

# INTRODUCTION

## PAYMENT SYSTEMS REPORT, 2016

As an important part of the country's financial infrastructure oversight duties, *Banco de la República*'s task consists of monitoring retail-value payment instruments and systems. These play an essential role in the overall stability of the financial system as consumer confidence and the trade of goods and services depend on their smooth operation. Although risks associated with these systems may not be deemed to be of a systemic nature, their importance is indeed significant for the economy.

As a result of this monitoring exercise, the evolution—in both amount and number of operations—of the different payment instruments has become evident throughout the different editions of the Payment Systems Report, as well as the development of subjects and concepts relating to the value chain of retail payments made within the circuit of natural persons and enterprises. In this occasion, a shaded text in the first section is included whereby the figures for each payment instrument are analyzed individually, covering an approximation to the behavior of cash by means of the evolution of banknotes in circulation, as well as the comparison between and among instruments. The analysis found that cash and cards are the payment instruments most used by individuals, while checks and electronic fund transfers are preferred among legal persons. In Colombia, as in other countries, cash availability for payments and the use of other payment instruments have shown an upward trend, as may be seen in the box, which analyzes cash evolution and the use of electronic instruments in the international sphere.

In line with the tracking of innovations in payment processes, the Report includes a box that approaches a new service rendered by an additional agent in the payment chain known as the “payment gateway,” i.e. an intermediate enterprise acting between the retail establishment and the payer, in charge of

validating their transaction. This new service has enabled the growth of electronic commerce with the commercial offer made through the Internet in the corresponding web pages.

In this seventh edition of the Payment Systems Report, the boxes focus on three topics of interest to the industry that renders payments clearing and settlement services as well as to those taking part in them. First, the international debate revolving around the optimal capital level of Central Counterparties (CCPs) is approached. Due to the fact that risks arising from clearing activities are to a great extent covered by specific financial resources (i.e. margins and collective funds), CCPs must count on their own financial resources to ensure they are properly capitalized at all times to address credit, counterparty, market operational, legal and corporate risks not being hedged by specific financial resources.

Second, as a supplement to the previous Report's box about international experience on securities' temporary transfer operations, a box is included with respect to securities' lending in Colombia, and the function and role played in that market by certain financial infrastructures such as the Stock Exchange of Colombia and the Central Securities Depository.

Third, based on information on the large-value payments system—CUD, an analysis is carried out in order to establish the evolution of payments for certain periods as well as the use of diverse liquidity sources as a strategy designed to meet them. This analysis makes it possible to understand the individual behavior of each participant and helps to establish behavioral patterns (profiles), the changes of which can be analyzed over time for the purpose of identifying and dimensioning financial risks with a systemic impact, related to clearing and settlement activities in local financial markets.

In this edition, the Report is also documenting the advances attained in the applied research line regarding topics related to financial infrastructure. Particularly—for the first time in Colombia—the cost and benefit analysis regarding access to large-value payment is addressed in terms of the credit risk and the liquidity risk involved in allowing a direct and broad access, versus one that is indirect or tiered. Available literature has identified that by increasing the level of tiered access, a monotonic relationship can be found between growing liquidity savings and an increasing credit-risk exposure. In contrast, for the Colombian case, this monotonic savings–risk relationship could be maintained up to a certain indirect access level, after which liquidity needs may grow without additional risk reductions taking place. Both methodology and results are presented in the second section of this Report.

With the purpose of contributing to a better understanding of the local money market, the two works presented in the third and fourth section deal with applied research using information taken from the money market operations settled through the large-value payment system. The former, founded on basic

network analysis statistics (density and average distance), attempts to identify how financial institutions resolve in an aggregate manner the dilemma between access to financial sources (liquidity risk) and maintaining exposures to default risk (counterparty risk) in the Colombian money market. The results show that in each type of market there are certain features that condition the manner in which financial institutions as a whole resolve this dilemma. For instance, it stands out that the use of collateral permits a wider access for dissimilar types of financial institutions, but this access is far from being homogeneous and smooth. The second one, based on an amended version of the DebtRank methodology, is intended to recursively measure the contagion impacts caused by the cessation of payments on interbank loans without collateral of a given financial institution in the position of other institutions' short-term liquidity. Contagion provoked by illiquidity is assessed as the drop of Colombian interbank network financial institutions' short-term liquidity. Results show that its negative impacts are concentrated in few financial institutions. In addition, through this methodology it is possible to establish individual systemic importance, measured as the percentage share of each financial institution in the drop in the liquidity of the system as a whole. In this manner, participants bearing the highest systemic importance will be those generating greater stress on the others' short-term liquidity position. The conclusion is that potential contagion in the interbank market is limited, except in extreme cases of widespread illiquidity in the system.

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