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A Survey of i-Fintech Literature and Identifying Future Research Direction

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Abstract

This chapter analyses existing literature on Islamic fintech (i-fintech) to identify the research gaps and to propose future research direction on this topic. To achieve this objective, the authors used several keywords and synonyms for the literature search in Google Scholar. The keywords used are “Islamic fintech”, “fintech and Islamic banking”, “fintech and blockchain”, and “fintech and crowdfunding”. After a two-stage screening process, total 30 articles are selected. The research conducted for this chapter finds that similar to the i-fintech industry, academic research on i-fintech is also in a nascent stage. The research also finds that the current researchers are mostly qualitative nature. The research identifies a great scope of quantitative/empirical research in this field.

Keywords: Fintech, Islamic finance, technology, blockchain.

1 Introduction

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 investment in financial technology (fintech) has reached USD 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.

On the other hand, Islamic financial industry aspires to grow its asset base by USD 3.9 trillion by 2023 according to Thomson Reuters. The adoption of fintech in this industry is still in its nascent stage. This is mainly due to its domestic and OIC based nature. However, the promising youths associated with this industry are driving the growth of Islamic fintech (i-fintech). According to the Islamic Fintech Report 2018, about 90 Islamic fintech startups globally 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. Demography wise Indonesia, US, UAR and UK host the largest number of Islamic fintech startups.

Governments of some Islamic countries are supporting Islamic fintech such as Dubai International Financial Centre's (DIFC) USD 100 million fintech fund and Bahrain's regulatory sandbox. There is also some private sector initiative such as Islamic Fintech Alliance in Singapore and Turkey-based Al Barakah Banks Accelerator arm to support Islamic fintech.

2 Methodology

Like the Islamic fintech industry, academic research on Islamic fintech is also in its nascent stage. To conduct this research the authors used some keywords and synonyms for the literature search in Google scholar. The keywords used are “Islamic fintech”, “fintech and Islamic banking”, and “fintech and blockchain”, “fintech and crowdfunding”, so on. in the first phase, 50 articles were selected based on title and keywords. The articles that were not in English was rejected. In the second phase, a careful review of abstracts 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 that are deemed as suitable and relevant for this research. The time frame of the literature search is limited between May 2019 to August 2019.

3 Analysis of 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 as follows:

- Theme 1: i-Fintech and Islamic Banking
- Theme 2: i-Fintech and Bitcoin
- Theme 3: i-Fintech and Blockchain
- Theme 4: i-Fintech and Crowd-funding
- Theme 5: i-Fintech Financial inclusion and Zakat
- Theme 6: i-Fintech and SME
- Theme 7: i-Fintech in miscellaneous issues

In order to show few details of the selected articles, Table 1 is presented with authors, year and title under seven themes. To support Table 1, two figures are presented. Figure 1 shows a pie chart that shows the number and percentage of Theme 1 to 7 under each theme. Figure 2 depicts the number of papers according to year of publishing.

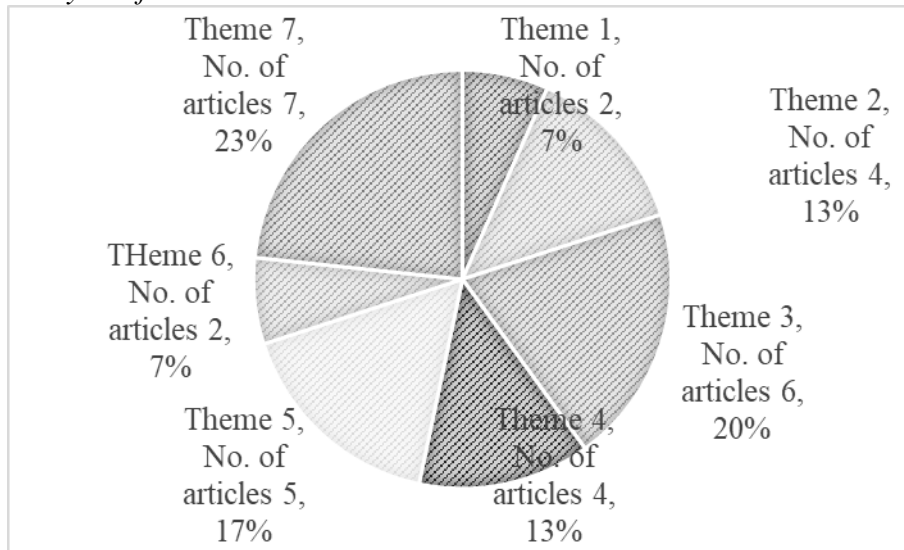
Table 1
Distribution of Selected Articles Under Different Themes

Theme	Author	Article
1. i-Fintech and Islamic Banking	Darussalam <i>et al.</i> (2018)	Islamic Financial Technology Towards the Advancement of Islamic Banking in Indonesia
	Todorof (2018)	Shariah-compliant FinTech in the banking industry
2. 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
3. i-Fintech and Blockchain	Elasrag (2019)	Blockchains for Islamic Finance: Obstacles & Challenges
	Lacasse, Lambert, and Khan (2017)	Blockchain Technology - Arsenal for a Shariah-Compliant Financial Ecosystem?
	Hussain and Ibrahim (2018)	New Business Model for Malaysian Ar Rahn Using Blockchain as Sustainable Business
	Nor <i>et al.</i> (2017)	Blockchain Sadaqa Mechanism for Disaster Aid

		Crowd Funding
	Alzubaidi and Abdullah (2017)	Developing a digital currency from an Islamic perspective: the case of blockchain technology
	Habib and Ahmad (2019)	Using Blockchain and Smart Contracts for Waqf Institutions
4. i-Fintech and Crowd-funding	Biancone, Secinaro, and Kamal (2019)	Crowdfunding and Fintech: Business Model Sharia Compliant
	Abdullah and Oseni (2017)	Towards a Sharī'ah Compliant Equity-Based Crowdfunding for the Halal Industry in Malaysia
	Alma'amun <i>et al.</i> (2018)	Waqf-Based Crowdfunding: A Case Study of Waqfworld.org
	Saiti, Musito, and Yücel (2019)	Islamic Crowdfunding: Fundamentals, Developments and Challenges
5. 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
	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 (2019)	Do We Need Financial Technology for Collecting Zakat?
6. 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 Lending) As SME's Capital Solution in Indonesia: Perspective in Islamic Economics (Qirad)
7. 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 (2019)	Islamic Financial Technology (Fintech): Its Challenges and Prospect
	Rusydiana (2018)	Developing Islamic Financial Technology in Indonesia

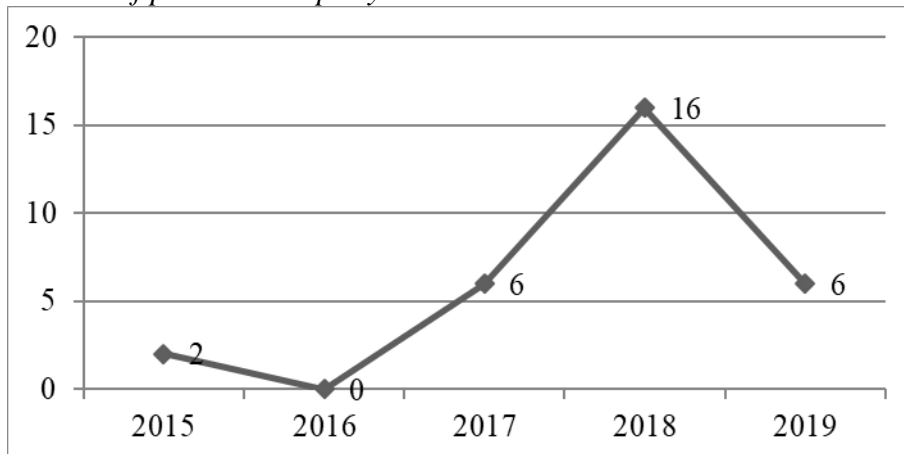
Source: Authors' own.

Figure 1
Analysis of the Articles



Source: Authors' own.

Figure 2
Number of publications per year



Source: Authors' own.

3.1 i-Fintech and Islamic Banking

Systematic literature review surfaced only two papers that linked fintech with Islamic banking. The effect of financial technology in the banking system of Indonesia has been analyzed by Darussalam *et al.* (2018). The study interviewed Islamic banking customers to find out the strength, weaknesses, opportunity and threats (SWAT) 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 costs and time for both banks and their customers.

3.2 i-Fintech and Bitcoin

The popularity of cryptocurrencies especially bitcoin has surged in recent past. Individual investors are quite excited but central banks around the globe are showing their cautious reaction. The pertinent question now is the Shariah compliance of bitcoin and its applicability in Islamic finance. According to Meera (2018), cryptocurrencies that are not backed by the real asset are not Shariah compliant. Bitcoin is neither real money nor fiat money. There is a possibility of misuse of bitcoin due to a lack of intrinsic value and zero supervision.

Furthermore, it may violate *maqsid al-Shariah* by contributing to socioeconomic injustice due to the presence of *mysir* and *gharar* (Meera, 2018; Bakar and Rosbi, 2018). Bergstra (2015) also echoes the same by commenting that bitcoin will fail to the requirement of Islamic financial contracts. However, Evens (2015) asserts that bitcoin which is based on a blockchain management system can confirm with *maslahah* (social benefit) through risk-sharing as opposed to risk transferring and also can avoid *riba*.

3.3 i-Fintech and Blockchain

The popularity of blockchain technology is getting momentum among Islamic financial institutions (IFI's). Authorities in Dubai are planning to implement blockchain in the public and private sectors by 2020. Blockchain, as a tamperproof ledger, not only cut intermediaries but also reduce cost and increase reach and speed. Lacasse (2017) inquired whether IFIs can use blockchain to enhance the transparency in Islamic finance contracts. The study found that the use of blockchain can improve transparency in financial contracts for Islamic banks and also ensures 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 funds. Hussain and Ibrahim (2018) suggested the use of blockchain to facilitate *ar-rahnu* (pawnbroking) operations. It will help provide continuous and consistent cash flow to *ar-rahnu* provider. Habib and Ahmed (2018) looked at the use of blockchain in *waqf* institution. 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, Elasarg (2018) examines the challenges and obstacles in adopting blockchain for Islamic finance. He found four major challenges which include scalability (technical), trusting a network (behavioral), innovation (business) and modern regulation (legal).

3.4 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) tried to understand the concept of Shariah-compliant crowdfunding. He asserts 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. A unique Shariah-compliant equity crowdfunding is required for the halal industry to be sustainable. 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 peer-to-peer (P2P) crowdfunding projects.

3.5 i-Fintech Financial Inclusion and Zakat

The literature search surfaced a few papers that discussed financial inclusion through i-fintech. Firmansyah and Ramdani (2018) proposed an innovative fintech startup called “Angsur”. The aim of this fintech based startup aims 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 per cent of sales margin to slum dwellers as Sadakah. Yahaya and Ahmed (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 ensures financial inclusion for those who do not have access to formal banking.

Wulan *et al.* (2018) investigated the impact of digital zakat finance system of zakat institutes in Indonesia. The study found that there is huge potential for zakat collection through digital means in Indonesia. Using digital platform will not only help accumulate a huge amount of zakat fund but also ensure effective and efficient distribution of zakat funds among the poor and needy people. However, the study suggested that an audit mechanism is also necessary to prevent any sort of corruption. Yahaya and Ahmed (2019) in another study tries to explore the factors that influence the acceptance rate of mobile banking as a means of zakat distribution among zakat receivers. The study used the Unified Theory of Acceptance and Usage of Technology (UTAUT) model to understand the acceptable behavior. The data was collected from the state of Selangor, Malaysia. The study found that performance expectancy, social influence, facilitating conditions and zakat receiver’s intention have a positive influence on the use of mobile banking by zakat receivers. Lastly, 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.

3.6 i-Fintech and Small and Medium Enterprise (SME)

Financing small and medium enterprises 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 name “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 could provide financing for SME owners in a shorter time and more simple terms.

3.7 i-Fintech in Miscellaneous Issues

Literature search has surfaced a few papers on Islamic Fintech that cannot be grouped into earlier categories. So, the papers are grouped into other categories. 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 costs (Miskam and Eksan, 2018).

Lajis (2019) discussed the use of fintech in a risk-sharing based Islamic financing model. As opposed to risking transferring conventional financing model the author proposed a fintech based platform/market place. 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 to tap the growing younger generation digital transformation is essential (Manaf and Amiruddin, 2019).

The invent 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 had brought both opportunities and risks 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 smartphone has an immense opportunity. The main challenge in Islamic Fintech industry is found to be regulation by governing authorities (Firmansyah and Anwar, 2018). In a similar study, Rusydiana (2018) claims that Islamic fintech has huge potential in Indonesia. The challenges are lack of policy instruments 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 and Seaman, 2019).

4 Conclusion

Not long ago the academics have grown their interest researching on i-fintech. Its only 3 to 4 years that conferences are being arranged on i-fintech and papers are being published. So far, our review reviles that most of the selected papers are qualitative in nature. So, there is ample scope of quantitative/empirical research in this field. The published paper also lacks econometric rigor in methodology. Thus, further research on i-fintech can be carried using sophisticated econometric tools. Other areas for research would be customer satisfaction of i-fintech users, data security, accessibility and infrastructure development for i-fintech.

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