

Central Bank Digital Currency (CBDC) Design within an Islamic Monetary Framework: Implications for Riba Free Digital Economies

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Abstract. The global development of Central Bank Digital Currencies (CBDCs) raises fundamental questions regarding compatibility with Islamic monetary principles. This study explores the conceptual design of a Shariah-compliant CBDC within an Islamic monetary framework that prohibits riba (interest) and promotes asset-backed transactions. Through normative analysis and comparative policy evaluation, the research examines CBDC models implemented in selected jurisdictions and evaluates their alignment with Islamic economic principles. The study proposes a dual-layer Islamic CBDC architecture integrating profit-and-loss sharing mechanisms and programmable Shariah compliance features. Simulation analysis suggests that an Islamic CBDC could enhance monetary policy transmission while maintaining ethical financial intermediation. Moreover, programmable compliance functions can automate zakat collection and prevent interest-based transactions. The findings highlight opportunities for Islamic economies to leverage CBDCs in promoting financial stability, transparency, and socio-economic justice. The research advances theoretical discourse by linking Islamic monetary theory with digital currency innovation and provides policy guidance for central banks in Muslim-majority countries.

Keywords: Islamic monetary system, CBDC, riba-free finance, digital currency, Shariah compliance.