



## 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*

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# 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





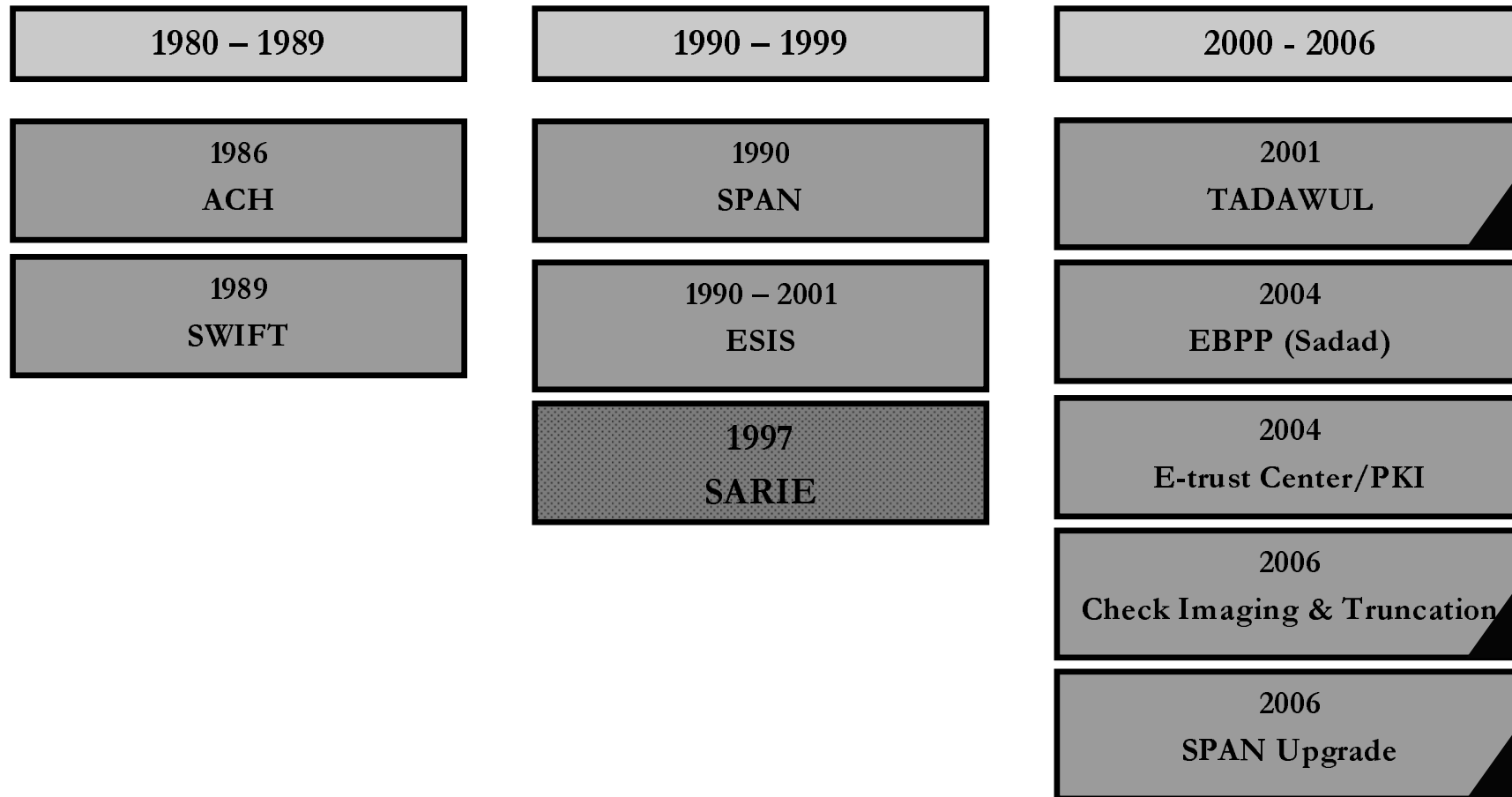
# Difficulties!

- 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)



# 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) ”

### V A L U E ( \$1 = 3.75 SR)

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

### V O L U M E

	Monthly Total	Daily Average
Interbank Payments	22,888	848
Customer Payments	1,664,866	61,662
Direct Debits	56,920	2,108
SAMA Conditional Debits	2,722	101
<b>Total No. of Individual Business transactions</b>	<b>1,747,398</b>	<b>64,718</b>
	Monthly Total	Daily Average
<b>Number of Bulk &amp; Single messages processed by the Central system</b>	<b>176,883</b>	<b>6,551</b>

### P A Y R O L L

SHA'BAN1427 H	Total Value	Total No. of Transactions
Government Payroll processed over SARIE	7,909,910,460.49	985,484

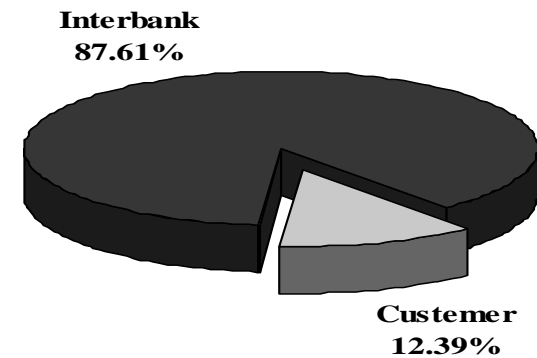
# SARIE

## 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**

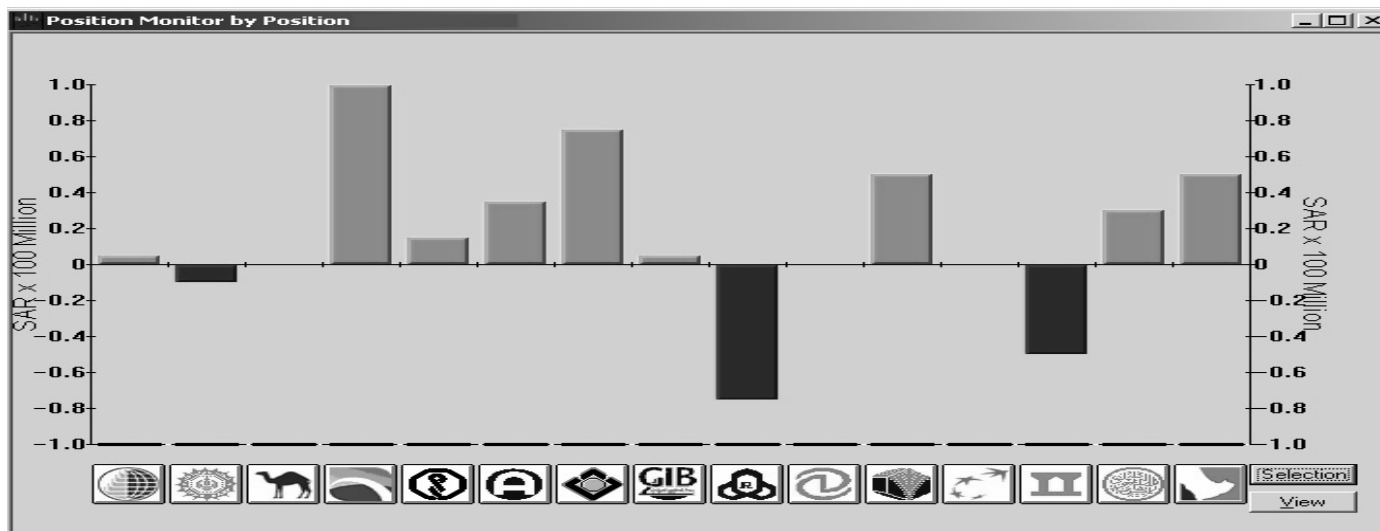


Value ( August 2006)

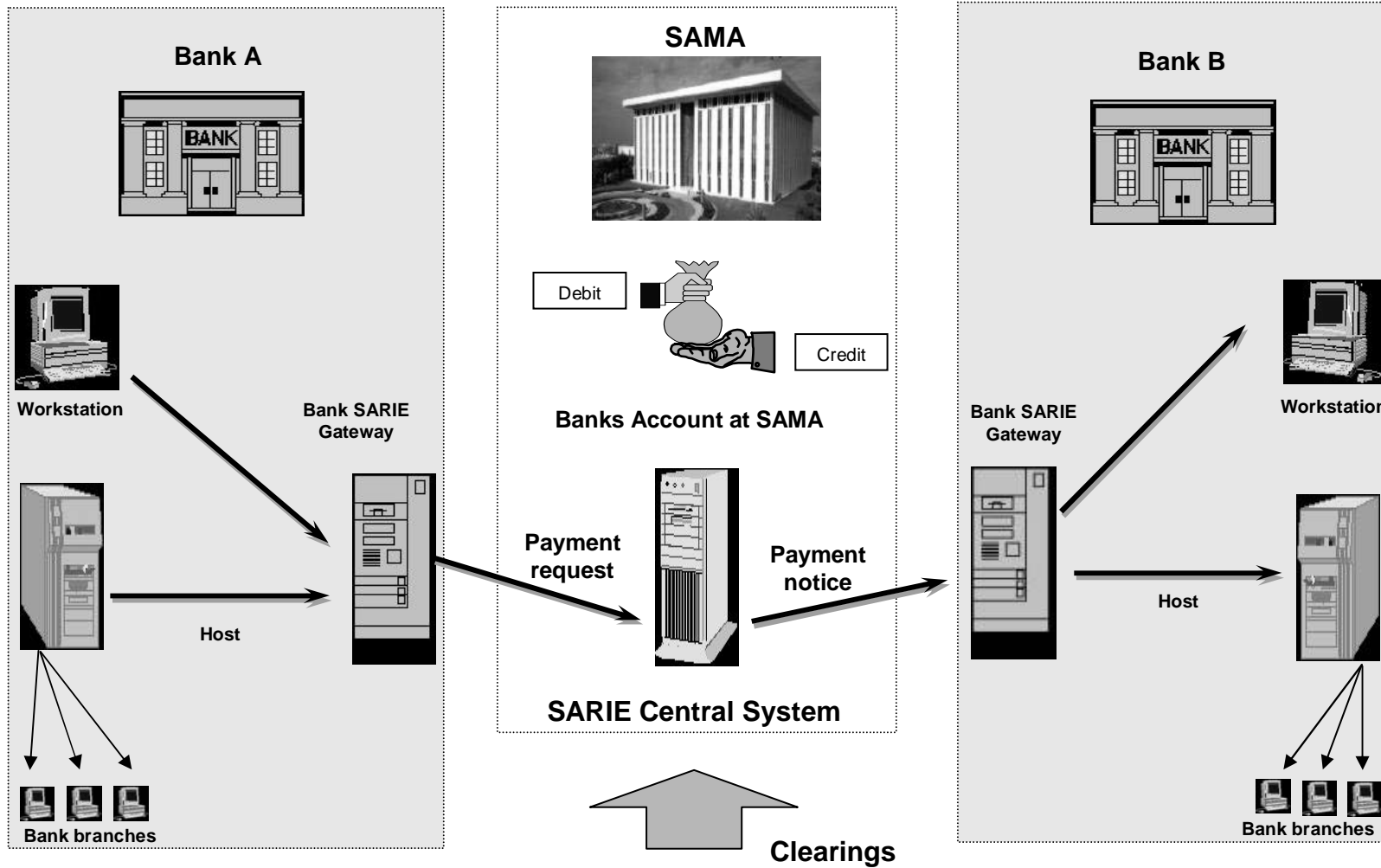
# SARIE

## 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 Payments flow

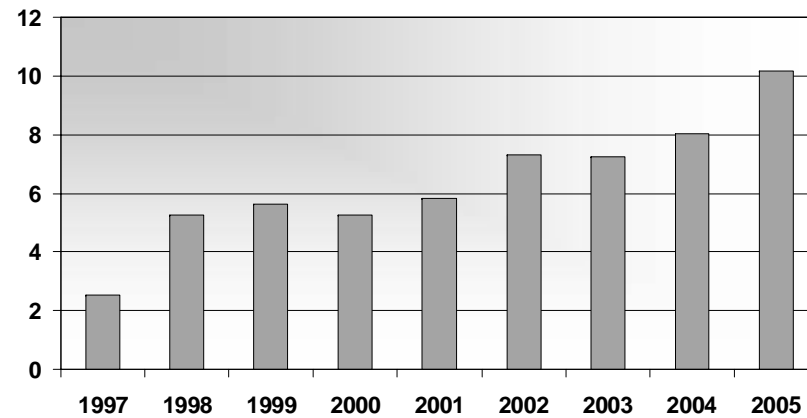




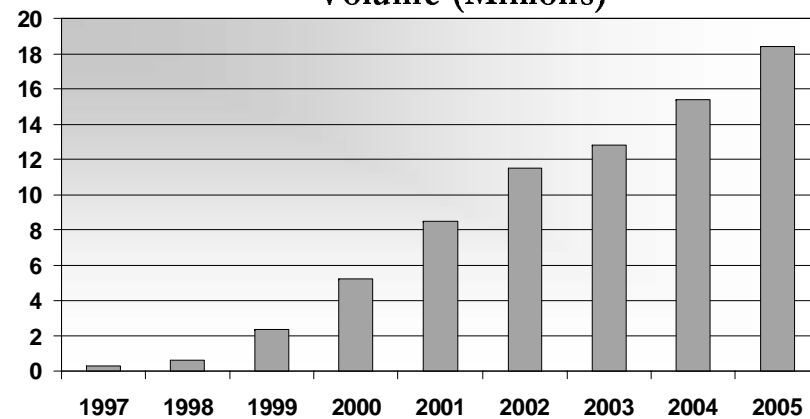
# SARIE Today

- 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

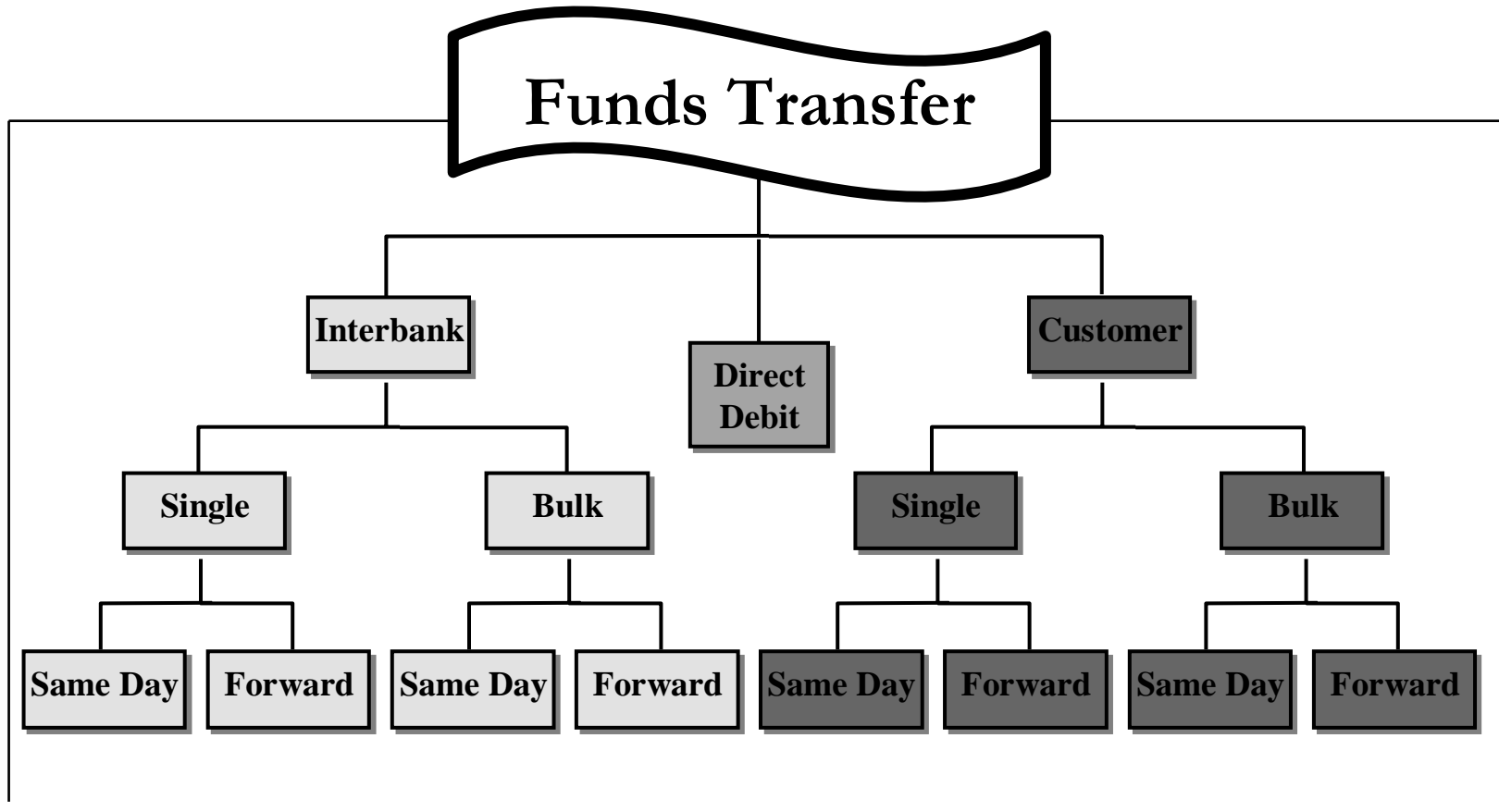
Value (Trillions)

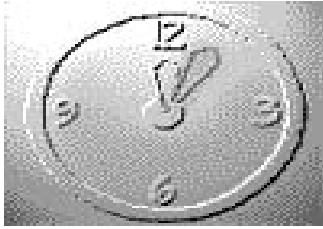


Volume (Millions)



# Transfers Types





# Daily Business cycle

<b>Event #</b>	<b>Start</b>	<b>End</b>	<b>Event</b>
<b>1</b>	<b>8:30</b>	<b>15:00</b>	<b>Cutover</b>
			<b>Same Day Value Transfers</b>
<b>2</b>	<b>8:30</b>	<b>12:00</b>	<b>Bulk Customers Payments</b>
<b>3</b>	<b>8:30</b>	<b>14:00</b>	<b>Clearing</b>
<b>4</b>	<b>8:30</b>	<b>14:30</b>	<b>All types of payments except event (2)</b>
<b>5</b>	<b>14:30</b>	<b>14:45</b>	<b>Squaring &amp; Positions Adjustment</b>
<b>6</b>	<b>15:00</b>		<b>Cutoff</b>

• Friday closed / Thursdays 9:30-13:30.

# **“TADAWUL”**

## **The Saudi Arabian Equity Market**

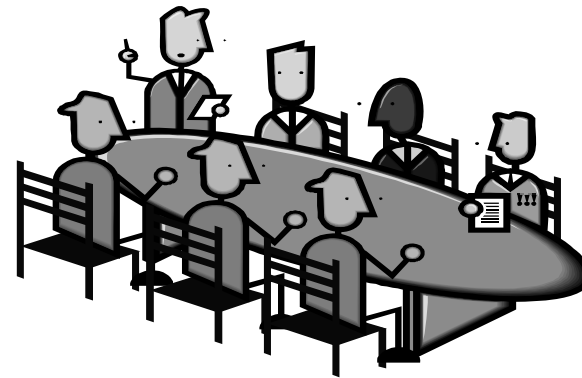
- **81 companies**
- **Market Cap. SR 1,663 billion (U\$ 443 bil)**
- **Average Daily Value SR 21 billion**
- **Depository Account Holders 3.5 million**
- **Real-time settlement, linked to national RTGS (SARIE)**
- **Electronic order driven**
- **Support for on-line trading**

# 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

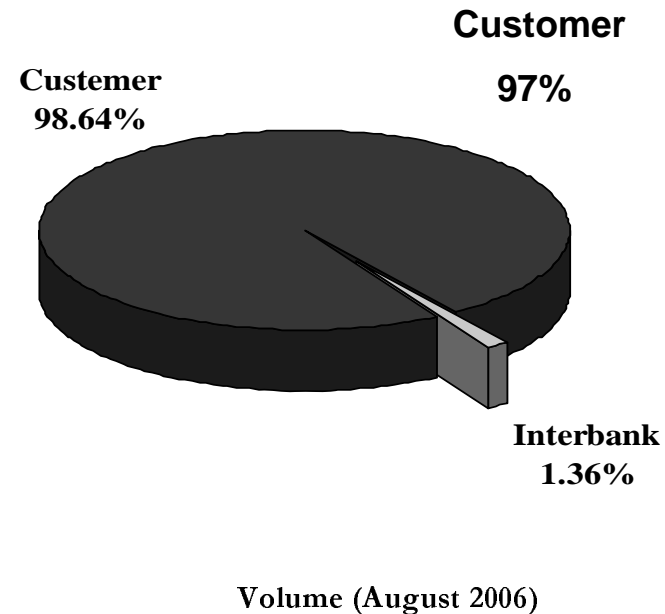
- DVP
- PKI
- Hardware & software upgrade
- SWIFT 103
- Functional enhancements
- Dual currency review
- Communication protocols (TCP/IP)
- Database upgrade
- New participants: technical & business approach
- Code reengineering (C++)
- Workstations upgrade to XP.NET





# 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



# Rules, Policy “Documentations”

Technical	Business
<ul style="list-style-type: none"><li>■ <b>Functional Specifications</b></li><li>■ <b>Change Control</b></li><li>■ <b>Change Request Forms</b></li><li>■ <b>SARIE Gateway</b></li><li>■ <b>Administrator Guide</b></li><li>■ <b>Fallback and Recovery Procedure</b></li><li>■ <b>Development Documentations</b></li><li>■ <b>Technical course materials (Tehc. Course)</b></li></ul>	<ul style="list-style-type: none"><li>■ <b>SARIE Operating Rules and Regulations</b></li><li>■ <b>Charging Policy</b></li><li>■ <b>Collateral Policy</b></li><li>■ <b>Payroll &amp; Direct Debit Manuals</b></li><li>■ <b>SARIE Marketing Materials</b></li><li>■ <b>SARIE Operator’s Guide</b></li><li>■ <b>Training courses materials (Business)</b></li><li>■ <b>SARIE User’s Guide</b></li><li>■ <b>Risk &amp; Change Management</b></li></ul>

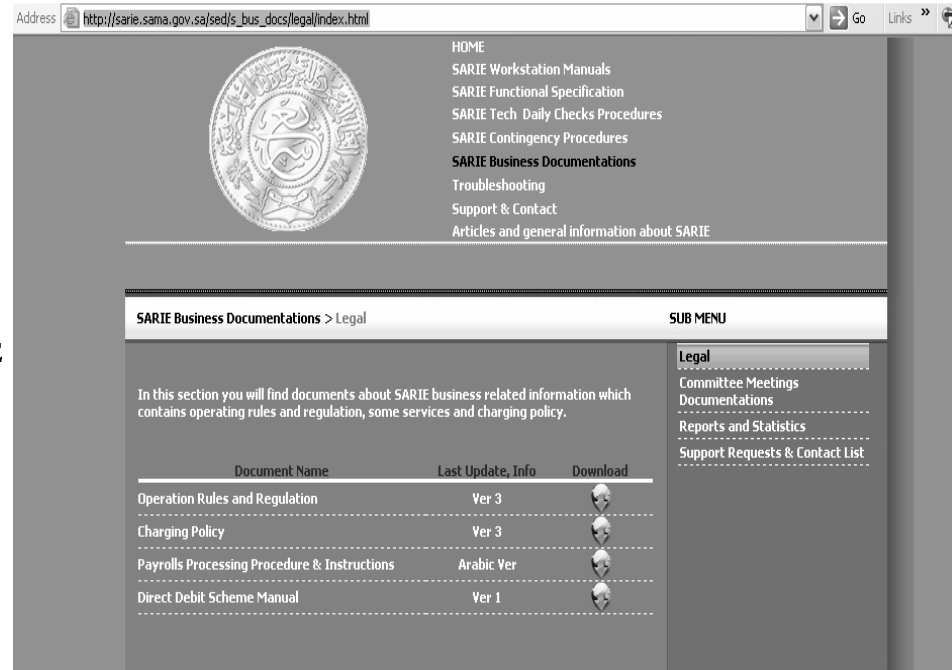
# SARIE Private Website

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





“Only For Bankers”

[www.sarie.sama.gov.sa](http://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



The screenshot shows a web browser window with the address [http://www.sarie.sama.gov.sa/sed/s\\_bus\\_docs/legal/index.html](http://www.sarie.sama.gov.sa/sed/s_bus_docs/legal/index.html). The page features a header with the SARIE logo and a navigation menu. The main content area is titled "SARIE Business Documentations > Legal" and includes a "SUB MENU" on the right. Below the menu is a table of documents with columns for "Document Name", "Last Update, Info", and "Download".

Document Name	Last Update, Info	Download
Operation Rules and Regulation	Ver 3	
Charging Policy	Ver 3	
Payrolls Processing Procedure & Instructions	Arabic Ver	
Direct Debit Scheme Manual	Ver 1	

# 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 standardisations

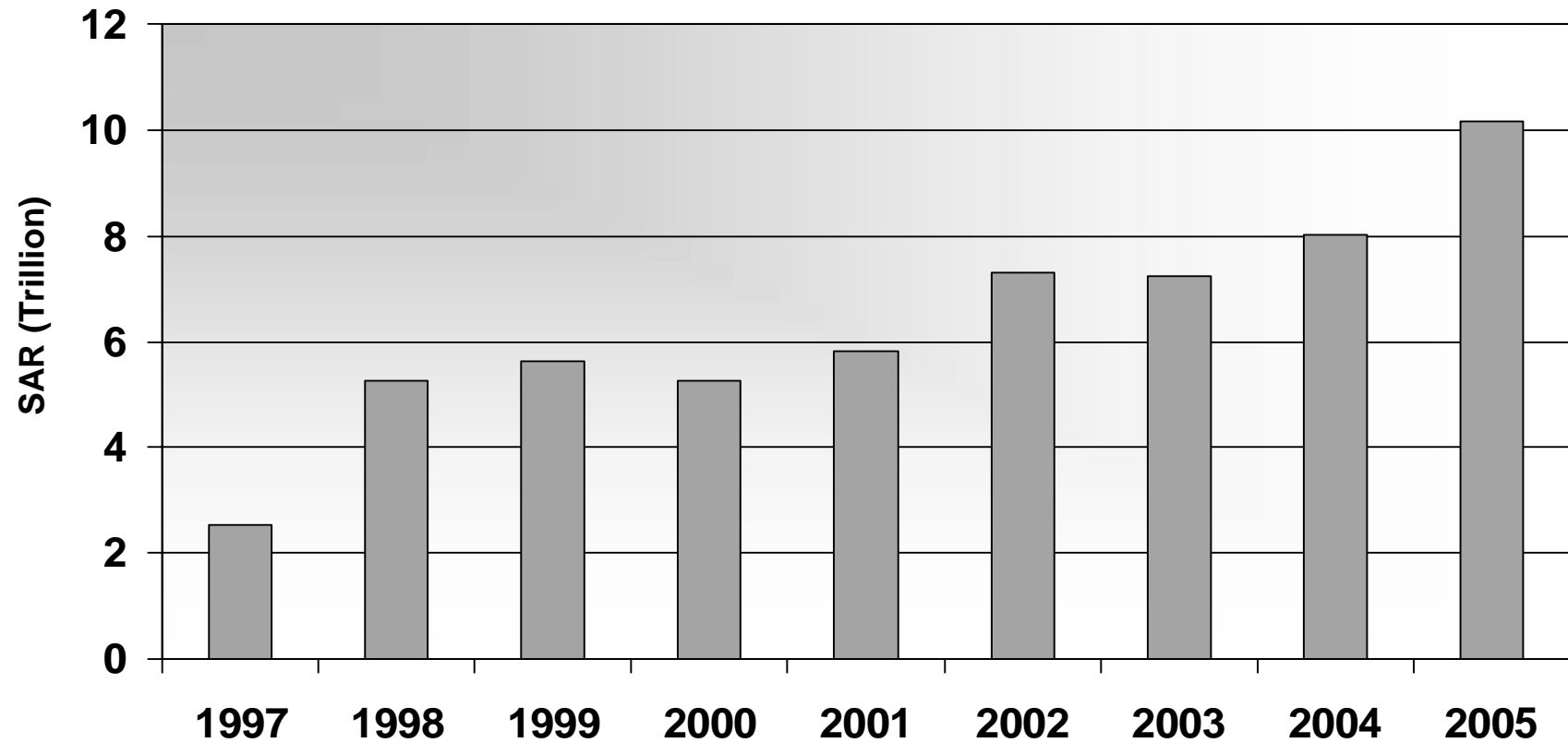
# Summary

- 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.

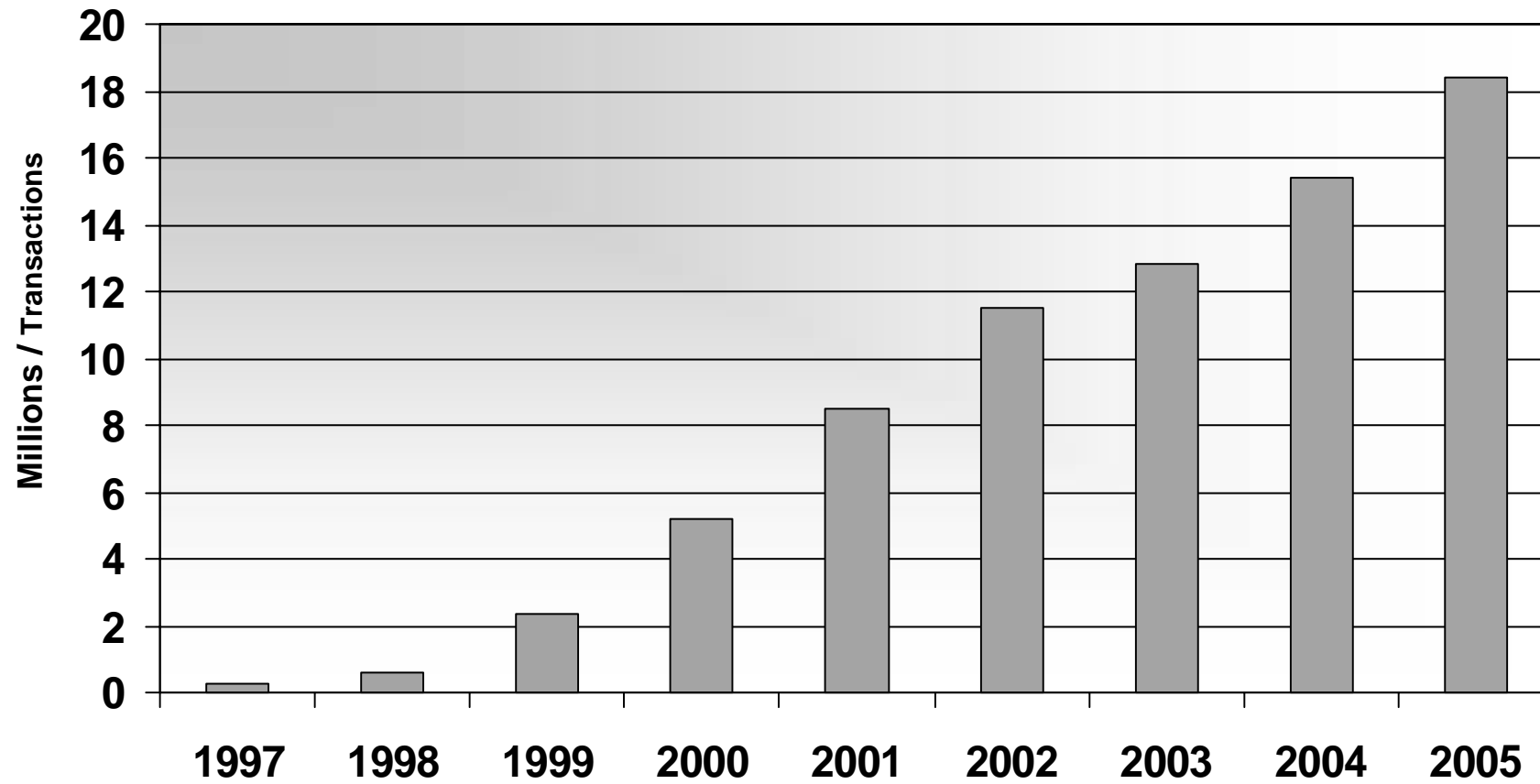


**“SARIE”**  
**Statistical**

## Total Payments - Value

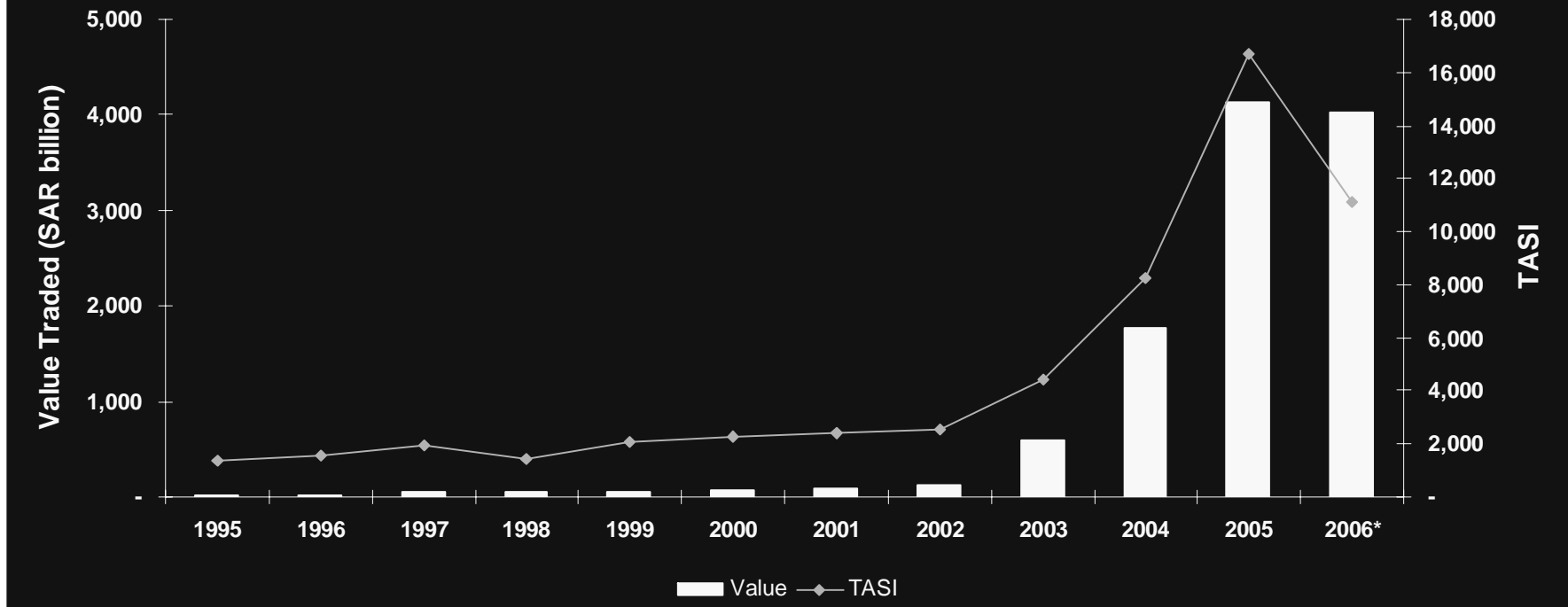


## Total Payments - Volume



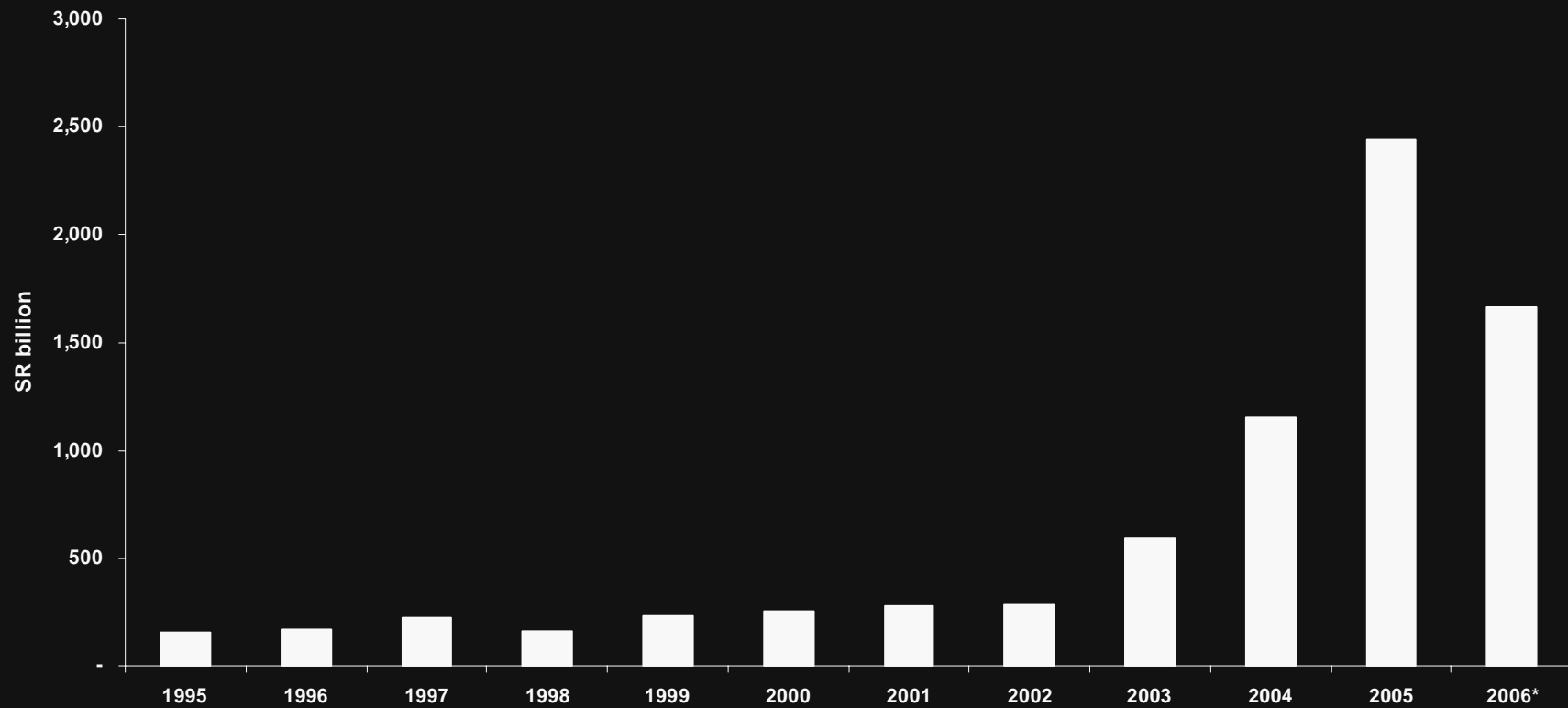
**“Tadawul”  
The Saudi Arabian Equity Market**

## TASI vs. Value Traded



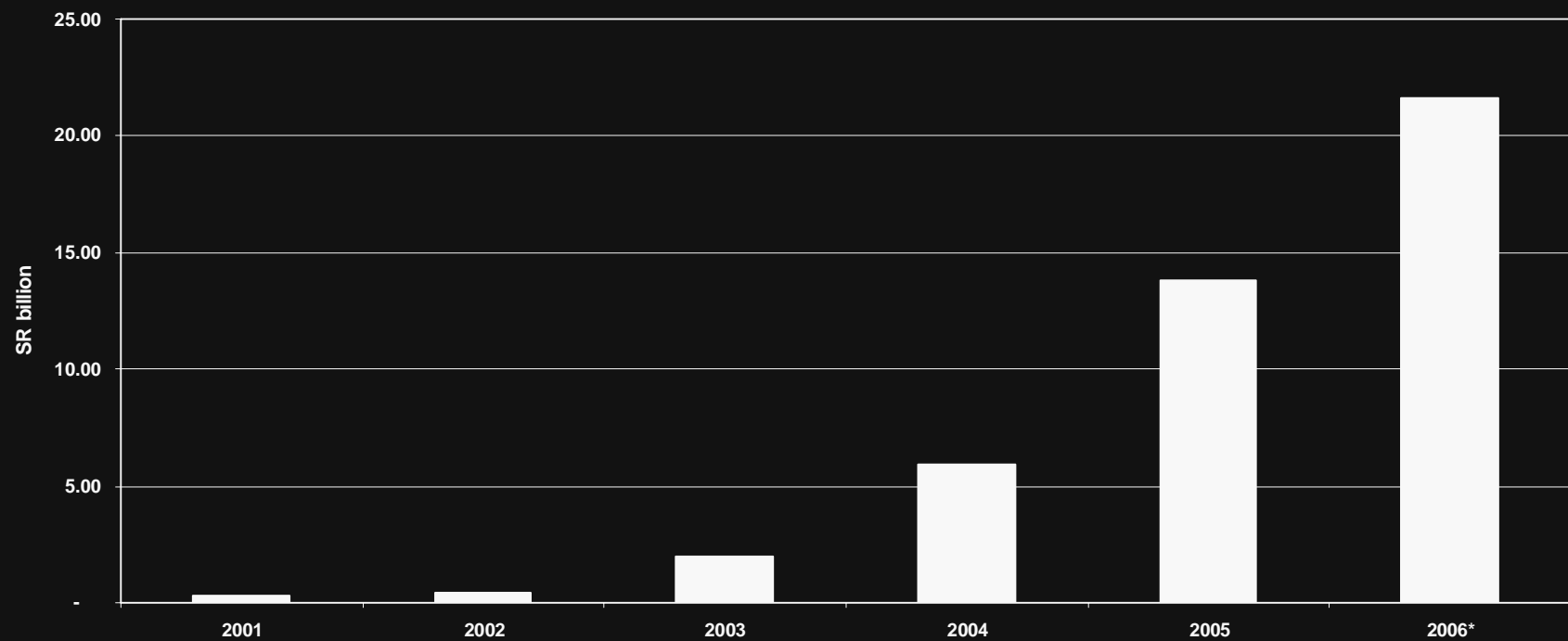
\* 2006 Figures up to August 31<sup>st</sup>

## Market Capitalisation



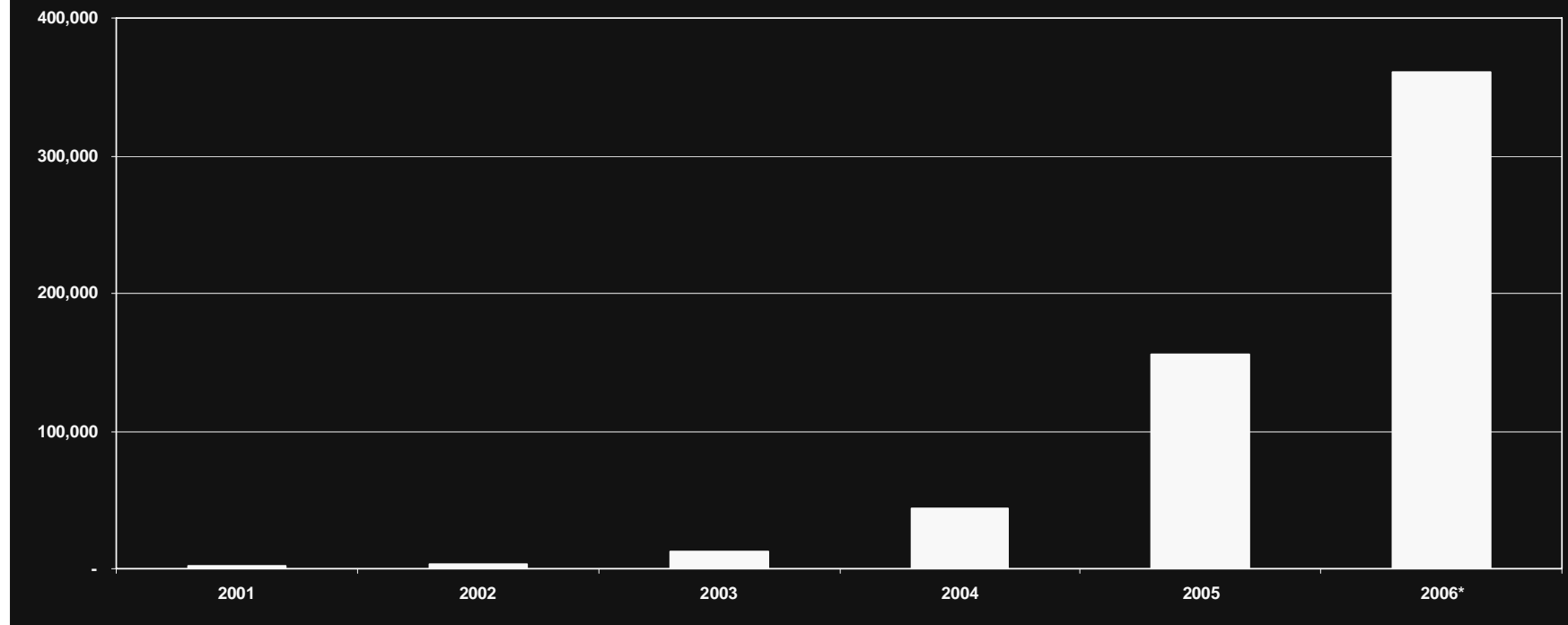
\* 2006 Figures up to August 31<sup>st</sup>

## Value of Trading - Daily Average



\* 2006 Figures up to August 31<sup>th</sup>

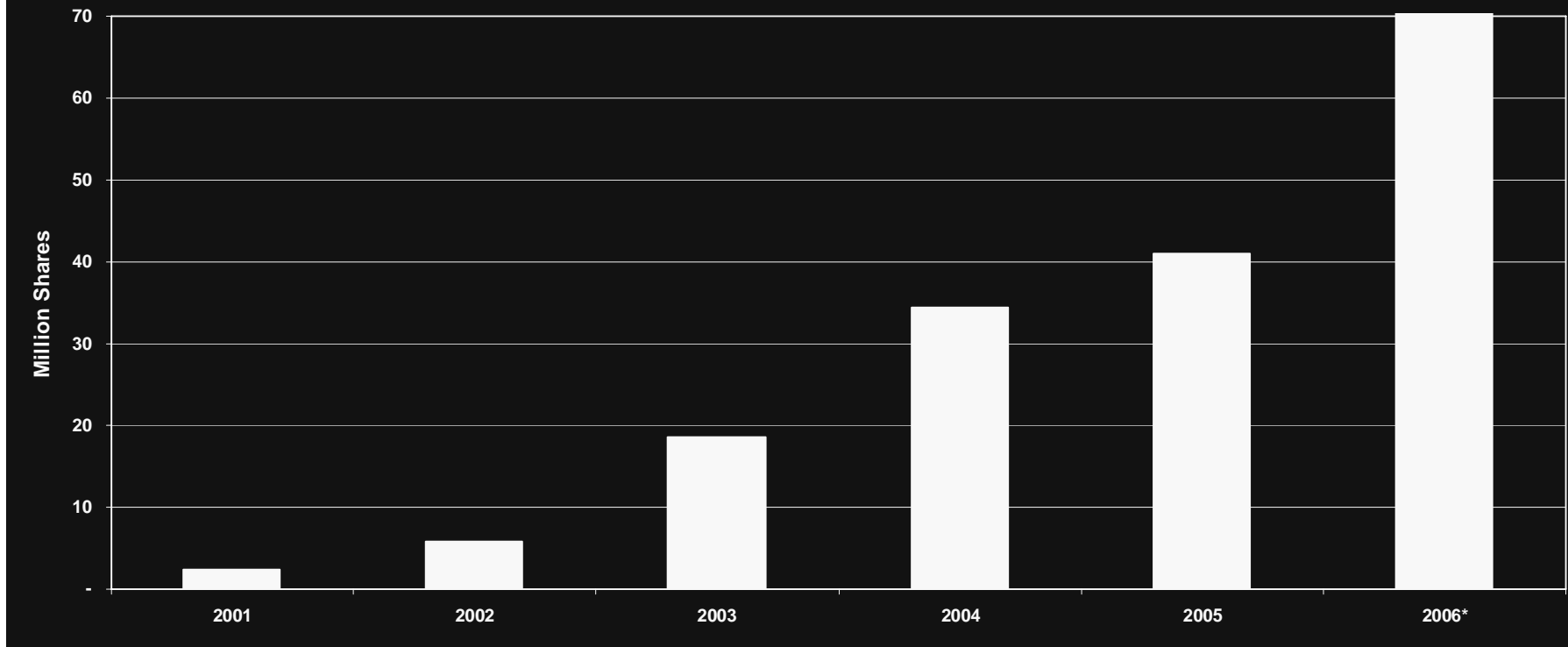
## Trades - Daily Average



•2006 Figures up to August 31<sup>st</sup>

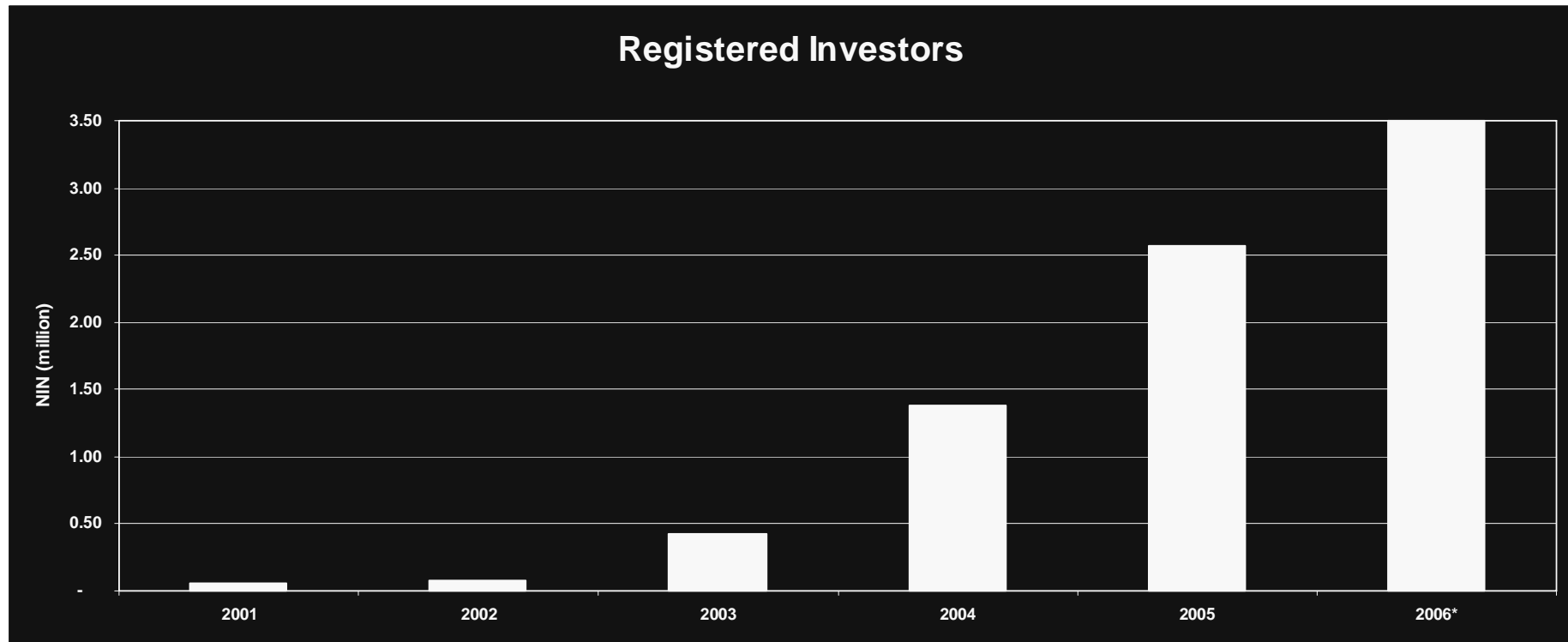


## Volume - Daily Average



\* 2006 Figures up to August 31<sup>st</sup>

## Registered Investors



\* 2006 Figures up to August 31<sup>st</sup>

*Thank You...*

[www.sama-ksa.org](http://www.sama-ksa.org)

[www.tadawul.com.sa](http://www.tadawul.com.sa)

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