

The Synergistic Power of Fintech and Digital Transformation

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Abstract. Through the process of transforming from traditional methods to digitalization, the financial industry has proved that digital transformation has improved the efficiency of the financial industry. The development and needs of the times have promoted the innovative development of the financial industry, leading to the emergence of financial technology. Fintech has optimized some of the disadvantages of traditional finance, making it a technology that modern humans rely on, leading to changes in the financial industry. This paper analyzes aspects of digitalization such as online payments, P2P lending markets, artificial intelligence advisors, and blockchain. For the different parts, the differences between them and the traditional methods are discussed. Whether these technologies are mature or stable, their impact on the financial industry and some regulatory problems are analyzed. Future directions of this industry are summarized by exploring more different strengths, weaknesses, and implications for the financial industry from these sections.

Keywords: Fintech; online payment; P2P lending; AI, blockchain.

1. Introduction

The development of the financial industry is the focus of everyone's attention. At present, the development of the financial industry is relatively stable, which means that there will be no major fluctuations in the entire financial system. The stability of financial industry development represents whether the economy is in a healthy state. The stability of the financial industry is inseparable from supervision and maintenance. Financial regulation refers to a set of rules to maintain the healthy operation of the financial industry. It plays an important role in maintaining the stability of the financial industry. According to the FSB report, to guarantee and regulate every systemically significant activity in addition to improving the banking sector [1]. This shows the importance of supervision and maintenance. Financial regulation focuses on disclosing major information of companies and requires the integrity and accuracy of company information to reduce information asymmetry in the financial market. Information asymmetry may lead to losses for investors since investors cannot obtain complete information. Serious incidents may develop into fraudulent transactions. In addition, financial regulation can also reduce risks like systematic risk and default risk.

The degree of development of the financial industry is constantly changing. The renewal of the times and the improvement of people's needs have promoted the development of the industry and forced the emergence of financial technology for digital transformation. Currently, the financial market is in an era of rapid innovation and increased competition. Some concrete developments of digital transformation are online payments, P2P lending platforms, Robo-Advisors, and blockchain. The emergence of these technologies has brought more convenience to people and improved the security and privacy of payment transactions and other processes. The emergence of financial technology has promoted the innovation and diversification of the financial industry and improved its efficiency of the financial industry to a certain extent [2]. However, with the emergence and rapid development of FinTech come regulatory issues. Some regulatory systems have become riskier and unstable. Weak regulation may be the root cause of the failure of some FinTech product implementations. Inadequate regulation could lead to more fraudulent transactions, resulting in the loss of wealth for many investors. Therefore, reducing FinTech product risk by improving regulatory capabilities is a necessary step to improve the stability of the financial industry.

2. Online Payment

As society improves, online payment is preferred by more and more people. Compared to traditional payment, online payment has some advantages over it. Firstly, online payment is more convenient. According to Paytm business, online payment does not require the manual management of finances and accounts that traditional payment does, such as regular withdrawals, storage, and transfers [3]. These features are unique to traditional payment. Traditional payment is mainly a manual operation in which most transactions take place with the aid of cash. In addition, there are letters of credit and checks. Systems for online payment are based on the financial network which uses computer technology as a medium. Credit or debit cards, online banking, and mobile wallets are a few of the online payment alternatives available. Secondly, e-payment is saving time. Regular payments can be a little complicated, with careful monitoring of each entry and maintenance of a revenue and cost report. If businesses use normal payment, they need to use extra human resources and time to complete steps like regular withdrawals and deposits to manage their payment accounts. The process of normal payment is costly in time and energy. Online payment does not require these steps. Finally, electric payment is safer than a typical payment. Moving a large sum of cash is risky because there may be robbed and people must keep an eye on it. However, online payment focuses on solving these problems with technology. Electric payment emphasizes preventing fraud through cross-verifications, OTPs, and mandatory authorizations [3]. These technologies verify users' identities to ensure the payment is right. At the same time, mobile notification enables senders and receivers to ensure every transaction includes information like time and amount of money in the transaction. Thus, using mobile phones to make payments will result in lower fixed costs, fewer time costs, and better security.

Also, the development of E-payment has already displayed stability in platforms like PayPal, Apple Pay, WeChat Pay, and Alipay. PayPal is a global online payment especially popular in the United States. Almost, every shopping platform allowed people to use PayPal to pay for their shopping cart. More than 200 markets offer PayPal, which accepts more than 100 different currencies, permits withdrawals in 56 different currencies, and allows users to save up to 25 different currencies in their accounts [4]. Moreover, Apple Pay was also an important payment method. The total number of cards linked to Apple Pay increased to 30 million the day following the Apple Pay press conference [4]. Apple Pay's biggest advantage is that it allows people to pay for things without the Internet. But it is a platform of Apple so it just can be used in products of Apple. In addition, WeChat and Alipay are both main platforms. WeChat Pay is a third-party payment platform under Tencent. WeChat registered 806 million monthly active users in the second quarter of 2016, a huge increase from the 7.62 million users it had at the end of March [4]. A third-party payment system operated by Alibaba Group Holding Limited is called Alipay. There are almost 460 thousand businesses and establishments that use it to conduct transactions [5]. These two platforms are dominant in China. Almost every shopping websites allow these two. Every younger in China use these two platforms for their daily shopping regardless online or offline. Now that online payment platforms are more widely used, different operating systems have increased in popularity as well.

Besides, the mature regulation of online payment supports its stable development. To complete a wonderful e-payment platform in a country, improvement in the legal and regulatory environment is required. Regulation is thought to increase the digital payment volume since it is safeguarding customers and increasing the trust of electronic currency suppliers [6]. Trust is the best answer a platform can give to customers. Once a platform's level of trust increases, the number of customers using it will not decrease, or even increase gradually. Mature regulation includes tracking. Online payment has real-time tracking [3]. This kind of tracking shows clarity and transparency of each transaction people make and helps in the regulation of transaction status. Quick and easy tracking way increased usage rate of online payment. A good tracking system and platform trust increase the regulatory success of e-payment and lay the foundation for stability.

3. Peer-to-Peer Lending

The more mature Peer-to-peer lending puts pressure on traditional lending. First, P2P lending is easier to access than traditional lending due to without a middleman. The term "traditional lending" describes situations in which banks, credit unions, and other financial organizations offer borrowers loans and provide the financing for those loans [7]. In simple, when people use traditional lending, they need to find a third party like a bank to finish the lending process such as credit evaluation. Opposite to traditional lending, P2P lending does not need a third party. In specific, P2P lending is a cutting-edge way to borrow money and make investments without the help of conventional financial institutions. Borrowers and lenders can conduct profitable business without a bank acting as a middleman by using online platforms [8]. Second, P2P lending increases the efficiency of the financial market. The more middlemen there are, the less efficient the market is. When borrowers start using a P2P lending platform, they provide everything including different evaluations of credit about themselves to the platform. The process of a third party finishing the credit evaluation will be deleted. Since P2P does not need any middleman like traditional lending and has a quicker process, the efficiency of the financial market has been increased in the P2P lending system.

Next, P2P lending does not require the costs of the third party that occur in traditional lending. Third parties like institutions or banks in traditional lending need fees to complete evaluation, the credit assessment, and protection of borrowers. However, P2P sites oversee the entire process from beginning to end, including creditworthiness assessment, loan servicing, payments, and collections [8]. This means P2P lending has transparent credit status of borrowers lenders are easier to reach the information of their borrowers and to decide whether to lend or not rather than traditional lending. Taking the United Kingdom as an example, it was precocious in P2P. Zopa, in 2005, was the first P2P lending platform published in the U.K. To grow its P2P lending, Zopa obtains \$300 million at a \$1 billion valuation and today it has some 500,000 users in the U.K [9]. Zopa start the P2P lending market in the U.K. and laid the foundation and the direction of their financial market.

The P2P lending market has grown significantly in recent years, with more than 300 websites functioning globally [8]. P2P platforms are growing steadily, with the industry expanding at a 17% annual rate [10]. The growth rate is anticipated to continue doing so in the future. Whereas imperfect regulation became a large problem in P2P lending. Firstly, since they do not need a middleman, they are not subject to the stringent rules that third parties impose. Secondly, knowledge of the legal environment and regulations in the P2P and traditional banking segments is quite scarce [10]. So, the problems like scams will occur during the development of P2P lending.

The most serious is that the risk problems in the regulatory system led to the suspension of P2P lending in China. P2P lending gained popularity in China in 2013 with a major upsurge in Internet-enabled financing, which became the largest P2P lending market in the world. However, with the continuous radical development of the industry, the percentage of fraud in the Chinese P2P financial market may reach 10% [11]. Since the end of 2014, at least two-multibillion-dollar Ponzi schemes that pretended to be P2P lenders as well as numerous other smaller frauds have stolen investor cash and a 43 percent increase in outstanding loans over the previous year as of the end of June 2018 [12]. A lot of runs occurred in P2P platforms. The root cause of these scams is a supervisory failure. The CBRC, which only had two or three full-time employees, was tasked with creating regulations for thousands of sophisticated platforms [12]. They lack systematic training and experience and do not have enough supervisors to manage these platforms. A well round P2P lending needs a standard, completed, and reasonable regulatory system to manage.

4. Robo-Advisor and Artificial Intelligence

Development of Robo-Advisors and Artificial Intelligence becomes more popular today. The result of growing consumer demand for improved experiences, efficiency, and transparency is a larger requirement to incorporate developing technology, Robo-Advice, and Artificial Intelligence. Traditional advisors need a place to work and need offices and salaries which are called fixed costs

of a company. Compared to traditional advisors, AI can lower the price of financial guidance [13]. As opposed to human advice firms, AI do not need fixed cost like maintaining fees of offices and salaries paid for financial advisors. AI has changed the markets and enhanced efficiency. For traditional financial advice, businesses need to find some financial institutions or analysts and show them the situation and direction of their purpose. Then the analysts make some recommendations based on those risk appetite and stock valuation. These processes are all made by the human brain which needs time to search for information and make decisions. Nowadays online services known as Robo-Advisors or Artificial Intelligence employ algorithms to automatically construct and maintain client portfolios [13]. It is possible to execute many more trades in a shorter period. It can use the same computation way to solve many different questions from different clients at the same time.

Moreover, human advisors may be biased but AI can aid in minimizing several behavioral biases that are prevalent in financial advisory [13]. For example, several analysts may receive gifts from some companies, or if they have a corporation with them, they may recommend those companies more. Robo-Advisors do not have these situations they just based on their computation path to give straightforward suggestions. In the financial analyst industry, there has been some transformation from human analysts to Robo-Analysts including job cuts. With the help of AI, businesses can automate human analysis activities at the expense of less experienced personnel, while individuals who have more institutional capital and expertise are less impacted [14]. Nevertheless, there is a barrier between Robo-Advice and traditional analysts. This barrier leads that Robo-Advisors cannot completely replace those traditional financial analysts and is the reason that those individuals who have more professional knowledge are less impacted. AI's computational path is clear and one-way and can't answer complex questions. The human brain can analyze the current circumstance, comprehend the emotions involved, and then choose how to respond [15]. Normal financial analysts do their work based on their perspectives, experiences, and professional judgment. They have their own decision-making preference plans and every analyst has a different one. Human analysts assist clients in making logical financial decisions and even overcoming negative emotions or impulses during market declines or upheavals [16]. But AI does not have these abilities. They have no emotional actions. They run on logic-based programming, which only carries out duties according to preprogrammed human orders and considers all the logical repercussions and probability [15]. In addition, since Robo-Advisors are still in their infancy, their business models have not been put to the test over time or in stressful financial situations [13]. The AI industry has not matured and is stable yet. Thus, Robo-Advisors cannot perfectly replace human analysts.

5. Blockchain

The instability of block chain leads the less usage in the financial industry. Block chain is a breakthrough technology with various applications. As a sort of Distributed Ledger Technology, Block chain, is described as a "distributed, shared, encrypted database that serves as an irreversible and incorruptible store of information" [17]. Ledger technology is a consensus of facts that decentralizes the data of trades and controls them. The ability for users to keep and access data or records about assets and holdings is known as distributed ledger technology [17]. Ledger uses cryptography to validate those transactions. The most common cryptography is a hash function. Since hash functions connect each block, a block chain is immutable. Every block contains the hash function of the previous one so that each alteration to one block renders all subsequent blocks invalid. A hash function is a one-way function and not random with an irreversible fixed-length string of numbers and letters. Ledger is secure and transparent which solved the biggest problem of cryptocurrencies called double-spending. But Cryptocurrency is virtual and still hard to control. It is a medium of trade that acts like a currency in some situations, but it does not have all the characteristics of real currency [17].

Cryptocurrency's disadvantages cause the instability of block chain. Firstly, Cryptocurrency has high volatility. A cryptocurrency's price is extremely volatile that can suddenly soar to dizzying highs

and then plummet to horrifying lows [18]. Some investors may be particularly excited about the surge in virtual currencies, thinking they can make a lot of money. However, when the price falls to the bottom, they may not be able to accept it, resulting in a variety of mental and physical diseases. Next, the news about virtual currency is not well-informed. Especially new users, who don't have a lot of experience. When there are some important signs that the cryptocurrency is fluctuating, newcomers may not receive the information, causing them to lose in the virtual currency. In addition, there is a high regulatory risk in the block chain. There are issues in the legal framework of block chain like territoriality [19]. Distributed ledgers are decentralized and do not control by a center, so they don't have a specific location. Territoriality jurisdiction became a problem. Blocks in a block chain may undertake different legal frameworks. No specific party undertakes the responsibility of the block chain. Thus, it is difficult to regulate the block chain well.

6. Conclusion

In conclusion, the digital transformation of the financial industry has been relatively successful. The emergence of electronic payment has attracted the attention of most of the masses. Some inconveniences existing in traditional payment methods have been solved after the emergence of online payment. For example, electronic payment does not require the deposit, withdrawal, liquidation, and other steps required by traditional payment. The development from traditional payment to electronic payment has brought convenience to people, making payment safer and easier to track. The development of P2P lending platforms eliminates the existence of third parties and increases industry efficiency. Making the borrower's credit evaluation and other information transparent on the lending platform network increases the lender's understanding of the borrower and saves the cost of credit evaluation by a third party. But there could be problems with regulation. Because there is no need for a third party, it is not supervised by a third party, and problems such as fraud are likely to arise. Thus, it is important to improve the regulatory system in the P2P system. The advent of artificial intelligence saves companies' fixed costs such as office maintenance and employee salaries. Robo-advisors use clear path algorithms to increase the speed of analysis, thus posing a potential threat to traditional financial analysts to a certain extent. But they lack the biases, emotions, and experiences that human analysts have, making this aspect of development immature. Block chain technology focuses on security and privacy, increasing customers' trust and usage. However, the specificity of the block chain means that it does not have a specific location making it inconvenient to regulate. Therefore, digital transformation has improved the efficiency of the financial industry. The future direction of the financial industry requires an improved regulatory system. The regulatory issues brought about by rapid transformation and development must be taken seriously.

References

- [1] FinTech and market structure in financial services: Market Developments and potential financial stability implications. Financial Stability Board. <https://www.fsb.org/2019/02/fintech-and-market-structure-in-financial-services-market-developments-and-potential-financial-stability-implications/>, last accessed 2023/3/15.
- [2] Improving financial regulation. FSB. https://www.fsb.org/wp-content/uploads/r_090925b, last accessed 2-23/3/15.
- [3] Traditional payments vs E payment systems: The right fit for a business. Paytm Business Blog. <https://business.paytm.com/blog/traditional-payments-vs-e-payment-systems/>, last accessed 2-23/3/15.
- [4] Huang, J. How Mobile Payment Is Changing The World. Western Oregon University, 2017.
- [5] Yan, W.T., Ha, Y. Y. Customers' trust and purchase intention towards Taobao's Alipay. Hong Kong Baptist University, 2011.

- [6] Geva, B. Electronic payments: Guide on legal and regulatory reforms and best practices for developing countries. SSRN Electronic Journal, 2020.
- [7] DeNicola, L. P2P lending vs. traditional lending. Experian. <https://www.experian.com/blogs/ask-experian/p2p-vs-traditional-lending/>, last accessed 2023/3/15.
- [8] What is peer-to-peer (P2P) lending? How it works. P2PMarketData. <https://p2pmarketdata.com/articles/p2p-lending-explained/>, last accessed 2023/3/15.
- [9] Lunden, I. Zopa raises \$300M at a \$1B valuation to expand its P2P lending and savings neobank in the UK. TechCrunch. <https://techcrunch.com/2021/10/18/zopa-raises-300m-at-a-1b-valuation-to-expand-its-p2p-lending-and-savings-neobank-in-the-uk/>, last accessed 2023/3/15.
- [10] Taujanskaitė, K., & Milčius, E. Accelerated growth of peer-to-peer lending and its impact on the consumer credit market: Evidence from Lithuania. *Economies*, 2022, 10(9): 210.
- [11] Wang, H., Wang, Z., Zhang, B., & Zhou, J. Information collection for fraud detection in P2P financial market. MATEC Web of Conferences, 2018 189, 06006.
- [12] Massive P2P failures in China: Underground banks going under. PIIE. <https://www.piie.com/blogs/china-economic-watch/massive-p2p-failures-china-underground-banks-going-under/>, last accessed 2023/3/15.
- [13] Abraham, F. Robo-advisors: Investing through machines. World Bank. <https://documents.worldbank.org/pt/publication/documentsreports/documentdetail/275041551196836758/robo-advisors-investing-through-machines>, last accessed 2023/3/15.
- [14] Fedyk, A., Hodson, J., Khimich, N., & Fedyk, T. Is artificial intelligence improving the audit process? *Review of Accounting Studies*, 2022, 27(3): 938–985.
- [15] Sehgal, S. Can Artificial Intelligence (AI) answer all our questions? LinkedIn. <https://www.linkedin.com/pulse/can-artificial-intelligence-ai-answer-all-our-questions-sanjay-sehgal>, last accessed 2023/3/15.
- [16] 3 reasons why robots won't replace Financial Advisors. Provident Oak Financial, LLC. <https://www.provident oakfinancial.com/resources/3-reasons-why-robots-wont-replace-financial-advisors/>, last accessed 2023/3/15.
- [17] Kakavand, H., Kost De Sevres, N., & Chilton, B. The Blockchain Revolution: An Analysis of regulation and technology related to distributed Ledger Technologies. SSRN Electronic Journal, 2017.
- [18] Pros and cons of cryptocurrency: A beginner's guide. N26. <https://n26.com/en-eu/blog/pros-and-cons-of-cryptocurrency>, last accessed 2023/3/15.
- [19] Tena, M. 7 regulatory challenges facing blockchain: BBVA. NEWS BBVA. <https://www.bbva.com/en/7-regulatory-challenges-facing-blockchain/>, last accessed 2023/3/15.