Fintech and Smart Contract: Opportunities in Islamic Finance

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AGENDA

- Introduction
- What is Fintech?
- What is Blockchain & Smart Contract?
- Why does this matter & How it works?
- Characteristics of Smart Contract
- The Potential Benefits of Smart Contract?
- Shari’ah Perspective on Fintech
Islamic finance is one of the fastest-growing segments of the global financial industry, from **USD200 billion** in 2003 to **USD2.417 trillion** at the end of 2017, with global assets expected to surpass **USD3.7 trillion** by 2022.

Accordingly, the audience of Islamic finance industry is expanding to non-Muslims and Western countries. It is now in the stage of **global integration to be adopted as an international financial system**.

One of the biggest challenges for finance and Islamic finance in the next decade is on **FinTech**. In the digital world, traditional financial practice will be left behind.
What is FinTech?

- FinTech is the application of technology within the financial industry in a more friendly and efficient manner.

- New services equipped with micro transaction, with better intelligence, and at least cost.

- FinTech is a widespread industry that develops in several different areas, varying from payments, to P2P lending and equity crowdfunding, bitcoin exchange, and cybersecurity, etc.

- Distributed Ledger Technology (DLT), as it is more popularly known, Blockchain is considered the most stimulating aspect of FinTech.
What is Blockchain?

- Blockchain is a computer protocol that allows many participants of a same network (the so-called nodes) to record information on a single shared ledger, so everyone can see the same data.

- Data is stored in the form of a transaction in blocks, and the blocks chained and signed (immutable).

- Blockchain is a decentralized digital ledger technology to record anything of value.
  - Transparent
  - Incorruptible
  - Decentralized
  - Robust
  - Unalterable
  - Efficient
Cont...

How Blockchain Works?

- A P2P system
- A trust machine
- Applications?

- The requested transaction is broadcast to a P2P network consisting of computers, known as nodes.
- The network of nodes validates the transaction and the user’s status using known algorithms.
- Once verified, the transaction is combined with other transactions to create a new block of data for the ledger.

Validation

A verified transaction can involve cryptocurrency, contracts, records, or other information.

The transaction is complete.

The new block is then added to the existing blockchain, in a way that is permanent and unalterable.
The Inception of the Idea of Smart Contracts

Blockchain-based ideas have been rapidly invented and gone beyond its original borders and have spread into other areas different from payments, such as legal agreements. Therefore, a second layer of blockchain technologies has received attention and is represented by the so-called “smart contracts”. (Panisi, F. 2017)

**The Inception**
Nick Szabo introduced the idea of ‘Smart Contracts’ in 1994

**Objectives**
- To establish contract law through electronic commerce protocols
- To design business practices through computer programs on internet among strangers

**Definition**
“A smart contract is a set of promises, specified in digital form, including protocols within which the parties perform on these promises.” (Szabo, 1996)

“A smart contract” is a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract
Smart Contract in the Blockchain Context?

What is a Smart Contract?
- A computer program or algorithm
- Automatically execute when pre-defined conditions are met

Does it have a platform?
- A general purpose computation
- Typically takes place on a distributed ledger or blockchain

Is it actually a contract?
- It is more generic than a traditional contract
- It can be any kind of algorithm

What are its Objectives?
- To satisfy common contractual conditions
- Minimize exceptions both malicious and accidental
- Minimize the need for trusted intermediaries
- Reduce fraud loss
- Lower arbitrations, enforcement and other transactional costs
Smart Contract Vs Traditional Contract

**Traditional physical contracts**
- Created by legal Professionals.
- Contain legal language.
- Vast Amounts of printed documents.
- Heavily rely on third parties for enforcement.
- If things go bad, rely on the public judicial system.

**Smart Contract**
- Created by computer programmers.
- Entirely digital and written using programming code.
- Defines the rules and consequences.
- Stating the obligations, benefits and penalties.
- Code can be automatically executed by a distributed ledger system.

Source: https://www.slideshare.net/RizalMohdNor/blockchain-and-applications-in-islamic-finance
## Why Smart Contract?

<table>
<thead>
<tr>
<th>Traditional contracts</th>
<th>Smart contracts</th>
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<tbody>
<tr>
<td>1-3 Days</td>
<td>Minutes</td>
</tr>
<tr>
<td>Manual remittance</td>
<td>Automatic remittance</td>
</tr>
<tr>
<td>Escrow necessary</td>
<td>Escrow may not be necessary</td>
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<tr>
<td>Expensive</td>
<td>Fraction of the cost</td>
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<tr>
<td>Physical presence (wet signature)</td>
<td>Virtual presence (digital signature)</td>
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<tr>
<td>Lawyers necessary</td>
<td>Lawyers may not be necessary</td>
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Why Smart Contract?

- Minimize the need for trusted intermediaries
- More efficient & reliable
- Speed up process and increase transparency
- Confidentiality & Enforcement
- Potential for reduced litigation
- Minimize malicious and accidental
- Fully digital / automation of contract elements
- Acceptable
- Legal status

Characteristics of Smart Contract
How Does a Smart Contract Work?

1. A smart contract is created between two users.
2. The terms in the contract are written as a code.
3. The smart contract is placed in a blockchain.
4. At triggering events, the smart contract executes itself.
The Potential Benefits of Smart Contract

**shorten the settlement cycles of loans**

“Smart Contracts” would shorten the settlement cycles of syndicated loans, leading to an additional 5% to 6% growth in demand in the future and to additional income of between US $2 billion and $7 billion annually.

**Lower operational cost**

Banking consumers could save from US $480 to US $960 per loan and banks would be able to reduce costs in the range of US $3 billion to $11 billion annually by lowering processing costs in the origination process in the US and European markets.

**Lower premiums**

In insurance sector, the usage of “Smart Contracts” in the personal motor insurance industry could result in US $21 billion annual cost savings and consumers could also expect lower premiums as insurers potentially pass on a portion of their annual savings to them.

Other Potential Benefits

- Fully digital, automated way to issue (digital) asset directly between parties

- Speed up process, increase transparency & potential to remove third parties

- Reducing the need for paper-processes and automating hand-over moments

- Fully digital asset and transparent information enable new business models
Application of Smart Contract in Islamic Finance

**Reduction in the element of Uncertainty (gharar)**
- The contractual terms will execute only if the conditions are met
- Automate the entire contractual process for Islamic institutions
- The Islamic contracts will be easy to verify, immutable and secure, mitigating gharar in the form of operational risks arising from settlement and counterparty risks.
- Gharar in the form of administrative and legal complexities and redundancies will also be mitigated

**Reduce the cost of IF products**
- Critics of Islamic finance often underline the higher administrative and legal costs associated with its composite products requiring multiple contractual arrangements.
- Self-executing smart contracts resolve this precise problem

**Faster and efficient transaction**
- Lower execution cost
- Decentralize nature
- Transactions are trackable and irreversible
- Eliminates the risk of conflict of interests and/or moral hazards between participants
Risks Involved in Smart Contract

- Elements outside the contract
- Lack of legal and regulatory framework
- Fraud risk
- Market risk
- Contract that violate the law
- Issue of Decentralization
- Security risk & Hacking
- Jurisdiction over the Blockchain
- Systemic risk
- Programmatic issues
Shari’ah itself aims at establishing **Maslahah** that would contribute to the wellbeing of mankind and **Maqasid al-Shariah** are basically related to human interest by providing for a good order of life and wellbeing (**Maslahah**).

Fintech including blockchain and smart contract, in this regards, is viewed as innovations in financial practice that would **facilitate transactions in a convenient way** and hence would contribute to wellbeing (**Maslahah**).

However, this should be **guided by the broad principles of Shariah** by avoiding the **prohibited elements** in the transactions such as interest (riba), gambling (maysir), uncertainty (gharar), harms (darar), cheating (tadlis), and etc.
The practice of transactions in Fintech application should also follow the rule of contract (‘aqd) used in the transaction by observing the pillars (Rukn) and conditions (Shurut) in the contract.

Besides, Fintech application should observe Islamic ethics such as transparent, fair and justice, and avoid cheating, fraud, misrepresentation and other actions that would create unhappiness of the users.

These values would not only protect customers and the public at large, they would also promote smooth allocation of resources and fair dealings in transaction that Islamic law aims to achieve.
In addition, the application of Fintech including blockchain and smart contract should also aims at achieving the objective of Shariah (Maqasid al-Shariah), namely to realize the benefits (Maslahah) and avoiding the harms or difficulties (Mafsadah and Mashaqqah) in the transactions. This practices should also be supervised to ensure the operations are Shariah compliance. Nevertheless, the existing SGF did not recognize the existence of FinTech and how to supervise its Shariah compliancy. Thus, a proper Shariah Governance Framework also would ensure the operation of FinTech is in total compliance with Shariah, minimize Shariah non-compliance risk to firms who utilize FinTech and minimize dispute and conflict.
Smart contract is still in its early stage of development and its legal, regulatory as well economic benefits are still widely contested. As a result, discussing it from Shariah perspective or assessing its impact on Islamic finance in the short term will be premature.

Blockchain financial networks cannot remain outside the regulatory perimeter and that law and distributed ledgers need to cooperate with each other to move ahead.
Conclusion

- FinTech for players in financial sectors will result in shorter transaction chain, reduced operational cost, enhanced resilience of operational processes, ability to access new customer segments to increase revenue and improved capital efficiency.

- All these benefits can be considered as *Maslahah to the customer* and whole practice of financial operations.

- However, at the same time we have to ensure that commitment to *Shariah is upheld* such as no *riba* (interest), *gharar* (uncertainty), *maysir* (gambling), and *darar* (harms), must be transparent, no hiding cost, no irresponsible finance, no cheating, and etc.
In addition, regulatory framework in addressing consumer protection and market conduct issues as well as the technological impact on the orderly functioning of financial markets that promotes Maslahah to general public as desired by Shariah must be there.
THANK YOU!
QUESTIONS & ANSWERS