Oversight and role of new technologies in conducting oversight

Morocco’s experience

The Global Payments Week
3-7 December, 2018
Kuala Lumpur, Malaysia
AGENDA

1. FMIs in Morocco: Overview and Oversight framework
2. Monitoring Cyber Risks and incidences
3. New challenges
OVERVIEW OF MOROCCO

Capital: Rabat
Population: 34.2 millions
Currency: Dirham
Urbanization ratio: 61.9%

Rating:
Fitch Ratings: BBB-/stable outlook
Standard & Poor's: BBB-/A-3

Internet penetration rate: 63.67%
Mobile penetration rate: 126%

Economic Growth: 4%
Gross Domestic Product: 109.1 billion $
Inflation rate: 0.2%
Investment ratio: 33.3% of GDP
Key rate (interest rate): 2.25%
Bank account penetration rate: 56%

* Data of 2017. Sources: HCP, ANRT, BAM
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OVERVIEW OF FMIs IN MOROCCO

**MAROCLEAR (1997)**
Central Depository and Securities Settlement System

**Casablanca Stock Exchange (BVC)**
(1929)
Securities settlement system

**FutureCCP**
BVC was designated the managing company of the futures market

**SIMT (2004)**
Clearing system of retail payment means (excluding cards)

**Electronic Payment Switch (2017)**
Domestic Electronic Switch

* Card-based transactions was managed by Interbank Electronic Payment Center (CMI) since 2004
Oversight of Maroclear, BVC and the future CCP is conducted also by the Capital Markets Authority (AMMC).

A memorandum of understanding is being established between both parties to clarify the aspects of oversight of each authority, to avoid double control of the post market infrastructures, and to define the practical arrangements for the joint oversight of this FMIs.

Operator
- Operator of RTGS

Overseer
- Ensure the resilience of FMIs

Catalyst
- Promote and encourage the development of FMIs and initiate the necessary changes and developments (text reforms, launching initiatives or others).

User
- Use the technical and functional platforms of retail payment system and the other FMIs like other members.
Legal Framework

- Article 10 of the law on statutes entrusts BAM to ensure missions:
  - The smooth running of payment systems;
  - The efficiency of payment systems;
  - Security of means of payment.

Contractual Framework

- Multilateral Convention on the oversight of payment systems (signed by ancillary systems in January 2009) which sets:
  - The obligations of operators of payment systems;
  - The arrangements for overseeing payment systems;
  - Sanctions and other various provisions.

NEW PAYMENT SYSTEM PROJECT LAW

Strengthening the powers of the supervisory authority of BAM and align the Moroccan legislation on international standards in this area

A working group has been established for the drafting of a law on the monitoring of financial markets and issuers of means of payment

The law details the institutional framework, the conditions of exercise, the obligations of the FMI and BAM oversight modalities.

Disciplinary and penal sanctions applied in case of non-compliance with legal and regulatory requirements
Maintain public confidence in non-cash means of payment

Developing financial inclusion thanks to the resiliency and modernization of FMIs

Contribute to financial stability: prevention of systemic risk and reduction of contagion risks

Limitation of this non-risk-based oversight methodology.

→ The need to develop a new approach, through the implementation of a tool to support the rating of FMIs.
RISK BASED ASSESSMENT TOOL

The assessment tool serves a dual purpose:

1. >Micro-prudential supervision and effective planning of controls.
2. Evaluation of the pillar "resilience of FMIs" as part of the work on financial stability

Risk Based Assessment Tool, developed in-house, is inspired by the ORSOM system of the FED and has been validated by the World Bank.

RIBAT is based on five categories issued on BIS principals for FMIs:

- **Organization**
  - P1: Legal basis
  - P2: Governance
  - P3: Framework for comprehensive management of risks

- **Risk Management**
  - P4: Credit risk
  - P5: Collateral
  - P6: Margin
  - P7: Liquidity risk
  - P14: Segregation and portability
  - P15: General business risk
  - P16: Custody and investment risk
  - P19: Tiered participation arrangements
  - P20: FMIs links

- **Settlement**
  - P8: Settlement finality
  - P9: Money settlement
  - P10: Physical deliveries
  - P11: Central securities depositories
  - P12: Exchange of value settlement systems
  - P13: Participant default rules and procedures

- **Market Support, Access and Transparency**
  - P18: Access and participation requirements
  - P21: Efficiency and effectiveness
  - P22: Communication procedures and standards
  - P23: Disclosure of rules, key procedures, and market data
  - P24: Disclosure of market data by trade repositories

- **Operational risk**
  - P17: risque opérationnel
### Methodology of Scoring

1. **Rating of KC Compliance**
   - Evaluation of the importance of each essential consideration KC (a principle consisting of a set of KC), on a scale of 1 to 3 with regard to the impact of its non-observation on the resilience of the MFI.
   - Rating of KC compliance on a 1 to 5 risk scale based on the monitoring work of MFIs against BIS principles (PFMIs).

2. **Rating of Domains**
   - Obtained by the rating of the conformity of each KC constituting each domain, weighted by their degree of importance (step 0).
   - Weighted average of KC ratings.

3. **Rating of FMI Risks**
   - Obtained from the arithmetic mean of domain ratings, and based on expert judgment.
   - This rating is validated by an Executive Committee who did not contribute to the oversight.

4. **Output**
   - Establishing next year’s supervisory plan.
   - Following an extensive supervisory approach to sensitive areas.
   - Submit an annual synthesis of the RIBAT result to the FMI.

5. **Financial Stability**
   - Rating of the FMI pillar “Resilience of MFIs” to contribute to the assessment of risks related to financial stability.
   - This rating represents the average of domains ratings of all MFIs.

### BIS Evaluation Scale

<table>
<thead>
<tr>
<th>BIS Evaluation Scale</th>
<th>Risk Scale</th>
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</thead>
<tbody>
<tr>
<td>Observed</td>
<td>1 (Very low)</td>
</tr>
<tr>
<td>Globally observed</td>
<td>2 (Low)</td>
</tr>
<tr>
<td>Partially observed</td>
<td>3 (Moderate)</td>
</tr>
<tr>
<td>Not observed</td>
<td>5 (Critical)</td>
</tr>
</tbody>
</table>

**Risk Scale**
- Low: 1 (Very low)
- Moderate: 2 (Low)
- Critical: 3 (Moderate), 4 (High), 5 (Critical)
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ROLE OF THE CENTRAL BANK IN CYBER-SECURITY

1. Paid close attention to the associated risks, particularly those related to cyber-resilience and transaction security.

2. Invite the various players in the payments market to reinforce the security of their information systems against cyber attacks and to strengthen the capacities of their human resources and implement strong tools and methods of detection of intrusions.

3. Identify critical infrastructures to maintain the cyber-resilience of financial market infrastructures (FMIs).

4. Bring sensitive information systems into compliance with legal and regulatory requirements.

5. Participate to seminars and workshops to share best practices with the banking sector operators (Institutions and infrastructures).

LEGAL AND REGULATORY FRAMEWORK OF CYBER-SECURITY

- Decree related to protection of sensitive information systems of critical infrastructure (N°2-15-712)
- Law No. 09-08 on the protection of individuals with regard to the processing of personal data
- Law No. 53-05 relating to electronic exchange of legal data

In 2016, BAM was appointed as a coordinator, with the Information Systems Security Departement, for the banking sector (By Decree)
ACTUAL ACHIEVEMENTS

Based on the decree and the NSSID, Bank Al Magrib has identify and notify the FMIs that represent a Vital importance character.

Notified FMIs have to:

01. Report any Cyber-security incident to ma-Cert;
Ma-Cert: Moroccan Computer Security Incident Response Team within the National Defense Ministry

02. Identify its sensitive information systems according to the ISSND principles;
Host sensitive Data on the national territory

03. Classify its SIS based on the « Impact Scale » that is well established by the decree.

04. Implement a Business Continuity Plan.

05. Conceive a robust cyber-security framework for risk identification and incident management.

An infrastructure is critical in case of one of This conditions:

> It’s the only payment system in the country that can operate a certain transactions

> Gross revenu Payment system (Big financial impact)

> Financial market infrastructure for clearing and setteling market transaction

> Payment system which is releated to many other systems (Risk of contagion)
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   - Payment Institutions
   - National mobile payment solution
   - Instant payment
   - Crypto-assets regulation
   - New digital strategy of Bank Al Maghrib
The revised Banking Law (2015) has been extended to include a new type of payment service providers: Payment Institutions.

**Advantages**

1. Increased competition
2. Lower costs than traditional services
3. Product diversification
4. Cash reduction
5. Increased awareness of financial services

Access to Moroccan payment schemes for Payment Institutions:

The chosen mode of participation in RTGS and SIMT was indirect participation to benefit from lower participation costs and light requirements and to control the risk related to these payment institutions.
NATIONAL MOBILE PAYMENT SOLUTION

Infrastructure hosting mobile payment in Morocco
The solution is structured around a decentralized architecture allowing each establishment to independently manage its products and services.

Technical specifications
1. Capitalizing on existing infrastructure to launch mobile payment quickly
2. Ensuring interoperability of mobile transactions
3. Minimizing IT impact on banks and payment institutions
4. Minimizing impact on transaction fees

Goals
1. Defining several rules about in particular dispute management/Incident Management/Marketing ...
2. Defining measures to insure the protection of users of this payment instrument
3. Enhancing the existing exchange protocol.
4. Specific pricing by limiting the fees for mobile payment.

A new regulation issued by central bank to insure a smooth functioning of mobile payment.
**CRYPTO-ASSETS REGULATION**

**ICO**
- Not prohibited (except China, Spain, Australia)

**Platforms for buying and selling crypto-assets against fiduciary flat money**
- Are not prohibited

**Payment by crypto-assets**
- Not allowed in most jurisdiction

**Mining**
- Not prohibited (except China)

**SmartContracts**
- Are not prohibited

**Custody and storage**
- Are not prohibited

**Crypto-asset trading platforms**
- Are not prohibited

**Blockchain**

**Roadmap for Crypto-assets regulation**

Draw up a road map of the working group between central bank and other authorities/stakeholders to address the following issues:

- Assign a legal qualification to crypto-assets;

- Reflect/discuss on the appropriate regulation of Crypto-asset taking into account the entire value chain.
Transmission of the payment message and the availability of funds to the end user in real time, on a 24/7 basis.

<table>
<thead>
<tr>
<th>Motivations</th>
<th>Increase of direct credit</th>
<th>New channels</th>
<th>Strategy</th>
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<tbody>
<tr>
<td>increase of the number of transfers exchanged via the GSIMT</td>
<td>42.2% of total exchanges</td>
<td>Emergence of new technologies facilitating instantaneous transfers</td>
<td>Credit transfers have been set up as a strategic focus for central banks</td>
</tr>
<tr>
<td>Interbank payment period relatively long</td>
<td></td>
<td></td>
<td>Reduction of cash and the substitution, in the long term, of the check</td>
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<tr>
<td>j + 1 for the direct credit</td>
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Implementation of a working group with banks and GSIMT to study the functional, regulatory and technical prerequisites for the implementation of instant payment at the domestic level.

A concept note is being developed by GSIMT to determine the technical and financial issues of the project, legal and regulatory aspects, and the necessary adjustments to the SRBM settlement processes.
### NEW DIGITAL STRATEGY OF BANK AL MAGHRIB

A central bank model in terms of digital transformation at the service of its fundamental missions

<table>
<thead>
<tr>
<th>Automation</th>
<th>Agile &amp; smart</th>
<th>Opening</th>
<th>Purpose driven</th>
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<tbody>
<tr>
<td>&gt; Reengineering support processes</td>
<td>&gt; Adopt a more flexible</td>
<td>&gt; Dialogue and adapt to</td>
<td>&gt; Prioritize digital initiatives according to their</td>
</tr>
<tr>
<td>to better make its core business</td>
<td>organizational and governance model</td>
<td>the needs of the ecosystem</td>
<td>impact on BAM's fundamental missions</td>
</tr>
<tr>
<td>&gt; Streamline internal processes</td>
<td>&gt; Open to digital and agile work mode</td>
<td>&gt; To work for a smart regulation</td>
<td></td>
</tr>
<tr>
<td>serving the ecosystem</td>
<td>&gt; Smart proportional risk regulation</td>
<td>&gt; Mobilization of external expertise and a</td>
<td></td>
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<td></td>
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<td>Lab</td>
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#### Explore the opportunity of using digital innovations such as RegTech and SupTech (which includes data collection and analysis) to improve the effectiveness of oversight.

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**Culture and Skills**
IT SOLUTION FOR FMIs MONITORING

Current state

Data related to the FMIs monitoring are communicated to Bank Al Maghrib by email and are developed manually. That involve many risks such as:

- Delays in submission of data
- Incomplete data
- Low quality of data
- Human error

BAM has included, in its triennial strategic plan 2016-2018, a project to set up an IT solution for FMIs monitoring. The functional specifications of this solution have already been developed during the first semester of 2018.

To facilitate the collection and management of data quality and reliability, Bank Al Maghrib is studying the possibility of directly using standardized interfaces such as APIs for the implementation of this solution.

Some Advantages of APIs

- Allow FMIs to submit high-quality, granular data digitally and automatically to BAM with higher frequency;
- Enable BAM staff to make data validation faster and analysis sharper by generating customized reports for supervisory and policy development purposes in different formats and near-real time;
- API-based compliance reporting can make high-quality financial and data available to power policy simulation engines.
THANK YOU FOR YOUR ATTENTION