: the government, as majority shareholder, simultaneously sets commercial objectives, public-service obligations and regulatory requirements, leading to ambiguous incentives and less external discipline. SOEs are defined by Bruton [5] as hybrid organizations which pursue both commercial and social purposes and this creates difficulties in governance and performance evaluation. This hybridity is particularly apparent in Indonesia, where SOEs are utilized as a tool of industrial policy [29]. Empirically, this governance structure is associated with worse profitability and higher leverage compared to private enterprises [8, 30]. Iwasaki [18], in a massive meta-analysis that aggregates 4,425 estimates from 204 studies on developing markets, finds a negative effect of state ownership on business performance, but the effect is less pronounced in emerging markets than in advanced economies. Lin [23], analyzing four decades of SOE studies in China, documents similar patterns and emphasizes the importance of political linkages in shaping the behavior of SOEs fundamentally. Yeyati & Negri [42] suggest that the emerging policy consensus is moving toward the conclusion that the poor performance of SOEs is not fundamental but rather the result of mistakes in governance design that are amenable to institutional adjustment.

Three agency-theoretic mechanisms are especially pertinent to construction SOEs. Second, implicit government guaranties lower the cost of debt financing, allowing leverage ratios that would otherwise be unsustainable [12]. Second, political mandates, such as the government's infrastructure acceleration program in Indonesia, allocate state-owned construction firms to projects with poor margins or significant delivery risk, and hence affect profitability [1, 33]. tate ownership and political ties result in systematic incentive distortions across institutional systems Tihanyi [39]. Third, managerial incentives to complete projects that are not aimed at maximizing shareholder returns induce cost overruns and cash-flow instability [15]. Menozzi [25] show that politically connected boards in SOEs are related with lower financial performance, which further supports the mechanism of the governance channel. The OECD [28] describes this as a particular concern for emerging-market SOEs, because closeness to government increases the danger of political meddling and diminished accountability. A thorough meta-analysis by Wang & Shailer [41] also supports a relationship between government ownership and poorer financial performance across a range of institutional contexts. The pattern is supported by evidence for individual countries. Razak [32] found that government-linked companies in Malaysia are under-performing their private peers, Voorn [40] reported similar performance deficits for municipally owned corporations and Le [21] extended the cross-country evidence to show that SOE underperformance in emerging Asian economies is persistent across multiple performance dimensions. A partial counterweight is provided by Stewardship theory [10] where SOE administrators may be long-horizon stewards of public welfare, willing to tolerate

short-run financial sacrifice for strategic national goals. This theory does not contradict the agency prediction, but rather argues that the observed underperformance might be in part due to deliberate policy choice and not only to inefficiency. In discussing outcomes, we have both interpretations in mind.

2.2 Conceptual Framework

This study utilizes an integrated conceptual framework of agency theory, stewardship theory and institutional context to develop testable predictions of financial performance disparities between state-owned and private construction businesses. It is hypothesized within the framework that ownership structure, particularly the existence or absence of majority government shareholding, works through three intervening mechanisms to generate visible variations in financial ratios across four performance characteristics.

The first one is the finance channel. Agency theory suggests that the state credit assistance reduces the cost of debt of SOEs, which implies that SOEs might afford a higher leverage than private enterprises. This method has a direct effect on the solvency ratios (Debt-to-Asset, Debt-to-Equity, Times Interest Earned) and an indirect effect on profitability, by increasing the interest costs. The second mechanism is the mandate channel. The government's assignment of national-interest infrastructure projects to BUMN Karya compresses operating margins and slows the turnover of assets which affects profitability ratios (ROA, ROE, NPM), and activity ratios (Turnover of Total Assets). The third channel is the governance channel. The weaker external supervision and confusing principal-agent relationships in SOEs diminish the discipline on managers regarding cash management and working capital efficiency. The liquidity ratios (Current Ratio, Quick Ratio, Cash Ratio) and receivables management.

The framework further incorporates a temporal dimension. The COVID-19 pandemic represents an exogenous shock that affected both ownership groups simultaneously. These level differences (absolute performance gaps) can be compared with change differences (differential recovery trajectories), allowing us to disentangle structural effects (due to ownership-driven mechanisms that predate and outlast the pandemic) from cyclical effects (simply reflecting common macroeconomic conditions). If the performance discrepancies are structural, we expect (a) high level differences in pandemic and post-pandemic sub-periods and (b) similar directions of change across ownership groups (i.e. shared shock) but enduring absolute gaps (i.e. structural roots). If the inconsistencies are purely cyclical we would expect to see large divergences in only one sub-period, followed by convergence as conditions return to normal.

Stewardship theory introduces a moderating consideration: some portion of observed SOE underperformance may reflect intentional public-service sacrifice rather than agency-driven inefficiency. The framework does not empirically distinguish these two sources but acknowledges both when interpreting results.

Our central prediction, grounded in agency theory and the conceptual framework above, is that state-owned construction firms will exhibit inferior financial performance on most dimensions relative to private peers. We state directional hypotheses for each ratio category.

H1 (Stock Performance): Cumulative stock-price returns are lower for BUMN Karya than for private firms. This hypothesis is evaluated descriptively using index-level price

data rather than formal rank-based inference, since annual stock-price returns do not enter the ratio-based MWU framework.
H2-H4 (Liquidity) : BUMN Karya has a lower Quick Ratio (H3) and lower Cash Ratio (H4); the direction of Current Ratio is left undetermined (H2) because a large receivable from government contracts inflates current assets, while aggressive short-term financing inflates current liabilities at the same time, rendering the net effect ambiguous.
H5–H7 (Solvency): BUMN Karya carry higher Debt-to-Asset and Debt-to-Equity ratios, and lower Times Interest Earned, reflecting easier access to debt under implicit guarantees.
H8–H10 (Profitability): BUMN Karya generate lower ROA, ROE, and Net Profit Margin, reflecting mandate-driven margin compression and higher interest costs.
H11–H13 (Activity): BUMN Karya exhibit lower Receivables Turnover, Working Capital Turnover, and Total Assets Turnover, reflecting slower collections on government contracts and larger asset bases relative to revenue.

3 Methodology

3.1 Sample

The sample was chosen among all construction firms listed on the Indonesia Stock Exchange (IDX) that were continuously listed from 2020 to 2024 and whose major activity was construction services (i.e., more than 70 percent of income from construction). To avoid double counting of subsidiaries, we restrict the sample to parent firms. We exclude unlisted firms such as PT Hutama Karya, PT Nindya Karya and subsidiaries that are separately listed on IDX such as WTON, WEGE, WSBP).

The application of these criteria results in twelve enterprises, four state-owned (ADHI, PTPP, WIKA, WSKT) and eight private national firms (TOTL, JKON, BUKK, ACST, NRCA, IDPR, DGIK, PBSA). While PT Bukaka Teknik Utama (BUKK) is engaged in equipment manufacture as well as EPC services, construction and EPC revenue made up more than 70 percent of its consolidated revenues during the sample period, meeting the inclusion criterion according to IDX filing data. The panel has 60 firm-year observations (20 BUMN Karya firms, 40 private firms) with five annual observations for each firm. The data in the annual financial statement are from IDX filings, while the stock-price data are from IDX and Stockbit.

Table 1. Sample Composition

Ticker	Company Name	Group	Primary Activity
ADHI	PT Adhi Karya (Persero) Tbk.	BUMN Karya	General construction
PTPP	PT Pembangunan Perumahan (Persero) Tbk.		
WIKA	PT Wijaya Karya (Persero) Tbk.		
WSKT	PT Waskita Karya (Persero) Tbk.	BUMN Karya	General construction & toll roads
TOTL	PT Total Bangun Persada Tbk.	Private	Building construction
JKON	PT Jaya Konstruksi Manggala Pratama Tbk.	Private	Roads, bridges, airports, buildings

BUKK	PT Bukaka Teknik Utama Tbk.	Private	EPC and specialized equipment
ACST	PT Acset Indonusa Tbk.	Private	Integrated construction services
NRCA	PT Nusa Raya Cipta Tbk.	Private	Commercial & infrastructure construction
IDPR	PT Indonesia Pondasi Raya Tbk.	Private	Foundation construction
DGIK	PT Nusa Konstruksi Enjiniring Tbk.	Private	Construction and engineering
PBSA	PT Paramita Bangun Sarana Tbk.	Private	Civil, infrastructure, M&E construction

Note: All firms are continuously listed on the Indonesia Stock Exchange from January 2020 through December 2024. BUMN Karya are state-owned enterprises with government ownership exceeding 51%.

3.2 Financial Ratio Measurement

We measure financial performance with twelve ratios organized into four dimensions and their definitions are provided in Table 2.

Table 2. Financial Ratio Definitions

Code	Ratio	Formula	Dimension
CR	Current Ratio	Current Assets/Current Liabilities	Liquidity
QR	Quick Ratio	(Current Assets – Inventory)/Current Liabilities	Liquidity
CaR	Cash Ratio	Cash & Equivalents/Current Liabilities	Liquidity
DAR	Debt-to-Asset	Total Debt/Total Assets	Solvency
DER	Debt-to-Equity	Total Debt/Total Equity	Solvency
TIE	Times Interest Earned	EBIT/Interest Expense	Solvency
ROA	Return on Assets	Net Income/Total Assets	Profitability
ROE	Return on Equity	Net Income/Total Equity	Profitability
NPM	Net Profit Margin	Net Income/Net Sales	Profitability
RT	Receivables Turnover	Sales/Average Accounts Receivable	Activity
WCT	Working Capital Turnover	Sales/Average Net Working Capital	Activity
TAT	Total Assets Turnover	Sales/Average Total Assets	Activity

3.3 Statistical Methodology

We test for distributional differences between BUMN Karya and private firm observations using the Mann–Whitney U (MWU) statistic [24]. The MWU test is appropriate here for three reasons: (i) Shapiro Wilk tests reject normality for eleven of twelve ratios in at least one group; (ii) the data contain extreme outliers attributable to equity write-downs and near-zero working-capital positions; and (iii) the unequal sample sizes (20 vs. 40 observations) violate the equal-sample assumption of the standard t-test.

For each ratio, we present (i) MWU statistic and the accompanying two-tailed p-value; (ii) direction of difference based on the group mean rankings; and (iii) effect size $r = |Z| / \sqrt{N}$ where N is total observations. Cohen [7], where $r < 0.30$ is little, $0.30 \leq r < 0.50$ is medium, and $r > 0.50$ is large. We do the analysis for the entire 2020-2024 period, separately for the pandemic sub-period (2020-2021) and post-pandemic sub-period (2022-2024), and for the delta between sub-period averages (to examine whether speed of recovery changes by ownership type). Where normality is observed by the

sub-period analysis (Cash Ratio in 2020-2021; Receivables Turnover and Total Assets Turnover in 2022-2024), we complement MWU with Levene-corrected independent-samples t-tests; the t-test conclusions are consistent with MWU results in all such cases and not shown in a separate table.

We stress that MWU tests for distributional differences, not disparities in arithmetic means. So our inference is about the more general pattern of the numbers that each group produces. This is a more resilient and suitable aim for very skewed ratio data. The research is descriptive-comparative rather than causal: we do not assert that ownership causes performance differences, but establish robust associations consistent with the theoretical mechanisms indicated above. Descriptive statistics and sub-period ratio calculations are performed in EViews 12 and Mann-Whitney U tests and normality diagnostics are performed in SPSS 26.

4 Result and Discussion

4.1 Descriptive Statistics

Table 3 reports descriptive data for all 60 pooled firm-year observations, including group means for BUMN Karya and private enterprises. Some features are noteworthy. The distributions of Working Capital Turnover and Times Interest Earned are severe (standard deviations of 134.3 and 125.7 respectively) because a few observations had negative working capital or interest expense close to zero. These outliers encourage the use of rank-based inference.

BUMN Karya businesses are bigger in terms of asset base, but produce much less revenue per unit of assets at the group level. Their average ROA over five years is -0.008 versus +0.005 for private enterprises. Average DER is 2.39 versus 0.22. The stock price indices of BUMN Karya indicate that the average cumulative price declines of BUMN Karya reached 89.1 percent, while for private enterprises, only 2.0 percent. The liquidity disparity is also confirmed by payout patterns: none of the 20 BUMN Karya firm-years paid a dividend, compared with 50 percent of private firm-years (across TOTL, JKON, NRCA, IDPR, and PBSA).

Table 3. Descriptive Statistics

Ratio	BUMN Mean	Private Mean	Overall Median	Min	Max	SD	Skewness	N
CR	1.140	1.678	1.280	0.670	3.330	0.610	1.562	60
QR	0.857	1.532	1.010	0.500	3.280	0.649	1.368	60
CaR	0.186	0.354	0.252	0.008	0.914	0.221	0.860	60
DAR	0.410	0.107	0.192	0.000	0.646	0.192	0.755	60
DER	2.393	0.215	0.325	−2.021	6.258	1.469	1.706	60
TIE	0.691	0.751	1.131	−13.993	925.728	125.670	6.259	60
ROA	−0.008	0.005	0.008	−0.439	0.242	0.105	−1.691	60
ROE	−0.072	0.001	0.027	−4.136	3.844	0.767	−0.485	60
NPM	−0.071	−0.014	0.021	−1.113	0.337	0.227	−2.463	60
RT	4.771	6.019	5.080	1.170	15.270	2.633	1.049	60
WCT	6.911	2.647	3.175	−747.820	704.640	134.261	−0.570	60

TAT	0.272	0.751	0.560	0.110	1.430	0.325	0.462	60

Note: BUMN Karya N = 20; Private N = 40. Group means are simple (unweighted) averages of annual ratio values. TIE and WCT exhibit extreme distributions due to outliers associated with equity write-downs and negative working capital; medians provide more informative central tendency estimates for these series. DER minimum (−2.021) reflects firm-years with negative equity (not low debt); a negative DER indicates insolvent equity with substantial positive debt and should not be interpreted as low leverage. DAR minimum (0.000) reflects one firm-year observation verified from IDX filings.

4.2 Full-Period Hypothesis Tests (2020–2024)

Table 4 presents MWU results for all twelve financial ratios over the full sample period. Ten of twelve ratio-based hypotheses are supported: the direction of the mean-rank difference matches prediction, and the difference is statistically significant ($p < 0.05$). H1 (stock performance) is evaluated separately and descriptively above. We organize the discussion by dimension.

Table 4. Mann–Whitney U Test Results: Full Period 2020–2024

Ratio	BUMN Rank	Private Rank	U	Z	p-value	Effect r	Category	H Support
CR	18.38	36.56	157.5	−3.804	0.000	0.49	Medium	No*
QR	15.98	37.76	109.5	−4.557	0.000	0.59	Large	Yes
CaR	22.33	34.59	236.5	−2.565	0.010	0.33	Medium	Yes
DAR	47.83	21.84	52.5	−5.456	0.000	0.70	Large	Yes
DER	49.80	20.85	14.0	−6.060	0.000	0.78	Large	Yes
TIE	21.98	34.76	230.0	−2.666	0.008	0.34	Medium	Yes
ROA	19.78	35.86	185.5	−3.364	0.001	0.43	Medium	Yes
ROE	19.65	35.93	183.5	−3.395	0.001	0.44	Medium	Yes
NPM	19.65	35.93	179.0	−3.466	0.001	0.45	Medium	Yes
RT	25.30	33.10	296.0	−1.631	0.103	0.21	Small	No
WCT	29.05	31.23	371.0	−0.455	0.649	0.06	Small	No
TAT	11.65	39.93	23.0	−5.914	0.000	0.76	Large	Yes

*Note: Effect size $r = |Z| / \sqrt{60}$. *CR is significant ($p = 0.000$) and directionally consistent with the agency-theoretic mechanism identified in H2: current liabilities (trade payables and short-term bank lines) grew faster than government-contract receivables under BUMN Karya's aggressive financing model, depressing CR below private-firm levels. Because H2 was designated as directionally undetermined, this finding is recorded as an observed result rather than a hypothesis test outcome.*

4.3 Results by Dimension

Liquidity. Private firms rank higher on all three liquidity ratios. The gap is largest for Quick Ratio ($r = 0.59$, large effect), confirming that BUMN Karya's current-asset base is dominated by slow-moving receivables—construction contracts with government agencies that carry payment delays of 90–180 days. The Current Ratio result, although not directional in H2, places BUMN Karya lower, consistent with the mechanism expected in the hypothesis section: current liabilities (mainly trade payables and short-term bank lines) increase faster than receivables under BUMN Karya's aggressive financing model, so the Current Ratio deteriorates even as total receivables remain high.

This is in line with the results of Tiffany [38] and suggests considerable cash-generation risk.

Solvency. The analysis reveals the biggest effect sizes in the solvency dimension. BUMN Karya is much higher on DAR (r = 0.70) and DER (r = 0.78) – both large-effect differences – showing leverage ratios structurally different from the private sector. The average DER of BUMN Karya in the 5 years timeframe is 2.39, while for private enterprises is 0.22. Several BUMN Karya firm-years have negative equity, which causes the DER observations to be below −2 and above +6. These severe levels are not statistical aberrations, but rather reflect real impairments and capital loss. The TIE gap (r = 0.34, medium effect) is consistent with high debt burdens being translated into poor interest coverage. These findings are in full accord with the Muhammad & Ulpah [26] Altman Z-score study and with the agency theoretic prediction that state-backed borrowing gives BUMN Karya access to leverage inaccessible to private enterprises. Esfandiatri [11] also finds evidence of financial difficulty for BUMN Karya companies, implying that higher leverage is an indication of underlying structural problems. Dimi & Firmansyah [9] give an example of how infrastructure needs can create balance sheet stress for individual SOEs, with PT Hutama Karya's financial performance decreasing significantly as a direct result of the Trans Sumatra toll road acceleration program. This pattern is also confirmed by Indonesian studies focusing on individual BUMN Karya entity: Hasan [16] document that financial performance of state-owned construction firms deteriorated between the pre-pandemic and pandemic periods; and Sucipto [37] find that PT Waskita Karya's liquidity and profitability ratios decline significantly during COVID-19. Similarly, Postuła [31], evaluating an emerging-market stock exchange through the lens of agency theory, find that state ownership was connected with inferior share-price performance during the pandemic crisis.

Profitability. Private enterprises have significantly better returns on all three profitability measures, with medium effect sizes (0.43-0.45). The practical implication is significant. The five years average ROA of BUMN Karya is negative (−0.008) while the private enterprises earned positive though modest 0.005. The performance differential has two separate sources. First, BUMN Karya undertakes national infrastructure projects with low margins that private enterprises do not. Second, high leverage, with a higher interest load, immediately depresses earnings. Both processes are consistent with agency theory, the stewardship interpretation would ascribe the first root to conscious public-service sacrifice, whereas the second root is a mere result of financial structure. These results are in line with Gunawan & Anastasia [14], who who found a significant difference in the profitability and activity ratios in the property, construction, and real estate sectors in Indonesia before and after the pandemic, and with the cross-country evidence of Phi [30] that SOEs always have lower ROA than private companies in all of the emerging Asian economies. Setya [35] also adds that the performance pattern of BUMN Karya subsidiaries is similar to that of their parent company, which reinforces the systemic nature of the performance discrepancy. Astami [2], also delves into the governance dimension of this profitability deficit, discovering that audit quality and institutional culture affect earnings management in firms with excess free cash flow. This pattern is relevant to SOEs, where political oversight might replace market discipline. Belinda & Suyanto [4] stress that the disclosures of major audit items are important for improving the integrity of financial reporting for BUMN Karya. This means

that the problem of quality of reporting is added to the problem of profitability. Rustiarini [34] also find a substantial association between ownership structure and financial restatements in Indonesian listed corporations, which helps to support the view that governance measures in state-controlled entities may not sufficiently mitigate reporting risks.

Activity (Asset Turnover). The most varied results are given by the activity dimension. Receivables Turnover and Working Capital Turnover show tiny, statistically insignificant differences, indicating that the two ownership groups have broadly similar collection and working-capital cycles in the construction business. However the Total Assets Turnover is highly divergent (r=0.76, large effect) with private enterprises earning far higher income per rupiah of assets. This implies that BUMN Karya has built significant and capital demanding asset bases, frequently associated with infrastructure projects under development or already finished, relative to the revenues that these assets generate. Extreme outliers in Working Capital Turnover (range −747.8 to +704.6) are due to periods of negative working capital and have no impact on the rank-based conclusion.

4.4 Sub-Period Analysis

Table 5 compares the number of significantly different ratios across the three analytical windows.

Table 5. Summary of Significant Performance Differences by Period

Dimension	Full Period (2020–2024)	Pandemic (2020–2021)	Post-Pandemic (2022–2024)	Delta Analysis
Liquidity	2 of 3	2 of 3	2 of 3	1 of 3
Solvency	3 of 3	2 of 3	3 of 3	2 of 3
Profitability	3 of 3	0 of 3	3 of 3	2 of 3
Activity	1 of 3	1 of 3	1 of 3	0 of 3
Total	10 of 12	5 of 12	9 of 12	4 of 12

Note: 'Significant' denotes $p < 0.05$ (two-tailed). Stock-price growth (H1) is excluded from all sub-period and delta breakdowns; it is evaluated descriptively. Delta Analysis tests whether the change in group mean ratios from 2020–2021 to 2022–2024 differs significantly across ownership groups; the four ratios with significant delta differences are Current Ratio, Times Interest Earned, ROE, and Working Capital Turnover.

The most apparent trend seen in Table 5 is in terms of profitability. During the pandemic period (2020–2021), the profitability ratio difference between ownership groups is statistically insignificant with both BUMN Karya and private enterprises having reduced margins. In the post-pandemic phase (2022-2024) we observe a large divergence in all three profitability ratios. BUMN Karya has not yet returned to its pre-pandemic profit margins, although private enterprises have. This divergence indicates that the fundamental factors are not the normal cyclical conditions but the structural features related to ownership, both entities suffered similar external shocks, but private firms had the flexibility of their financial statements and the independence of their management to respond more efficiently. As of 2022–2024, BUMN Karya continued to carry the leverage built up during the mid-2010s infrastructure acceleration program and stayed on low-margin government projects, hence impeding a profitability turnaround.

Conversely, solvency discrepancies are considerable and are consistently present throughout all three periods, which supports the view that the differences in leverage are not pandemic driven, but are a result of a long-standing structural element of the financing strategy of BUMN Karya. The activity dimension (excluding TAT) does not become significant in any sub-period, keeping with the assumption that project-based operating cycles yield equivalent gross efficiency measures irrespective of ownership.

4.5 Delta Analysis: Recovery Dynamics

The delta analysis tests whether the direction and magnitude of change from pandemic to post-pandemic averages differs by ownership group. Four ratios show significant delta differences: Current Ratio, Times Interest Earned, ROE, and Working Capital Turnover. Critically, for most ratios including all solvency and profitability indicators the direction of change is similar across groups. Both BUMN Karya and private firms show improving profitability from pandemic to post-pandemic averages; the absolute level at which private firms operate remains substantially higher.

The difference in the Current Ratio delta shows an important asymmetry, namely the current ratio of private companies improved after the pandemic, but the current ratio of BUMN Karya continues to deteriorate, indicating the continued buildup of short-term debt. The ROE delta difference shows private firms' quick rebound in profitability, while some BUMN Karya companies continue to post losses. The delta results all support that the observed performance differences are not an artifact of a common pandemic shock: they are structural traits that lasted and in some dimensions widened during the post-pandemic era.

4.6 Agency Theory Interpretation

The results are mostly consistent with the predictions of agency theory. The best concrete evidence that BUMN Karya used implicit government guaranties to get cheaper funding is the significant leverage gap (DER effect size $r = 0.78$). According to the political economy model of Shleifer & Vishny's [36] , the incentives of SOE administrators are unclear, between commercial return and national growth, and rationally they choose initiatives that satisfy the political principal at the expense of shareholder value. As shown in the Results section, the consistent results across multiple Indonesian studies suggest that BUMN Karya had accumulated significant debt for financing national infrastructure projects before our sample window, and the debt overhang from this had depressed financial performance during the 2020–2024 period. This trend is in line with wider international findings. Kaunda & Pelser [20], investigating SOEs in a least developed economy find that growing government ownership has a negative impact on performance. Li [22] present a complementary approach by showing that the involvement of state ownership can improve governance in private enterprises, highlighting the significance of the nature of the state-private interaction for performance results. A recent bibliometric analysis by Ciolomic [6] has confirmed by bibliometric analysis that the research on SOE governance and performance is still a rapidly growing research field, with the leading topics being leverage, political intervention and accountability. This finding supports the OECD (2024) assertion that closeness to government

leaves SOE governance vulnerable to the excesses of political interference and the International Monetary Fund [17] data that SOEs in emerging markets are generally granted lower borrowing costs than their private sector peers, due to the implicit state guaranty. Our results are relatively reconciliatory to the contradictory results of prior investigations. Gosyen et al. [13] did not find any significant performance difference for 2017–2020. Similarly, our analysis of sub-period 2020-2021 shows little changes in profitability, showing that pandemic conditions temporarily obscured core inequalities.

4.7 Comparison with Prior Literature

Our results are relatively reconciliatory to the contradictory results of prior investigations. Gosyen [13] did not find any significant performance difference for 2017–2020. Similarly, our analysis of sub-period 2020-2021 shows little changes in profitability, showing that pandemic conditions temporarily obscured core inequalities. The results of our solvency replicate and expand the findings of Muhammad & Ulpah's (2025) that BUMN Karya has higher leverage and bankruptcy risk. Our sub-period and total period liquidity analyzes verify and quantify. Tiffany [38] conclusion of improved private-sector liquidity stability. More generally, our findings are consistent with the cross-country evidence base: the meta-analyses of Wang & Shailer [41] and Iwasaki [18] both find systematic negative effects of state ownership on firm performance and the emerging Asian evidence from Phi [30] and Le [21] confirms that SOE underperformance in the region is persistent across profitability and solvency dimensions. The reconciliation is temporal, as well as methodological. Our effect size analysis shows that some ratios have statistically significant differences that are tiny in practical magnitude (Receivables Turnover, $r = 0.21$), whilst others had big practical differences that only attained significance in our larger post-pandemic sub-sample. Previous research using only binary significance testing overlooks this distinction.

4.8 Policy Implications

The findings indicate that the financial performance challenges of BUMN Karya are primarily structural rather than temporary. Therefore, restructuring and consolidation should be accompanied by debt restructuring and adequate capital support to mitigate excessive leverage. National-interest projects should also be supported through transparent fiscal compensation to prevent public-service obligations from weakening corporate financial performance. Furthermore, greater market participation and monitoring may strengthen managerial accountability and improve financial performance.

5 Conclusion

The analysis shows that there are systematic and economically meaningful differences in financial performance between state-owned construction companies (BUMN Karya) and private construction companies listed on the Indonesia Stock Exchange for the 2020-2024 period. The BUMN Karya companies have a higher level of debt, a poorer level of liquidity, profitability, and asset turnover with effect sizes showing a practically

substantial divergence in performance. The discrepancies are systemic, not just pandemic-driven, showing sustained leverage, margin pressures from mandates, and weaker cash management. Therefore, BUMN Karya's restructuring should cover the financial and public-service obligations through debt restructuring, fiscal compensation and better market monitoring. The study offers a methodological contribution by integrating significance tests, effect sizes, and sub-period analysis, which enables a more holistic evaluation of SOE performance.

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