SETTLEMENT MODELS

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Developed by STICODEVAM
At the 15th AMEDA meeting it was agreed by members to create a technical committee piloted by Tunisian depository to study different settlement models applied by AMEDA members.

To this end, this presentation will deal with some AMEDA members experiences concerning settlement models.
Delivery Versus Payment:
a mechanism that ensures that
delivery occurs if and only if payment occurs.

Without such a mechanism counterparties are exposed to
principal risk, that is, the risk that the seller of a security
could deliver but not receive payment or that the buyer of a
security could make payment but not receive delivery.
Three broad structural approaches to achieving DVP (or more generally, to creating a strong linkage between delivery and payment in a securities settlement system):

* B.I.S. = Bank for International Settlements
Most model 1 systems extend credit to their participants, in some cases substantial amounts of credit (either intraday or overnight).

Systems that settle transfer instructions for both securities and funds on a trade-by-trade (gross) basis, with final (unconditional) transfer of securities from the seller to the buyer (delivery) occurring at the same time as final transfer of funds from the buyer to the seller (payment);

The completion of settlements in such systems may require participants to maintain substantial money balances, especially if they are unable to adjust their money balances during the processing cycle. If sufficient money balances are not available, high “fail” rates may result, implying substantial liquidity risk and replacement cost risk to participants.

Model 1: Gross, simultaneous settlements of securities and funds transfers
Model 2: Gross settlements of securities transfers followed by net settlement of funds transfers

Systems that settle securities transfer instructions on a gross basis with final transfer of securities from the seller to the buyer (delivery) occurring throughout the processing cycle, but settle funds transfer instructions on a net basis, with final transfer of funds from the buyer to the seller (payment) occurring at the end of the processing cycle.

The fact that final securities transfers precede final funds transfers in this model clearly has the potential to expose sellers of securities to substantial principal risk.

To provide strong assurances that sellers will receive payment for delivered securities: creation of an assured payment system in which the seller delivers securities in exchange for an irrevocable commitment by the buyer’s bank to make payment to the seller’s bank at the end of the processing cycle.
In these systems the completion of settlement is generally guaranteed by the system operator such as central counterparty.

Final transfers of the net securities balances and net funds balances are executed, if and only if all participants in net debit positions have sufficient balances of funds and securities.

Systems that settle transfer instructions for both securities and funds on a net basis, with final transfers of both securities and funds occurring at the end of the processing cycle.

Model 3: Simultaneous net settlement of securities and funds transfers
* 12 members (58%) have replied to AMEDA inquiry about settlement models.

* Some of the feedbacks lack sufficient details which reduces the synthesis outcome.

In what follows, a description of 15* experiences among AMEDA members will be presented with regard to their adopted settlement models.

* Kuwait Clearing Company, Tadawul and Algerie Clearing have answered the enquiry sent by STICODEVAM about settlement models in 2011
**CDS Mauritius’s Settlement**

- **Settlement model**: Reverse BIS MODEL 2
- **Settlement Cycle**: Trades settle on T+3
- **Settlement process**:
  - On settlement date, funds transfer between the seller’s and buyer’s participants takes place through the settlement bank. Immediately after this, the seller’s Securities Account is debited and the buyer’s Securities Accounts is credited.
DFM’s Settlement

- **Settlement model**: BIS MODEL 2.
- **Settlement Cycle**: T+2
- **Settlement process**:
  - All brokers & custodians are Clearing Members
  - DFM completes financial settlement by 10.00AM & starts securities settlement from 10.15AM to ensure that DVP between DFM and DFM Clearing Members. Securities are delivered only if full payment is made.
DFM’s Settlement

- DFM does not require a guarantee fund now because it does not face market risk; exposures are mitigated as follows:
  
a. Buy trades - full purchase values of buy trades collateralized 100% by Clearing Member via a real-time on-line collateral adequacy checking process before a buy order can becomes a valid order & DVP settlement;
  
b. Sell trades - sell orders are pre-validated real-time on-line against securities availability before a sell order becomes a valid order.

- Trades are settled on T+2 but in order to accommodate settlement by institutional investors using services of Custodians, DFM implemented a Settlement Rejection Process for Custodian investors. This means that the broker clearing member will settle the rejected trade first until the Custodian receives matched settlement instructions from its clients to settle.
**GSD’s Settlement**

- **Settlement model**: BIS MODEL 2.
- **Settlement Cycle**: T+3.
- **Guarantee Fund**.
- Each clearing member has a committed line of credit with a bank.
- **Settlement Bank**: commercial bank electronically linked with the Clearing House.
- **Settlement model**: BIS MODEL 2.
Settlement model: BIS MODEL 2.

Settlement Cycles:

- RTGS for same day trading,
- T+1 for treasury bonds,
- T+2 for dematerialized securities.
Settlement process:

- Each participant deposits cash necessary for settlement in the clearing bank on SD-1 afternoon at 2.00 pm.
- On SD-1 afternoon, participants' cash positions are sent to MCDR through statement of accounts issued by the clearing banks.
- Cash balances are being entered into MCDR settlement system.
- On SD morning at 7.30 AM settlement is concluded.
- On SD morning:
  - the settlement results (credits and debits) are being sent back to the clearing banks which debts and credit the participants' accounts according to the statements issues by MCDR systems.
  - the net cash settlement instructions is being sent to the Central Bank of Egypt to settle among clearing banks and finalize the settlement process (irrevocable and final payment system).
- After the settlement is completed, each participant receives a settlement statement.
Settlement model: BIS MODEL 2
Settlement Cycle: T+3
Settlement process:
- Computation of the obligations of such the buyer and the seller is done by CRQ.
- Cash obligations are communicated to the settlement bank (Central Bank). The commercial banks hold settlement accounts of the brokers.
- Registration department transfers ownership of the traded securities (depository registry).
Settlement model: BIS MODEL 3
Settlement Cycle: T+3

The settlement process:
- Selling and Buying Banks send their orders to their respective Brokers.
- Selling and Buying Brokers place their respective orders on the Beirut Stock Exchange.
- The BSE matches the orders and forms a trade which is sent to Midclear for allocation.
- Selling and Buying Brokers allocate the Shareholder numbers on T.
- Selling/Buying Bank and Broker send DAP and RAP instructions to Midclear to be settled on T+3.
- Midclear performs clearing (matching the instructions and checking for the adequate balance).
- Settlement of cash via BDL (RTGS system).
- Settlement of the securities Midclear (CSD).
Strate’s Settlement

STRATE applies a settlement model by market type
DVP simultaneous , final and irrevocable

<table>
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<tr>
<th>Market Type</th>
<th>BIS Model</th>
<th>Settlement Cycle</th>
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<td>Equities – On-market</td>
<td>Model 3</td>
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<td>Equities – Off-market</td>
<td>Model 2</td>
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<tr>
<td>Bonds</td>
<td>Model 3</td>
<td>T+3</td>
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<tr>
<td>Money Market</td>
<td>Model 1</td>
<td>T+0</td>
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- Equities : Multiple settlement runs with first settlement run @ 7h30 (last @ 15h).

- Bonds: The first settlement runs@ 11h00 and the last settlement runs @ 15h
Settlement models:
- BIS MODEL 2 for exchange.
- BIS MODEL 1 for OTC.

Settlement Cycles:
- Exchange: T+3
- OTC: T+0

Settlement Process:
- Cash accounts held at Central Bank
- MCL sends cash instructions to CB  ➔ CB reports back to MCL before debit/credit of securities accounts
**BHB’s Settlement**

**Settlement model** : BIS MODEL 2
CDSC ‘s Settlement

- **Settlement model**: BIS MODEL 2.
- **Settlement process**:
  - Trades reported to CDS.
  - CDSC generates settlement reports for CDAs (brokers & custodians) & settlement bank. Custodians have right of negative affirmation.
  - Settlement bank confirms funds movement between CDAs accounts and CDSC transfers securities immediately.

In case of funds failure, CDSC draws from GF.
**TADAWUL Settlement**

**Settlement model**: BIS MODEL 2

**Settlement cycles**:
- Equity & Exchange Traded Funds (ETFs): T+0
- Sukuk and Bond: T+2

**Settlement Process**:
- Settlement of cash obligations on net basis (same day immediately after market close) via the RTGS system.
- Clearing members (commercial banks: members of RTGS system): real time trading caps based on certain collateral agreed with the brokerage firms.
**Settlement model**: BIS MODEL 1.

**Settlement cycle**: T+1

Stock market Trades (Both cash and stock must be deposited next business day)
Settlement model: BIS MODEL 2

Settlement cycles:

- OTC: T+0
- Stock markets (Treasury bonds): T+1
- Primary market: T+2
- Stock market (corporate bonds & shares): T+3
STICODEVAM’s Settlement

Trade

OTC Treasury Bonds

Matching

Sticodevam’s members area

Tunisian Stock Exchange

Trade by trade on T

dedicated line,

securities’ positions are OK

T+1/T+2/T+3

Net funds

Central Bank

gross settlement of securities transfers

T+3
**STICODEVAM’s Settlement**

**Settlement model**: BIS MODEL 2

**Settlement Cycles**:
- Exchange: T+3
- OTC treasury bonds: T+1, T+2, T+3

**Settlement Process**:
On T+2 by 6 pm, STICODEVAM:
- Checks the securities’ positions and prepares payment instructions on a net basis.
- Notifies the clearing banks and brokers of the net cash balances that will be credited or debited to/from their accounts at the Tunisian Central Bank on T+3 (10 am).
At T+3 by 10 am, STICODEVAM sends instructions for cash clearing to the Central Bank (RTGS) via the electronic cash clearing system and make available to members the securities statement via its members area.
## Conclusion

### Settlement Models

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<th>Model 2</th>
<th>Model 3</th>
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<td>Kuwait Clearing Company</td>
<td>STICODEVAM (Tunisia)</td>
<td>CDS (Palestine)</td>
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<td></td>
<td>BHB (Bahrain)</td>
<td>MCDR (Egypte)</td>
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<td>CSD MAURITIUS</td>
<td>CSD QATAR</td>
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<td>DFM (Dubai)</td>
<td>CDSC Kenya</td>
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<td>GSD (Ghana)</td>
<td>TADAWUL (Saudi Arabia)</td>
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<td>Algerie Clearing</td>
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<td>MIDCLEAR (Lebanon)</td>
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### Money Market

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<th>OTC</th>
<th>Exchange</th>
<th>STRATE (South Africa)</th>
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<tbody>
<tr>
<td>Money Market</td>
<td>Equities – Off –market</td>
<td>* Equities – On-market</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Bonds</td>
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According to replies:

- 11 members (72%) apply Model 2;
- 1 member (7%) applies Model 1;
- 1 member (7%) applies 2 Models (1 & 2);
- 1 member (7%) applies Model 3;
- 1 member (7%) applies 3 Models.
Although model 2 is the most commonly used by members (72%), it’s applied differently:

- **Gross settlement of securities transfers followed by net settlement of funds transfers;**

- **Net settlement of funds transfers followed by Gross settlement of securities transfers (compliant with IOSCO recommendations).**
Any Questions ?