

Challenges for the Islamic Finance and banking in post COVID era and the role of Fintech

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ABSTRACT

Novel Corona Virus (COVID-19) pandemic has created a huge disruption in the finance world and it poses another challenge to Islamic finance after the global financial crisis to provide an alternative and sustainable finance. Islamic finance has a large market share in industries such as, microfinance, small and medium enterprises, and retail lending. They are the worst hit during the ongoing pandemic. The magnitude of the ongoing financial crisis is expected to be different from the global financial crisis of 2008; therefore, it poses different challenges for Islamic finance and banking. It requires a different set of financial services, strategies, and technologies to overcome this challenge. Against such a backdrop, the present study aims to analyze the challenges posed by COVID-19 to the Islamic finance and how disruptive technological innovation called Fintech can be utilized to address those challenges. The study also presents a critical analysis of the Islamic finance and the role of Islamic finance in creating a more sustainable financial system post COVID.

ملخص

تسببت جائحة فيروس كورونا المستجد (كوفيد-19) في اضطرابات كبيرة على مستوى عالم المال، وبذلك شكلت تحدياً إضافياً في مجال المالية الإسلامية بعد الأزمة المالية العالمية بخصوص توفير تمويل بديل ومستدام. فالمالية الإسلامية تحظى بحصة مهمة في السوق على مستوى عدد من المجالات مثل التمويل الأصغر والمشاريع الصغيرة والمتوسطة والقروض الصغيرة. وهذه المجالات هي الأكثر تأثراً بتداعيات الجائحة التي لم يتم بعد السيطرة عليها. ويتوقع أن تختلف حدة الأزمة المالية الراهنة عن الأزمة المالية العالمية لعام 2008، لذلك فهي تطرح تحديات متنوعة أمام الخدمات المصرفية والمالية الإسلامية. ولتجاوز هذه التحديات يتعين توفير مجموعة مختلفة من الخدمات وتطوير استراتيجيات وتقنيات جديدة في مجال المالية.

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وعلى إثر هذه الخلفية، تروم هذه الدراسة تحليل التحديات التي تفرضها جائحة كوفيد-19 على المالية الإسلامية والسبل الممكنة لاستخدام الابتكار التكنولوجي المضطرب، أو ما يسمى بالتكنولوجيات المالية، في التصدي لهذه التحديات. كما تعرض الدراسة تحليلاً نقدياً للمالية الإسلامية ودورها في إحداث نظام مالي أكثر استدامة بعد مرحلة كوفيد-19.

ABSTRAITE

La nouvelle pandémie du virus Corona (COVID-19) a créé un énorme bouleversement dans le monde de la finance et pose un nouveau défi à la finance islamique après la crise financière mondiale, afin de mettre en place une finance alternative et durable. La finance islamique a une grande part de marché dans des secteurs tels que la microfinance, les petites et moyennes entreprises et les prêts de détail. Ils sont les plus touchés par la pandémie actuelle. L'ampleur de la crise financière actuelle devrait être différente de celle de la crise financière mondiale de 2008 ; par conséquent, elle pose des défis différents à la finance et à la banque islamiques. Pour relever ce défi, il faut un ensemble différent de services financiers, de stratégies et de technologies. Dans un tel contexte, la présente étude vise à analyser les défis posés par COVID-19 à la finance islamique et la manière dont l'innovation technologique perturbatrice appelée Fintech peut être utilisée pour relever ces défis. L'étude présente également une analyse critique de la finance islamique et du rôle de la finance islamique dans la création d'un système financier plus durable après la COVID.

Keywords: COVID 19; Corona virus; Fintech; Islamic finance; sharia; Financial crisis; Pandemic

JEL Classification: C36, C51, G01, G11

1. Introduction

First COVID-19 case was reported in China on 17 November 2019. Currently more than 40.35 million people are infected and around 1.11 million have already lost their lives. (As on 19/10/2020, 4 PM GMT. (Source www.who.int). Governments all around that world have responded with a lockdown to prevent the spread of virus. Consequently, it has brought economic activities to a halt resulting in a steep fall in production, disruption in supply chains, loss of income, and disruption in the flow of credit (Fernandes, 2020). The health emergency has turned into a financial crisis mainly due to two reasons. First, the spread of virus encourages lockdowns, social distancing, and quarantines by governments around the globe, which results in the shutdown of economic activities, financial markets etc. Second, the rate at which the virus is

spreading creates a panic and uncertainty in the market encouraging customers to opt for safety in consumption and investments (Ozili, 2020).

There is still no consensus about the definition of Fintech and exactly it means. Conceptually, FinTech is a new type of financial services provided through technologies to broad type of users (Schueffel, 2016). Fintech is defined as “The fusion of Information Technology and Finance for providing the financial services at an affordable cost with a seamless user-friendly experience” (Rabbani et al., 2020).

Islamic Fintech can be defined as –

- Delivery of Islamic finance products with the use of technology,
- Any Fintech catering to the unmet needs of Islamic finance customers with an objective of financial inclusion, removal of income inequality and bringing social justice (Haider et al., 2020),
- Or in simplest of the words, “It is the digital delivery of Islamic finance.”

Both Fintech and Islamic Fintech share the same meaning as far as the definition is concerned. The differences lie in ‘sharia’. Islam accepts any innovation and disruption with open arms if it does not violate the basic ethos and principles of sharia. For example, any Fintech is permissible and acceptable as per Islamic finance if there is clear evidence that it does not violate or contradict any principle laid down by the sharia. In other words, any innovation is welcome in Islam if there is no clear evidence prohibiting it (Hasan, 2020).

Islamic finance challenges post COVID

The COVID 19 pandemic has already done a considerable amount of economic destruction and caused a significant amount of damage to every facet of life including financial markets (Baker, 2020). The post COVID challenges for Islamic finance can be summarized as follows:

- The magnitude and enormity of the crisis is expected to be very different from the global financial crisis of 2008 and will have to be managed differently. Global financial crisis are more suited to the nature of Islamic financial services and it is

unscathed because of its prohibition from speculation and risky assets (Kayed and Hassan, 2020).

- Islamic financial market is still young and in the growing stage. This growth results in a large number of competitors, who are trying to compete to grab a significant portion of market. According to the Islamic Finance development report the Islamic finance market grew to around US\$ 2.4 trillion in 2018, an increase of 3% as compare to 2017 (IFDI, 2018).
- The growth of the Islamic finance is slowing in the last few years due to the slowdown in the three leading market layers including Saudi Arabia, Iran, and Malaysia. These three countries contribute around 65% of the total Islamic finance assets. The causes of slowdown in these countries are attributed to the fall in crude prices along with other factors (Ready, 2018).
- Islamic finance has a large market share in other Islamic Financial Institutions (OIFI). The total value of assets grew to around 140 billion in 2018 (Reuter, 2018). The OIFI includes the institutions like microfinance, small- and medium-sized enterprise (SME), Investment firms and funds etc., and these institutions are the worst hit due to current pandemic (McGeever, 2020).
- The top two markets for Islamic finance, Iran and Saudi Arabia, are largely an oil dependent economy and sharp declines in crude prices poses another challenge for the Islamic finance. Forecast suggest it will fall further by around 10% (Albulescu, 2020).
- To give relief to the citizens and bank customers, the regulators have announced the postponement of loan payments for the bank's customers from 3 months to 6 months. This decision by the regulators is not a happy sign for the Islamic bank as the banks will have virtually zero cash inflows in the next six months. Banks around the world are facing liquidity problems and have already run out of cash (Alvarez, 2020).

- Globally, banks will have to brace themselves with either zero or very low profits for a prolonged period due to the disruptions caused by COVID 19. If we take the example from the last quarter (April to June 2020), the banks are expected to have negative operating leverage due to less revenue as cost is expected to remain stagnant. Due to this fear, banks are not serving new customers as they fear that they might lose the existing liquidity (Acharya, 2020).

This current situation is unique, though it is often compared with the global financial crisis of 2008. The comparison of COVID 19 with the global financial crisis is summarized in following points.

Table 1: Comparison between Global recession and Global pandemic

Global Financial Crisis 2008	COVID 19
Started in real estate and spread only to financial and real economy.	COVID 19 is exerting a more real and abrupt damage to the real economy. It has affected both demand and supply chain simultaneously.
Slow: Subprime loan are granted to the Americans with no job and assets until 2007. Later the risk is transferred to other sectors resulting in uncertainty and policy makers have time to react and tackle this unprecedented situation.	Fast and hardly any time to react: COVID 19 starts in January 2020 and spread to the whole world within 5 months taking the world economy to a standstill. Policy makers and regulators hardly have time to react.

Common view by Islamic financial scholars on Economic Impact of COVID-19

The majority of the Islamic scholars are of the opinion that the financial crisis is due to the global pandemic could have been avoided if we had Islamic financial system in place since it is a sheer failure of conventional financial system to respond in an ethical manner. Maximization of profit and greed is inherent in the conventional finance world. This focus results in changes in behavioral patterns of the consumers and their reluctance to

spend and unwillingness to help those who are in need. Islamic scholars are further on of the opinion that a more compassionate, caring and ethical approach is needed to tackle such crises. Islamic finance tools such Waqf, Qardh-Al-Hasan, Sadaqa and Zakat will help in injecting immediate liquidity into the market (Haider et.al. 2020; Radwan, 2020; Zandifar, 2020; Al-Tawfiq, 2020).

As the world is still forced into quarantine and isolation due to the prolong lockdown to stop the spread of the virus (Anderson et.al., 2020), the discussion is turning to the road ahead regarding the financial and economic impact and what role Islamic finance is going to play. Furthermore, the role it plays in the countries in which it operates comes under consideration. The present paper analyses the economic impact of COVID 19 and role of Islamic finance in overcoming this crisis and how Fintech can be utilized by the Islamic financial institutions to do so.

2. IN SEARCH FOR ‘THE SOLUTION’: Does Islamic finance have the solution?

As discussed above, the current crisis is unlike the global financial crisis of 2008 where Islamic finance established itself as the potential challenger to the conventional financial system (Ahmed, 2010). There is no denying that the nature and characteristics are different, and it will need a herculean task to get rid of this crisis. Now, the million-dollar question is, **Does Islamic finance have the solution?**

The answer is in affirmative, Yes, it has the solution and Islamic finance will lead the global financial system to overcome this crisis. There are strong theoretical and behavioral justifications to this argument. Let us discuss how Islamic finance will lead the finance world post COVID 19 in fight of the economic consequences from COVID 19.

► Islamic finance can be evaluated on its two basic components:

1) It is expected that the crisis will have minimum or no effect on the Islamic financial institutions because of its deep-rooted values.

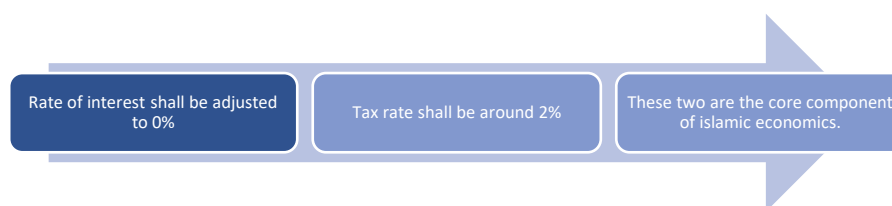
➤ Islamic finance prohibits interest and Islamic banks do not have any toxic assets.

- Lack of financial reengineering in Islamic finance and prohibition of assets like, options, futures and swaps.

2) Islamic finance is expected to deliver a significant contribution in the field of finance in recovery post COVID.

- ▶ Islamic finance considers money as a medium of exchange and no direct financing is allowed without assets backing. Instruments like social Sukuk are issued with backing from real assets only.

A famous French economist and Nobel laureate M. Allais is of the opinion that structural reform is the way to get out of such crises (Allais, 2013). He proposed the idea that-



There are many other economists and cotemporary researchers who believe like Allais that, structural reforms are the way to go forward and Islamic finance is naturally positioned to do so (Hassan, 2010; Poon, 2018), as in case of Islamic finance,

Islam prohibits interest (*riba*). Islam considers money as a medium of exchange and it must not be used as a commodity. Muslim legists who contributed to the development of Islamic finance considers *riba* as 'interest' and 'predetermined return on capital', as it literally means an increase, expansion or growth or benefit accrues to the lender in a loan transaction. Prohibition of *riba* in Islamic finance maintains that Islamic finance is interest free financial system and is based on the principle of profit and loss sharing (Saeed, 1996).

- ▶ Zakat is one of the basic pillars of Islam and everyone is required to pay a *Zakat* 2.5% of the assets they have owned over a year.
 - ▶ *Zakat* is a major financial instrument intended to remove income inequality and bring socio-economic justice in the society. *Zakat* is one of the basic requirements which

Muslims must perform as it has been performed historically. Zakat is an important tool in poverty alleviation and helping poor as during the period of *Khalifa Umar Bin Khattab* and *Umar Bin Abdulaziz*, poverty was eliminated (Nadzri, 2012).

Islamic finance has various social finance tools which can be utilized and customized according to the varied needs of customers. The following are the Islamic finance tools which can be used at different stages of COVID.

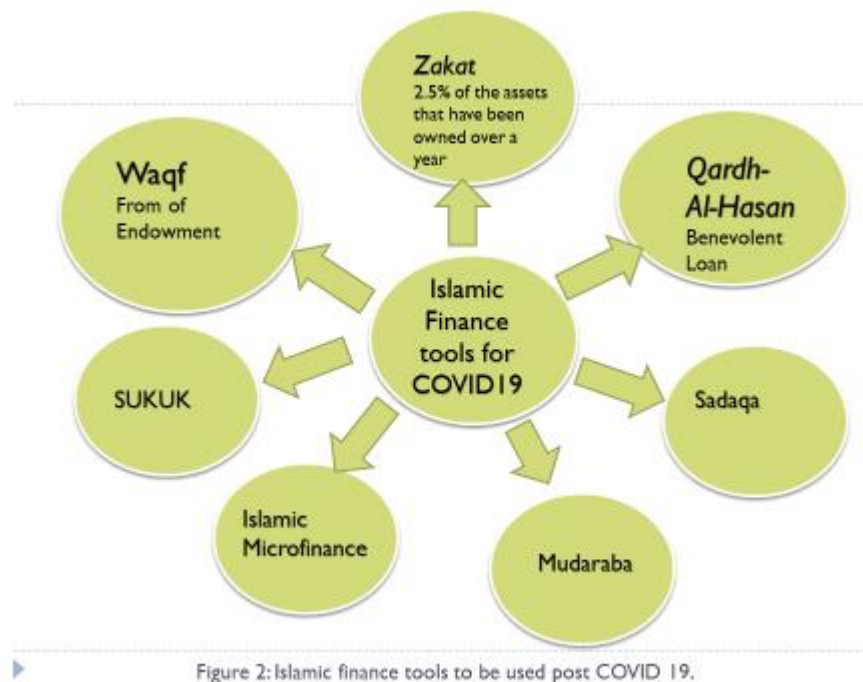
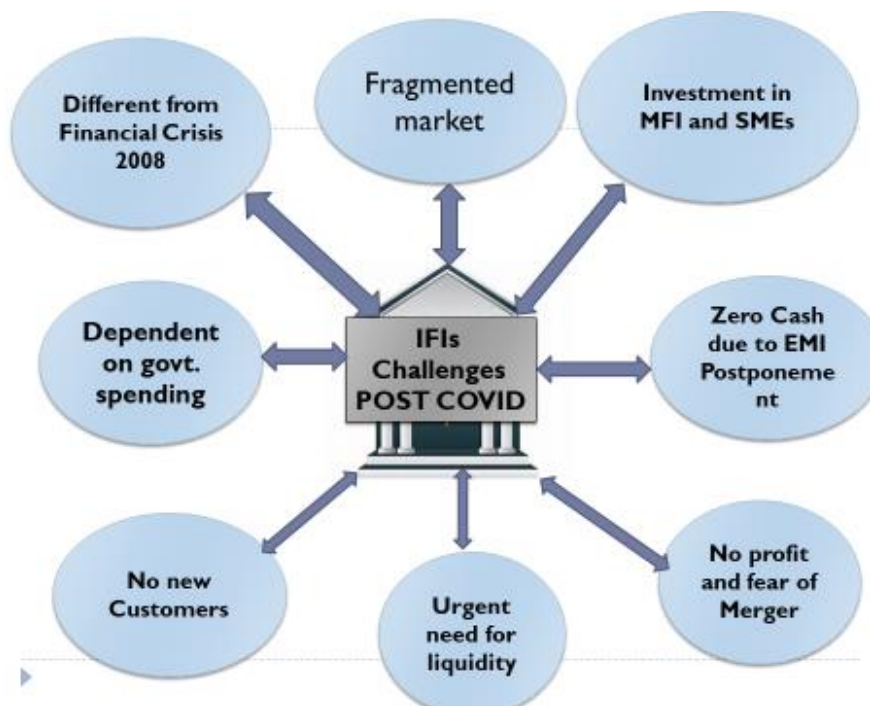


Figure 2: Islamic finance tools to be used post COVID 19.

Post COVID challenges for Islamic Fintech: COVID 19 has traumatized the world and has presented a big challenge in front of the scholars, regulators, and policymakers to find an immediate solution with Islamic finance no exception. The challenges posed to the Islamic finance is summarized in the following figure.

Figure 3: Islamic Fintech Challenges Post COVID

Some of the biggest challenge for the Islamic finance are-

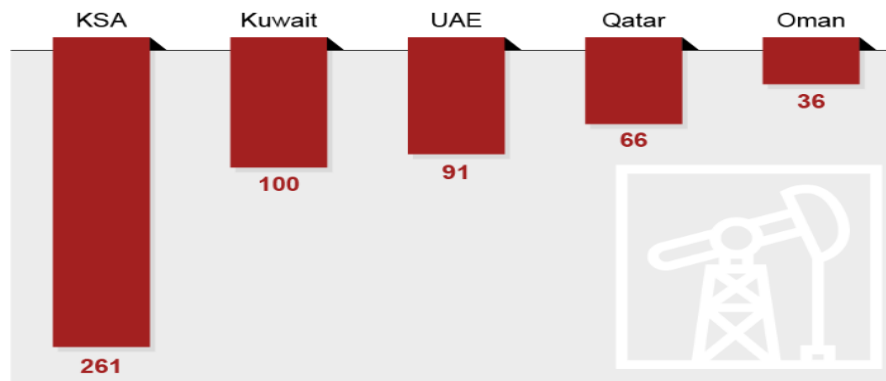
Fragmented market: The pandemic has almost froze the entire world. As the virus started to spread globally, the countries started to isolate themselves, create restrictions on travel and communication. The world economy is almost certain to witness a financial crisis more severe than Global financial crisis of 2008 (Ozili, 2020).

Investment in MFI and SMEs: In African and Asian countries, Islamic finance has a large market share in MFI, SME, and retail lending. The worst hit due to COVID are the SMEs, low income and daily wage workers. The large corporations have a large capital cushion and government support.

Dependent on govt. spending: Unlike the situation for IBs in Asia and Africa, the Islamic banks in Arab countries are dependent on government spending. The huge drop in oil prices have serious implication for them.

The dual shock has slashed oil revenues

Loss in state oil revenues* for 2020, in US\$ millions per day



* Assuming oil price is sustained at \$20 per barrel for rest of the year
Source: HIS Markit, TomTom, Flightradar24, Strategy & analysis

Source: HIS Markit, Flightradar24, Strategy and analysis.

Zero Cash due to EMI Postponement: Islamic banks are facing liquidity problem due to EMI postponement announced by the government. Islamic banks are forced to offer flexibility to restructure the ongoing loans. Islamic banks have virtually no cash due to no inflow of cash.

Urgent need for liquidity: Liquidity has an asymmetric effect on bank's lending. The negative effect on liquidity is more significant than positive effect or an increase in liquidity. Islamic banks are particularly exposed to the market liquidity due to COVID 19.

No new Customers: The customers are reluctant to invest due to fear and uncertainty. Due to the liquidity risk, the IBs are not ready to serve new customers. No new customers can affect the profit adversely.

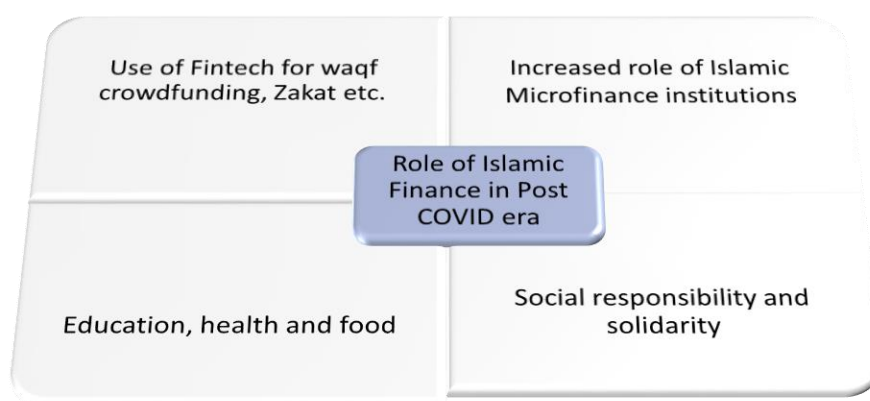
No profit and fear of Merger: Asset quality of loans for banks right now is the biggest concern which will impact profitability. Once profit goes down, capital and equity deteriorate and shareholders, with multiple institution, will go for a merger. The regulators might also encourage merger and consolidation.

The role of Islamic finance in Post COVID era.

Islamic finance has the potential to overcome any challenge posed by the economic disruption, such as financial crises and COVID 19 at the

individual and corporate levels (Haider et. al., 2020; Kayed and Hasan, 2011; Hassan and Kayed, 2009). COVID 19 has ominously slowed down the core of the Islamic economies including Saudi Arabia, Iran, and Malaysia. Social instruments under Islamic finance, such as *Qardh-Al-Hasan*, *Zakat*, *Social Sukuk* and *Waqf* are viable options to be used by the Islamic banks and IBs during and after COVID to help the affected individuals, SMEs, and corporations by providing direct cash transfer and giving access to the health care and education facilities (Haider et. al., 2020). Islamic finance is based on the principle of social justice and equitable distribution of income and these two characteristics make it as the suitable path under crisis (Smolo & Mirakhor, 2010).

Figure 2: Role of Islamic finance in the post COVID era



The role of Islamic finance in Post COVID era can be explained in the following points:

1. Use of Fintech for Waqf crowdfunding, Zakat etc.

Fintech has already changed our day to day lives with its disruptive technological innovations in the field of finance (Rabbani, 2020). Our daily lives are now being knotted to the technological innovations where financial services are delivered through the artificial intelligence-based technologies (Haider, 2020) and, robots are the financial advisors (Khan and Rabbani, 2020a; Khan and Rabbani, 2020b). Most of the financial

services are now tied to technology for its delivery. The use of Blockchain and artificial intelligence has already revolutionized the finance world (Hasan and Hassan, 2020). The use of Fintech in delivering Islamic financial services such as Waqf, Crowdfunding, and Zakat etc. will make it more transparent, efficient, innovative, attractive, and user friendly to deliver the financial services to the customers (Todorof, 2018).

- 2. Increased role of Islamic Microfinance institutions:** The concept of Microfinance comes from a Bangladeshi economist, Dr. Mohammad Yunus, founder of Grameen Bank Bangladesh and Nobel peace Prize winner in 2006. Dr. Yunus describes microfinancing as, “the mode of finance for providing money to the poor to assist them and become self-employed and independent” (Tevanti, 2013). Many researches have proved that poverty alleviation can be achieved by providing assistance to the last man standing in the queue or by fulfilling the social needs: extending credit to the more potential recipient, poorer in the far reaching, hard to reach geographical location (Amran et. al., 2014; Hassan and Ashraf, 2010; Choudhury, 2014). Islamic Microfinance Institutions (IMFIs) are considered as a successful tool in financing the interest free loan to the poor in the form of *Qardh-Al-Hasan* (Amran et. al., 2014). As the number of poor around the world is expected to increase post COVID, IMFIs are going to play the huge role in healing the damaged caused by the COVID 19 on the poor and vulnerable. The financing activities performed by the IMIs do not involve anything prohibited under sharia law like, *riba*, *maysir*, or *gharar*. Moreover, visualizing the post COVID scenario, it is a more practical and appropriate financing method as the loan is given without interest, no guarantor required.
- 3. Education, health and food:** Some of the more important areas that need immediate attention during and post COVID are education, health, and food security to the poor and vulnerable section of society (Deai, 2020). Islamic considers these three as fundamental rights of human beings besides the other rights, such as right to justice, right to respect, and right to freedom (Hassan, 2003). Islamic finance is positioned to play a decisive role in providing food, health, and education to the society. For Muslims, Holy Qur’an being the god’s own word and is the principal and most trustworthy source of information as Qur’an powerfully supports and encourages the ultimate human rights (Hassan, 2003).

4. **Social responsibility and solidarity:** The accelerating social and economic problem posed by the globalisation and growth of technologies has elevated new questions regarding the corporate social responsibility, ethical, and moral compass where business is being done. Corporate Social Responsibility (CSR) has emerged and developed into a field of study and a lot of western scholars' have given theoretical groundings for the CRS initiative. The concept and theory of Islamic finance related to social responsibility has gained popularity and acceptance among the western scholars and policy makers (Hassan & Harahap, 2010). Among the most important objective of Islamic finance is the creation of social justice, responsibility, solidarity, and the purging of corruption in the business transaction (Elmelki, 2009).

3. COVID 19 and role of Islamic Fintech

Islam embraces all innovations as long as it does not violate the ethos and principles of sharia. Islamic Fintech firms represent the next wave of disruptive growth in the field of Islamic finance industry for providing the seamless user experience at the least cost (Rabbani and Khan, 2020). Fintech is already very popular among the Islamic finance consumers as there has been around a 72% increase in the users of Fintech in last 5 Months-Feb to June 2020 (Fu & Mishra, 2020). The Islamic Fintech is going to be the game changer for Islamic finance mainly due to the following reasons-

Figure; 5. Characteristics of Islamic FinTech. Source: adapted from Rabbani et. al., 2020

As put by the (Rabbani et al., 2020) the Islamic Fintech is flexible, attractive, efficient, and it leads to financial inclusion and innovation.

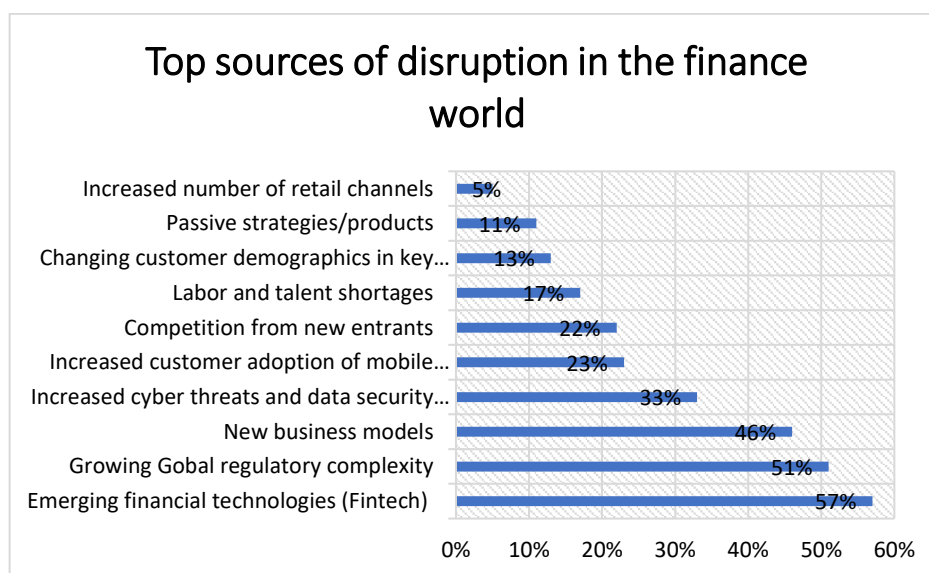
The success of Islamic finance and magnitude of the role it will play in recovery post-COVID will mainly be determined by the use and adoption of Fintech in the next couple of months (Haider, 2020). Fintech and delivery of financial services by Islamic banks and financial institutions are going to be complementary to each other, due to the following infrastructural, behavioral, and technological changes in the society.

Social Distancing for the Foreseeable Future: Social distancing has been discovered as one of the important tools to mitigate the spread of the corona virus and it is going to stay for a considerable period of time even after the virus ends (Painter, 2020). The world post COVID is going to be different and it is expected that there will a significant change in the behavioral pattern of the people. Social distancing is here to stay even after the COVID because it has put a psychological mark on the lives of individuals (Pathan, 2020).

A Cashless Post-COVID Society: Across the globe, as the lockdown has eased up and the economy is moving back to the normal, traders and customers are looking to minimize the fear of spreading the virus and maintaining the social distancing. Cash is making people nervous. Shopkeepers and business owners are asking the customers to use cards, digital payment apps and other Fintech based payment services instead of cash. Some researchers, like Olagbaju et. al., believe the finance world post COVID is going to be cashless. As cashless is easy, convenient, and efficient, COVID has only given a strong reason to the people that cashless is the way to go forward by getting rid of cash and risk associated with it. Going cashless has its own risks, such as compulsive shopping, online hackers, and glitches. The present study believes that this digital shift is inexorable, and the world should embrace this shift rather than resist it.

Greater Integration with Fintech Companies and Financial Institutions: Fintech is the biggest disruption in the field of finance and evolution. Fintech companies have forced the Islamic banks, Takaful companies and other Islamic financial institution to face the new reality. The bestselling products, services, and business models are no longer valid in the current digital market space. It must be replaced by the digital, more efficient technologies. KPMG conducted a survey on the greatest source of disruption in the world of finance. The results are shown in figure 4.

Figure 5: Source: compiled from KPMG International global Fintech survey, 2017



As it can be seen from the above figure that Fintech is the biggest disruption of present time (57%), followed by the complexity in regulation and new business models with 51% and 56% respectively. There is a strong opportunity for the Islamic banks and Islamic financial institutions to partner with these Fintech companies and take advantage of the growing market.

Application of Fintech services such as KYC / AML, Blockchain, Big data and Machine Learning

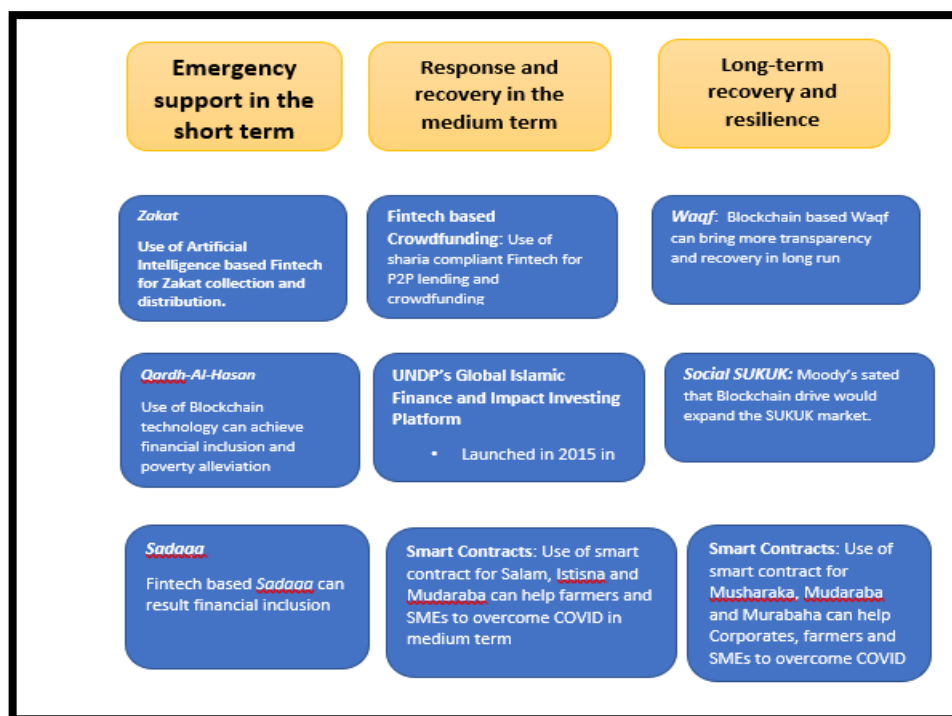
in Islamic Finance:

The Fintech services are available for Know your customer (KYC) and Anti money laundering (AML) since they automatic identify and verify transactions done by the Fintech to ensure the safe and secure online transaction. The first step for the AML is KYC and it is performed by the high-tech artificial intelligence-based Fintech applications. Also, the use of Blockchain, big data, and machine learning in Islamic finance will bring more efficiency and transparency for the consumers as well as regulators and IfIs (Sun et al. 2020; Rabbani, 2020a).

From all the above arguments, it can be safely said that COVID 19 provides an opportunity for the Islamic Fintech to grow and provide an alternative financial system. Also, Islamic Fintech can serve the unserved through financial inclusion and poverty alleviation. The focus of Islamic Fintech is on delivering innovative financial services by complying sharia. The brightest part is that the Islamic financial institution and Islamic banks have realized that, and Islamic Fintech are partnering with Islamic banks instead of competing with them (Khan and Rabbani 2020).

The use of Fintech post COVID:

Figure 6: Use of Fintech post COVID

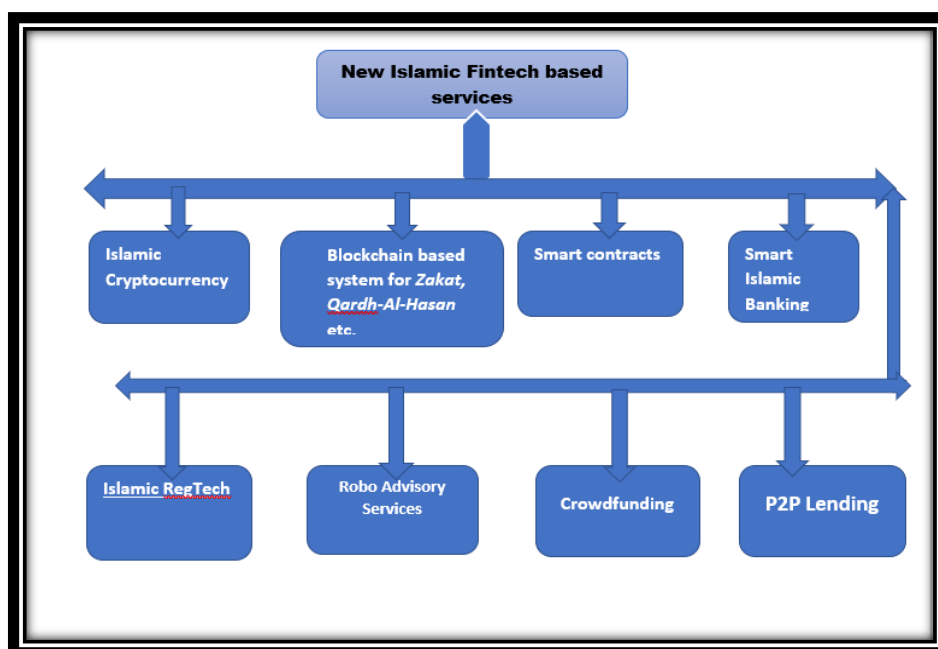


New Islamic Fintech based Financial Services Post COVID:

Epidemic coronavirus (COVID-19) has snowballed into an economic crisis, causing massive emotional and financial challenges for consumers, societies, and harmed projects. Companies wrestle with a number of challenges, from the logistics sector to workplace and supply chain operations, finance and cash, tax, and trade. In addition to meeting its own

problems, the Islamic finance is well positioned to fight this pandemic with help of Islamic Fintech., Fighting is going to be challenging and interesting for Islamic financial institutions. The present situation provides a major opportunity for IFIs and the reaction to which will have a profound effect on their long-term performance, achievement, and industry positioning. It gives a perfect platform to Islamic financial institutions to try and launch new and innovative Fintech based financial services and tap the untapped market.

Figure 6: New Islamic Fintech based services



Islamic cryptocurrency:

A cryptocurrency is an internet based digital asset secured by the technology called cryptography. It is very secured as it is almost impossible to double spend or counterfeit. There is a large pool of Muslim investors who want to invest in bitcoin but are reluctant due to sharia compliance. They must be given an option of investment in a less volatile Islamic cryptocurrency (Baker, 2017). There is possibility to issue the Islamic Cryptocurrency if the volatility issue is resolved (Alzubaidi,2017). Islamic Cryptocurrency can be a popular Islamic finance tool post COVID to attract new investors and mobilize resources.

Sharia compliant gold backed cryptocurrencies are already in the market, Eg. X8 currency, OneGram etc.

Blockchain based system for *Zakat, Qardh-Al-Hasan* etc.

Blockchain is the decentralized distributed ledger to record the financial transaction. Blockchain technology can be applied in the financial services such as- *Zakat, Qardh-Al-Hasan, P2p lending and Mudaraba* etc. Blockchain technology will bring more transparency and efficiency (Khan, 2020). Blockchain technology can also be used for other transactions, such as recording land deal etc.

Smart contracts:

Smart contract are used to facilitate the transfer of digital assets based on pre-agreed terms and conditions. One of the basic objectives of Islamic finance is to bring transparency and efficiency in its dealing and smart contracts help to achieve this objective. The digital smart contract is definitely the future of finance and it will replace the traditional paper based contract since it helps in bringing more reliability and transparency without endangering its legitimacy (Rahim, 2018).

Smart Islamic banking

The world smart is very often used now a day for smart cities, smart phones, and smart banking. The "smartness" is fundamentally attained by embracing the innovative and disruptive technologies such as automation, cloud IoT, etc. Smart banking means more intelligent and tech based approach to customer service in providing financial services. Smart Banking is a new concept in Islamic banking where customer engagement and satisfaction is taken to another level. Example: Qitmeer is the first next generation Islamic banking platform based on BlockDAG, which will serve the Islamic bank customers for ethical investments as per the *Quran* and *Sunnah* (Rabbani, 2020).

Islamic RegTech

Islamic RegTech is a blend of both regulation and technology, which is aimed at enhancing the transparency, consistency, and standardization of regulatory processes in Islamic finance. It is critical to ensure that technological advancement does not compromise the principles of sharia.

There is need to have a balanced RegTech to promote innovation and to keep a check on the sharia compliance of the Fintech innovations.

Robo advisory services

The role of Artificial intelligence (AI) is becoming increasingly important in the study of banking and finance. Banks and financial services organisation are using the robo advisory services for providing financial services to customers. It will change the financial services experience forever. Robo advisory services for Islamic banks include Chatbot for financial advice and AI based Zakat calculation. (Khan and Rabbani, 2020a; Khan and Rabbani, 2020b)

Crowdfunding and P2P lending

A FinTech initiative, P2P lending and crowdfunding has provided that avenue to the borrowers. It is easy, faster, cheaper, and affordable medium of obtaining finances directly from the public. Crowdfunding has become the first-choice source of financing startups experiencing very high growth. It has the potential to become the largest challenger to the traditional medium of finance. Crowdfunding and P2P lending is going to be the future medium of finance (Taha, 2014).

Conclusion:

COVID 19 has disrupted the entire finance world as everyone around the globe from researchers to policy makers are trying to find a solution and provide a stable and sustainable economic system. Although, the nature of current crisis is different from the crisis in 2008, but the experience and confidence of Islamic finance will play a crucial role in re-establishing Islamic economics as an alternative system to the conventional economics. The disruptive innovation such as Islamic Fintech provides an equal ground to the Islamic finance to compete and thrive. Assuming that the outbreak will be a defining moment in the recent times is logical, and we draw the conclusion that now the world we humans enter will be significantly different than the one we thought we knew before. We are expected to see an increase in digital Fintech based operation because of the COVID-19 issue. The role of Islamic Fintech and adoption of Fintech by the Islamic finance customers will be significant in recovery post COVID.

References

1. Acharya, V., & Steffen, S. (2020), "Stress tests" for banks as liquidity insurers in a time of COVID," *VoxEU.org*, March, 22.
2. Ahmed, A. (2010), "Global financial crisis: an Islamic finance perspective," *International Journal of Islamic and Middle Eastern Finance and Management*.
3. Albuлесcu, C. (2020). Coronavirus and oil price crash. Available at SSRN 3553452.
4. Ali, M. A., Bashar A., Rabbani, M. R. and Abdullah, Y. (2020). Transforming Business Decision Making with Internet of Things (IoT) and Machine Learning (ML). Accepted for IEEE conference. (IEEE explore). DASA'20.
5. Allais, M., & Hagen, G. M. (Eds.). (2013), "*Expected utility hypotheses and the Allais paradox: Contemporary discussions of the decisions under uncertainty with Allais' rejoinder*," (Vol. 21). Springer Science & Business Media.
6. Al-Tawfiq, J. A., & Memish, Z. A. (2020), "COVID-19 in the Eastern Mediterranean Region and Saudi Arabia: prevention and therapeutic strategies. *International Journal of Antimicrobial Agents*," 55(5), 105968.
7. Alvarez, F. E., Argente, D., & Lippi, F. (2020) "A simple planning problem for COVID-19 lockdown," (No. w26981). National Bureau of Economic Research.
8. Alzubaidi, I. B., & Abdullah, A. (2017), "Developing a Digital Currency from an Islamic Perspective: Case of Blockchain Technology," *International Business Research*, 10(11), 79-87.
9. Bakar, N. A., Rosbi, S., & Uzaki, K. (2017), "Cryptocurrency Framework Diagnostics from Islamic Finance Perspective: A New Insight of Bitcoin System Transaction," *International Journal of Management Science and Business Administration*, 4(1), 19-28.
10. Baker, S. R., Bloom, N., Davis, S. J., & Terry, S. J. (2020), "COVID-induced economic uncertainty," (No. w26983). National Bureau of Economic Research.

11. Choudhury, M. A., & Hassan, A. (2014), "The challenge in poverty alleviation: role of Islamic microfinance and social capital," *Humanomics*.
12. Desai, A. N., & Aronoff, D. M. (2020), "Food Safety and COVID-19," *Jama*.
13. Elmelki, A., & Ben Arab, M. (2009), "Ethical investment and the social responsibilities of the Islamic banks," *International Business Research*, 2(2), 123-130.
14. Fernandes, N. (2020). Economic effects of coronavirus outbreak (COVID-19) on the world economy. Available at SSRN 3557504.
15. Fu, J., & Mishra, M. (2020), "The Global Impact of COVID-19 on Fintech Adoption," Available at SSRN 3588453.
16. Haider, M., Khan, S., Rabbani, M. R. and Thallasinos, Y.E. (2020), "An Artificial Intelligence and NLP based Islamic FinTech Model Combining Zakat and Qardh-Al-Hasan for Countering the Adverse Impact of COVID 19 on SMEs and Individuals," *International Journal of Economics and Business Administration*, 8(2), 348-361.
17. Hasan, R., Hassan, M. K., & Aliyu, S. (2020), "Fintech and Islamic Finance: Literature Review and Research Agenda," *International Journal of Islamic Economics and Finance (IJIEF)*, 3(1), 75-94.
18. Hassan, A., & Harahap, S. S. (2010), "Exploring corporate social responsibility disclosure: the case of Islamic banks," *International Journal of Islamic and Middle Eastern Finance and Management*.
19. Hassan, M. K., & Ashraf, A. (2010, January), "An integrated poverty alleviation model combining zakat, awqaf and micro-finance," In *Seventh International Conference—The Tawhidic Epistemology: Zakat and Waqf Economy, Bangi, Malaysia* (pp. 261-281).
20. Hassan, M. K., & Kayed, R. N. (2009), "The global financial crisis, risk management and social justice in Islamic finance," *Risk Management and Social Justice in Islamic Finance*.

21. IFDI (2018), Islamic Finance Development Report 2018; Available at; <https://ceif.iba.edu.pk/pdf/Reuters-Islamic-finance-development-report2018.pdf>. Accessed on 11/06/2020.
22. Kayed, R. N., & Hassan, M. K. (2011), "The global financial crisis and Islamic finance," *Thunderbird International Business Review*, 53(5), 551-564.
23. Khan, S. and Rabbani, M. R., (2020a), "Artificial Intelligence and NLP based Chatbot as Islamic Banking and Finance Expert," 2020 International Conference on Computational Linguistics and Natural Language Processing (CLNLP 2020), Seoul, South Korea on July 20-22, 2020.
24. Khan, S. and Rabbani, M.R., (2020b), "Artificial Intelligence and NLP based Chabot as Islamic Banking and Finance Expert," International Journal of Information Retrieval Research (IJIRR), Special Issue On: Optimization and Convergence of Machine Learning Algorithms for Leveraging IoT, Block chain and Artificial Intelligence, 2020
25. KPMG (2017), "The Fintech Imperative: How financial institutions are embracing Fintech to evolve and grow," Available at: <https://assets.kpmg/content/dam/kpmg/ke/pdf/thought-leaderships/Forging-with%20bleeds.pdf>, Accessed on 14/06/2020.
26. M., Rahman, R. A., Yusof, S. N. S., & Mohamed, I. S. (2014), "The current practice of Islamic microfinance institutions' accounting information system via the implementation of mobile banking," *Procedia-social and behavioral Sciences*, 145, 81-87.
27. McGeever, N., McQuinn, J., & Myers, S. (2020). "SME liquidity needs during the COVID-19 shock (No. 2/FS/20)," Central Bank of Ireland.
28. Nadzri, F. A. A., Rahman, A., & Rashidah & Omar, N. (2012), "Zakat and poverty alleviation: Roles of zakat institutions in Malaysia," *International Journal of Arts and Commerce*, 1(7), 61-72.
29. Olagbaju, O. O., Awosusi, O. E., & Shaib, O. E. (2020) "COVID-19 Induced Changes on Lifestyles Education and Socio-Economic Activities in West African States: Recovery Strategies for Post

- Pandemic Era” *International Journal of World Policy and Development Studies*, 6(4), 38-43.
30. Ozili, P. K., & Arun, T. (2020), “Spillover of COVID-19: impact on the Global Economy,” *Available at SSRN 3562570*.
 31. Painter, M., & Qiu, T. (2020), “Political beliefs affect compliance with COVID-19 social distancing orders,” *Available at SSRN 3569098*.
 32. Pathan, A., & Thakur, S. (2020), “Economic Analysis of Legislative Process of Parliament in the Light of Pandemic of Covid-19 and India: Revisiting Existing Physical Infrastructure from the Prism of Evolving Information and Communication Technology (ICT),” *Available at SSRN 3587590*.
 33. Poon, J. P., Pollard, J., & Chow, Y. W. (2018), “Resetting neoliberal values: lawmaking in Malaysia's Islamic finance,” *Annals of the American Association of Geographers*, 108(5), 1442-1456.
 34. Rabbani, M. R. (2020), “The competitive structure and strategic positioning of commercial banks in Saudi Arabia,” *International Journal on Emerging Technologies* 11(3), 43-46.
 35. Rabbani, M. R., Bashir A., Abdullah, Y., Khan, S. and Ali, M. A. (2020). Embracing of Fintech in Islamic Finance in the post COVID-19 era. Accepted for IEEE conference. (IEEE explore). DASA'20.
 36. Rabbani, M. R., Hassan, M. K., Khan, S. and Ali, M. A. (2020). “Artificial Intelligence and NLP Based Fintech Model on Zakat for Poverty Alleviation and Sustainable Development for Muslims in India.”
 37. Rabbani, M.R., Khan, S., Thalassinis, I.E. (2020), “FinTech, Blockchain and Islamic Finance: An Extensive Literature Review,” *International Journal of Economics and Business Administration*, 8(2), 65-86.
 38. Radwan, M., Sha, S. A., & Brescia, V. (2020), " Islamic Finance Role in the Time of COVID 19 Pandemic: The Way Out during and after Emergency.

39. Rahim, S. R. M., Mohamad, Z. Z., Bakar, J. A., Mohsin, F. H., & Isa, N. M. (2018), "Artificial intelligence, smart contract and islamic finance," *Asian Soc Sci*, 14(2), 145.
40. Ready, R. C. (2018), "Oil prices and the stock market," *Review of Finance*, 22(1), 155-176.
41. Reuters, T. (2017), Islamic Finance Development Report 2014. *Thomson Reuters*.
42. Schueffel, P. (2016), "Taming the beast: a scientific definition of fintech," *Journal of Innovation Management*, 4(4), 32-54.
43. Smolo, E., & Mirakhor, A. (2010), "The global financial crisis and its implications for the Islamic financial industry," *International Journal of Islamic and Middle Eastern Finance and Management*.
44. Sun, H., Rabbani, M.R., Sial, M.S., Yu, S., Filipe, J. A., and Cherian. J. (2020). "Identifying Big Data's Opportunities, Challenges, and Implications in Finance." *Mathematics* 8(10).
45. Tavanti, M. (2013), "Before microfinance: The social value of microsavings in Vincentian poverty reduction," *Journal of business ethics*, 112(4), 697-706.
46. Todorof, M. (2018, August), "Shariah-compliant fintech in the banking industry," In *ERA Forum* (Vol. 19, No. 1, pp. 1-17). Springer Berlin Heidelberg.
47. Zandifar, A., & Badrfam, R. (2020), "Fighting COVID-19 in Iran; economic challenges ahead," *Archives of Iranian medicine*, 23(4), 284.