ABSTRACT

Sustainable development has become the world order in recent times as humanity continues to grapple with environmental degradation and the resulting rapidly changing climate conditions. The worldwide search for detailed scientific evidence to mitigate climate change effects and build climate-resilient economies has occasioned this empirical study. Therefore, the overarching objective of this study is to provide a comprehensive analysis of the interconnections between the banking sector, energy transition, and environmental sustainability in sub-Saharan Africa, in order to deepen the understanding of the contextual frame of climate change, sustainable finance, and sustainable development in this region. To achieve this broad objective, the study focusses on addressing three (3) specific objectives: (1) to investigate the relationship between banking sector development and environmental sustainability under the moderating influence of monetary policy transmission, (2) to examine the role of banking sector development and debt sustainability in energy transition, and (3) to examine whether human development and institutional quality foster climate resilience in SSA banks.

The first specific objective investigates the nexus between banking sector development and environmental sustainability, considering the moderating role of monetary policy transmission using panel data from 39 sub-Saharan African (SSA) economies from 1990 to 2022. By utilizing the two-step dynamic system GMM estimation method, this study establishes that banking sector development independently reduces CO2 emissions and ecological footprints, thereby improving environmental sustainability, while broad money supply promotes carbon emissions and ecological footprints, which implies increased environmental degradation with loose monetary policy. However, a more nuanced analysis under monetary policy moderation reveals that the environmental impact of banking sector development is conditional on the prevailing monetary policy stance. Particularly, banking sector development promotes environmental sustainability under tight monetary policy stance, but undermines environmental quality under loose monetary policy regime. Therefore, the negatively sloping curve for the nexus between domestic private sector bank credit and carbon/ecological footprint gradually turns into a U-shaped curve with monetary policy conditioning.

Additionally, the study establishes that income level significantly limits CO2 gas emissions; but increases the overall ecological demand at the 1% level of significance. Furthermore, while FDI inflows and urban population growth increase carbon dioxide emissions, they reduce the overall ecological footprint at the 1% level of significance. Finally, natural resource rents and trade openness are found to degrade the environment, both at the 1% level of statistical significance, by increasing CO2 emissions and the ecological footprint.

The second specific objective of this study examines the role of banking sector development and debt sustainability in energy transition in sub-Saharan Africa, using panel data from 34 countries from 2000 to 2020. The study adopts both linear and non-linear (quadratic) modelling approaches, and utilizes panel-corrected standard error (PCSE) to estimate the parameters, with Driscoll-Kraay and feasible generalized least square (FGLS) estimation techniques deployed to provide robustness checks. The regression estimates for the linear model show a significant negative relationship between banking sector development and renewable energy consumption while the quadratic model estimated results establish a U-shaped relationship between the variables, implying that the financial development-renewable energy nexus is not uniformly negative. The study finds that external debt unconditionally promotes renewable energy consumption, however, when used in a moderating role in the nexus between banking sector development

and renewable energy, external debt obstructs clean energy transition. Finally, the panel data estimates indicate that domestic investment improves renewable energy consumption, whereas urbanization, trade openness, per capita income, and energy prices negatively affect the transition to clean energy in the region.

The third objective analyzes whether human development and institutional quality matter in SSA's quest to build climate-resilient banks in the region. In line with this objective, this study examines how climate risk impacts bank stability, asset utilization, and shareholder wealth, given the intervention of human development and institutional quality in these nexuses. To realize this specific objective, the study used data from 30 SSA economies from 2002 to 2020, and employed the two-step dynamic system GMM estimation approach to estimate the parameters. The regression estimates indicate a significant negative relationship between the climate risk proxy, CO2 emissions, and all the proxies for bank stability/profitability, while institutional quality and human development show significant positive effects on bank stability/performance proxies. Furthermore, the results of the marginal analysis with human development and institutional quality conditioning show that increasing levels of institutional quality and human development mitigate or mask the negative impact of climate risk on bank stability (Z-score), return on assets (ROA), and return on equity (ROE), implying improved climate resilience among banks in an environment of high-level human development and institutional quality. The results also show that trade openness, bank concentration, and GDP per capita positively affect bank stability, asset utilization, and shareholder wealth. Although, bank deposits improve bank stability, they undermine return on asset utilization and shareholder wealth maximization. Finally, inward FDI is detrimental to bank stability, asset utilization, and shareholder wealth.