

# Chapter 10

## Intraday Liquidity Flows within the Financial Market Infrastructures in Mexico

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### ABSTRACT

*In this chapter, the authors present a methodology to study the flow of funds in large-value payment systems (LVPSs). The algorithm presented differentiates the flow of payments into two categories: 1) external funds, i.e. funds transferred from other financial market infrastructures (FMIs) or provided by the central bank, and 2) the reuse of incoming payments within the same FMI. Using individual transaction data, the algorithm evaluates to what extent incoming payments are used to cover obligations. The method also studies the flow of intraday liquidity under the framework of its provision within Mexican FMIs. The aim is to evaluate the impact of intraday liquidity provision, and understand how liquidity is transmitted to participants in the Mexican Large Value Payment System, or SPEI®.*

### INTRODUCTION<sup>1</sup>

The worldwide economic crisis has revealed that liquidity problems in (large) banks can occur suddenly, and with serious consequences for (global) financial stability. The most recent and widely referenced example is the collapse of Lehman Brothers. The interest in intraday liquidity management has grown since then, from both academics and financial authorities such as central banks. Studying intraday liquidity flows, provides valuable insight into: (i) the provision of liquidity and efficient use levels, (ii) potential liquidity risks in settling payment obligations, and (iii) the degree of interdependence between financial market infrastructures (FMIs) in terms of liquidity, in particular between large value payment and securities settlement systems (LVPSs and SSSs). The insight for central banks can be towards establishing rules and guidelines that improve the robustness of these FMIs, reduce risks between interdependent FMIs, and enhance the frameworks that implement liquidity provision into FMIs.

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To smooth the settlement of transactions in FMIs, central banks provide (intraday) liquidity to participants in their LVPSs. This liquidity, together with liquidity from financial institutions' payment obligations, flows through different FMIs. Further, the liquidity is redistributed among participants either as transfers or secured/unsecured lending/borrowing among them. Therefore, the adequate level (from both an aggregate and individual perspective) and price of the liquidity provided by the central bank are required conditions to achieve efficiency. To that end, central banks must have solid knowledge of two aspects of the financial system. The first is the emerging network among participants. This reveals the structure of the interdependency among financial institutions. Given that some of these institutions are direct participants in more than one FMI, the overall network of funds transfers among FMIs must be taken into account. The second aspect is the behavior of the participants related to intraday liquidity management, i.e., decisions made during the day with respect to the number/value of payment obligations. We have identified three factors affecting decisions on how many payment orders should be sent for settlement by a participant throughout the day.<sup>2</sup> Those factors are: (i) the amount of central bank money the participant has access to, (ii) the amount of funds the institution can obtain in terms of borrowing from other participants, if required, and (iii) the volume of payments received due to existing obligations either to the participant or its clients at a particular time in the day.

In this chapter, the authors define a methodology to study the flow of funds observed in LVPSs related to the management of external funds of the participants – i.e., funds transferred from other FMIs or provided by a central bank – and the reuse of incoming payments by the participants. An algorithm is developed, using individual transaction data, to distinguish to what extent incoming payments are used to cover obligations. This approach is applied to study the flow of intraday liquidity under the framework of its provision in the Mexican FMIs. Three systems are involved in this process: (i) SPEI® (an equivalent to a real-time gross settlement (RTGS) system), (ii) SIAC - a system that provides liquidity to credit institutions, and (iii) DALÍ (the Mexican SSS). SPEI® and SIAC are administrated by the central bank, whereas DALÍ is administrated by the private institution S.D. INDEVAL.<sup>3</sup>

Furthermore, this chapter evaluates the impact of the intraday liquidity provision mechanism in order to understand how liquidity is transmitted to all participants in SPEI®, i.e., among those with access to central bank money and those that do not have a SIAC account. Currently, there are ninety-eight direct participants in SPEI® identified under four categories: (i) private multiple-purpose banks (commercial banks or CBs), (ii) public development banks (DBs),<sup>4</sup> (iii) brokerages (Bs), and (iv) other nonbank financial institutions (NBFIs). The liquidity provision to the FMIs is performed through two channels. The first channel is performed through overdrafts guaranteed by monetary regulation deposits and granted as direct deposits at Banco de México (BdM). The second uses intraday repos on sovereign debt. Overdrafts are allowed to credit institutions (CBs and DBs) that have current accounts in SIAC, and their limits are determined according to the amount of monetary regulation deposit each participant has. Intraday repos are executed in DALÍ by credit institutions<sup>5</sup> and brokerages.<sup>6</sup> There is a limit to the total value of repo operations a financial institution can perform, depending on capital. There are fifty direct participants in SIAC. Forty-four of them are private banks, whereas six are public banks.

The authors use all individual transactions in SPEI® for the year 2013 to calculate to what extent incoming payments cover participants' obligations, which are referred to as recycled. In the case of SPEI®, incoming payments could be either obligations received from other parties or borrowing from other participants. It is assumed that the rest of the payments are covered with funds coming from other FMIs. Further, given the same time period, we calculate on an aggregate level, the overdraft registered in

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