The Future of Financial Services with Technological Advances

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Abstract. FinTech is the new situation facing investment banking, indicating opportunities and challenges brought about by FinTech that investment banking managers should consider planning the future of their businesses under technological advances. The paper explores the future of investment banking supported by technological advances concerning four categories of FinTech: Blockchain, digital payments, lending, and wealth management. The benefits and risks of each category of FinTech are identified compared with traditional financial service methods to propose recommendations that investment banking practices could follow to apply FinTech toward improved operational effectiveness and risk management. The findings suggested that future investment banking practices could refer to the four identified FinTech to improve operations. It is to incorporate the proposed FinTech into the current investment banking practices to support the growth of the investment banking practices in the global financial market. Future academic studies could explore the potential development of Fintech and how advanced FinTech could be incorporated into businesses of investment banking practices.

Keywords: Fintech; online payment; P-to-P lending; robo-advice; blockchain.

1. Introduction

Technologies like Fintech are important for investment banking to gain operational effectiveness and sustainability. According to Ozieranski et al. (2019), FinTech (Financial Technology) includes mobile applications, software, and other technologies to improve the automation of traditional financial services for businesses and customers [1]. There are four categories of FinTech, which are Blockchain, digital payments, lending, and wealth management [2]. Businesses in the financial industry can apply the advantages of Fintech to pursue their growth and advances in risk management. However, managers also should address costs and risks using FinTech to update their current operations. For example, businesses need to buy equipment related to FinTech before applying FinTech in daily operations, resulting in additional costs in adopting FinTech [3]. Moreover, there are additional costs and risks that managers in financial institutions to consider when they develop operations training and recruiting talents to apply FinTech. For example, it is challenging for businesses to audit and respond to additional risks related to digital payments, lending, and wealth management based on FinTech because of their limited knowledge and understanding of advanced technologies. Additional costs are required to follow regulations by Financial Stability Board (FSB) when applying FinTech [4]. Regardless of the costs businesses in the financial industry should address to achieve operational effectiveness, those businesses need to consider opportunities applying FinTech brought about by covid-19, which has stopped various offline traditional financial activities and supported e-commerce and online financial services [5].

The paper explores the future of investment banking supported by technological advances. There are three objectives to fulfil the aim. First, the research is to identify categories of FinTech that investment banking could adopt to support future growth. Second, it explores the benefits and risks of applying each category of FinTech compared with traditional financial service methods. Third, the research proposes recommendations that investment banking could follow to apply FinTech toward improved operational effectiveness and risk management. The paper includes four sections in the main body. First, it reviews online payment by defining online payment and referring to cases of online payment: Alibaba, WeChat Pay, and PayPal. The benefits and risks of online payment are summarized and critiqued by comparing online and traditional payment methods. Second, the paper defines P-to-P Lending concerning the reasons for its emergence, the limitations of traditional lending

and the advantages of P2P. Regulations and risks faced by P2P in the UK are reviewed and justified. Moreover, Robo-advice is suggested with definitions and reviewing current uses, technological barriers, and future directions. Finally, the paper defines Blockchain and discusses the current uses of Blockchain: Bitcoin and NFT. The discussions identify and justify technological barriers to applying Blockchain in the financial market and propose recommendations on future directions of applying Blockchain. The findings are summarized in the conclusion section to imply recommendations for future investment banking practices and future academic studies.

2. Online Payment

Online payment, also named digital payment, is the use of online applications to support digital banking. Customers could easily get banking services via online vehicles, such as direct pay online when they buy items online. Businesses could use online payment to support e-commerce and improve responsiveness to the target customers' requirements [6]. For example, Citibank's digital banking in the US promoted the development of e-commerce, which relies on digital banking services to achieve their deals online. Instead of extending digital banking of the traditional financial institutions, there are newly developed online payment vehicles, such as Alipay, WeChat Pay, and Paypal, which are incorporated into e-commerce to support the development of e-commerce. For example, customers who buy items from Taobao.com could choose Alipay to achieve the deals online while ensuring the security of their payment because Alipay is one subsidy of Taobao.com acting as the mediator to guarantee deals between the sellers and the buyers [7].

Compared with the traditional payment methods, such as payment by cash and credit card there are advantages of online payment via digital banking or online payment software (Alipay, WeChat Pay, and Paypal): reduced transaction costs, improved efficiency in payment and e-commerce, and improved interactive communications between the buyers and sellers to achieve the deal online. First, online payment means reduced transaction costs compared with traditional payments because the users can directly achieve payments online instead of having costs to visit investment banks or using certain payment methods. Technological advances realize the cost reduction benefits of online payment with the development of online payment software (Alipay, WeChat, and Paypal), which could directly allow payments online via the users' smartphone [8]. Second, online payment shows advantages over traditional payment methods, such as cash and credit card payments, because of the quicker transactions the participants could gain using the online payment vehicles. For example, customers buying items could directly pay via their smartphone and WeChat Pay instead of waiting for several minutes or visiting the retail stores of investment banks to pay [8]. Third, online payment shows advantages over traditional payment methods, such as payment by cash and credit card, via supporting interactions between the participants of the payments. Therefore, online payment is related to marketing and customer relationship management of e-commerce using the digital payment to interact with the target customers. For example, communities gather the buyers and the sellers using Alipay, allowing them to discuss the products consumed. Interactions among buyers help corporations offer products and services gain reputation and word-of-mouth marketing benefits while gaining convenience supported by online payment [9].

However, there are risks of online payment because of private information considerations and financial security when the online payment vehicles also support investment activities for the users. First, some users refuse to pay online via online payment vehicles, such as Alipay, WeChat Pay, and Paypal, because they doubt the reliability of online payment compared with traditional payment via cash or credit card offline. Customers who hold opinions doubting the reliability of online payments are mostly elders, who need to become more familiar with the Internet and information technologies [10]. With technological advances, there is a reduced number of customers who do not believe in online payment and refuse to use online payments to achieve deals. Second, online payment brings about additional costs for users because they are always related to other financial instruments, such

as peer-to-peer lending, resulting in risks that the users should address using digital payment vehicles [11].

3. P-to-P Lending

P2P lending is one emerging form of lending developed based on FinTech and benefits both lenders and borrowers compared with situations facing the lenders and borrowers in the traditional financial system. Traditionally, the borrowers lend money from investment banks, which attract deposits from the investors. Investing banks act as mediators between the investors and the borrowers and require fees to serve the borrowers and the investors, implying opportunities that the borrowers and the investors could gain improved benefits if they could reduce the mediating roles of the investment banks and directly develop their cooperation as lenders and borrowers [12]. Technological advances, such as online payment using Alipay, WeChat Pay, and Paypal, cast light on the borrowers and investors to change the previous ways of interacting with each other and aiming at developing direct transactions. Therefore, P2P lending is developed along with the advances of FinTech to overcome limited financial resources for the borrowers and low returns from lending money to the lenders. Cardoso and Martinez (2019) suggested that the most significant feature of P2P lending is the borrowers and the lenders directly negotiating their agreements and achieving the payment via digital payment vehicles [13]. Various individuals and businesses have benefited from P2P, resulting in lower costs and more financial resources available for borrowers, especially borrowers with lower crediting levels. For example, many small and medium businesses in the UK directly gained financial support from individual investors to support the expansion when they failed to gain investing loans from investment banks.

However, P2P lending implies financial risks beyond the financial regulation of the UK government because it is a new form of financial activities developed before the UK government sets the regulatory framework directing the development of P2P lending. The advances of P2P lending, as a new form of financial activity, have directly resulted in improved financial risks in the UK because of the lower crediting status of the borrowers and the difficulties for the individual lenders to audit the quantity of the borrowers [14]. For example, individual lenders have fewer vehicles and weaker capabilities to identify and evaluate the various borrowers compared with professional investing banks, resulting in challenges that the individual lenders could follow to achieve a return from the P2P lending while controlling the risks of the deals. Noticing the limitations of P2P lending, UK regulators have developed and implemented various rules directing the behaviours of all participants in P2P lending. For example, every P2P platform in the UK should follow regulations introduced by the Financial Conduct Authority (FCA) to protect lenders from the provider's malpractice. However, it is challenging for the lenders to audit and respond to the various risks, such as potential losses from insolvency, because of the limited capabilities of the lenders auditing and responding to the individual borrowers' crediting conditions, as the investing banks perform [15]. The UK regulators have contributed to measures dealing with problems facing the lenders and the borrowers because of their limited professional status directly participating in the financial market by encouraging the development of crediting agencies and introducing rules set the crediting and risk management measures that all P2P platforms should follow [6].

4. Robo-Advice

Robo-advice is one important form of FinTech applying artificial intelligence (AI) to support investment banking businesses and propose ways that the businesses in the financial industry could follow to serve the target customers better. Unlike traditional financial management consultants, a Robo-advice-AI is a virtual financial advisor driven by AI, aiming to serve optimised financial services, investing, and portfolio management advice [7]. A robo-advisor is a robot based on software rather than a physical robot. Robo-advice-AI has been widely used: in wealth management,

developing derivatives and serving customers for investment banking. First, Robo-advice-AI is useful to help investment banking achieve wealth management for the investors because AI is one useful technology that perceives the investors' requirements and makes predictions of the financial market, such as the trends of securities in the financial markets [8]. AI is one technology that easily generates big data from the capital market to calculate moving averages, regression analysis, etc., which are important tools to conduct quantitative analyses on securities and propose recommendations or the investors managing their portfolios and wealth [9]. Second, Robo-advice-AI is useful to help investment banking develop derivatives and serve the customers with the products and services developed. Robo-advice-AI could update investment banking products and services after the target customers' perceived requirements from collecting and analyzing mass data.

However, a robo-advisor in use need to consider technological barriers, such as limitations of technologies to model irrational behaviors of investors and to account disruptive advances of technologies. In the financial analysis, it is a challenge for a robo-advisor to audit the financial market and predict any disruptions, such as because of economic shocks or the introduction of disruptive technologies beyond the previous growth path of the financial market [10]. For example, a robo-advisor failed to predict the global economy and financial market crisis because of the threats from covid-19, indicating limited capabilities for Robo-advice-AI to perceive and respond to emergencies. There are technological barriers for the Robo-advice-AI to be smart enough to predict uncertainties and risks in the financial market. However, scholars and investment banking are focusing on improving Robo-advice-AI to better predict the financial market's development with advanced technologies, such as cloud computing, big data, machine learning, blockchains, etc. [11].

Machine learning and Blockchain are the directions of Robo-advice-AI in the application. Machine learning helps the Robo-advice-AI be smarter based on mass data collected from the investors' previous behaviors, aiming at providing smarter consultant recommendations for the customers [12]. Big data developed from previous operations of investment banking and previous financial market conditions are the foundation to support machine learning functions. Blockchain is the direction of improving functions of Robo-advice-AI to manage risks in the financial market and to build reliable online payment vehicles supported by technologies and algorithms [12].

5. Blockchain

Blockchain is a FinTech that supports the recording and tracking of transactions with an immutable and shared ledger in the business network. Blockchain shows its advantages over the traditional ways of recording transactions and assets because it is impossible for the users to change information recorded in Blockchain [12]. Current uses of Blockchain include issuing cryptocurrency and NFT (non-fungible tokens). First, issuing cryptocurrency, such as Bitcoin, changed the traditional landscape of the financial market and operations of investment banking practices serving the target customers. For example, increasing investors buying Bitcoin as an investment vehicle, indicating opportunities for investment banking to expand their businesses, and broking Bitcoin to serve the target customers. The new businesses of investment banking broking Bitcoin also contribute to wealth management consultancy for investors, who gain an additional way to invest and manage their wealth. Second, NFT (non-fungible token) developed based on Blockchain improved the scope of investment banking serving the target customers. According to Khan et al. (2020), NFTs are unique and can't be replaced after they were issued under a certain blockchain-related algorithm. Features of NFT indicated its advantages over cryptocurrencies and physical money because every NFT includes a digital signature to make each one unique. NFT allows investment banking cooperating with online shopping platforms to regard every NFT developed as a token or subject to attract investors worldwide [12].

However, investment banking faces technological barriers to effectively applying Blockchain in the operations because of the limited capabilities of the employees, doubts of the customers, and limitations of the investment banking auditing and responding to risks related to Blockchain-related

applications. First, many investment banking businesses need more skills and capabilities of the employees to understand Blockchain and the various applications developed based on Blockchain, resulting in challenges for the investment banking developing and implementing products and services for the investors based on blockchain [13]. Second, it is a challenge for some investors, who are investment banking customers, to understand Blockchain and accept the new forms of investment. Customer education is required before investment banking can gain enough customers for the new investment subjects. Third, there are limitations of the investment banking auditing and responding to risks related to Blockchain-related applications because the financial products developed based on Blockchain are new products and are under regulation risks from the government. For example, there are governments announced cryptocurrencies are illegal, declining opportunities for investment banking serving customers with Blockchain-related products, such as NFT and Bitcoin [15].

Future directions of Blockchain for investment banking are identified based on opportunities and challenges facing investment banking practices along with the development of blockchains. Future directions of Blockchain for investment banking include the construction of a global financial market and global standard regulating the use of Blockchain. First, investment banking in different countries can develop their communications and cooperation using the Internet and information technologies, aiming at serving customers from different countries with Blockchain-related products and services [8]. Second, investment banking and other participants of the global financial market, such as regulators in different countries, are to negotiate a global standard regulating the use of Blockchain, aiming at incorporating Blockchain in the current investment banking practices [9].

6. Conclusion

This paper explores the future of investment banking supported by technological advances concerning four categories of FinTech: Blockchain, digital payments, lending, and wealth management. First, online payment is using online applications to support digital banking. Compared with traditional payment methods, the benefits of online payment include reduced transaction costs, improved efficiency in payment and e-commerce, and improved interactive communications between the buyers and sellers to achieve the deal online. However, there are risks of online payment because of private information considerations and financial security when the online payment vehicles also support investment activities for the users. Second, P2P lending is developed along with the advances of FinTech to overcome limited financial resources for the borrowers and low returns from lending money to the lenders. However, P2P lending implies financial risks beyond the financial regulation of the UK government because it is a new form of financial activities developed before the UK government sets the regulatory framework directing the development of P2P lending. Third, a robo-advisor is a robot developed based on software, rather than a physical robot. There has been wide use of Robo-advice-AI: wealth management, developing derivatives, and serving customers for investment banking. However, a robo-advisor in use needs to consider technological barriers, such as limitations of technologies to model irrational behaviors of investors and to account for disruptive advances of technologies. Machine learning and Blockchain are the directions of Robo-advice-AI in the application. Four, current uses of Blockchain include the issuing of cryptocurrency and NFT. However, Blockchain in use includes limitations and risks, indicating the construction of a global financial market and global standard regulating the use of Blockchain. Future investment banking practices could refer to the four identified FinTech to improve operations. Future academic studies could explore the potential development of Fintech and how advanced FinTech could be incorporated into businesses of investment banking practices.

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