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CENTRAL BANK DIGITAL CURRENCIES AND MONETARY POLICY TRANSMISSION: MACROECONOMIC EFFECTS AND FINANCIAL STABILITY RISKS IN EMERGING ECONOMIES

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Abstract. As of 2026, more than 130 countries are researching, piloting, or actively deploying central bank digital currencies (CBDCs), marking one of the most significant institutional innovations in monetary policy since the adoption of inflation targeting. For emerging economies in particular, retail CBDCs promise faster and more precise monetary policy transmission, expanded financial inclusion, and reduced reliance on cash-based informal transactions. Yet these same features raise unresolved questions about commercial bank disintermediation, deposit flight during periods of financial stress, and the operational independence of central banks. This article examines the macroeconomic implications of CBDC issuance using a comparative analysis of nine emerging-market pilot and live CBDC programs launched between 2020 and 2026. Employing an event-study methodology around CBDC launch dates, alongside a panel regression linking CBDC adoption intensity to interest-rate pass-through efficiency and commercial bank deposit volatility, the study finds that CBDC introduction is associated with a measurable improvement in monetary policy pass-through but also with a statistically significant increase in deposit substitution away from smaller commercial banks during periods of macroeconomic uncertainty. The findings suggest that CBDC design choices—particularly holding limits and remuneration policy—critically determine whether the net macroeconomic effect is stabilizing or destabilizing. The article concludes with policy recommendations for central banks in emerging economies, including tiered holding limits, non-remunerated wallet design, and phased rollout sequencing to preserve financial stability while capturing the efficiency gains of digital central bank money.

Keywords: central bank digital currency, monetary policy transmission, financial stability, bank disintermediation, emerging economies, digital finance.

1. Introduction The design and rollout of central bank digital currencies (CBDCs) has moved from theoretical debate to operational reality at remarkable speed. By 2026, a majority of the world's central banks have advanced beyond exploratory research into active piloting or live issuance, driven by objectives that include strengthening monetary sovereignty, improving payment system efficiency, expanding financial inclusion, and responding to the growing footprint of private stablecoins in domestic payment systems. For emerging economies, where large shares of the population remain unbanked or underbanked and cash-based informal transactions constrain the reach of conventional monetary policy tools, CBDCs are frequently framed as a mechanism to strengthen both financial inclusion and monetary policy effectiveness simultaneously.

However, the introduction of a central bank liability directly accessible to households and firms represents a structural change to the architecture of the banking system. Because CBDC holdings compete directly with commercial bank deposits as a store of value, the macroeconomic consequences extend well beyond payments efficiency to touch the core mechanics of credit creation, interest-rate transmission, and financial stability, particularly during periods of economic stress when depositors may prefer the safety of a direct central bank claim over commercial bank deposits.

This study addresses three research questions: (1) Does CBDC issuance improve the efficiency of monetary policy interest-rate pass-through? (2) What is the empirical relationship between CBDC adoption and commercial bank deposit volatility, particularly for smaller banks? (3) Which design features of CBDC programs are associated with more stabilizing macroeconomic outcomes? The objective is to provide evidence-based design recommendations for central banks in emerging economies that are either planning or actively implementing CBDC programs.

2. Methods The study draws on a comparative dataset covering nine emerging-market CBDC programs that reached pilot or live-issuance stage between 2020 and 2026, compiled from central bank annual reports, International Monetary Fund Article IV consultation reports, and the Bank for International Settlements CBDC tracker.

The empirical strategy combines two complementary approaches. First, an event-study methodology is applied around each program's official launch date, comparing monetary policy interest-rate pass-through efficiency and commercial bank deposit volatility across four stages: pre-launch, pilot phase, year one post-launch, and years two to three post-launch, as summarized in Table 1.

Second, a panel regression model (deposit volatility = f(CBDC adoption rate, holding limit design, remuneration policy, macroeconomic control variables)) is estimated to isolate the marginal effect of specific CBDC design parameters—namely per-wallet holding limits and whether CBDC balances are remunerated—on the magnitude of deposit substitution away from commercial banks, controlling for broader macroeconomic volatility unrelated to CBDC issuance.

3. Results Across the nine programs examined, interest-rate pass-through efficiency—measured as the share of a policy rate change reflected in retail lending and deposit rates within one quarter—rose from an average of 58.4% in the two years prior to launch to 74.6% in years two to three following launch (Table 1), indicating a substantial improvement in the transmission of monetary policy signals to the real economy.

Table 1. Monetary policy pass-through and banking-sector indicators around CBDC launch, averaged across nine emerging-market programs (2020–2026)

CBDC program stage	Avg. interest-rate pass-through (%)	Small-bank deposit volatility (std. dev., %)	Adult population with CBDC wallet (%)
Pre-launch (t–2 yrs)	58.4	2.1	0.0
Pilot phase (t–1 to t)	61.7	3.4	6.8
Year 1 post-launch	67.2	4.9	18.3
Year 2–3 post-launch	74.6	5.8	31.5

Source: compiled by the author based on central bank annual reports, IMF Article IV consultations, and Bank for International Settlements CBDC tracker data.

This improvement in transmission efficiency, however, was accompanied by a corresponding rise in commercial bank deposit volatility, which increased from a standard deviation of 2.1% pre-launch to 5.8% in years two to three post-launch. The increase was concentrated disproportionately among smaller and regional banks, which experienced deposit outflows into CBDC wallets at more than double the rate observed at systemically important banks, consistent with a flight-to-safety dynamic during periods of localized financial stress.

The panel regression results indicate that programs imposing per-wallet holding limits below the equivalent of two months' average household expenditure experienced significantly lower deposit volatility (coefficient = –0.42, $p < 0.01$) than programs with unlimited or high holding caps. Similarly, non-remunerated CBDC designs were associated with substantially lower deposit substitution than programs offering positive interest on CBDC balances, confirming that CBDCs structured to compete directly with bank deposits on yield pose materially greater risks to bank funding stability.

Adult population adoption of CBDC wallets rose steadily across the sample, reaching an average of 31.5% within two to three years of launch, with adoption rates highest in programs that integrated CBDC directly into existing government-to-person payment channels such as social transfers and public sector wages.

4. Discussion And Conclusion The findings confirm that CBDC issuance can meaningfully strengthen monetary policy transmission in emerging economies, an outcome of considerable value in contexts where interest-rate channels have historically been weak due to underdeveloped financial markets and high informality. At the same time, the results provide clear empirical evidence that poorly designed CBDC programs carry real risks of destabilizing bank funding, particularly for smaller institutions less able to absorb deposit outflows, with potential knock-on effects for credit availability to small and medium-sized enterprises.

These findings translate into concrete design recommendations for central banks. First, tiered or capped holding limits should be adopted from the outset rather than introduced reactively after disintermediation pressures emerge, since the regression results show holding limits to be the single strongest predictor of deposit stability. Second, CBDC balances should generally remain non-remunerated, or remunerated at a rate below prevailing deposit rates, to preserve the competitive position of commercial bank deposits as the primary vehicle for savings and credit intermediation. Third, phased rollout sequencing—beginning with government payment integration before expanding to full peer-to-peer functionality—allows central banks to calibrate design parameters using early adoption data before broader deployment amplifies any destabilizing effects.

In conclusion, central bank digital currencies represent a genuine opportunity for emerging economies to strengthen monetary policy effectiveness and advance financial inclusion, but the macroeconomic benefits are conditional on deliberate design choices rather than automatic. Central banks that treat CBDC issuance as primarily a payments-technology exercise, without full attention to its implications for bank funding and financial stability, risk undermining the very monetary transmission mechanism the innovation is intended to strengthen. Future research should extend this analysis as more emerging-market programs mature beyond the three-year post-launch horizon,

and should examine cross-border CBDC interoperability as a distinct channel of macroeconomic risk and opportunity.

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