



The Direction of Future Research on i-FinTech

Kazi Md Tarique and Mezbah Uddin Ahmed

Abstract The effect of the fourth industrial revolution, coupled with three core technological drivers, namely, automation, disintermediation and decentralization, has brought about an unprecedented change in the global financial industry. The global Fintech investment has reached \$57.9 billion in the first half of 2018 (Islamic Fintech report-2018). Top-ranked financial institutions have accepted the need for change and they are now investing in data analytics, artificial intelligence (AI) and Big Data. Moreover, 77% of them have targeted to introduce blockchain in the system by 2020.

Keywords Fintech • Shariah • Islamic • Literature • Review
• Research • Direction

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INTRODUCTION

The Islamic financial industry aspires to grow its asset base to \$3.9 trillion by 2023 according to Thomson Reuters. The adoption of Fintech in this industry is still in its nascent stage. This is largely due to its domestic and OIC-based nature. However, the promising youths associated with this industry are driving the growth of Islamic Fintech. According to the i-Fintech Report—2018, about 90 Islamic Fintech start-ups globally are delivering financial solutions to customers. Among them, 65 are providing peer-to-peer technology solutions to facilitate consumer and business solutions and another 14 are using blockchain technology for deposits and transfers. Demographically, Indonesia, US, UAR and UK host the largest number of Islamic Fintech start-ups. Governments of some Islamic countries are supporting Islamic Fintech such as DIFC's \$100 million Fintech fund and Bahrain's regulatory sandbox. There are also some private sector initiatives such as the Islamic Fintech Alliance in Singapore and the Turkey-based Al Barakah Bank's Accelerator arm to support Islamic Fintech.

METHODOLOGY

Like the Islamic Fintech industry, academic research on Islamic Fintech is also in its nascent stage. To conduct this study, the authors used some keywords and synonyms for the literature search in Google scholar. The keywords used are "Islamic Fintech", "Fintech and Islamic Banking", "Fintech and Blockchain", "Fintech and Crowdfunding", etc. In the first phase, 50 articles were selected based on title and keywords. The articles that were not in English were rejected. In the second phase, a careful review of the abstract of the selected 50 papers was conducted to ensure the relevance of this study and also to avoid duplication. Finally, the authors selected 30 articles deemed to be suitable and relevant for this book chapter. The time frame of the literature search started in May 2019 and ended in August 2019.

ANALYSIS OF THE SELECTED ARTICLES

To present the findings of this study, at first, the authors looked at the patterns and themes of the selected 30 papers. A systematic analysis of literature helped to group the articles into seven themes. The themes are the following:

- I. i-Fintech and Islamic Banking (T1)
- II. i-Fintech and Bitcoin (T2)
- III. i-Fintech and Blockchain (T3)
- IV. i-Fintech and Crowdfunding(T4)
- V. i-Fintech Financial Inclusion and Zakat (T5)
- VI. i-Fintech and SME (T6)
- VII. i-Fintech in miscellaneous issues (T7)

In order to show few details of the selected articles, Table 24.1 is presented with authors, year and title under seven themes. To support Table 24.1, two figures were presented. Figure 24.1 contains the number under each theme. Figure 24.2 shows a 3D pie chart that shows T-1–T7 in percentage. Figure 24.3 depicts the number of paper according to year of publishing.

i-Fintech and Islamic Banking

A systematic literature review revealed only two papers that linked Fintech with Islamic banking. The effect of financial technology on the banking system of Indonesia has been analyzed by Darussalam et al. (2019). The study interviewed Islamic banking customers to find out the strength, weakness, opportunity and threats (SWOT) for Islamic banks after the adoption of Fintech. The study found that the introduction of Fintech will surely improve the services of Islamic banks in Indonesia even though the infrastructure is poor. Fintech will also open up different business opportunities despite fears of cybercrime. In another paper, Todorof (2018) critically examined whether current Fintech activities adhere to Shariah principles or not. The study found that the use of Fintech will help Islamic banks to provide better service and thus increase market share. The study also revealed that Shariah-compliant crowdfunding, remittance and Mobile wallet help financial inclusion for the poor Muslim population around the globe. Overall, the digitalization of Islamic banks will save cost and time for both banks and their customers.

i-Fintech and Bitcoin

The popularity of cryptocurrencies especially bitcoin has surged in the recent past. Individual investors are quite excited but central banks around the globe are showing their cautious reaction. The pertinent question now

Table 24.1 Distribution of selected articles under different themes

<i>Author/year</i>	<i>Title</i>
i-Fintech and Islamic Banking	
Darussalam, Tutuko, Dahlan, Hudaifah, and Tajang (2019)	Islamic Financial Technology Towards the Advancement of Islamic Banking in Indonesia
Todorof (2018)	Shariah-Compliant Fintech in the Banking Industry
i-Fintech and Bitcoin	
Bergstra (2015)	Bitcoin And Islamic Finance
Bakar and Rosbi (2018)	Robust Framework Diagnostics of Blockchain for Bitcoin Transaction System: A Technical Analysis from Islamic Financial Technology (I-Fintech) Perspective
Evans (2015)	Bitcoin in Islamic Banking and Finance
Meera (2018)	Cryptocurrencies from Islamic Perspectives: The Case of Bitcoin
i-Fintech and Blockchain	
Elasrag (2019)	Blockchain for Islamic Finance: Obstacles & Challenges
Lacasse, Lambert, and Khan (2017)	Blockchain Technology—Arsenal for a Shariah-Compliant Financial Ecosystem?
Hussen and Ibrahim (2018)	New Business Model for Malaysian Ar Rahnū Using Blockchain as Sustainable Business
Nor, Rahman, Rahman, and Abdullah (2017)	Blockchain Sadaqa Mechanism for Disaster Aid Crowd Funding
Alzubaidi and Abdullah (2017)	Developing a Digital Currency from an Islamic Perspective: Case of Blockchain Technology
Habib and Ahmad (2019)	Using Blockchain and Smart Contracts for Waqf Institutions
i-Fintech and Crowdfunding	
Biancone, Secinaro, and Kamal (2019)	Crowdfunding and Fintech: Business Model Sharia Compliant
Abdullah and Oseni (2017)	Towards a Shariah Compliant Equity-Based Crowdfunding for the Halal Industry in Malaysia
Alma'amun, Shafiai, Shahimi, and Adnan (2018)	Waqf-Based Crowdfunding: A Case Study of Waqfworld.Org
Saiti, Musito, and Yücel (2019)	Islamic Crowdfunding: Fundamentals, Developments and Challenges
i-Fintech Financial Inclusion and Zakat	
Yahaya and Ahmad (2018)	Financial Inclusion Through Efficient Zakat Distribution for Poverty Alleviation in Malaysia: Using Fintech & Mobile Banking

(continued)

Table 24.1 (continued)

<i>Author/year</i>	<i>Title</i>
Firmansyah and Ramdani (2018)	The Role of Islamic Financial Technology (Fintech) Start-Up in Improving Financial Inclusion in Indonesia Case: Angsur
Wulan, Khairunnisa, and Bahri (2018)	Internal Audit Role in Digital Zakat Finance (Case Study at a Zakat Institution in Indonesia)
Yahaya and Ahmad (2019)	Factors Affecting the Acceptance of Financial Technology Among Asnaf for the Distribution of Zakat in Selangor – A Study Using Utaut
Friantoro and Zaki (2018)	Do We Need Financial Technology for Collecting Zakat
i-Fintech and SME	
Fatturroyhan (2018)	Go-Mudaraba: The Solution of Poverty and Unemployment in the Digital Era
Rumondang (2018)	The Utilization of Fintech (P2P Landing) as SME's Capital Solution in Indonesia: Perspective in Islamic Economics (Qirad)
i-Fintech in Miscellaneous Issues	
Lajis (2019)	Fintech and Risk-Sharing: A Catalyst for Islamic Finance
Manaf and Amiruddin (2019)	Fintech and the Challenge of Digital Disruption in Takaful Operation
Miskam and Eksan (2018)	Big Data and Fintech in Islamic Finance: Prospects and Challenges
Jamil and Seman (2019)	The Impact of Fintech on the Sustainability of Islamic Accounting and Finance Education in Malaysia
Miskam, Shahwahid, and Sholehuddin (2018)	Catching the Fintech Wave in Islamic Finance: Regulatory Approach for Malaysia
Firmansyah and Anwar (2018)	Islamic Financial Technology (Fintech): Its Challenges and Prospect
Rusydiana (2018)	Developing Islamic Financial Technology in Indonesia

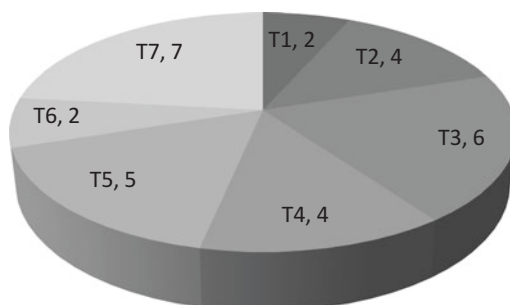
Fig. 24.1 Analysis of the articles by title (number)

Fig. 24.2 Analysis of the articles by title (in percentage)

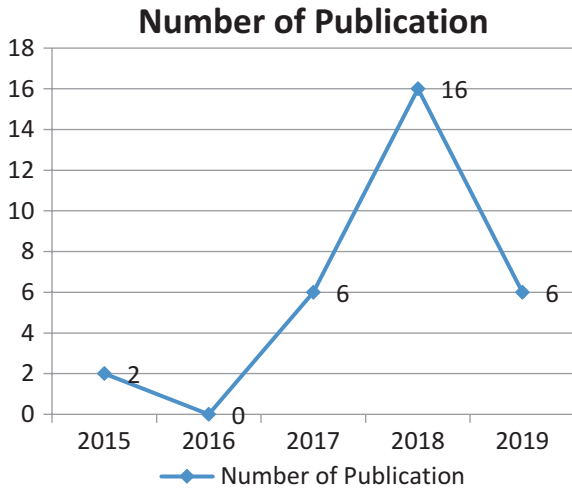
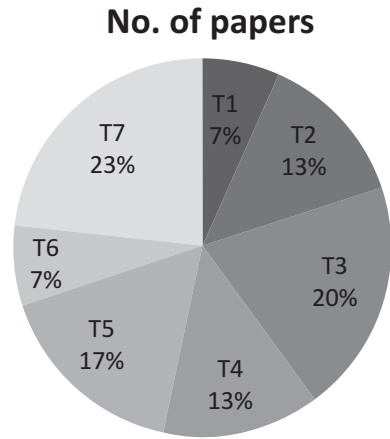


Fig. 24.3 Number of publication per year

is the Shariah compliance of bitcoin and its applicability in Islamic finance. According to Meera (2018), cryptocurrencies that are not backed by real assets are not Shariah-compliant. Bitcoin is neither real money nor fiat money. There is a possibility of misuse of bitcoin due to lack of intrinsic value and zero supervision. Furthermore, it may violate Maqsid al-Shariah

by contributing to socioeconomic injustice due to presence of *mysir* and *gharar* (Bakar & Rosbi, 2018; Meera, 2018). Bergstra (2015) also echoes the same by commenting that bitcoin will fail the requirement of Islamic financial contract. However, Evans (2015) asserts that bitcoin that is based on a blockchain management system can conform with *maslahah* (social benefit) through risk-sharing as opposed to risk-transferring and also can avoid *riba*.

i-Fintech and Blockchain

The popularity of blockchain technology is gaining momentum among Islamic financial institutions (IFIs). Authorities in Dubai are planning to implement blockchain in the public and private sector by 2020. Blockchain, as a tamper-proof ledger, not only cuts intermediaries but also reduces cost and increases reach and speed. Lacasse et al. (2017) inquired whether IFIs can use blockchain to enhance transparency in Islamic finance contracts. The study found that the use of blockchain can improve transparency in financial contracts for Islamic banks and also ensure better corporate governance. Alzubaidi and Abdullah (2017) examined the possibility of introducing an Islamic digital currency through the use of blockchain. They concluded that it is possible to introduce an Islamic digital currency but it requires further Shariah scrutiny.

Nor et al. (2017) looked at the use of blockchain in disaster management. The study proposed that a crowdfunding platform can be created to collect *saqadah* to help distressed people in need at the time of natural calamity. Blockchain technology will be used to raise fund. Hussien and Ibrahim (2018) suggested the use of blockchain to facilitate *Ar-Rahnu* (pawn broking) operations. It will help provide continuous and consistent cash flow to *Ar-Rahnu* provider. Habib and Ahmad (2019) looked at the use of blockchain in *Waqf* institution. With lack of transparency and proper management, most of the *Waqf* institutions are suffering an image problem. The blockchain technology can be used to increase the innovation and efficiency in *Waqf* institutions. Lastly, Elsrageh (2019) examines the challenges and obstacles in adopting blockchain for Islamic finance. He found four major challenges: scalability (technical), trusting a network (Behavioral), innovation (Business) and modern regulation (Legal).

i-Fintech and Crowdfunding

Worldwide crowdfunding has become an important source of financing for projects that otherwise would never receive the fund. Fintech is playing an important role in the success of crowdfunding. Biancone et al. (2019) try to understand the concept of Shariah-compliant crowdfunding. They assert that combining the principles of Islamic finance with crowdfunding and Fintech can enhance the ecosystem of the entrepreneurial ecosystem in the Islamic world. Abdullah and Oseni (2017) examine the Shariah compliance of crowdfunding for the Halal industry in Malaysia. Their study found that not all equity-based crowdfunding projects are Shariah-compliant. There is a need for a unique Shariah-compliant equity crowdfunding for a sustainable halal industry. Alma'amun et al. (2018) stressed for the need for web-based crowdfunding for waqf institutions. Lastly, Saiti et al. (2019) proposed two different P2P models, namely, Mudharabah-and Murabahah-based crowdfunding projects. However, there are some challenges related to regulatory issues, fraud cases and Shariah issues in P2P crowdfunding projects.

i-Fintech-Financial Inclusion and Zakat

The literature search revealed a few papers that discussed financial inclusion through i-Fintech. Firmansyah and Ramdani (2018) proposed an innovative Fintech start-up called "Angsur". The aim of this Fintech-based start-up is to provide micro-lending to undergraduate students of Indonesia with financial difficulty. The micro-lending contract will be based on Murabahah principle. The project will donate 2.5% of sales margin to slum dwellers as Sadakah. Yahaya and Ahmad (2018) shed light on the use of Fintech for effective distribution of Zakat to achieve financial inclusion. They argued that effective distribution of Zakat is always under question due to lack of proper distribution management system. The use of Fintech such as mobile banking can help send Zakat money to appropriate receiver efficiently and effectively and thus ensure financial inclusion for those who do not have access to formal banking.

Wulan et al. (2018) investigated the impact of the digital Zakat Finance System of the Zakat Institute of Indonesia. The study found that there is huge potential for Zakat collection through digital means in Indonesia. Using the digital platform will not only help accumulate a huge amount of Zakat fund but also ensure effective and efficient distribution of Zakat

fund among the poor and the needy. However, the study suggested that an audit mechanism is also necessary to prevent any sort of corruption. Yahaya and Ahmad (2019) in another study try to explore the factors that influence the acceptance rate of mobile banking as a means of Zakat distribution among Zakat receivers. The study used UTAUT (Unified theory of acceptance and usage of technology) model to understand acceptable behavior. The data was collected from the state of Selangor, Malaysia. The study found that performance expectancy, social influence, facilitating conditions and Zakat receivers' intention have a positive influence on the use of mobile banking by Zakat receivers. Lastly, Friantoro and Zaki (2018) questioned the need for financial technology in collecting data. The author conducted a SWAT analysis of financial technology as a means for collecting Zakat in Indonesia. The study found the strengths and opportunities are far greater than threats and weaknesses.

i-Fintech and Small and Medium Enterprise (SME)

Financing small and medium enterprise has become an area of concern and popular research topic for long. Fatturroyhan (2018) proposed a Fintech-based solution to the problem of SME financing using Madarabah principle. The author designed an online Fintech platform based on crowdfunding principle named "Go Mudarabah". The purpose of this platform is to connect the wealth owners (Rab al-Maal) with a poor but creative business manager (Mudarib). The author concluded that if developed, the platform can solve the financing problem of the underprivileged SME owners. Rumondang (2018) proposed a similar Fintech-based platform to facilitate SME financing, but based on lending (Qirad). The author argued that Shariah-based lending through Fintech platform can provide financing for SME owners in a shorter time and more simple terms.

i-Fintech in Miscellaneous Issues

Literature search has revealed a few papers on Islamic Fintech that cannot be grouped into earlier categories. So, the papers are grouped into "others" category. Miskam and Eksan (2018) discussed the application of Big Data for decision making in Islamic financial institutions with the help of Fintech. Big Data not only help to understand the behavior of customers but also helps to prevent fraud and other financial crimes. As mentioned earlier, understanding customer habits can help institutions to provide

personalized services to the customers. Big Data algorithm can help in audit, reporting and compliance issues, which will ultimately reduce overhead cost (Miskam & Eksan, 2018).

Lajis (2019) discussed the use of Fintech in risk-sharing-based Islamic financing model. As opposed to risking transferring conventional financing model the author proposed a Fintech-based platform/marketplace. This platform will act as a delivery channel for risk-sharing-based financial intermediation, trade finance, social finance and discretionary mutual takaful. The Fintech-based platform will provide reliability and trust, reduce operating cost and enhance financial inclusion (Lajis, 2019). Manaf and Amiruddin (2019) discussed the effect of Fintech on Takaful industry of Malaysia. Takaful companies normally used to sell products through agent marketing. Now, they need to shift to a digital platform to survive. Even though the older generation still prefers dealing with agents while buying insurance, but tapping into the growing younger-generation digital transformation is essential (Manaf & Amiruddin, 2019).

The advent of Fintech, cryptocurrency, crowdfunding, etc., has changed the landscape of the financial service industry including Islamic Finance. Miskam et al. (2018) investigated the impact of Fintech technology on a legal and regulatory system on Islamic Finance Industry of Malaysia. The findings of this research showed that Fintech in Islamic Finance has brought both opportunities and risk to financial stability. The policymakers now need to benefit from the opportunity but at the same time they need to remain vigilant to guard the industry against emerging risk (Miskam et al., 2018).

Firmansyah and Anwar (2018) surveyed Islamic Fintech firms located in Indonesia and Singapore to analyze the opportunities and challenges faced by them. The study found that Islamic finance supported by the development of technology along with the availability of the smartphone has an immense opportunity. The main challenge in Islamic Fintech industry is found to be regulation by governing authorities (Firmansyah & Anwar, 2018). In a similar study, Rusydiana (2018) claims that Islamic Fintech has huge potential in Indonesia. The challenges are lack of policy instrument guarding the Fintech work process and lack of human resources for Fintech. Last but not least, Jamil and Seman (2019) also identified the issue of talent shortage in managing Fintech system in Islamic financial institutions. They investigated the Malaysian governments' response to this talent shortage in Islamic financial institutions. The study recommended that government of Malaysia should intervene in the education

system through policy reform that enables graduates working in Islamic financial institutions to cope with the disruptive change brought by the Fintech wave (Jamil & Seman, 2019).

FUTURE RESEARCH DIRECTION

Research interest in i-Fintech is a recent phenomenon among academics. It is only in the last 3–4 years that conferences are being arranged on i-Fintech and papers are being published. So far, our review reveals that most of the selected papers are qualitative in nature. So, there is ample scope for quantitative/empirical research in this field. The published papers also lack econometric rigor in methodology. Thus, further research on i-Fintech should be carried out using sophisticated econometric tools. Other areas for research could be customer satisfaction in i-Fintech users, data security, accessibility and infrastructure development for i-Fintech.

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