Saudi Arabian Monetary Agency “SAMA”

Global Payments System Week 2006
Sydney, Australia
October 3-6, 2006

Resilience in Large Value and Securities Settlement Systems

The Experience in the Arab Region

Saudi Arabia – Case Study

Ali Alhomidan
Saudi Arabian Monetary Agency “SAMA”

30/10/2006
Agenda

- Overview
- “API”
- Participants and approach
- Achievements
- Payment system resilience
- Difficulties
- Currency union regions

- Enhancing the resilience of payment and securities settlement systems (Saudi Arabia – Case Study)
Overview

- Arab Monetary Fund Organization
  - 22 Countries
  - Governors Committee
  - Payment System Committee
  - Payment system development / resilience
  - “API”

- Payment System Committee
  - Payment system managers from all Arab countries
  - Steering Committee: 5
  - Activities
“API”

- Aims to assess and strengthen payments and securities systems in Arab countries with a view to improving their safety, efficiency and integrity.

- The long term goal of the initiative is to build institutional capacity within the region in order to sustain the continued development of payment and securities settlement systems.
“API”

- The API comprises three main elements:
  - Definition of policies actions for regional harmonization and developing common knowledge throughout the region
  - Assessments (using a common methodology) of payment and securities settlement systems in the Region’s countries with a view to identifying weaknesses and opportunities.
  - The exercises will also support the identification of strategies and action plans to foster payment system reform.
“API”
Participants & Approach

- International Advisory Council “IAC”
  - WB - AMF - IMF – CPSS – BIS – ECB ..and others

- Arab Central Banks

- Payment system committee

- Assistance approach?
  - Meetings with senior management and decision makers
  - Site visits & field work
  - Assessments
  - Workshop & Seminars
  - Optional assessment and conditionality
  - Cooperation with: CEMLA – WHI - GCC and others
  - Consultants & expertise
Achievements

- Review existing payment system in selected countries

- Proposing payment system strategy
  - Short and long term improvements

- Public reports containing a systematic “in-depth” report of each country's payment system

- Enhancing the resilience of payment system in advance infrastructure of some Arab countries

- Phase one: 14 countries in three years
Achievements

- Assessments & visits
  - Egypt, Yemen, Morocco, Syria, Bahrain, Qatar

- Clearing and Settlement review:
  - Evaluation study
  - On going questionnaire
  - Practical solutions & development

- Publication of White Books

- Website

- Support the integration of GCC single currency

- Principles & Guidance: documents translations
  - Core Principles
  - Payment system glossary
  - Remittance
Difficulties!

- Technology infrastructure
- Vendors & consultants
- One service provider!
- Differences in policy, regulations, and financial systems
- Cost and budget limitations
- Understanding of the payment system importance
- The business case!
Case Study
Saudi Arabia

Enhancing the resilience of payment and securities settlement systems
Saudi Arabia’s Payment System
(Infrastructure)

1980 – 1989

1986
ACH

1989
SWIFT

1990 – 1999

1990
SPAN

1997
SARIE

1990 – 2001
ESIS

2000 - 2006

2001
TADAWUL

2004
EBPP (Sadad)

2004
E-trust Center/PKI

2006
Check Imaging & Truncation

2006
SPAN Upgrade
SARIE

Saudi Arabian Riyal Inter-bank Express (SARIE) is an electronic Real-Time Gross Settlement (RTGS) funds transfer system that allows for the high speed, risk limited, 24-hour, real time gross settlement of single and bulk payment transactions within the national banking community in the Kingdom of Saudi Arabia.

“SARIE went live on 14 May 1997”
# SARIE

“Transfers Activities (August 2006)”

### VALUE ($1 = 3.75 SR)

<table>
<thead>
<tr>
<th>Value of payments processed</th>
<th>Monthly Total</th>
<th>Daily Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interbank</td>
<td>909,456,906,696.08</td>
<td>33,683,589,136.89</td>
</tr>
<tr>
<td>Customer</td>
<td>128,560,349,357.49</td>
<td>4,761,494,420.65</td>
</tr>
<tr>
<td>Direct Debits</td>
<td>13,387,973.81</td>
<td>495,850.88</td>
</tr>
<tr>
<td>SAMA Debits</td>
<td>1,932,640,095.08</td>
<td>71,579,262.78</td>
</tr>
<tr>
<td>Total Value</td>
<td>1,039,963,284,122.46</td>
<td>38,517,158,671.20</td>
</tr>
</tbody>
</table>

### VOLUME

<table>
<thead>
<tr>
<th></th>
<th>Monthly Total</th>
<th>Daily Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interbank Payments</td>
<td>22,888</td>
<td>848</td>
</tr>
<tr>
<td>Customer Payments</td>
<td>1,664,866</td>
<td>61,662</td>
</tr>
<tr>
<td>Direct Debits</td>
<td>56,920</td>
<td>2,108</td>
</tr>
<tr>
<td>SAMA Conditional Debits</td>
<td>2,722</td>
<td>101</td>
</tr>
<tr>
<td>Total No. of Individual Business transactions</td>
<td>1,747,398</td>
<td>64,718</td>
</tr>
</tbody>
</table>

### PAYROLL

**SHA'BAN1427 H**

<table>
<thead>
<tr>
<th>Government Payroll processed over SARIE</th>
<th>Total Value</th>
<th>Total No. of Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7,909,910,460.49</td>
<td>985,484</td>
</tr>
</tbody>
</table>

30/10/2006
SARIE
Overview

- Participants: all banks within Saudi Arabia (local & foreign)
- Saudi Riyal only (multi-currency capabilities)
- Irrevocable payments
- Forward value payments (14 days)
- Real time monitoring
- Fully collateralized

Value (August 2006)
SARIE

Overview

- Operating at 24 hours availability
- Real time payment across SAMA current account
- Expandable via banks to corporate
- High/Low value payments
- Bulk credits and debits payments
- Real-time monitoring of positions, limits & payments
- Messages based on S.W.I.F.T. standards
- Expandable via banks to corporate (cash management, Electronic commerce)
SARIE Today

- The cornerstone of Saudi financial sector
- The end of Interbank checks era
- Significant decrease in customer checks
- 80% of public & private sector payrolls are via SARIE
- The foundation of most banks’ service and products
- Precise bank squaring & end day closing
- Reduce the costs of the financial industry
- Improve liquidity efficiency
- Providing support for international funds transfer
- Operation: all year around
Transfers Types

Funds Transfer

- Interbank
  - Single
  - Bulk
    - Same Day
    - Forward
  - Forward
  - Same Day

- Direct Debit
  - Single
  - Bulk

- Customer
  - Single
  - Forward
  - Same Day
  - Forward
# Daily Business cycle

<table>
<thead>
<tr>
<th>Event #</th>
<th>Start</th>
<th>End</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8:30</td>
<td>15:00</td>
<td>Cutover</td>
</tr>
<tr>
<td>2</td>
<td>8:30</td>
<td>12:00</td>
<td>Bulk Customers Payments</td>
</tr>
<tr>
<td>3</td>
<td>8:30</td>
<td>14:00</td>
<td>Clearing</td>
</tr>
<tr>
<td>4</td>
<td>8:30</td>
<td>14:30</td>
<td>All types of payments except event (2)</td>
</tr>
<tr>
<td>5</td>
<td>14:30</td>
<td>14:45</td>
<td>Squaring &amp; Positions Adjustment</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>15:00</td>
<td>Cutoff</td>
</tr>
</tbody>
</table>

- **Start**
  - 8:30
  - 14:30
  - 14:30
  - 15:00

- **End**
  - 15:00
  - 12:00
  - 14:00
  - 14:30
  - 14:45

*Friday closed / Thursdays 9:30-13:30.*
“TADAWUL”
The Saudi Arabian Equity Market

- 81 companies
- Market Cap. SR 1,663 billion (U$ 443 bil)
- Average Daily Value SR 21 billion
- Depository Account Holders 3.5 million
- Real-time settlement, linked to national RTGS (SARIE)
- Electronic order driven
- Support for on-line trading
SARIE Components

- Central System (CS)
  - (Primary, Secondary & Contingency CCS)

- Gateways (GW)
  - (Primary, Secondary & Contingency (Private / Shared))

- SARIE Workstation (WS)

- Archive System (AS)
  - (Primary AS & Contingency CAS)
SARIE Committees

- SARIE Managers Meeting
- Direct Debit Committees
- Marketing Committee
- Security Committee
- Operations Committee
- Payrolls Committee
“SARIE” Payment System
Resilience & Improvements

Technical

Business

Rules & Policy

SARIE online
“Private Site”
Technical
Enhancement & Upgrade

- DVP
- PKI
- Hardware & software upgrade
- SWIFT 103
- Functional enhancements
- Dual currency review
- Communication protocols (TCP/IP)
- Database upgrade
- New participants: technical & business approach
- Code reengineering (C++)
- Workstations upgrade to XP.NET
Business Improvements

- Documentations (new versions: DD / OR – new version)
- Charging Policy (new version – 4.0)
- Archiving system
  - Backup & recovery
  - Recall the transactions data from day one!
- Business training course
- Local & abroad teams training
- Improve the business continuity
- SARIE private & public website

Volume (August 2006)

Customer 97%
Interbank 1.36%
# Rules, Policy

## “Documentations”

<table>
<thead>
<tr>
<th>Technical</th>
<th>Business</th>
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</thead>
<tbody>
<tr>
<td>• Functional Specifications</td>
<td>• SARIE Operating Rules and Regulations</td>
</tr>
<tr>
<td>• Change Control</td>
<td>• Charging Policy</td>
</tr>
<tr>
<td>• Change Request Forms</td>
<td>• Collateral Policy</td>
</tr>
<tr>
<td>• SARIE Gateway</td>
<td>• Payroll &amp; Direct Debit Manuals</td>
</tr>
<tr>
<td>• Administrator Guide</td>
<td>• SARIE Marketing Materials</td>
</tr>
<tr>
<td>• Fallback and Recovery Procedure</td>
<td>• SARIE Operator’s Guide</td>
</tr>
<tr>
<td>• Development Documentations</td>
<td>• Training courses materials (Business)</td>
</tr>
<tr>
<td>• Technical course materials (Tehc. Course)</td>
<td>• SARIE User’s Guide</td>
</tr>
<tr>
<td></td>
<td>• Risk &amp; Change Management</td>
</tr>
</tbody>
</table>
SARIE Private Website

New website which contains all SARIE technical and business documents, activities, and support.

“Only For Bankers”  
www.sarie.sama.gov.sa

- User name and password (private to each bank)
- The site contains the following documents:
  - SARIE workstation manual
  - SARIE functional specification
  - SARIE technical daily check procedures
  - SARIE contingency procedure
  - SARIE business documents
  - Troubleshooting
  - Article and general information about SARIE
  - Charging policy

- SRF
- Minutes of all meetings
- Committees activities
Business Continuity

- Off line transfers
- Off-site contingency location (700 KM)
- Shared contingency (recovery time)
- Private contingency (depends on volume)
- Data mirroring and replications
- Ready plan and procedure (simulations)
Business Continuity

- Generators & backups (all year around testing)
- Manual entry and time constraints
- Tadawul case and manual clearing
- Online procedure & instructions
- Contact lists (monthly update)
- Charging policy & business continuity
- Decision makers and oversight group
Business Continuity

- Monthly stress testing is the Payroll day!
  - 1.2 million transactions
  - All transactions have to be credited in one day!
  - Early cutover 00.05

- Crisis simulations

- Light preventive maintenance
- Heavy preventive maintenance

- Optional switching exercises “free”
- Required switching testing exercise
- Switching exercise with charge
- Sudden switching with high charge
Business Continuity
Issue to be looked at?

- Participants defaults (Host System)
- Quality of bank internal payment systems
- Central bank payment system and public reputations
- One services provider (STC)
- Contingency location & offsite moving!
- Payments system technology resources and fast movements
- Technology providers: changes and stability
- The use of open technology (internet)
- Commercial banks, technology diversity, and standarisations
Summary

- Nine years of healthy system no disruptions or single point of failure
- Whatever procedure you set, crisis case could be different!
- A lot of restrictions and procedure may kill the business and become ineffective
- Analysis and exceptions are very important in reading the payment system future
- People don’t know very well the payment system importance, and may not believe in the objectives and goals of business continuity
- Standardization and best practice
- Technology is changing rapidly and hard catch-up
- Creating awareness, running workshops, and holding seminars are very effective.
“SARIE”
Statistical
Total Payments - Value

SAR (Trillion)

Total Payments - Volume

<table>
<thead>
<tr>
<th>Year</th>
<th>Millions / Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>0</td>
</tr>
<tr>
<td>1998</td>
<td>0.5</td>
</tr>
<tr>
<td>1999</td>
<td>2</td>
</tr>
<tr>
<td>2000</td>
<td>4.5</td>
</tr>
<tr>
<td>2001</td>
<td>7.5</td>
</tr>
<tr>
<td>2002</td>
<td>10.5</td>
</tr>
<tr>
<td>2003</td>
<td>13.5</td>
</tr>
<tr>
<td>2004</td>
<td>16.0</td>
</tr>
<tr>
<td>2005</td>
<td>18.5</td>
</tr>
</tbody>
</table>
“Tadawul”
The Saudi Arabian Equity Market
TASI vs. Value Traded

Value Traded (SAR billion)


* 2006 Figures up to August 31st

30/10/2006
* 2006 Figures up to August 31st
Value of Trading - Daily Average

* 2006 Figures up to August 31th

30/10/2006
Trades - Daily Average

2006 Figures up to August 31st

30/10/2006
Volume - Daily Average

* 2006 Figures up to August 31st
Registered Investors

* 2006 Figures up to August 31st
Thank You...

www.sama-ksa.org
www.tadawul.com.sa

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