

## Abstract

This study examines whether Islamic banks in SSA exhibit convergence in operational efficiency or whether performance disparities persist over time. Specifically, it evaluates whether less efficient banks catch up with more efficient peers within the region's emerging Islamic banking sector. The study adopts a two-stage empirical framework using panel data from 35 Islamic banks across SSA over the period 2010–2024. In the first stage, operational efficiency scores are estimated using a bias-corrected Data Envelopment Analysis (DEA) model following the Simar and Wilson two-stage approach. An input-oriented specification under Variable Returns to Scale (VRS) is employed to reflect cost minimization behaviour and heterogeneity in bank size. Bias correction is implemented using a bootstrap procedure to obtain consistent efficiency estimates. In the second stage, convergence dynamics are analysed using sigma ( $\sigma$ ) and beta ( $\beta$ ) convergence models, alongside conditional convergence regressions incorporating bank size, age, and market concentration. The results reveal significant  $\beta$ -convergence, with the baseline model yielding a coefficient of  $-0.267$  ( $p < 0.01$ ), while the conditional model confirms robust convergence ( $\beta = -0.2836$ ,  $p < 0.01$ ), indicating that banks with lower initial efficiency improve at a faster rate than more efficient institutions, consistent with catch-up dynamics. However,  $\sigma$ -convergence results show that efficiency dispersion declined between 2010 and 2019 but increased after 2020, indicating that convergence was time-varying rather than uniform. This suggests that while convergence forces exist, structural differences and external shocks continue to sustain efficiency gaps across banks. The findings highlight the need for stronger regulatory harmonization, improved financial infrastructure, and targeted capacity-building initiatives to accelerate efficiency convergence across Islamic banks in SSA.