Settlement liquidity in the Colombian large-value payment system: the role of reserve requirements

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Resumen:

This paper analyzes the intraday timing of transactions in Colombia's large-value payment system (CUD) from 2018 to 2025, focusing on how changes in reserve requirements affect liquidity management by financial institutions. Using high-frequency transaction data, we document that reductions in reserve requirements in April 2020 and September 2024 are associated with a shift of settlement activity toward later hours of the day. The effects are heterogeneous, as smaller institutions remain more dependent on marginal liquidity and incoming payments in an interdependent payment network. We also find that the launch of the new Central Securities Depository (DCV) system in April 2024, along with changes in payment volume and value, further reinforces the move toward later settlements. Greater reliance on intraday repos relative to reserves has also reduced early-day activity while improving liquidity management later in the business day.

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The Sistema de Cuentas de Depósito (CUD) is Colombia's large-value payment system (LVPS), operated by the Central Bank of Colombia. It provides authorized financial institutions with a secure and efficient platform for processing large-value electronic fund transfers and settling obligations arising from transactions such as securities and foreign exchange trades in local currency, interbank loans, tax payments, and check clearing. Operating under a real-time gross settlement (RTGS) system, CUD ensures immediate and final settlement of transactions, contingent on sufficient account balances.

As in any LVPS, the intraday distribution of payments in Colombia's CUD is central to both operational efficiency and systemic liquidity. This paper investigates the effect of reserve requirement reductions on settlement liquidity and, consequently, how these policy measures have shaped financial institutions' liquidity management. Reserve requirements have traditionally been a straightforward policy instrument, broadly applied and closely tied to the fundamental structure of financial intermediation. These attributes have historically enabled reserve requirements to serve multiple roles, which have evolved alongside the development of the financial system and the changing frameworks for designing and implementing economic policy. For instance, reserve requirements have been employed to mitigate banks' liquidity risk, as observed in April 2020 during the COVID-19 pandemic, and as a monetary policy tool aimed at controlling the growth of broad monetary aggregates and credit. However, advancements in liquidity risk regulation in Colombia, together with the shift in the monetary policy strategy toward an inflation-targeting framework, have reduced the relevance of reserve requirements in fulfilling these roles. It is worth noting that Colombia's reserve requirement calculation period is consistent with IMF recommendations and international central banking practices. Reserve requirements are calculated on a biweekly basis and must be held as cash in vaults or deposits at the Central Bank, a framework that facilitates intertemporal liquidity smoothing while preserving short-term interest rate stability.