Effects of AI-driven Applications on Bank Performance in West Africa

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Abstract : This study examined the impact of artificial intelligence driven applications on banks' performance in West Africa using Nigeria and Ghana as case studies. Specifically, the study examined the extent to which deployment of smart automated teller machine impacts the banks' net worth within the reference period in Nigeria and Ghana. It ascertained the impact of point of sale on banks' net worth within the reference period in Nigeria and Ghana. Thirdly, it verified the extent to which webpay services can influence banks' performance in Nigeria and Ghana and finally, determined the impact of mobile pay services on banks' performance in Nigeria and Ghana. The study used automated teller machine (ATM), Point of sale services (POS), Mobile pay services (MOP) and Web pay services (WBP) as proxies for explanatory variables while Bank net worth was used as explained variable for the study. The data for this study were sourced from central bank of Nigeria (CBN) Statistical Bulletin as well as Bank of Ghana (BoGH) Statistical Bulletin, Ghana payment systems oversight annual report and world development indicator (WDI). Furthermore, the mixed order of integration observed from the panel unit test result justified the use of autoregressive distributed lag (ARDL) approach to data analysis which the study adopted. While the cointegration test showed the existence of cointegration among the studied variables, bound test result justified the presence of long-run relationship among the series. Again, ARDL error correction estimate established satisfactory (13.92%) speed of adjustment from long run disequilibrium back to short run dynamic relationship. The study found that while Automated teller machine (ATM) had statistically significant impact on bank net worth (BNW) of Nigeria and Ghana, point of sale services application (POS) statistically and significantly impact on bank net worth within the study period, mobile pay services application was statistically significant in impacting the changes in the bank net worth of the countries of study while web pay services (WBP) had no statistically significant impact on bank net worth of the countries of reference. The study concluded that artificial intelligence driven application have significant an positive impact on bank performance with exception of web pay which had negative impact on bank net worth. The study recommended that management of banks both in Nigerian and Ghanaian should encourage more investments in AI-powered smart ATMs aimed towards delivering more secured banking services in order to increase revenue, discourage excessive queuing in the banking hall, reduced fraud and minimize error in processing transaction. Banks within the scope of this study should leverage on modern technologies to checkmate the excesses of the private operators POS in order to build more confidence on potential customers. Government should convert mobile pay services to a counter terrorism tool by ensuring that restrictions on over-the-counter withdrawals to a minimum amount is maintained and place sanctions on withdrawals above that limit.
Keywords : artificial intelligence (ai), bank performance, automated teller machines (atm), point of sale (pos)
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