Pakistan Real Time Interbank Settlement Mechanism: An Overview

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The development of PRISM (Pakistan Real time Interbank Settlement Mechanism) system started as a response to the growing awareness of the need for sound risk management in settlement of large-value funds transfers in Pakistan. PRISM systems operated by State Bank of Pakistan offers a powerful mechanism for limiting settlement and systemic risks in the interbank settlement process by providing settlement on Gross Basis and in Real Time. In addition, PRISM also contributes to the reduction of settlement risk in securities transactions by providing a basis for delivery-versuspayment (DVP) mechanisms.

PRISM Participation: Participation in PRISM System is based on SBP's approval which after assessing the institutions financial standing and based on a pre defined risk management criteria approves an institutions request for Participation in PRISM System.

PRISM Components: PRISM System comprises of two major applications i.e. RTS/X and Depo/X. RTS/X is funds transfer application operated thorough software installed by SBP at Participant's premises. Depo/X is securities settlement web based application and is connected in Real Time with RTS/X applications to ensure transaction in DvP basis.

Risks Handling in PRISM System:

The payments of interbank financial transactions are prone to *Settlement risk* which refers to the risk that the completion or settlement of the interbank funds transfer system as a whole, will not take place as expected. Settlement risk comprises both credit and liquidity risks. Two major sources of these risks are (a) a time-lag between the execution of the transaction and its final completion and (b) a time-lag between the completion of the two legs of the transaction (i.e. any lag between payment leg and delivery leg). Within large-value funds transfer systems the first type of lag, which takes the form of a *settlement lag* between the initiation of payment messages and their final settlement, can be a major source of settlement risk. Settlement lags

create the possibility that sending banks could fail in the meantime or at least not be able to settle their obligations when due. PRISM System however offers the mechanism to settle transactions in Real Time throughout the day therefore significantly reducing the time lag unlike the settlement system where transactions are settled at the end of the day.

The second type of lag, sometimes referred to as *asynchronous settlement*, is the largest source of principal risk in the settlement of securities transactions, or, more generally, in exchange-for-value systems. This is the risk that the seller of an asset could deliver but not receive payment or that the buyer of an asset could make payment but not receive delivery, which could entail a loss equal to the full principal value of the assets involved. PRISM System however offer settlement of securities transactions on DVP basis, which ensures that the delivery of securities occurs if and only if payment occurs, thus providing a mechanism for eliminating such principal risk.

Main features of PRISM System:

Real Time Gross Settlement

PRISM System is gross settlement system in which both processing and final settlement of funds transfer instructions takes place continuously (i.e. in real time). As it is a gross settlement system, transfers are settled individually, that is, without netting debits against credits. As it is a real-time settlement system, the system effects final settlement continuously rather than periodically at pre-specified times provided that a sending bank has sufficient covering balances or credit. Moreover, this settlement process is based on the real-time transfer of central bank (i.e. State Bank of Pakistan) money.

Payment processing: Main features of payment processing in PRISM System are as follows:

1. **Queuing**: PRISM System temporarily keeps the transfer orders in its central processor (*centrally located queues*) if the covering funds are not sufficient for settlement. In this case, the pending transfer's instructions are queued and are released for settlement when covering funds become available on the basis of FIFO plus Priority principal. The management of queues can be carried out by banks individually or /and State Bank.

2. **Priority**: Participant in PRISM system can assign different priorities to their payments based on criticality of the payment. Priorities ranging from 10 to 99 can be assigned to payments by the PRISM Participants. For details please see PRISM Operating Rules.

3. **Gridlock**: PRISM system is also equipped with the Gridlock resolutions mechanism which when activated by SBP can offset large number of transactions on individual basis by reprioritizing payments in queue using different algorithms.

ILF (Intraday Liquidity Facility): ILF is an intraday liquidity facility offered to facilitate settlement. ILF is a fully collateralized liquidity facility extended against approved government securities. For details please see PRISM Operating Rules.

Retail Clearing Settlement: Multilateral Net Settlement Batches (MNSB) for retail clearing prepared by NIFT is also settled in PRISM System. Currently PRISM System settles three clearing batches (Normal, Intercity, Same day) and one Return Batch (Same day Returns). Participants are required to ensure Clearing Settlement within time limits imposed by SBP from time to time.

Intraday Finality: Payments once settled in PRISM System are final and final irrevocable. Finality of payments settle in PRISM System is protected under Payment Systems & Electronic Funds Transfer Act 2007.

Message flow structures: Arrangements for routing payment messages in the PRISM System is based on a so-called *V-shaped* message flow structure. In this structure the *full message* with all the information about the payment (including, for example, the details of the beneficiary) is initially passed to the State Bank and is sent to the receiving bank only after the transfer has been settled by the central bank.

Connectivity: There are only two possible ways of connecting any number of participants in PRISM System i.e. wired and wireless. SBP is using both the medium of communication for connecting the participant banks with SBP i.e. the domestic private leased data circuit system and in parallel, radio frequency bridged links in a licensed frequency spectrum except for those banks whose treasuries are situated outside the metropolitan area of Karachi which have been connected to SBP through point-to-point links. In order to ensure operational and security management, monitoring as well as support to all PRISM participants, the topology has been selected as to be stab, and as a way forward this entire setup is managed through state-of-the-art technology tools to achieve optimum business availability targets complying with the adopted standards of IT management.

Cryptography: The confidentiality and integrity of information in the PRISM system are ensured by securing transmission, delivery, and message storage by validating messages and using state of the art 128K cryptographic facilities.

Disaster Recovery: To overcome operational availability risks, a disaster recovery site exclusively for the PRISM system has been made available which synchronizes in real time with the primary PRISM site. A service bureau also functions in SBP to facilitate as part of BCP.