Fintech and Financial Services: Initial Considerations

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Naomi Griffin, MCM TA Deputy Division Chief
IMF’s Work on Fintech

IMF’s interest in Fintech stems from its mandate to “promote the stability of the international monetary system”.

Virtual Currencies and Beyond: Initial Considerations

Dong He, Karl Habermeier, Ross Leckow, Vikram Hakar, Yasmin Almeida, Mikari Kashiwada, Nadim Kyriakos-Saad, Hiroko Oura, Tahsin Saadi Sedik, Natalia Stetsenko, and Concepcion Verdugo-Yepes

Fintech and Financial Services: Initial Considerations

Dong He, Ross Leckow, Vikram Hakar, Tommaso Mancini-Griffoli, Nigel Jenkinson, Mikari Kashiwada, Tanai Khaisonarong, Céline Rochon, and Hervé Tourpe
Agenda

1. Fintech innovations
2. Cryptocurrency/Crypto-assets
3. Implications for cross-border payments
4. Regulation and financial stability
5. MCM’s current work on fintech
Exponential pace of financial innovation
Investment and spike in Fintech interest

Accelerating interest in various building blocks of Fintech
(Google Interest Index, 100 reflects peak popularity)

Investors double down on fintech businesses
(number of deals and capital invested in USD bn, respectively)

Source: Google
Source: KPMG
Fintech innovations are far reaching

- **Technology**
  - Foundations: AI, Big Data, Distributed Computing, Cryptography, Mobile Access, Internet
  - Innovations: Machine learning, Predictive analytics, Distributed ledger (Blockchain), Smart contracts, Biometrics, APIs, Digital wallets

- **Financial Services**
  - Save: Automatic transactions, Security, Identity protection
  - Borrow: Investment advice (robots), Credit decisions, Regtech, fraud detection, Asset trading
  - Manage Risks: Crowd-funding, Inter-operability and expandability
  - Get Advice: Easy to use digital wallets; Finance dashboards; P2P
Distributed Ledger Technology (DLT): a network recording ownership through a shared registry

DLT uses cryptography to allow participants on the network to record new transactions on the ledger in a secure way, without the need for a central certifying authority.
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What is money?

Central bank money: The value is backed by creditworthiness of the central bank and the government. Supply should increase in line with non-inflationary demand.

Private money: The value of privately issued currencies has historically been supported by the private issuer’s credibility and assets, such as commodity reserves.

Cryptocurrency (e.g. Bitcoin): The value of cryptocurrencies does not have any backing from any source. They derive value solely from the expectation that others would also value and use them. Supply is not linked to a real asset or demand.
Are cryptocurrencies money?
They do not yet completely fulfill the economic roles of money

<table>
<thead>
<tr>
<th>Store of value</th>
<th>Medium of exchange</th>
<th>Unit of account</th>
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<tbody>
<tr>
<td>• High price volatility</td>
<td>• Small size</td>
<td>• Still limited use; the value is captured by the exchange rate vis-à-vis fiat currency.</td>
</tr>
<tr>
<td>• No intrinsic value</td>
<td>• Total market value: US$ 7 billion</td>
<td></td>
</tr>
<tr>
<td>• No national or private backing</td>
<td>• US currency in circulation: US$ 1.5 trillion</td>
<td></td>
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<tr>
<td>• Inflexible supply</td>
<td>• Limited acceptance (not legal tender)</td>
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<tr>
<td>• Unpredictable demand associated</td>
<td></td>
<td></td>
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<tr>
<td>with speculative hoarding</td>
<td></td>
<td></td>
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<tr>
<td>• No lender of last resort</td>
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</tbody>
</table>
High price volatility of Bitcoin

Volatility of Bitcoin and Selected Currencies and Assets, 2015
(Standard deviation of daily price changes, annualized in percent)
Could privately issued cryptocurrencies substitute for national currencies?

➢ There is a welfare-improving role of central bank money—active monetary policy can smooth fluctuations over business cycles

➢ The private provision of money is not optimal when an economy face system-wide liquidity shortages (i.e., cryptocurrency scheme lacks the LOLR function).

Absent regulatory measures, cryptocurrencies will likely be more widely adopted in country with less credible monetary policies and/or with weak payment systems.
Introduction of central bank digital currencies

- Balance of benefits and costs is still being analyzed
- Resolving coordination problems between private networks
- Reducing the risk of single point of failures
- Retaining control of monetary policy
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Payment systems are based on accounts held with central parties

Interbank payment from A to B

Central record (ledger) of interbank transactions

TRUST is key
Evolving landscape for cross-border payments

Current

Account-based

Country A
- Central Bank
- Domestic Payment System
- Bank
- Nonbank

Payor

Route 1: Correspondent Banking
Route 2: Payment System Link

Country B
- Central Bank
- Domestic Payment System
- Bank
- Nonbank

Payee

Future?

New networks and means of payments

✓ Choice of account-based and token-based systems
✓ Less reliance on correspondent banks
Ripe opportunities to improve payment chain

Shortcomings: costly, cumbersome, slow, and opaque

The whole process could take between 3 to 5 days.
# How could Fintech reshape the landscape?

## Three DLT-based scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td><strong>Back-end processes</strong>&lt;br&gt;• Efficiency gains from payments tracking, accounts reconciliation, and liquidity optimization&lt;br&gt;• Small impact (barriers in correspondent banking)</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td><strong>Compliance</strong>&lt;br&gt;• Large savings from compliance costs with information sharing (KYC utilities and digital identities)&lt;br&gt;• Some impact with new entrants</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>Means of payment</strong>&lt;br&gt;• (i) New networks enable faster, traceable, and low-cost payments, and (ii) CBDCs bring trust, stable FX rates, and interoperability&lt;br&gt;• Significant impact</td>
</tr>
</tbody>
</table>

**Service attributes**

**Market structure**

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**Potential disruption**
Three important caveats remain:

• Volatility in exchange rates
• Lack of trust
• Network interoperability
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Technology and Financial Regulation

How should regulation respond to new challenges?

How will regulation impact development and adoption?
Objectives and Principles of Financial Regulation

- Protect consumers
- Address externalities
- Prevent oligopolistic behavior
- Flexible Perimeters
- Proportional to risk
The Role of Regulation in Supporting Trust

How can trust be established and maintained in the financial system?

- Legal certainty
  - Ensures financial soundness and appropriate risk management
- Public track record
- Long-term relationship
- Regulation of market participants
Regulatory challenges

- More focus on activities-based?
- Self governance vs. regulation
- Algorithmic governance
- Privacy vs. transparency
- Ownership and contractual rights
- Legal status of digital tokens
- Settlement finality
- How to achieve in an open network?
- Entities-based vs. Activities-based
- More focus on activities-based?
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International cooperation

- Need for greater harmonization between regulatory frameworks
  - Level playing field
  - Facilitate global adoption of technologies

- Efforts are underway
  - Bilateral cooperative arrangements
  - Efforts of international standard setting bodies
  - The IMF is well placed to play a role
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Fintech: Impact on our work

- **TA**: Helping members adapt and apply regulatory frameworks and supervisory approaches
- **FSAP**: Assessing the impact on risk vulnerability
- **Policy**: Engaging with global standard-setting bodies and policymakers
- **Surveillance**: Identifying policy issues related to the emergence of fintech for the member countries
MCM’s current work: Fintech and Central Banking

**Machine Learning and Big Data**
- Cross-selling, predictive power in insurance/loan issuance
- Better KYC (financial institutions)
- Risk and economic data analysis (central banks and supervisors)

**Virtual Currencies**
- Government-issued (”central bank digital currencies”) and non-government issued (e.g. Bitcoin, Ether, XRP)
- Effect on payment systems and monetary policy

**Cloud Computing**
- Outsourcing and legal risks

**Cyber Risk**
- Different technologies could represent different manifestation of risks
### MCM’s current work: Regulation and Supervision

<table>
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</table>
| Regulatory Framework        | - Allocated more resources – Established internal team  
                               - Future work (e.g. supervisory data gathering, regulatory sandboxes, wallets, framework)                        |
| Impact on Business Models   | - Profitability of incumbents (mostly banking sector, though this might change)  
                               - Unbundling of services                                                                                      |
| Operational Risk            | - Outsourcing risk  
                               - Cyber risk                                                                                                   |
| Capacity Building           | - Developing training on regulatory and supervisory frameworks for fintech  
                               - Studying current trends in fintech and practical implementation issues to develop analytical approaches |
Thank You