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Fintech, Green Finance and Sustainable Development

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Abstract: Implementing sustainable development face serious challenges. Bond issuance is insufficient for developing environmentally friendly industry. Fintech promotes both green finance and sustainable development, and has redefined financial service and the ways of pricing. Fintech itself is green, and supports sustainable development at least in the following aspects: ensuring green finance, reducing cost and information asymmetric, promoting efficiency, valuing nature's assets, and providing practical sustainable lifestyles. Fintech provide a solution for sustainable finance. Ant Forest presents how fintech acting on sustainable development. Fintech and green finance should develop simultaneously to code with climate change. That is significant for sustainable development.

Introduction

Since the Industrial Revelation in 1760, the global economy growth and human living standards increased rapidly, but at the expense of deteriorated environment. Consuming huge carbon energy and ignoring emission of pollutants lead to resources shortage, serious pollution and ecological deterioration, thus threating long-term economic growth. In 1987, the definition of 'sustainable development' was firstly proposed in the Brundtland Report, aiming for meeting the needs of future generations as well as the needs of present generation. Sustainable development is the organizing principle for meeting human development goals while at the same time sustaining the ability of natural systems to provide the natural resources and ecosystem services upon which the economy and society depend [1]. Sustainable development has been widely accepted and has become a most important consideration for economic growth and environmental protection.

Finance is closely related to sustainable development and is the cornerstone of economic sustainable development; and sustainable development is the foundation of long-term financial prosperity. Over recent years, green finance was proposed to protect environment, and has progressed significantly. Green finance connects the public and private financial system with sustainable development, integrates financial decisions with environment protection, and supports environmentally friendly business models focusing on clean energy, improved water and air quality, disposable plastic and so on. Green finance fills gaps among consumers, producers, investors, and lenders, and emphasize finance as a tool to support environment protection [2]. That will cost trillions. To chase the UN Sustainable Development Goals and Paris Agreement on Climate Change, an estimated 5-7 trillion dollars is needed to invest in environment friendly industry every year [3]. However, existing green financial channel is insufficient, and unlocking the potential of fintech to improve green finance seems urgently. But few researchers study focus on green attribute of fintech, and how can fintech benefit green finance. Therefore, studying the interactions among fintech, green finance and sustainable development is theoretically and practically significant.

Fintech Revolution

Fintech is a loose term. According to Financial Stability Board, 'Fintech is defined as technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services [4]. It refers to new financial business models provided by Internet company and/or financial institution, these models that relate to emerging technologies are so innovative that will potentially transform financial services industry [5]. New technologies include Internet, mobile Internet, big data, artificial intelligence, interconnect technology, distributed system, security technology and so on. Fintech covers ranges of financial activities, including payments, investment management, capital raising, deposits and loans, insurance, regulatory compliance and so on. New business model, new product, and even new organization are created. For example, third-party payment, peer-to-peer lending (P2P), crowdfunding, big data credit, robo-advisor, blockchain and virtual currency. These business models are innovative, and they have something in common: asset-light, low margin, able to scale, compliance-light and rapid development [6].

Today, the key to understanding fintech is big data. Big data-mining facilitates and accurizes asset and credit pricing, which has long been considered as the core of finance. Potential big data sources are grabbed from social media, search engine, Internet Forum, Web news, etc. Also, with big data excavation, customer' portrait is well described; new financial products are well designed and precisely marketed. The potential of financial needs can be found easily. As finance deeply integrated with information technology, the boundary of traditional finance has been broken, the money shortfall and the surplus can be linked efficiently through fintech. Fintech lowers trade cost, decreases information asymmetry. Fintech is also small amount, more convenient, open and transparent. Fintech lowers the entrance threshold of small investors and thus inclusive, and can detects invisible financial demands of investors.

Why Green Finance is Essential for Sustainable Development?

What is Green Finance? Green finance (also called sustainable finance or environmental finance) refers to financial activity aiming to protect environment, and connects financial industry and environment protection. Green finance is a financial innovation to meet the needs of environmental protection [7], and refers to financial tools designed for developing, promoting, and supporting positive and durable production activity, which has externalities [8]. It is committed to solve problems like environmental pollution and the greenhouse effect, and promote coordinated of economic society. For banks, green finance are financial products and services that consider environmental factors throughout the loan decision, post-monitoring and risk management; it promotes environmentally responsible investment and stimulates low carbon technologies, projects, industries and businesses [9].

Why Green Finance Matters? Green finance is essential for three reasons. Firstly, it promotes sustainable development. The flow of financial instruments and related services enhances developing and implementing sustainable business models, investment, trade, economic, environmental and social projects and policies. Secondly, it promotes banks' innovation, and helps avoiding the risk that linked with violating environmental policies. If the borrowing enterprise is punished because of violation of environmental laws, it will reduce profitability and repayment ability of this company, resulting in increasing risk of the bank or lender. Lastly, after 2008 financial crisis, companies emphasize economic, environmental and social coordination except shareholders' value creation [8].

How Fintech Benefits from Green Finance?

The Equator Principles (EPs) is a risk management framework for bank to determine, assess and manage environmental and social risk in loan projects. The Eps primarily intend to provide a minimum standard for due diligence and support responsible risk decision-making. But the EPs is hard to execute in the reality, especially for those small banks or small institutions [10]. Because environmentally friendly projects are high cost and time-consuming, financial institutions often lack of enough patience. Capital is always seeking profits. If banks strictly apply the EPs, they will lose many profitable investment opportunities. In other words, for those start-up projects, information asymmetric always a problem especially for banks, which require strict risk management. So unfortunately, green bonds just raised an estimated $130 billion in 2017 [11]. Less than 1% of global bonds are labelled as green, and less than 1% of the holdings by global institutional investors are environmentally-friendly infrastructure assets [12]. Additionally, green finance is characterized as high trade costs, limited coverage, and insufficient product. Green finance needs an innovation, and fintech has the potential to increase the breadth and depth of green finance.

Fintech Reduce Transaction Cost and Improve Capital Efficiency. The use of new technology reduces the cost of transaction, credit investigation, resources matching. Fintech reduce trading time and accelerate value creation. So, the operational efficiency is increased. For example, in the green agriculture area, big data comprehensively monitors the growth environment of crops, such as temperature, humidity, and water content, and using images to determine the growth state. Again, those collected data could be used to financial services in the areas like insurance and credit.

Fintech Make Green Finance More Extensive. Fintech will lead to green finance more users and lower capital cost. Fintech companies are good at both personalized marketing or precision marketing. Benefit from wider channels and lower customer acquisition cost, fintech users are more extensive. Meanwhile, banks have capital and brand advantages, and the credit cost is low as well.

Fintech Strengthen Lower Information Asymmetric and Enhance Risk Management. Fintech will strengthen the risk recognizing and risk managing ability of bank. Combining big data with data of green projects accumulated by banks, it is helpful to green project identification and integration of environment violation information. Therefore, fintech accelerate the decision-making of green finance and risk management.

The Role of Blockchain. Fintech companies are using blockchain technology to digitalize green assets. Blockchain guarantee authenticity and traceability of green products and thus alleviating information asymmetric. The real and unchangeable data is very significant. Because it is helpful for developing standard bonds and asset securitization, issuance of creditable index, and development of financial derivative that can hedge risk. Moreover, blockchain promotes the formation and liquidity of carbon emission reduction trading market.

Fintech Make Green Finance More Inclusive. Fintech provides equal and affordable financial services to the poor, promoting inclusive finance [12]. Traditional finance use to be criticized not inclusive, the green finance is even worse. Current participants of green finance are exclusively government and big organization [13]. But the micro-enterprise and individual person matters, although big companies account for most majority of pollutant. Because small companies and individuals constitute most of employment and consumption. They are the main sources of pollution. Fintech can provide them financial services and guide them to green transformation. So, fintech and green finance need to be carried out simultaneously.

Another Way Fintech Benefits Sustainable Development

Fintech Provides Green Lifestyle. Fintech itself is green. Fintech transforms financial service to green, low-carbon and time-saving industry. Purchasing, investing, and investment advisory can be done through a cellphone, reducing the frequency of driving to the bank counter, getting rid of unnecessary trading cost and potential waste. Mobile payment will reduce cash use. Fintech is financial inclusive, by fulfilling the needs of small and long-tail customer. The public are more assessable to financial service. Moreover, new business models, which supported by fintech, are environmentally friendly, such as shared economy. Shared bikes facilitate and encourage people commune with a green way. Fintech is also efficient at creating new green products. A green product crowdfund will promote green product or green project development. But if this product does not meet investor's expectation, the crowdfund would be stop in the early stage. That would save time. By reducing cost and increasing efficiency, fintech enable the poor to access clean energy, and facilitating green saving and investing for both the poor and the rich.

An Example from Ant Forest. Ant Forest is a project proposed by fintech company the Ant Financial. The company covers a series of fintech business model such as mobile payment, money management, consuming loan, big data credit. Anst Forest is a green financial system, aiming to harness digital technology to financing tree planting. In the app users raise a virtual tree with 'green energy', which is collected by paying low-carbon products using the Alipay. Those products relate to online shopping tickets, online shopping, subway travel, ETC payment, electric invoice, shared bicycles, electric vehicle charging piles. As the tree grows up and when the collected energy lager than 17.9 kg, the Ant Financial will plant a real tree in the western China. In April 2017, over 220 million users have planted 85 million trees through the app [14]. Ant Forest is innovative. Environment protection is no longer limited to the government or the rich, ordinary people can participate by this app. It improves peoples' environment protection awareness and contribute to restoration of ecological environment. It also links more investment organization to green finance. The app makes green life measurable and turns it into a real 'transaction' tree. It is conceivable that as hundreds of millions of consumers and more and more companies participate, more and more green-related parts of the economy will be given financial attributes; users' low-carbon behavior will be encouraged and environmental awareness will be enhanced. The behavior of users will also affect products and services, driving the entire economy to a green transition [13].

Conclusion

Sustainable development is the common goal of human future. Green finance and environment-friendly fintech is strong driving force for sustainable economic development, because they support technological innovation and industrial restructuring that reducing reliance on polluting energy. Fintech itself has green attributes, and green finance needs the support of fintech to further inclusive and popularize. The transition to sustainable economy is an inevitable trend of economic development. Fintech and green finance have brought unprecedented possibilities for the construction of this mechanism. Fintech is helpful for green finance and sustainable development. New policies to promote fintech and green finance should be brought further in practice.

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