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Non-convex Efficiency of the Vietnamese Banking System: An Efficiency Analysis Tree (EAT) Approach

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Abstract

Purpose: This paper analysed the performance of the Vietnamese banking system (2008-2023) regarding two important research questions of (i) whether the banks operated under a convex or non-convex production technology and (ii) whether classifying the banks into different groups using a classification tree technique can offer more insights into their performance, which has not been examined before.

Design/methodology/approach: This study followed the Efficiency Analysis Tree (EAT) approach to cluster the sampled banks into different leaves and then examine their efficiency accordingly.

Findings: The results showed that the production technology for Vietnamese banks is non-convex, and therefore, it would be more appropriate to use FDH-based approaches like EAT to examine their efficiency. Accordingly, the study found that, after a recovery from the Global Financial Crisis in 2007, the average efficiency of Vietnamese banks started to drop in 2012 and reached its bottom in 2021 amid the recent COVID-19 pandemic. However, a sharp bounce back to about 75 percent efficiency score in 2023 indicates a brighter future for the system.

Research implications: The study suggests managers and policymakers should focus on banks in the low-performance EAT tree leaves. These banks are potentially more susceptible to shocks in the banking system. Addressing these banks' inefficiencies could contribute to overall system stability and resilience. It makes this study an important application in the field of Decision Science.

Originality/value: This study is the first to examine the performance of Vietnamese banks using the most up-to-date data, using the non-convex Efficiency Analysis Tree (EAT) approach.

Keywords: non-convex; efficiency analysis tree (EAT); performance; Vietnam; banks.

JEL classifications: C61, G21

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