Blockchain – A Financial Technology For Future Sustainable Development

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***Abstract*—After the global financial crisis 2008, the world has been putting more effort in tightening banking and financial activities with stricter regulations. However, the effectiveness of this policy has remained controversial as many people believe that policy makers should promote freedom and transparency by empowering the public to directly interfere and change the system for public interest. This article attempts to synthesize and analyze available information with a focus on the role of blockchain, a financial tool that can potentially play an important role in the sustainable development of the global economy. The new technology is expected to bring massive benefits to consumers, to current banking system and to the whole society in general.** *(Abstract)*

Keywords—blockchain, bank, cryptocurrency, payment, technology, transfer.

I. THE DIGITIZED WORLD

Recent global financial crises had implanted wide-spread fear and obsession. For that reason, regulators worldwide have constantly implemented increasingly rigid rules on financial activities. However, facts have shown that stricter regulations do not make the financial world a safer place, instead showing a lack of confidence that hindered international trade and economic growth, especially for emerging economies. This conflicts with the common goal of international trade, which, based on cooperation and synergy, promotes values to customers, to the payment system and to the development of society.

Therefore, it remains controversial whether stringent regulations should be implemented or policy makers should encourage further expansion of freedom and transparency for the public to directly involve and make their own decisions with effective financial tools. Fortunately, current digital innovations, especially the advent of Blockchain technology in Bitcoin, have opened up new opportunities to solve this problem. Research on the field has indicated that Blockchain not only creates drastic changes in the nature of the banking system but also can potentially reshape the entire economy. Today banks have become almost entirely digitized, making technological innovations vital to their business. To fulfill both internal needs of making strategic decisions and external requirements from customers, it is essential for banks to examine the importance of Blockchain technology.

II. DEFINITION

Blockchain is a technology underlying Bitcoin and other cryptocurrencies, maintained by a decentralized computer network. Blockchain is considered an open ledger where all online transactions are recorded and everyone is allowed to connect, to send or verify transactions. In other words, Blockchain is a digitized system of accounting records which records in details all transactions according to a mathematical set of rules to prevent illegal interference. Research on impacts of cryptocurrencies, decentralized ledger and Blockchain have shown that they are potentially powerful tools to minimize costs and bring major changes to the financial field in the long run.

A. Advantages and Drawbacks of Blockchain

The use of a decentralized ledger and the automation of Blockchain have formed a technological model for a payment infrastructure characterized by low costs and transparency, which will have major impacts on global financial market.

- Blockchain promotes smart contracts, which increases the efficiency of transactions and payments in the stock market. By providing faster and cheaper financial services, Blockchain technology can be a powerful tool that put finance in harmony with the world's dynamic and changing landscape.
- Fees for foreign exchange transactions, remittances, credit card transactions and other products can be reduced substantially. Specifically, it is estimated that $16 billion will be saved annually, equally one third of transaction fees. Capital requirements for banks can be reduced by $120 billion. Costs for remittances will fall approximately 1% compared to the global average of the "traditional channels" of 7.7%. (Demos, 2016) Recently, Blockchain intermediaries have been

978-1-5090-3638-7/16 $31.00 © 2016 IEEE
DOI 10.1109/GTSD.2016.22

providing excellent Bitcoin transaction service in those countries like Kenya and the Philippines.

- The fact that information is automatically recorded and monitored during the transaction process makes the destination and purpose of the money transferred more transparent, which supports the fight against financial crime such as money laundering.
- The digitization and verification of records not only reduce necessary procedures and save paper but also ease the follow-up process of trade agreements. It also ensures that financial transactions are better protected while banks and regulatory bodies would be able to keep track of customers more easily.
- Last but not least, Blockchain helps boost the speed and efficiency of execution, optimizing the time for transactions to be completed, which is currently up to 3 working days. Blockchain technology will help link networks of recordkeeping, reduce transaction costs and enhance access to the financial market. It can potentially impose a widespread impact on the financial market in terms of banking payments, security trading, web security, trade reporting and interest rate etc. It is forecasted that 2 million bank jobs would be cut off once Blockchain technology is applied in the next decade. (Demos, 2016)

B. However, there are several risks associated with blockchain.

- It limits the competitiveness between banks to improve their own system as blockchain network will be shared among all banks participated in the system.
- Incompleteness in terms of legal and regulation on Bitcoin and cryptocurrencies prevents Blockchain technology from being widely applied. This makes it very challenging for blockchain to make a breakthrough in the payment industry.
- For the banking industry, technological interruptions like blockchain require more time and effort on research and application. Besides, banks also face with payment risks and effects on financial stability due to possible loss of balance on financial system caused by high automation.

III. LEGAL AND POLICY CHALLENGES

However, the application of blockchain in the real world requires a thorough preparation on various aspects, especially on legal and policy.

- As Blockchain's nature of level classification is opposite to that of traditional policy model, it is not easy to give a comprehensive definition of multiple aspects such as customer protection, money laundering and terrorism sponsorship, tax, exchange and management of the capital as well as monetary policy.
- Legal framework for digital currencies should be drafted considering both domestic and international measurements so that risks are minimized while desire for freedom and innovation is still not stiffened.
- Policies should be designed so that the community benefits from blockchain while illegal use of blockchain for such activities as money laundering, terrorism sponsorship and even capital control is strictly prevented.

A. Opportunity

Various opportunities are available for the application of Blockchain in real life, which encourages a sustainable development.

- In today digital world, customer demand for money management with their smart phone or tablet has become higher. At the same time, the rapid growth of peer-to-peer lending in the US has brought about tremendous benefits and attracted a great number of users. Especially, the emergence of Bitcoin with its blockchain operation mechanism has gotten public's attention and promised lots of potential.
- On legal aspect, The US has been the pioneer in the creation of the DLT (Distributed ledger technology) model – A Way to approach the Internet. This was followed by the Advent of telecommunication Laws in 1996, and the "Framework for Global Electronic Commerce" for private sector under the presidency of Bill Clinton. The DLT model has been globally recognized as the foundation of Cyber law, bringing drastic transformations to human society
- Blockchain is an open source technology, base on which people can freely create financial applications, allowing them to collect huge fees from payment execution.
- Bitcoin has been accepted in doing business. It has tremendous advantages such as lower fees, global coverage, better online experience. In addition, the Bitcoin society is considered to have numerous qualified researchers who are committed to innovating and enhancing the security of Bitcoin and making it superior to the traditional credit card network.
- Today is the era of smartphone and the Internet, through which the use of Bitcoin becomes much easier and safer as compared with using codes and passwords to execute e-commerce transaction.
- Next, there are massive demands from emerging economies. Most of them lack necessary infrastructure for traditional payment networks. Meanwhile,

Blockchain, with "open" characteristics, is less demanding in terms of infrastructure. This allows much more things to be done rather than only replacing or expanding the traditional network.

- The trend of liberalization and innovation in financial and investment activities also creates favorable conditions for the application of blockchain. Finance specialists demand a replacement of current regulations with consolidated rules in an effort to encourage investment as well as innovate and develop the DLT model, through which presenting potential solutions to regulate the current financial market in the mushrooming of complicated financial activities and capital intensity.

B. Challenges in banking digitization process

The application of Blockchain in banking activities faces with numerous obstacles.

- First, banks face with shareholders' pressure on profit while regulatory bodies demand from them a rapid simplification of business model. Especially, the power and benefits brought about by traditional system make them more reluctant to change and more fear of uncertainty of the new technology.
- Although Bitcoin has been in the market for 5 years, it has not been widely used. One of the reasons is that user experience is fairly limited as Bitcoin is not easily accessible by the public. Furthermore, the lack of support from governments as well as legal acceptance from insurance companies also explain why the currency has not come to prevalence.
- There are also cut-throat competitions from mobile payment systems, for instance, the dominance of giants like Apple Pay, PayPal, and Google Wallet.
- Policy framework for Bitcoin is not transparent enough while policy makers do not like risks, as they are saying "If I don't understand it, I will not like it."

IV. EVALUATION OF BLOCKCHAIN APLICATION

Blockchain has constantly proved its role in various fields

A. Application of Blockchain in financial activities

Successful experiments on recordkeeping technology behind Bitcoin about credit default swap help banks thoroughly understand major financial flows. Moreover, Bloackchain helps separate the functions of saving and money transferring, allowing start-up to send and receive money as well as exchange to the US dollar more easily. Blockchain also helps managers handle money transactions without use of intermediary.

B. Application of Blockchain in management activities

Despite being peer-to-peer payment system, Blockchain probably still needs supervision from an intermediary during its early stage. The Federal is currently examine to see whether short-term loan agreements, also called purchase contracts between agencies can be handled using Blockchain. Extensive research has also been done on financial technology for bank regulations for low-income consumers. In addition, currency control agencies have conducted research on how to regulate new banking technologies. In Great Britain, the central bank stated that detailed accounting records may have more impact than the payments. The Monetary Authority of Singapore encourage banks to consider the application of blockchain in all stages relating to contracts or transactions that need verification from a reliable third party. In the US and Europe, many technology companies and big trading institutions such as IBM and Chi-X Europe are also lobbying for a widespread application of blockchain technology.

C. Blockchain and cooperation opportunities

In fact, the way of handling very small-value transactions are currently outdated and ineffective. This inflates the transaction fee in terms of both financial and mental aspects, making micro-value payments, especially those via online channels become less feasible. In this case, the use of Blockchain facilitates the consumption of digital product by creating a micropayment system that allows consumers to freely and conveniently buy details of their favorite products or services, and help precisely separate revenues for individuals based on their contribution. It is expected that these characteristics of blockchain would make a break-through in the current financial system and ignite a revolution of innovation.

- First, Blockchain can contribute to the growth of journalism as people can easily pay several cents to view one single article that they are interested. Online news aggregators and publishers are encouraged to bring more valuable content to the audience while gradually eliminate those with superficial content funded by advertising
- Blockchain also facilitates the blossom of the economy in terms of culture by bringing values to artists, writers, bloggers, game producers, etc., those who aim to sell their innovative products online.
- The use of Blockchain also promotes new forms of media, such as crowd made RPGs (Real-life Prediction games), online interactive drama and novel as well as new ways of combining art, music and storytelling.
- Blockchain technology helps enhance and enlarge the field of crowdsourcing, for instance, contributing content to Wikipedia or improving Linux source code. This creates a chance for people to join in writing a sci-fi book, drafting an in-depth report and other innovative products.

- Blockchain technology also creates an opportunity to break up the monopoly of cable TV companies, who deliver their channels to customers in package. With Blockchain, people only need to pay for what they want to watch from their desired supplier, without wasting money on unnecessary channels.

V. CONCLUSION

In brief, the advent of new digital technology has been weakening the intermediary role of banks. Blockchain has indicates that it is the technology of trust, allowing different people and organization to cooperate and create shared values. The application of blockchain opens up a new era with tremendous opportunities, where the nature of business and competition will need to be changed within the framework of cooperation to coexist. The cooperation among banks, technology companies, the market and regulatory agencies, even with contribution from customers, promises to bring about massive benefits to consumers, to the financial system and also to the economy in general. Maybe it is the time for banks and other companies to accept a new way of thinking about the nature of the current digital revolution. Leading the trend by transforming business model and taking steps to apply Blockchain technology in financial activities would be a tactical preparation for a sustainable development of corporations in general.

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