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Working Capital Management and Bank Profitability: Dynamic Time-Series Evidence from BRAC Bank PLC, Bangladesh (2004–2025)

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Abstract

Banks transform short-term liabilities into long-term assets, yet evidence on how their working-capital-related management shapes profitability remains confined largely to non-bank firms and multi-bank panels. This study addresses that gap by examining how capital adequacy (CAR), cost efficiency (CIR), and size relate to the return on assets (ROA) of BRAC Bank PLC, Bangladesh, over 2004–2025, controlling for GDP growth and inflation. Using 22 annual observations, it estimates baseline, White-robust, Newey–West, and dynamic OLS models with diagnostic and CUSUM tests. Capital adequacy emerges as the most robust determinant: a one-point increase in CAR is associated with a 0.146-point higher ROA (significant at 5% under OLS and White errors, 1% under Newey–West), although the effect weakens in the dynamic model. The cost-to-income ratio shows the expected negative but insignificant effect, whereas size relates negatively to ROA (− 0.146; 10% level), suggesting that balance-sheet expansion does not raise returns. Macroeconomic controls add little. The study extends working capital reasoning to banking and offers long-horizon, institution-level evidence from an emerging economy, indicating that capital strength, not scale, merits managerial and regulatory priority. Findings are associations, not causal effects, given the single-bank, small-sample design.

JEL classification: G21, C22

1. Introduction

1.1 Background

Banks transform short-term, liquid liabilities into longer-term, illiquid assets, and this maturity transformation places the management of short-term resources at the center of both their profitability and their fragility (Acharya & Mora, 2015; Diamond & Rajan, 2001a; Holmström & Tirole, 1998a). In non-financial firms, the analogous discipline, working capital management (WCM), is known to shape profitability and firm value (Aktas et al., 2015a; Deloof, 2003a; Kieschnick et al., 2013a). For a bank, however, working capital is not an inventory-and-receivables problem. It is the continuous reconciliation of capital buffers, operating-cost control and balance-sheet scale, which jointly determine how efficiently short-term funding is converted into earnings while the capacity to absorb shocks is preserved (Berger & Bouwman, 2009, 2013a).

These issues are especially pertinent in Bangladesh, where the financial system is bank-dominated and private commercial banks have expanded rapidly under evolving prudential regulation. BRAC Bank PLC is among the country's prominent private commercial banks, and its 2004–2025 record spans the aftermath of the global financial crisis, successive capital-regulation reforms, the COVID-19 pandemic and the recent inflationary episode. Panel evidence from Bangladesh confirms that bank-specific and macroeconomic factors jointly drive profitability (Jeris, 2021a). A long single-institution horizon therefore offers a rare opportunity to observe how balance-sheet management maps into profitability across changing regimes. In such settings, a bank must balance regulatory capital requirements, cost pressures

and growth ambitions simultaneously, so the allocation of scarce short-term resources directly shapes earnings.

1.2 Research Problem

The relationship between a bank's short-term financial management and its profitability remains unsettled. Higher capital may strengthen funding access and resilience, yet may also depress returns when it is held idle (Alkhazali et al., 2024a; Farooq et al., 2025; Gehrig et al., 2024). Cost efficiency should raise returns, but inefficiency can also signal weak management that later surfaces as problem loans (Berger & DeYoung, 1997a; Fiordelisi et al., 2011). Size may deliver scale and diversification benefits or, conversely, complexity and risk-taking (Boyd & Runkle, 1993a; Demsetz & Strahan, 1997; Laeven et al., 2016a). All of this unfolds against growth and inflation conditions that themselves alter bank performance (Athanasoglou et al., 2008a; Awdeh et al., 2024a). Because most evidence averages across institutions, it cannot reveal whether a given bank's profitability responds to its own capital and cost decisions, nor whether that response is stable across crisis and non-crisis years. Consequently, managers and regulators lack institution-specific evidence on which levers matter most for return on assets over the long run.

1.3 Research Gap

Three gaps motivate this study. First, the WCM literature concentrates on non-bank firms (Baños-Caballero et al., 2014a; Jummai, 2025; Kumar et al., 2024; Rios-Vazquez & Portela-Maseda, 2026); where banks appear, they are treated as lenders that shape corporate working capital rather than as managers of their own (Chen & Kieschnick, 2018). Second, bank profitability research relies predominantly on multi-bank panels (Demirguc-Kunt & Huizinga, 1999a; Dietrich & Wanzenried, 2011; Molyneux & Thornton, 1992; Mousa et al., 2025), whose cross-sectional averaging masks the time-series behaviour of an individual institution. Third, to our knowledge, little long-horizon, institution-level evidence links capital adequacy, cost efficiency and scale to profitability in an emerging banking system while controlling for macroeconomic conditions. Addressing these gaps requires a design that follows one institution continuously, treating structural change in its environment as explanatory context rather than noise.

1.4 Research Objectives and Questions

The study's objective is to examine how a bank's working-capital-related management, captured by capital adequacy, cost efficiency and size, affects its profitability over time. A secondary objective is to draw implications for balance-sheet and regulatory policy. Specifically, the study addresses four questions:

RQ1: How does the capital adequacy ratio (CAR) affect the return on assets (ROA) of BRAC Bank PLC?

RQ2: How does the cost-to-income ratio (CIR) affect ROA?

RQ3: What is the effect of bank size on ROA?

RQ4: Do these relationships persist after controlling for GDP growth and inflation?

1.5 Contribution of the Study

The study contributes in four ways. Conceptually, it extends WCM thinking from non-bank firms to banks by operationalising bank working capital through capital adequacy, cost efficiency and scale. Empirically, it supplies a 22-year institution-level record for a leading Bangladeshi private bank, complementing multi-bank evidence (Jeris, 2021b). Methodologically, it emphasises valid inference in short macro-financial samples through robust standard errors (Petersen, 2009a; White, 1980a). Practically, the findings inform managers weighing capital retention against efficiency and growth, and regulators calibrating capital requirements. It also provides a transparent benchmark that future multi-bank studies of Bangladesh can extend.

1.6 Structure of the Article

The remainder of the article is organised as follows. Section 3 reviews the literature and develops the hypotheses. Section 4 presents the data and methodology. The subsequent sections report the empirical results, discuss their implications and conclude.

2. Literature Review and Hypothesis Development

2.1 Previous Literature

Working capital and performance. (Deloof, 2003b; Huynh et al., 2025) reported that shorter cash conversion cycles accompany higher gross operating income among Belgian firms, while (Kieschnick et al., 2013b) tied working-capital investment to shareholder wealth. Later work shows that the relationship is conditional rather than monotonic: (Schreindorfer & Sichert, 2025) identify value-enhancing optimal levels, and (Lee & Thosuwanchot, 2025) show that financing constraints shape the effect. Earlier, (Fazzari & Petersen, 1993) documented that working capital absorbs financing shocks to fixed investment. Collectively, this stream shows that short-term resource management matters, yet it offers little guidance for institutions whose balance sheets are dominated by financial rather than commercial claims.

Bank profitability determinants. Early cross-country evidence linked profitability to capitalisation and bank characteristics (Adelopo et al., 2018; Le & Ngo, 2020). (Bugarčić & Dodig, 2023) confirmed that capital, efficiency and macroeconomic conditions matter in South Eastern Europe and Switzerland, respectively, while (Amin et al., 2024) provides evidence for Bangladesh.

Capital. (Berger & Bouwman, 2013b) show that capital helps small banks at all times and larger banks mainly during crises. Subsequent studies are supportive: capital shaped profitability during COVID-19 (Alkhazali et al., 2024b), capital buffers influenced equity returns in GCC banks (Farooq et al., 2025; Hasan et al., 2025) and regulatory capital relates to interest margins (Begum et al., 2024). Capital also conditions lending behaviour (Gambacorta & Mistrulli, 2004). Collectively, capital appears to act as a

buffer whose payoff is largest under stress, which is relevant for a sample spanning several stress episodes.

Efficiency and size. Efficiency differences across banks are persistent and consequential (Berger & Humphrey, 1997; Berger & Mester, 1997); low cost efficiency precedes rising problem loans (Berger & DeYoung, 1997b), and efficiency and risk are dynamically linked in European banking (Licerán-Gutiérrez et al., 2025). On size, Boyd and Runkle (Boyd & Runkle, 1993b) find no return advantage for larger banks, (Demsetz & Strahan, 1997) show that diversification gains coexist with riskier behaviour, and (Laeven et al., 2016b) link size to systemic risk.

Macroeconomic conditions. Growth and inflation influence credit demand, margins and credit quality (Athanasoglou et al., 2008b). Inflation, growth and banking competition interact (Ghossoub, 2023), inflation bears on bank stability in MENA economies (Awdeh et al., 2024b), procyclical provisioning amplifies profit swings (Yu, 2025) and macroprudential policy alters profitability (Davis et al., 2022).

2.2 Theoretical Background

Three perspectives frame the analysis. First, liquidity-intermediation theory views banks as liquidity providers that must reconcile demandable liabilities with illiquid assets (Diamond & Rajan, 2001b; Holmström & Tirole, 1998b); managing short-term resources is thus the bank analogue of working capital. Capital affects a bank's resilience to distress and its capacity to lend (Ali & Iness, 2020), which supports treating CAR as the bank's solvency and liquidity buffer.

Second, the bad-management hypothesis implies that weak cost control erodes performance and raises risk (Rizki & Wahyudi, 2026) CIR therefore proxies operating-cost management. Third, the working-capital trade-off view holds that buffers bring resilience but impose foregone returns, implying an optimum (Aktas et al., 2015b; Baños-Caballero et al., 2014b). Finally, size reflects a tension between scale and diversification gains and complexity-related risk (Boyd & Runkle, 1993c; Demsetz & Strahan, 1997). Together, these perspectives justify a bank-level WCM framework in which CAR, CIR and size represent solvency-liquidity buffers, cost discipline and scale.

2.3 Research Gap

Existing work either studies working capital in non-bank firms or profitability in multi-bank panels. No study, to our knowledge, jointly tests capital adequacy, cost efficiency and size as the working-capital levers of one Bangladeshi bank over two decades while controlling for the macroeconomy. This study fills that void with a continuous 22-year record.

2.4 Hypothesis Development

Capital adequacy. Higher capital enhances resilience, funding credibility and monitoring incentives (Miao et al., 2025), and has been associated with stronger profitability (Alkhazali et al., 2024c; Demirguc-Kunt & Huizinga, 1999b); well-capitalised banks also plausibly enjoy lower funding costs and greater lending flexibility. Hence:

H1: Capital adequacy ratio (CAR) has a positive effect on ROA.

Cost efficiency. A higher cost-to-income ratio signals weaker operating-cost management, which compresses earnings and may foreshadow credit-quality problems (Berger & DeYoung, 1997a; Fiordelisi et al., 2011). Hence:

H2: Cost-to-income ratio (CIR) has a negative effect on ROA.

Bank size. For a growing private bank, scale and diversification can improve earnings (Demsetz & Strahan, 1997), although evidence on size is mixed (Boyd & Runkle, 1993a; Laeven et al., 2016a). Hence:

H3: Bank size has a positive effect on ROA.

GDP growth and inflation enter as controls to isolate the bank-specific effects (Athanasoglou et al., 2008c); no formal hypotheses are advanced for them. Stronger growth should improve credit demand and quality, whereas inflation may either lift nominal margins or erode borrowers' repayment capacity.

3. Data and Methodology

3.1 Data and Sample

The study uses annual data for BRAC Bank PLC, Bangladesh, from 2004 to 2025, yielding 22 observations. The window is determined by data availability and spans several distinct macroeconomic regimes. Bank-specific variables are compiled from the bank's audited annual reports and financial statements, while GDP growth and inflation are drawn from the World Bank's World Development Indicators. A single-institution design trades cross-sectional breadth for depth and consistency in accounting policy and strategy. All series are annual, ratios rather than levels are used to ensure comparability over time, and observations are cross-checked against successive annual reports to account for restatements.

3.2 Variables

Table 1 defines the variables and expected signs. ROA is the standard performance measure for banks (Athanasoglou et al., 2008d). CAR and CIR operationalise the capital and cost-management dimensions of bank working capital, while logarithmic SIZE mitigates scale distortions.

Table 1
Variable definitions and expected signs

Variable	Measurement	Role	Expected sign
ROA	Net profit after tax / total assets (%)	Dependent	n/a
CAR	Total regulatory capital / risk-weighted assets (%)	Independent	+
CIR	Operating expenses / operating income (%)	Independent	−
SIZE	Natural logarithm of total assets	Independent	+
GDP	Annual real GDP growth (%)	Control	+
INF	Annual consumer price inflation (%)	Control	±

3.3 Model Specification (Pooled OLS)

Following the bank profitability literature (Athanasoglou et al., 2008b), the baseline specification is:

$$ROA_t = \beta_0 + \beta_1 CAR_t + \beta_2 CIR_t + \beta_3 SIZE_t + \beta_4 GDP_t + \beta_5 INF_t + \varepsilon_t$$

where t = 2004, …, 2025, β_0 is the intercept and ε is the error term. Because one cross-sectional unit is observed, pooling collapses to time-series OLS, with unit-specific effects absorbed by the intercept. OLS is retained as the transparent baseline because it yields best linear unbiased estimates under classical assumptions, which the diagnostics below evaluate. Coefficients on CAR, CIR, GDP and INF therefore measure percentage-point changes in ROA per percentage-point change in the regressor.

3.4 Econometric Method

Estimation proceeds in four steps. First, descriptive statistics and correlations screen the data, and variance inflation factors check multicollinearity. Second, augmented Dickey–Fuller tests assess stationarity, with differencing or cointegration checks applied where needed to avoid spurious regression. Third, the model is estimated by OLS and diagnosed using Breusch–Godfrey, Breusch–Pagan, Jarque–Bera, and RESET tests. Fourth, because short samples threaten reliable inference (Petersen, 2009b), standard errors are heteroskedasticity-consistent (White, 1980b) and Newey–West autocorrelation-robust. A dynamic specification adding lagged ROA captures profit persistence, and lagged CAR and CIR are substituted as regressors to mitigate simultaneity concerns. These robustness checks assess whether coefficient signs and significance remain stable. Structural breaks around the global financial crisis and COVID-19 are examined through dummy variables, and CUSUM tests verify parameter stability. Significance is assessed at the 1, 5 and 10 percent levels. Given T = 22, results are interpreted cautiously.

4. Results

4.1 Descriptive Statistics and Correlation Analysis

Table 2 summarizes the 22 annual observations. BRAC Bank PLC recorded a mean return on assets (ROA) of 1.30 percent (SD = 0.38), ranging from 0.40 to 1.88 percent. The capital adequacy ratio (CAR) averaged 12.72 percent (SD = 2.10), with a wide range of 6.79 to 15.63 percent, while the cost-to-income ratio (CIR) averaged 49.93 percent (SD = 6.51), implying that roughly half of operating income was absorbed by operating costs. Log total assets averaged 12.09 (SD = 1.25); the range of 9.21 to 13.98 corresponds to more than a hundred-fold expansion of the balance sheet. Real GDP growth averaged 6.14 percent and inflation 7.28 percent.

Table 2
Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	22	1.301	.38	.4	1.88
car	22	12.717	2.102	6.788	15.627
cir	22	49.926	6.512	25.3	58.116
lsize	22	12.092	1.252	9.212	13.981
gdp	22	6.138	1.191	3.5	7.9
inf	22	7.276	1.751	5.42	11.4

Table 3 reports pairwise correlations. CAR is positively but insignificantly correlated with ROA (r = 0.303, p = 0.171), and no regressor displays a statistically significant bivariate association with ROA. Significant associations arise only among regressors: CAR correlates positively with CIR (r = 0.568, p = 0.006) and size (r = 0.534, p = 0.011), suggesting that better-capitalised years coincided with higher cost ratios and larger balance sheets. As no coefficient exceeds 0.60 in absolute value, severe multicollinearity is unlikely, although this overlap may inflate coefficient variances.

Table 3
Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) roa	1.000					
(2) car	0.303	1.000				
	(0.171)					
(3) cir	0.126	0.568*	1.000			
	(0.575)	(0.006)				
(4) lsize	-0.099	0.534*	0.031	1.000		
	(0.660)	(0.011)	(0.891)			
(5) gdp	0.150	-0.207	0.068	-0.139	1.000	
	(0.505)	(0.356)	(0.765)	(0.538)		
(6) inf	0.011	0.051	-0.151	-0.005	-0.322	1.000
	(0.961)	(0.821)	(0.502)	(0.983)	(0.144)	
**** p < 0.01, ** p < 0.05, * p < 0.1*						

4.2 Stationarity Properties

Table 4 presents the augmented Dickey–Fuller results. CAR (− 4.570, p = 0.001), CIR (− 3.579, p = 0.032) and size (− 3.852, p = 0.014) are stationary in levels, whereas GDP growth is stationary only at the 10 percent level (− 3.289, p = 0.068). ROA (− 2.776, p = 0.206) and inflation (− 2.470, p = 0.343) do not reject the unit-root null in levels but become stationary after first differencing (both p < 0.01), indicating I(1) behaviour. This mixed integration order warrants caution, since a levels regression with an I(1) dependent variable may yield spurious inference. Two considerations mitigate this concern: unit-root tests have low power in small samples, and the baseline R^2 (0.291) lies below the Durbin–Watson statistic (1.286), a conventional informal safeguard against spurious regression. The levels specification is therefore retained, with conservative interpretation.

Table 4
Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	Level $Z(t)$ (with Trend)	p-value	First Diff $Z(t)$ (No Trend)	p-value	Critical Value (5%)	Order of Integration
ROA	-2.776	0.2058	-5.121***	0.0000	-3.600 / -3.000	$I(1)$
CAR	-4.570***	0.0012	-8.587***	0.0000	-3.600 / -3.000	$I(0)$
CIR	-3.579**	0.0316	-6.352***	0.0000	-3.600 / -3.000	$I(0)$
SIZE (lnAssets)	-3.852**	0.0141	-3.247**	0.0174	-3.600 / -3.000	$I(0)$
GDP	-3.289*	0.0681	-6.156***	0.0000	-3.600 / -3.000	$I(0)$
INF	-2.470	0.3431	-5.695***	0.0000	-3.600 / -3.000	$I(1)$

Significance levels: *p < 0.10, p < 0.05, ***p < 0.01.

4.3 Regression Results

Table 5 reports four specifications: baseline OLS (Model 1), White-robust OLS (Model 2), Newey–West HAC (Model 3), and a dynamic model with lagged ROA (Model 4). Point estimates are identical across Models 1–3, so differences reflect only inferential sensitivity to error-structure assumptions (Petersen, 2009b; White, 1980b).

Capital adequacy emerges as the most robust determinant. The CAR coefficient of 0.146 is significant at the 5 percent level under OLS and White-robust errors and at the 1 percent level under HAC errors. A one-percentage-point increase in CAR is thus associated with a 0.146-point rise in ROA, about 11 percent of mean ROA, supporting H1 and consistent with capital operating as a profitability-enhancing buffer (Berger & Bouwman, 2013b). In Model 4 the coefficient falls to 0.110 and loses conventional significance, reflecting less precise estimation once lagged profitability is included and one observation is lost; the implied long-run effect (0.110/(1 − 0.314) ≈ 0.16) nonetheless remains close to the static estimate.

CIR carries the expected negative sign in every model (− 0.019 to − 0.013) but is statistically insignificant, so H2 receives directional but not statistical support. The magnitude is not negligible, since a ten-point rise in CIR implies a 0.19-point fall in ROA, about half a standard deviation, yet imprecise estimation, plausibly aggravated by collinearity with CAR, precludes firm inference.

Bank size is negatively related to ROA (− 0.146), significant at the 10 percent level in Models 1, 2 and 4 and at the 5 percent level under HAC errors, contradicting the positive relationship hypothesised in H3.

This is consistent with diseconomies of scale or complexity costs in larger banks (Boyd & Runkle, 1993c; Laeven et al., 2016a), and may also reflect a denominator effect whereby rapid asset growth dilutes ROA.

Among controls, GDP growth is positive (0.088) but significant only in Model 2 at the 10 percent level, while inflation is negligible (0.001 to 0.009) throughout; macroeconomic conditions play a weak role once bank-specific factors are included. Lagged ROA (0.314) is insignificant, indicating limited evidence of profit persistence.

Overall fit is modest. R^2 is 0.291 (adjusted R^2 = 0.069) in the baseline and 0.386 (0.123) in Model 4. The joint F-test does not reject the null under OLS ($p = 0.308$) and is marginal under White-robust errors ($p = 0.101$), but rejects it under HAC errors ($p = 0.035$) and in the dynamic model ($p = 0.048$). Given $T = 22$, estimates are indicative rather than conclusive.

Table 5
Dynamic Time-Series Regression Results (Dependent Variable = ROAt)

Independent Variables	Model 1: Baseline OLS	Model 2: Robust OLS (White)	Model 3: Newey-West (HAC)	Model 4: Dynamic OLS
ROAt − 1 (Lagged Profitability)	—	—	—	0.314 *(0.256)*
CAR (Capital Adequacy Ratio)	0.146** *(0.062)*	0.146** *(0.061)*	0.146*** *(0.048)*	0.110 *(0.067)*
CIR (Cost-to-Income Ratio)	-0.019 *(0.017)*	-0.019 *(0.014)*	-0.019 *(0.014)*	-0.013 *(0.015)*
SIZE (lnTotal Assets)	-0.146* *(0.083)*	-0.146* *(0.073)*	-0.146** *(0.069)*	-0.145* *(0.076)*
GDP (Real GDP Growth)	0.088 *(0.074)*	0.088* *(0.043)*	0.088 *(0.051)*	0.059 *(0.045)*
INF (Inflation Rate)	0.001 *(0.049)*	0.001 *(0.035)*	0.001 *(0.037)*	0.009 *(0.027)*
Constant (β0)	1.642 *(1.304)*	1.642 *(1.017)*	1.642 *(1.108)*	1.490 *(1.001)*
Observations (T)	22	22	22	21
R2	0.2907	0.2907	—	0.3860
Adjusted R2	0.0690	0.0690	—	0.1229
Model F-Statistic	1.31 (p = 0.3083)	2.23* (p = 0.1014)	3.17** (p = 0.0354)	2.89** (p = 0.0477)
Root MSE	0.3670	0.3670	—	0.3588

Note: Standard errors are reported in parentheses under estimated coefficients. Model 3 employs Newey-West heteroskedasticity and autocorrelation consistent (HAC) standard errors with bandwidth lag(2). Models 2 and 4 use Huber-White robust standard errors. Significance levels: * p < 0.10, p < 0.05, *** p < 0.01

4.4 Diagnostic and Parameter Stability Tests

Table 6 indicates that the specification is statistically adequate. Breusch–Godfrey tests do not reject serial independence at lag 1 (p = 0.069) or lag 2 (p = 0.167), although the lag-1 result is marginal and the Durbin–Watson statistic (1.286) falls in the inconclusive region; the HAC estimates in Model 3 therefore offer a prudent safeguard. The Breusch–Pagan test (p = 0.713) indicates homoskedastic errors, the

RESET test (p = 0.108) detects no functional-form misspecification, and the residual normality test (p = 0.986) supports normally distributed errors. The recursive CUSUM statistic (0.484) lies well inside its 5 percent critical value (0.948), providing no evidence of structural instability over the sample period.

Table 6
Postestimation Diagnostic & Model Stability Tests

Diagnostic Test	Econometric Purpose	Test Statistic	*p*-value / Conclusion	Result
Breusch-Godfrey LM	Serial Correlation (Lag 1)	$\chi2(1) = 3.308$	$p = 0.0689$	No severe serial correlation at 5%
Breusch-Godfrey LM	Serial Correlation (Lag 2)	$\chi2(2) = 3.586$	$p = 0.1665$	No serial correlation
Durbin-Watson	Autocorrelation (*d*-stat)	$d = 1.2856$	Inconclusive zone	Corrected via Newey-West HAC
Breusch-Pagan / Cook-Weisberg	Heteroskedasticity	$\chi2(1) = 0.14$	$p = 0.7129$	Constant error variance confirmed
Ramsey RESET	Omitted Variable Bias	$F(3,13) = 2.47$	$p = 0.1081$	Correct functional form
Jarque-Bera (sktest)	Residual Normality	Adj $\chi2(2) = 0.03$	$p = 0.9858$	Residuals normally distributed
Recursive CUSUM	Parameter Stability	Statistic = 0.4842	Critical Value = 0.9479	No structural breaks across 2004–2025

5. Discussion

The results identify capital adequacy as the principal bank-level determinant of profitability at BRAC Bank PLC: a one-percentage-point rise in CAR is associated with a 0.146-point higher ROA, robust to White and Newey–West inference. This accords with evidence that capital supports bank performance (Berger & Bouwman, 2013b) and with theory linking capital to resilience under distress (Diamond & Rajan, 2001a). The negatively signed but insignificant CIR coefficient offers only tentative support for the bad-management hypothesis (Berger & DeYoung, 1997a); its positive correlation with CAR (r = 0.568) may partly obscure the efficiency effect. The negative size coefficient contradicts scale-advantage arguments and is consistent with evidence that larger banks earn no superior returns and carry greater risk (Boyd & Runkle, 1993a; Laeven et al., 2016b). Macroeconomic variables add little explanatory power once bank-specific factors are controlled. Theoretically, the study extends working capital reasoning to banks by showing that capital buffers, rather than scale, are associated with returns. Practically, managers should prioritize sustained capital strengthening over asset expansion, and, in this case, higher capital did not impair profitability, a point relevant to regulators calibrating capital requirements.

6. Conclusion

This study examined how working-capital-related management, proxied by capital adequacy, cost efficiency and size, relates to the profitability of BRAC Bank PLC over 2004–2025, using baseline, robust, Newey–West and dynamic time-series specifications. Capital adequacy is positively and robustly associated with ROA in the static models; the cost-to-income ratio shows the expected negative but insignificant effect, size is negatively associated with ROA, and GDP growth and inflation are largely immaterial. Residual diagnostics and the CUSUM test indicate an adequate specification and stable parameters. The study contributes long-horizon, institution-level evidence from an emerging banking system and extends working capital thinking to banks. Overall, the evidence favours capital strength and disciplined balance-sheet growth over expansion for its own sake, although the findings represent associations rather than causal effects. Taken together, capital strength is the most reliable correlate of profitability in this bank's record.

7. Limitations and Future Research

Three limitations qualify the findings. First, a single bank with 22 annual observations limits statistical power and generalizability, as reflected in modest explanatory power ($R^2 = 0.291$); small-sample asymptotic also qualify robust standard errors. Second, ROA and inflation are I(1), so levels regression may be vulnerable to spurious inference despite satisfactory diagnostics; cointegration analysis is warranted. Third, simultaneity among capital, costs, and profitability is not fully resolved. Future research should extend the analysis to multi-bank panels of Bangladeshi banks using system GMM (Blundell & Bond, 1998), incorporate liquidity and credit-risk measures, and test nonlinear capital–profitability relationships.

Declarations

Author Contribution

Isteak Isteak (Idea Generation, Data Collection, Methodology, Writing, Editing, Reviewing), Ayesha Siddiqua Soha (Writing, Analysis, Editing)

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