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With its annual [Payment Systems Report](#), Banco de la República offers a complete overview of the infrastructure of Colombia's financial market. Each edition of the report has four objectives: 1) to

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publicize a consolidated account of how the figures for payment infrastructures have evolved with respect to both financial assets and goods and services; 2) to summarize the issues that are being debated internationally and are of interest to the industry that provides payment clearing and settlement services; 3) to offer the public an explanation of the ideas and concepts behind retail-value payment processes and the trends in retail payments within the circuit of individuals and companies; and 4) to familiarize the public, the industry, and all other financial authorities with the methodological progress that has been achieved through applied research to analyze the stability of payment systems.

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Banco de la República provides a comprehensive overview of Colombia's financial infrastructure in its Payment Systems Report, which is an important product of the work it does to oversee that infrastructure. The figures published in this edition of the report are for the year 2020, a pandemic period in which the containment measures designed and adopted to alleviate the strain on the health system led to a sharp reduction in economic activity and consumption in Colombia, as was the case in most countries.

At the start of the pandemic, the Board of Directors of Banco de la República adopted decisions that were necessary to supply the market with ample liquidity in pesos and US dollars to guarantee market stability, protect the payment system and preserve the supply of credit. The pronounced growth in monetary aggregates reflected an increased preference for liquidity, which Banco de la República addressed at the right time. These decisions were implemented through operations that were cleared and settled via the financial infrastructure.

The second section of this report, following the introduction, offers an analysis of how the various financial infrastructures in Colombia have evolved and performed. One of the highlights is the large-value payment system (CUD), which registered more momentum in 2020 than during the previous year, mainly because of an increase in average daily remunerated deposits made with Banco de la República by the General Directorate of Public Credit and the National Treasury (DGCPTN), as well as more activity in the sell/buy-back market with sovereign debt. Consequently, with more activity in the CUD, the Central Securities Depository (DCV) experienced an added impetus sparked by an increase in the money market for bonds and securities placed on the primary market by the national government.

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The value of operations cleared and settled through the Colombian Central Counterparty (CRCC) continues to grow, propelled largely by peso/dollar non-deliverable forward (NDF) contracts. With respect to the CRCC, it is important to note this clearing house has been in charge of managing risks and clearing and settling operations in the peso/dollar spot market since the end of last year, following its merger with the Foreign Exchange Clearing House of Colombia (CCDC). Since the final quarter of 2020, the CRCC has also been responsible for clearing and settlement in the equities market, which was formerly done by the Colombian Stock Exchange (BVC).

The third section of this report provides an all-inclusive view of payments in the market for goods and services; namely, transactions carried out by members of the public and non-financial institutions. During the pandemic, inter- and intra-bank electronic funds transfers, which originate mostly with companies, increased in both the number and value of transactions with respect to 2019. However, debit and credit card payments, which are made largely by private citizens, declined compared to 2019. The incidence of payment by check continue to drop, exhibiting quite a pronounced downward trend during the past last year. To supplement to the information on electronic funds transfers, section three includes a segment (Box 4) characterizing the population with savings and checking accounts, based on data from a survey by Banco de la República concerning the perception of the use of payment instruments in 2019. There also is segment (Box 2) on the growth in transactions with a mobile wallet provided by a company specialized in electronic deposits and payments (Sedpe). It shows the number of users and the value of their transactions have increased since the wallet was introduced in late 2017, particularly during the pandemic.

In addition, there is a diagnosis of the effects of the pandemic on the payment patterns of the population, based on data related to the use of cash in circulation, payments with electronic instruments, and consumption and consumer confidence. The conclusion is that the collapse in the consumer confidence index and the drop in private consumption led to changes in the public's payment patterns. Credit and debit card purchases were down, while payments for goods and services through electronic funds transfers increased. These findings, coupled with the considerable increase in cash in circulation, might indicate a possible precautionary cash hoarding by individuals and more use of cash as a payment instrument. There is also a segment (in Focus 3) on the major changes introduced in regulations on the retail-value payment system in Colombia, as provided for in Decree 1692 of December 2020.

The fourth section of this report refers to the important innovations and technological changes that have occurred in the retail-value payment system. Four themes are highlighted in this respect. The first is a key point in building the financial infrastructure for instant payments. It involves of the design and implementation of overlay schemes, a technological development that allows the various participants in the payment chain to communicate openly. The result is a high degree of interoperability among the different payment service providers. The second topic explores developments in the international debate on central bank digital currency (CBDC). The purpose is to understand how it could impact the retail-value payment system and the use of cash if it were to be issued. The third topic is related to new forms of payment initiation, such as QR codes, bio-metrics or near field communication (NFC) technology.

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These seemingly small changes can have a major impact on the user's experience with the retail-value payment system. The fourth theme is the growth in payments via mobile tele-phone and the internet.

The report ends in section five with a review of two papers on applied research done at Banco de la República in 2020. The first analyzes the extent of the CRCC's capital, acknowledging the relevant role this infrastructure has acquired in providing clearing and settlement services for various financial markets in Colombia. The capital requirements defined for central counterparties in some jurisdictions are explored, and the risks to be hedged are identified from the standpoint of the service these type of institutions offer to the market and those associated with their corporate activity. The CRCC's capital levels are analyzed in light of

what has been observed in the European Union's regulations, and the conclusion is that the CRCC has a scheme of security rings very similar to those applied internationally and the extent of its capital exceeds what is stipulated in Colombian regulations, being sufficient to hedge other risks. The second study presents an algorithm used to identify and quantify the liquidity sources that CUD's participants use under normal conditions to meet their daily obligations in the local financial market. This algorithm can be used as a tool to monitor intraday liquidity.

Leonardo Villar Gómez

Governor