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# Determinants of The Total Factor Productivity Changes in A Panel of Relevant European Union Banks

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## ABSTRACT

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This study in the first stage uses Data Envelopment Analysis and the results provided by the Malmquist indices to measure the technical, technological, and scale efficiency changes, and the total productivity changes in a panel including 784 relevant banks of all the 27 European Union countries, between 2006 and 2021. In the second stage, the study uses panel dynamic Generalised Method of Moments (GMM) estimations to analyse the influence of some bank choices (in terms of the bank loans, bank deposits and short-term funding, and the off-balance sheet items), and the influence of bank market stability (proxied with the estimated Z-score), of bank market competition (with the estimated Boone indicator), and of the real per capita Gross Domestic Product (GDP) growth on the total factor productivity changes in the considered banks. The results obtained with GMM estimations demonstrate that while bank market competition looks like promoting the banks' total factor productivity change, bank loans, bank deposits and short-term funding, and the off-balance sheet items, as well as the bank market stability and the real per capita GDP growth do not clearly contribute to the banks' total factor productivity changes.

**KEYWORDS** European Union banking sector; Malmquist indices; bank total factor productivity changes; Z-score; Boone indicator

**JEL** C33, D53, F36, G21