CHAPTER 1

CIRCULAR ECONOMY, SUSTAINABLE DEVELOPMENT, AND THE ROLE OF ISLAMIC FINANCE*

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Abstract

Based on an extract-produce-consume-waste mechanism, the conventional linear economy requires enormous extraction and wasteful production & consumption. This results in several tribulations and threats to the earth’s climate such as rising global warming due to greenhouse gas emissions, erosion of the ecosystem, diminution of natural resources, and the release of toxic waste into natural habitat. To mitigate these challenges and to rescue the earth’s climate from the devastation caused by the linear economic system, the importance of introducing and implementing a circular economic model is inevitable. A circular economy is based on a closed loop/cycle of production through consumption which facilitates limited use of materials and resources, minimal emission of hazardous elements into the nature, and a highly efficient waste management system to ensure recycling and reuse of residuals into further production. The Islamic financial system, being a pioneer in financing Sustainable Development, can be a major driver in the transformation towards a circular economy. The principles of Islamic finance, accompanied with Shari’ah regulations and Sustainable Development Goals (SDGs), will provide a solid guideline and framework as well as ample amount of funding sources for effective transition of the linear economy into the circular paradigm.

Keywords: Circular economy, sustainable development, Islamic finance

JEL Classification: P4, Q01

* An incorrect version of chapter 1 was inadvertently published earlier. The correct version with all references and attributions is published herewith.
1. Introduction

Today’s global economy is run by a linear system, which entails a process known as extract-produce-consume-waste (Jørgensen and Pedersen, 2018; Sørensen, 2018), resulting in more than sixty billion tons of natural resources being extracted per year and more than thirteen billion tons of waste being discharged into the nature (6th GEF Assembly, Vietnam, 2018). As a result of this enormous extraction and wasteful production & consumption, the earth’s climate has been exposed to a number of tribulations and threats such as mounting global warming due to greenhouse gas emissions, degeneration of the ecosystem, diminution of natural resources, and release of toxic waste into the natural habitat (6th GEF Assembly, Vietnam, 2018). Being one of the major social and economic drivers, this linear paradigm is greatly reducing the stability and capacity of the earth’s systems to recover. This, in turn, is adversely affecting human livelihood and the global environment.

The earlier research has identified that linear production and consumption patterns has adversely affected the overall ecological system (Millar, et al., 2019; Esposito, et al., 2017) and socio-economic stability (Rees, 2010). The linear economic model capitalizes on extracting the earth’s scarce resources and using them into manufacturing, without any scope for reuse of the residuals and/or recycling of the used goods into further production (Khan, 2019; Sørensen, 2018). Due to the ever-growing population of the earth and this extravagant nature of production and consumption, we are heading towards a crisis where there will be lack of resources and raw materials to meet the escalating demand for global production ((Goyal, et al., 2018; Rees, 2010). The wasteful and unsustainable nature of economic activities is greatly damaging the natural and human environment and leading us to a world where there won’t be enough food, drinkable water, and other necessities for future generations.

Instituting a circular economic model is of utmost importance in order to successfully mitigate aforementioned challenges and to rescue the earth’s climate from the depredation of the linear economy. Utilizing public-private partnerships, the circular economic model will introduce a closed loop approach to production and consumption using environment-friendly resources, sustainable product designs, efficient industrial processes, and effective waste management systems. Replacing the linear economic model with a circular alternative will enable us to treat the environment in the way that it should be treated. By reducing mass extraction of earth’s natural resources and emission of greenhouse gas and other hazardous

1 Please see https://www.thegef.org/events/sixth-gef-assembly-and-associated-meetings
substances, we will be able to deal with the environment in a more sustainable way. Transformation of the linear economic model into a circular one will demand a highly technical and efficient approach, which in turn will create businesses and workforce opportunities, promote employment growth and economic development, save billions of dollars of reinvestment, and help nations thrive and succeed in every aspect of their economy.

To introduce and promote a circular economic model and to achieve its underlying objectives, it is high time to create such an economy where the ‘end-of-life’ concept is replaced by the choice of minimizing and reusing waste through sustainable design of materials, products, systems, and business models. In order to achieve the full benefits of a circular economy, the model is reliant upon cooperation within sectors and supply chains, and across countries. But there is over-reliance upon financing and investors who recognize that the risks of the linear system can unlock the new opportunities. In order to maintain the spirit of the circular economy, providing an effective and sustainable source of financing is the key for the financial needs of the implementation of circular economy. This paper will guide on the perspective of Islamic Finance in introducing circular economy, building a bridge between circular economy, SDGs and Islamic finance, and supporting an effective transformation of the traditional linear economy into a circular system.

This paper is a systematic review of existing literature. It attempts to provide the key definitions related to circular economic model, as well as identifies and reviews the most relevant and significant studies in the existing literature. Based on searching for keywords and screening of the abstracts, a precise list of papers/publications was selected for thorough review. A significant number of publications were rejected as they fail to build a bridge between circular economy and Islamic finance, i.e., how Islamic finance can play a significant role towards the implementation of circular business models. Selected studies have mostly been analyzed based on their research question, theoretical framework, methodology, key findings, and policy implications and recommendation for further research.

This paper has been divided into five sections. In section 2, an extensive theoretical framework for circular economy and a brief analysis of the literature is presented where the evolution and history of circular economy are discussed. Section 2 also examines the connection between circular economy and sustainable development and identifies the potential risks and barriers to circular economy. Section 3 begins with a discussion of the emergence of Islamic finance in the global financial system and addresses how Islamic finance is linked to sustainable development goals (SDGs). Section 4 attempts to build a bridge between circular economy, sustainable development, and the Islamic financial system.
How Islamic finance can help to introduce and support the implementation of circular economy and SDGs has also been discussed in section 4. Finally, section 5 concludes and provides directions for future research.

2. Theoretical Framework and Literature Review

There is a direct and positive association between economic development and scarcity of global resources (Krausmann et al., 2009). Furness et al. (2012) document that mass usage of earth’s scarce resources has been following an upward trend despite the expansion of the global middle class. The existing method of operation in majority of the global industries is based on a linear i.e. extract-produce-consume-waste approach (Goyal, et al., 2018), which, regardless of the global recycling and sustainability efforts, is leading the world to a failed system aimed at economic development while ignoring the innovation and technological disruptions (Arpin-Pont et al., 2016). The failure and devastations of existing linear economic system gave birth to a debate around the need for transformation of the linear to a circular economic model. Circular economy is a brand-new concept capitalizing on a closed-loop approach that can drastically transform the existing way of manufacturing, production, and consumption (The Forum of Young Global Leaders, 2015). Challenging the extravagant and detrimental linear system, the circular economic model will break the vicious cycle (Ghisellini et al., 2016; Butterworth et al., 2014). Through the introduction and implementation of eco-friendly and sustainable production techniques, circular economy will create a transformative and prudent global market ensuring value-creation and economic opulence for every nation (Korhonen et al., 2018; Raksit, 2014).

A circular economic approach, in contrast to the traditional linear model, is an economic system with the primary goal of making the best and most sustainable use of resources by increasing efficiency and thereby reducing waste. It aims at value creation through efficient use of resources and drastic transformation of production and consumption techniques (Kirchherr et al., 2017). Majority of circular economy literature emphasizes on its production benefits (Rizos et al., 2017; Ghisellini et al., 2016), value creation ability (Lewandowski, 2016), and social advantages encompassing an economic model based on renewable energy and resource efficiency (Wijkman et al., 2015). Albeit the earlier literature has failed to provide enough understanding of the strategies promoting circular economy (Repo et al., 2018; Korhonen et al., 2018), the circular economy has the ability to bring massive changes to the day to day lives of humankind (Hobson et al., 2016).

2 Please see https://www3.weforum.org/docs/WEF_YGL16_Annual_Report_2016.pdf
A good amount of literature focused on the barriers to circular economy and highlighted a number of factors impeding the dispersal and advantages of circular business models. Based on an extensive survey of European businesses, Kirchherr et al. (2017) reported that lack of consumer awareness, which is vital for recycling efforts, is one of the major drivers hindering a transition towards circular economy. Studying small and medium enterprises trying to implement circular business models, Rizos et al. (2016) came up with similar finding and pointed on lack of support from demand networks. Van Eijk (2015) provided general insights on the drivers of and barriers to circular economy. Examining the relationship between sustainability and circular business models, Geissdoerfer et al. (2017) denied referring to consumer aspects as the major barrier to circular economy. According to Ghisellini et al. (2016), consumers are the passive drivers and it’s rather the production-side factors that are affecting the effective transition from linear to circular economy.

Based on an extensive analysis of scientific and grey literature, Kirchherr et al. (2017) provided a precise and thorough definition of circular economy: “A circular economy is an economic system that replaces the ‘end-of-life’ reducing, alternatively reusing, recycling and recovering materials in production and consumption processes. It operates at the micro level (products, companies, consumers) as well as macro level (city, region, nation, and beyond) with the aim of accomplishing sustainable development, thus simultaneously creating environmental quality, economic prosperity, and social equity, to the benefit of current and future generations.” (p. 229). Circular economy minimizes emission of harmful gases and other hazardous substances into nature. Based on closed loop of production and manufacturing, the model of circular economy facilitates significant waste reduction through effective recycling and refurbishing of materials. It saves a great deal of time and money by minimizing the residual loss of production. Critics may argue that since circular economy follows a sustainable method of production, i.e., using waste or leftovers for reproduction, it may reduce the quality of products and services and hence overall business profits. However, in reality, firms running by circular business models are better able to utilize their inventories, increasing their overall efficiency and hence operational profits.
2.1. History of Circular Economy

The first articulation of the term ‘circular economy’ was developed by Kenneth Boulding during the early 1970s. In his essay titled “The Economics of the Coming Spaceship Earth” he came up with the idea of a clear distinction between open and closed economies. According to Boulding (1966), in an open economy resources are wasted and lost to nature during production, whereas in a circular economy resources are kept and preserved during the production process to be reused for future production.

Unlike the traditional linear model, the circular economy is based on a non-linear i.e. circular/closed system from which the fundamental theory and practice of circular economy has evolved. The theoretical underpinnings of circular economy are greatly influenced by pertinent ideas and concepts such as ‘cradle to cradle’ (a biomimetic/synthetic approach circulating resources in the production process to ensure healthy and efficient production), ‘industrial ecology’ (the study of sustainable resource flows through production), ‘blue economy’ (a viable use of aquatic resources to counteract scarcity and foster economic growth), and so on.

Pearce and Turner (1989) worked extensively on the theory and modeling of circular economy. In their renowned book named “Economics of Natural Resources and the Environment,” they severely critiqued the traditional (linear) economy, which they defined

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3 Please see https://en.wikipedia.org/wiki/Circular_economy
as a faulty and inefficient system with a certain residual loss of production and no scope for recycling or reuse of the residuals. Jackson (1996) wrote a famous book titled “Material Concern” in which he incorporated the ideas of Walter R. Stahel, Bill Rees, and Bob Costanza. He established the core idea of precautionary environmental management by replacing the traditional extractive linear economic model with a circular and more efficient one. Walter R. Stahel, the father of Performance Economy, is well known for his extensive thoughts and efforts to introduce and explain the idea of circular economy. In 2019, he published a book named “The Circular Economy – A User’s Guide” where he summarized more than thirty years of his research on the field of Circular Economy4.

2.2. Evolution of Thought

In the book titled “Jobs for Tomorrow: The Potential for Substituting Manpower for Energy” Stahel and Reday-Mulvey (1981) created a vision of a circular economy and its potential influence on the development of economics and other aspects of human lives. They were the first to explain how a circular economy, unlike its linear counterpart, can be introduced to achieve minimization of mass extraction, effective waste management, and creation of new jobs and business opportunities. Stahel’s institute is considered as one of the oldest and most fundamental think tanks for circular economy and sustainable development. His ideas were greatly based on the objectives of creating high performance and long lasting output, understanding production from the perspective of delivering services rather manufacturing goods, making the best use of resources through effective management and reuse of waste, fostering employment by creating new opportunities for businesses, and finally ensuring effective and sustainable economic development.

Introduced in 2006, China’s 11th five-year plans/guidelines were considered a remarkable national policy for introducing circular economy and promoting sustainable development5. In recent years, the concept of circular economy has gained enormous exposure and coverage by the Ellen MacArthur Foundation, which has summarized and disclosed the economic scope and environmental benefits of circular economy by combining the harmonizing schools of thought with a view to develop a logical framework. Circular economic strategies need to be introduced and implemented by nations in order to meet the targets for energy and water consumption as well as emission reduction. Circular economy can greatly contribute towards the achievement of the COP 21 Agreement (also known as the Paris Agreement), a new

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5 Please see http://www.gov.cn/english/special/115y_index.htm
international agreement led by the Paris Climate Conference, which has the aim of reducing global warming to below 2 degrees centigrade. However, as argued by ecologists and environmentalists, global warming should be reduced to 1.5 degrees centigrade or below and additional reduction of 15 billion metric tons of CO₂ gas emissions are needed by the end of 2030. The successful accomplishment of these goals hinges on the replacement of the traditional linear model with circular economic strategies.

2.3. From Linear to Circular Approach

The traditional linear model, based on the produce-make-waste approach, is highly inefficient in that it consumes/extracts an unlimited amount of resources from nature and wastes much of it out of the production process. The circular economy is a combination of economic, environmental, technological, and social issues (Slavik et al., 2018). The circular economic model, in contrast to the traditional one, cares about nature and living systems. In a circular process, a finite amount of resources is extracted from the environment based on need for production and utilized in a more efficient and sustainable manner during the production process. Basically, in a circular economy the residual amount that is lost in the production process is restored and recycled for the purpose of reuse and making output. The circular economy is a regenerative method that views the production process as a system of organisms producing nutrients (waste) that can be reused back into the process.

As mentioned earlier, Walter R. Stahel has become one of the most prominent thinkers and scholars in the field of sustainable development through his introduction of circular economy. Stahel, a Swiss architect and environmental analyst, is known as the father of ‘Performance Economy,’ which was founded on the concept of circular economy and its impact on waste management & emission minimization, economic competitiveness, and employment creation. In 2002, German chemist Michael Braungart and American architect Bill McDonough introduced the concept of ‘Cradle to Cradle,’ which has been founded on Stahel’s idea of circular economy and industrial sustainability. ‘Cradle to Cradle’ conceptualizes on three elements: elimination of the concept of waste, maximization of renewable energy, and celebration of diversity by respecting human and natural systems.

Ellen Macarthur Foundation, in 2013, published a report titled “Towards the Circular Economy: Economic and Business Rationale for an Accelerated Transition”. The fact base and analytics for the report were provided by McKinsey & Company. The report is devised into multiple chapters, discussing the limitations of linear economic models, the advantages

of shifting from linear to circular economy, real-world cases of successful transition and subsequent benefits, and policy recommendations for businesses on how to achieve an effective transformation from linear to circular models. The cases analyzed are based on countries from the European Union (EU). The report illustrates the detrimental consequences of the conventional “extract-produce-consume-waste” approach, as well as highlights the hands-on benefits (increased efficiency, reduced costs, higher profits, among others) achieved by European businesses that transformed from conventional to circular, i.e., sustainable business strategies. Further, the report also analyses the areas of business or industries that facilitate and benefit from the transformation the most.

Studying numerous cases from the U.S., Europe, and China, Ranta et al. (2018) document the key institutional drivers of circular economy and the major barriers that businesses and industries face in regard to a smooth transition. Their study identifies the sustainable solutions unlocked in a circular economy, resulting from value creation in stages of supply chain and manufacturing. Conducting a comparative analysis of circular business cases in three different institutional environments, i.e., the U.S., Europe, and China, their findings suggest that recycling lies at the center point of the major drivers of circular and sustainable economic models. Further, they argue that the cultural, perceptional, and regulatory differences among geographic regions are the key barriers. Their study recommends that flexible institutional and regulatory mechanisms across regions are crucial for effective implementation of circular and sustainable business environments.

2.4. Circular Economy and Sustainable Development

Because of its numerous environmental and social benefits, such as, minimal use of raw materials and thus increased efficiency, reduced disposition of waste and minimized discharge of harmful elements into the nature, circular economy is undoubtedly the better and more sustainable alternative that businesses are thriving for. Due to its enormous scope and potential, circular economy has gained significant research attention in recent years (Geissdoerfer et al., 2017). A massive amount of research is being conducted on the feasibility of adopting circular business processes and their ability to create a sustainable business environment for all stakeholders.

Elia et al. (2017) critically reviews existing studies in the circular economy literature, while focusing on the methodological analysis of circular business systems to evaluate and assess their credibility, as well as their ability and effectiveness to ensure environmental and social sustainability. They suggest that the fundamental edges of circular economic models,
i.e., reusing and recycling, lie at the core of sustainable business environments, leading it to be an eventual solution to its conventional (linear) counterpart. Di Maio et al. (2015) document the long-term sustainability of circular business models by highlighting two of its major characteristics: use of renewable resources and materials into the production, and recycling of disposed goods for further production.

2.5. Financial Aspects of Circular Economy

Circular economic models gained attention of experts and policy makers because not only of its environmental benefits but also of tremendous potential from a financial valuation perspective. Conventional finance mostly cares about the cost of capital and the future cash flows to be generated by investment of the capital. Conversely, circular business models are concerned about the stability and sustainability of the future cash flows. Stakeholders in a circular business model take part into sustainable economic processes through sharing of information with a view to having constant feedbacks that help reduce the businesses’ exposure to financial and ecological crises in the future. Circular economic models are more likely to be able to minimize their financial costs, resulting in greater amount of profits. Lower cost of capital resulting from sustainable and less volatile future cash flows is in the core of the financial benefit.

Being a relatively new concept that is still under experiments, a circular economy fails to provide sufficient data and/or empirical evidence in regard to the sustainability of future cash flows to be generated by circular business models. In most of times, lack of funding becomes a vital issue and major obstacle for circular economic models that stems from lack of investors’ confidence. Investors require evidence i.e. track record indicating the feasibility and hence profitability of the circular business models. They need to be assured with the ability of these models to successfully create value, both socially and financially. Due to lack of data and proven track record of success, circular economic models are perceived as potentially risk investments. Large firms who have benefited through adoption of circular business models may contribute significantly to the industrial literature and help attract future investments towards sustainable financing.

Cost of financing is probably the most crucial aspect of valuation facing financial institutions and other business organizations regardless of their nature of business. The fundamental of finance suggest that investors require to be compensated with extra return in response to an additional unit of risk or uncertainty (Tian, 2018; Shoaib & Siddiqui, 2017). The higher premium paired with the higher amount of risk help investors to get cushion
against adverse future circumstances. Circular economy is a relatively new concept that is yet to be tested for successful and effective implementation. Investing on circular business models leads investors to be exposed to higher level of uncertainty for which they must be rewarded with a higher premium. Lack of historical data accompanied with higher level of uncertainty cause circular economic models to exhibit a much higher cost of capital as compared to its conventional counterpart.

Despite a higher cost of capital because of high uncertainty stemming from lack of evidence, circular economic models are still good buys because of their intangible benefits. Circular economies are based on collaborative efforts and cultivating relationships among stakeholders. Sustainable processes and reliable stakeholder relationships are important intangible assets substantiating the valuation of circular economic models. Unlike those of traditional business models, valuation of a circular economy is based on the valuation of a number of embedded options/benefits associated with the sustainable nature of the circular businesses. Valuation of implicit real options is one of the vital issues that has tremendous implications for the financial aspect of circular economic models.

2.6. Challenges and Barriers to Circular Economy

Despite the never-ending benefits of the circular economy, the transformation towards it from the existing system will be highly challenging. In addition to the developing and least developed regions of the world, many developed nations lack infrastructural and technological competitiveness in terms of effective transition towards the circular economic system. Industries in many developed nations are not well equipped to implement and transform to a circular model. According to Lacy et al. (2015), strategic and operational designs in most firms are deeply rooted in the traditional linear model, which will make it difficult and complicated for them to switch to a circular model. However, many countries will benefit greatly from the transformation if they can transit successfully. Reichel et al. (2016) suggested that effective transition policies are needed beforehand in order to minimize the potential failures and make the transition beneficial for all nations.

Despite the reduction of cost and price risk, the implementation of a circular economy will require big investments for which businesses may not be prepared. Even though mature firms may find it affordable to finance such massive transformations, firms in the early and growth stages of the life cycle will surely find it challenging to support and cope up with these changes. Further, cost savings from circular economies may not be immediately available, in addition to the assumption of associated implicit costs (Yacob et al., 2013).
Implementation of a successful transformation from linear to circular paradigm requires transformation at all levels of the supply chain. Lack of synchrony within the supply chain in regard to the transformation may turn out to be a significant barrier. Differences in regulatory environments and legal procedures across industries may further worsen the transition. Kirchherr et al. (2017) identify four main interrelated barriers to circular economy: technological, market, regulatory, and cultural.

Firms with conservative culture regarding investments and innovation may cause barriers for firms with more aggressive expansion and development strategies. In fact, the former group will cause lack of awareness among consumers regarding circular design, production, and usage of goods and services. Thus, the cultural barrier will result in a further technological barrier. Regulatory and market barriers are highly interrelated as well. Circular business models will encounter limited funding opportunities due to their limited/circular procurement. They may find it difficult to demonstrate that they have a potential market even in the absence of such procurements, which may discourage policy makers from promoting the transformation to a circular economy. Thus, regulatory barriers may result in market barriers which will create further regulatory barriers. The interdependence of these four categories of barriers may result in the failure to adapt to the circular economic model. However, potential insights and effective strategies can be formulated by studying and analyzing these barriers and their adverse impact on the transition to a circular economy.

3. Emergence of Islamic Finance in the Global Financial System

Islamic finance is one of the fastest growing branches of modern finance system. The drastic changes in the global political economy accompanied by frequent failures of the conventional financial system during the global financial crises resulted in the emergence of modern Islamic finance in the 1970s. Numerous experiments had been conducted before the formal introduction and implementation of Islamic finance took place. During the 1940s, loan cooperatives, based on the concept of western mutual loan experiments, were introduced in the Indian subcontinent. In the late 1950s, landlords in the rural areas of Pakistan devised the idea of interest-free credit. In 1963, the Muslim Pilgrims Savings Corporation was established in Malaysia for the purpose of helping people perform Hajj, which is the biggest religious pilgrimage of the Muslim community. The corporation later transformed into an Islamic savings bank with the purpose of investing the savings of potential pilgrims as per the rules and guidelines of Shari’ah.

Warde (2000) documents that Dr. Ahmed Al-Najjar, the founder and later the Secretary of the International Association of Islamic banks (IAIB), conducted the most admirable experiment in
Egypt over the years 1963 – 1967. Modeled after the mutual savings schemes in West Germany, the bank expanded to nine branches with 2.5 million depositors during its good times. No interest charged was the fundamental of the bank’s business even though the bank did not have any religious association. Later, based on the principles of Mudaraba and Zakat, Nasser Social Bank was established by the Egyptian government to extend financial support to the underprivileged, as well as to ensure economic harmony at all levels in the society (Warde, 2000).

3.1. Defining Islamic finance

Islamic finance is broadly defined as the financial activities conducted by the followers of Islam. It refers to the financial operations that are conducted on the principles of the Quran and the teachings of Prophet Muhammad (PBUH). The practices in Islamic finance are completely different from those in the traditional/conventional financial system, which does not follow any specific religious principle and rather is tailored and governed by humans to fulfill their transient benefits and interests. The definition of Islamic finance is beyond what is called ‘interest-free’. The operations in Islamic finance may or may not be interest-free but they must be in accordance with the guidelines of the Quran and the Sunnah of the holy Prophet (PBUH). The fundamental Islamic principles suggest that any kind of financial exchange or transaction must be free of Riba & Gharar and must capitalize on Halal activities. Riba is the unjustified increase in payables and gharar refers to uncertainty or risk which if present in any financial transaction may lead to speculation. Halal activities refer to those that are permitted (not prohibited) by Islam. The foundation of Islamic finance is based on two aspects: a philosophy of profit and risk sharing and the promotion of economic and social development through exercising specific religious practices such as Zakah. In sum, the major difference between conventional and Islamic finance is that the former focuses on profit/wealth maximization by one party whereas the latter believes in profit/loss and/or risk sharing by both parties.

Islamic finance is comprised of all sorts of financial services such as banking, non-bank financial services, asset management companies and mutual funds, insurance corporations, etc. Over the years Islamic finance has gone through enormous expansion. In addition to the increase in the number of solely Islamic banks and financial institutions, most conventional banks and other financial organizations have opened Islamic wings/windows to reach and serve the growing needs of this emergent sector.

3.2. Islamic Finance and Sustainable Development Goals (SDGs)

The foundation of Islam is based on the principle of sustainable use of livelihood and resources. In fact, the principles and practices of Islam refer to efficient use of resources,
minimal discharge of harmful objects into nature, and effective waste management in order to minimize residual loss. Islam strongly discourages wastefulness and seriously warns its followers about the harsh consequences and punishments to be encountered in the afterlife. Islamic finance can play a vital role in developing and implementing sustainable development goals (SDGs). In fact, Islamic finance has become one of the major sources of substantial amounts of capital to finance the SDGs. Over the years, Islamic finance has experienced significant growth of 10-12% per annum. Islamic finance has grown into about two trillion industry that seeks to finance/support underprivileged Muslims as well as non-Muslims and contribute towards the development and implementation of SDGs.

To identify and explore the potential contributions of Islamic finance in achieving the SDGs, the 4th Annual Symposium on Islamic finance was held in Kuala Lumpur in December 2018. The Symposium was co-organized by the World Bank Group, Islamic Research and Training Institute (IRTI), and International Center for Education in Islamic finance (INCEIF). The Symposium was attended by many leading academics, policymakers, members of the public and private sectors, and development communities, all of whom exchanged their ideas and impressions on the rapidly changing field of Islamic finance and the recent and new developments of the SDGs.

Sustainable Development Goals are supported by Islamic finance through innovative product design. For example, Islamic bonds, called Green Sukuk, promote eco-friendly investment and financing. Islamic endowment funds, such as Waqf, provide environment-friendly financing to Small and Medium Enterprises (SMEs). There are many other instruments such as FinTech, Islamic endowment funds for long term investments, etc., which are in place to promote and facilitate the implementation of SDGs.

To support Islamic financial institutions in achieving SDGs, a favorable environment must be established. In order to do so, legal and regulatory mechanisms should be strengthened and made more robust at the country level. At the international level, in addition to the global standards set by organizations like Islamic Financial Services Board (IFSB) and the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), the standardization of regulations and Shari’ah governance is very crucial. Islamic financial instruments have great potential to promote sustainable economic growth, alleviate poverty, strengthen livelihood strategies, improve basic services, and create more employment and business opportunities.
4. Building a Bridge between Islamic Finance and Circular Economy

4.1. Reform of Shari’ah Governance

It is the responsibility of Islamic financial institutions to ensure compliance with Shari’ah principles in terms of product design, operational strategies, management practices, etc. Due to Shari’ah compliance, Islamic financial institutions recognize certain rules and prohibitions that are not observed by their conventional counterparts. Shari’ah non-compliance risk arises when Islamic financial institutions fail to comply with the requirements and principles of the Shari’ah. Being solely pertinent to Islamic banks and financial institutions, the Shari’ah non-compliance risk gives rise to several concerns. Firms failing to comply with the Shari’ah regulations may lose confidence of the customers, investors, and other stakeholders. In particular, firms gaining income from non-halal or prohibited sources are in greater jeopardy and they must try channeling those funds to charitable initiatives.

By its very nature of doing business, Islamic banks and financial institutions are solely governed by the principles of Shari’ah, leaving it largely beyond the intervention and supervision of conventional regulatory authorities. Islamic financial institutions (IFIs) are run by discretion to determine their governing principles as per Shari’ah, allowing them to avail complete autonomy and thus threatening the foundation and effectiveness of the Shari’ah governance. This is even prevalent in countries like Malaysia, Oman, and Syria, which have widespread Shari’ah governance structures established at the national level. This leads to the inevitable requirement that Shari’ah governance systems within the IFIs are highly vigorous and governments and regulators in countries with Islamic financial systems assure strong enforcement of the Shari’ah governance by the IFIs.

There are several threats facing the effective implementation of the Shari’ah regulations within the IFIs. First of all, there exists a so-called doubt in the customers, even those seeking Shari’ah compliant financial alternatives, regarding the authenticity of the Islamic financial products. In particular, many people believe that the profit/loss sharing mechanism promoted by IFIs is simply another version of interest or riba, discouraging them to use Islamic financial products or establishing any sort of financial connection with the IFIs. Second, there is a lack of confidence among customers and other stakeholders in regard to the ability of Shari’ah regulators to independently perform their responsibilities, especially in cases where the Shari’ah board is comprised of members from the management of the IFI, resulting in agency issues. Third, stakeholders may raise questions about the eligibility of the Shari’ah regulators or board members, which greatly influences the Shari’ah governance process.
4.2. Role of Blended Finance

The fundamental of Islamic blended finance, which can be considered as an optimal combination of socially responsible Islamic financial products, is to ensure that there is a positive-sum solution for all parties. The underlying Islamic financial products can be based on funds accumulated from Zakah, Sadaqa, and a range of numerous Islamic social funds. These Islamic social funds may be accumulated to be utilized to finance Shari’ah compliant yet profitable as well as sustainable investment projects, to create jobs, and thus to help further economic development. IFIs may also go for financing through private placements, where large institutional investors following Shari’ah principles and conducting business under Shari’ah guidelines will inject large amounts of funds to further expand the market share of the IFIs and thereby increase their contributions to the economy and society. The main purpose of Islamic blended finance is to ensure a sustainable growth of business entities (Gavas et al., 2014). Use of Islamic financial instruments that are aligned with the sustainable development goals along with Islamic social funds are likely to play a key role in this regard. However, as argued by Tonkonogy et al. (2018), the effectiveness of blended finance is subject to its application as a financial solution. In particular, the blended finance mechanism is required to establish a positive-sum situation for all parties/stakeholders involved, which lies at the core of the blended finance.

4.3. Role of Islamic Finance in the Transformation from Linear to Circular Economy

Compared to its conventional counterpart, the Islamic financial system is considered as a more robust and feasible financing mechanism in promoting economic and sustainable development. Based on the principle of risk sharing instead of profit maximization, IFIs benefit from intrinsic structural advantage. Further, the Islamic financial system is proven to be more (less) vigorous (vulnerable) during times of economic and financial crises, as it has been seen in the global financial crisis of 2007-2008. Islamic banking industry has been rapidly growing over the past two decades across both Muslim- and non-Muslim majority countries. According to IFSB (2017), Islamic and Shari’ah based banking and financing had operations in more than 30 countries with a total asset size of approximately USD 1.5 trillion. The rapid growth of the Islamic financial system across global markets has made it one of the key drivers of global sustainable development.

In 2000, Millennium Development Goals (MDGs) were set by the United Nations (UN) to protect the path of development and prosperity of future generations by the end of 2015 (Khan, 2019). However, the MDGs were replaced with an updated version called Sustainable
Development Goals (SDGs) at the beginning of 2015. The shift from MDGs to SDGs was the major driver of the transformation from linear to circular economic model. Islamic finance can play a key role in the process by extending financial support to businesses ensuring economic growth, social inclusion, and environmental protection.

Founded on the principles of Shari’ah and aligned with the goals of sustainable development, the Islamic financial system exhibits promising potential to help implement the transformation from linear to circular economy. Ensuring the betterment of the environment and society is the central motive of Islamic financial system as well as Islamic social funds, making them imperative sources of substantial financing to implement the circular business models. The concept of Islamic finance and IFIs can contribute to the transformation by providing advisory services based on the principles of Shari’ah, as well as by offering large-scale capital investments into environmentally and socially responsible business projects and organizations. In particular, Islamic financial schemes may be used to finance businesses aiming at environmental innovation, waste reduction, recycling of disposed materials and products, and ensuring effective governance mechanism to promote and implement sustainable business models.

As far as the financial solutions are concerned, Islamic finance can offer a range of Shari’ah compliant and ethically and socially responsible financial instruments, such as Green Sukuk, which are known as green Islamic bonds. Sukuk is a vastly popular Islamic financial product offered by public and private IFIs across numerous countries, helping firms to raise capital needed to conduct their businesses in an Islamic and Shari’ah compliant manner which could otherwise not be possible to generate through conventional banks and financial institutions. The contributing factor of Green Sukuk is that apart from being a fund generating mechanism for Shari’ah compliant businesses, it helps finance firms and projects that are heavily involved in environmentally and socially responsible initiatives, making it a highly relevant and potential candidate for financing circular/ waste-reducing and sustainable business models. In sum, Green Sukuk is a financial innovation to finance large environment friendly infrastructure projects having positive impact on overall society (Kassim and Abdullah, 2018) and consequently, promote circular economy.

Although majority of Muslim countries are based on linear economy, few countries have taken the initiatives of renewable and green projects through Islamic financing options to support the circular economy. For example, within the framework of socially responsible Investment (SRI), Tadau Energy Sdn Bhd and Quantum Solar (Malaysian based firms) issued sukuk of MYR 250 and MYR 1 billion respectively, to support solar energy projects (Wahab &
Similarly, Indonesia issued sovereign Green Sukuk worth of USD 1.25 billion. Countries having Islamic financial systems need to take advantage of the funds generated from Green Sukuk to invest in projects dealing with global climate change issues such as reduction of waste, remission of greenhouse gas effects, facilitation of recycling and refurbishment, and hence supporting an effective transformation of conventional to circular paradigm.

Even though it’s imperative for all Islamic (and non-Islamic as well) countries to shift from linear to circular business models, OIC countries, because of the special environmental challenges they face, need the transformation the most. Despite the consistently poor performance of the OIC countries in the Environmental Performance Index (EPI) published by Yale University, they have promising growth rates as compared with the developed nations. Among the OIC countries, Qatar has made significant developments in implementing SDGs and transforming into more environmentally and socially responsible initiatives. Being a high temperature land with numerous environmental and climate issues (Brooks et al., 2006), Qatar is undergoing rapid industrialization and population growth (Luomi, 2012a). Given the ongoing ecological issues, the government and regulatory authorities are tirelessly working on the restoration of the environmental and ecological sustainability. Unlike a number of other countries that are going through similar problems, i.e., Nigeria, Pakistan, and Morocco, Qatar’s performance is consistently impressive based on the ecological footprint, flaring, and carbon emission. Qatar has become a role model for other OIC countries in the promotion and implementation of sustainable financial models and Qatar Development Bank played the most crucial role in the journey. Working with Qatar Charity by offering financial guarantees, they pooled large-scale funding from Islamic banks to help support small and medium businesses that are practicing sustainable and circular business concepts.

Islamic finance can help promote and successfully implement circular, i.e., sustainable business models through the use of numerous innovative financial instruments. The case of Green Sukuk has already been illustrated. Another useful financing arrangement may be Qard with profit, enabling Islamic banks and FIs and/or other financial institutions to help SMEs implement sustainable business models in exchange of profit sharing. The model created by Qatar with the help of Qatar Development Bank might be followed by the neighboring nations. Global markets offer huge potential for businesses as well as Islamic banks and financial institutions to replace conventional/linear business models with their circular counterparts. Entrepreneurs with brilliant and environmentally and socially sustainable business idea should seek financial and philanthropic assistance to the IFIs through the extension of customized and effective Islamic financial instruments offered by the IFIs.
5. Conclusion

The main purpose of this paper is to introduce the novel and rapidly growing idea of circular economy and how Islamic finance can play a key role in the promotion and implementation of circular business models. Conventional economic model, also known as the linear economy, is based on the extract-produce-consume-dispose mechanism, whereas the circular economy facilitates recycling of the disposed products and materials and reusing them into further production, reducing mass disposition of waste into the natural habitat.

Islamic finance is a rapidly growing segment in the global financial industry. Founded on the principles of Shari’ah and with the objective of profit and risk sharing, Islamic banks and financial institutions have the unique ability of extending financial and advisory support to businesses and individuals with potentials while ensuring sustainability in the environmental and social dimensions. In many cases, the long-term funds provided by IFIs to help promote and implement sustainable initiatives could not otherwise be generated through the conventional mechanism because of their sole objective of profit maximization.

With the wide-range financing mechanisms, Islamic finance can help implement the SDGs as well as an effective transformation from linear to circular economy. The example of Green Sukuk is visible in many countries. Green Sukuk is the Islamic green bonds that are extended to support businesses with environmentally and socially responsible motives. Islamic blended finance, which is the optimal combination of Islamic social funds along with proceeds from penalties due to non-compliance with Shari’ah guidelines is playing significant role as well. Numerous other Islamic financial products such as Qard with profit may also be promoted for the implementation of SDGs as well as a successful shift from linear to circular paradigm. For future research, empirical studies need to be done to better examine the status of the transformation, as well as a comparative analysis of the roles of conventional and Islamic financial systems in the transformation from linear to circular paradigm.

References


