



FIN TECH, BIG TECH, BIG DATA AND GLOBAL BANKING: WHAT DOES THE FUTURE HOLD?

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Abstract

In the recent history of banking, the traditional banks are being challenged by intense competition and scramble for market share. Surprisingly, the competition is not coming from within the traditional banking circle but from fractional players of Financial Technology (Fin Tech, Fintech or FinTech) and Big Tech (Big Technology) companies. The advent of Financial Technology and accessibility of Big Data have made it very easy for these companies to confront the banks from all fronts of financial service delivery. This trend has to a large extent pushed the traditional banks to the defensive line where they appear to be losing grips of what was thought of to be their exclusive domain. The aim of this paper is to analyse the recent trends in Banking Process Management resulting from the advent of Financial Technology and Big Data. This becomes necessary due to the encroachment of traditional banking territories by the Fin Tech and Big Tech companies mostly aided by opportunities provided by Technology and Big Data. Hence, the need for investigation on how Fin Tech and Big Tech firms can capitalize on alternative banking channels and big data to pose a big concern to Global Banking. Consequently, here is a big question of what does the future hold for global banking: An Opportunity or A Threat? Therefore, this paper analysed the competent areas of Fin Tech and Big Tech companies, the opportunities and threats resulting from the advent of financial technology, mining of big data and the “wait-and-see” attitude of most financial regulators. Further, the paper recommends that globally banks should take up the challenge and get involved in the alternative channels, utilize the big data at their disposal, engage in shared services while they retain and digitalise their traditional risk management process in the course of financial intermediation. Also, regulators are implored to embrace the new development and come up with rules and regulations that align with the needs of unstoppable 4th industrial revolution that will change the landscape of financial intermediation. Also, the directions for future studies in this area have been highlighted.

Keywords: Big Data, Big Tech, Fin Tech, Future, Global Banking

JEL Classification: G21, G23, M15, O31,033

1. Introduction

The traditional banking industry is struggling to hold on to its conventional financial intermediation role at a critical moment of technological inventions posed by Financial Technology (Fin Tech, Fintech or FinTech) and Big Data. The situation is much more worrying with the waves of the fourth industrial revolution's technological inventiveness that combines information technology and robot technology. At the moment economies have begun to open their doors to financial information (Fintech/Fin Tech) companies which exploit the advantage provided by innovations and technology to compete with the traditional financial methods of financial service delivery of the conventional financial institutions especially the bank. The



concept of fintech is driven from the combination of the words “Financial” and “Technology”(Hung & Luo 2016; Shim & Shin, 2016).

Besides, Romānova and Kudinska (2016) maintained that global economy, the growing importance of innovations as well as the wide use of technology have changed the banking business world where fintech has become an integral part of banking. Therefore, this has changed the banking landscape by asking for more innovative solutions. Additionally, Tanda and Schena (2019b) opined that the financial market landscape has changed substantially, and technological innovation has eroded the boundaries between financial products and services.

Furthermore, Romānova and Kudinska (2016) argued that in over the last 14 years period the development of information technology has drastically altered the number of industries, such as tourism, trade as well as media. Therefore, the financial industry is never immune to this development. In recent time, banks provide numerous services via electronic channels. However, Leong and Sung (2018) suggested that although the FinTech might now appear to be a hot business topic it is not a new concept as its history can be traced to 1866 when the first communication through the Trans-Atlantic transmission cable occurred.

Regardless of the starting point of the FinTech of our recent time, it is a cross-disciplinary subject that combines finance, technology management and innovation management (Leong & Sung, 2018). Also, the scholars insisted that the definition was presented to a different audience of different backgrounds, such as students, business professionals at various events and found it to withstand their comprehension. Therefore, FinTech would create value for businesses, hence summarised its various applications into; payment, advisory service financing and compliance (Leong & Sung, 2018).

In recent time, the rapid growth of Internet-based services has a profound impact on the traditional finance sector. Currently, the fintech companies are expanding their business scope beyond the online payment systems into well advanced financial services, from the money market funds (MMFs) to lending services, online funds, and internet-based private banking services (Shim & Shin, 2016). This technological progress and the dissemination of innovation have paved the way for the emergence of FinTech and BigTech companies which are able to offer products and services in all areas of traditional intermediation often outside the regulatory perimeters (see, for example, Tanda & Schena, 2019b).

This trend is being supported by the use of digital currency. The digital currency which is widely referred to as cryptocurrency is propelled by the use of digital, that is, virtual coins. In total there are seven well recognized virtual coins facilitated by the recent development created by fintech which includes “Bitcoin”, “Ethereum”, “Steem”, “Ripple”, “Litecoin”, “Nem” and “Dash” (Chen, Chen, Härdle, Lee, & Ong, 2018). However, the most popular worldwide is Bitcoin. Consequently, these developments have fully crystallised into what is now FinTech, BigTech, Big Data and Cryptocurrency.

Furthermore, the global economy and monetary theories are confronted and challenged by innovations and technologies that result in cryptocurrency that challenges the efficiency of the central banks around the world handle monetary policy effectively. However, there is



adivergent opinion on what this development might result into. For instance, Shim and Shin (2016) opined that global information technology and competitive financial alliances are to reshape the business landscape which results in increasing economic growth and prosperity. The rapid development of information and communications technology is transforming the entire industry landscape, heralding a new era of convergence services (Shim & Shin). Furthermore, Jun and Yeo (2016) argued that recent advances in information and communications technology (ICT) have led to the rapid development and expansion of new and innovative financial services, often termed Fin Tech or Fintech.

Although the retail payment landscape is characterized by a wide diversity of payment instruments and activities at different stages of the payment processes (Chen *et al.*, 2018). However, these advances are being viewed as detrimental to the financial security of the global financial system as many advanced economies are struggling to cope with the waves of financial cybercrimes. Therefore, what does the future of global banking industry hold at the face of rapid innovation and financial information of the fourth industrial revolution that has begun to lead to the development of fintech and cryptocurrency? Consequently, these recent tendencies require the banks to intensify their efforts in increasing investment in fintech, rethink services distribution channels, especially the business-to-consumers models, increase further standardization of back-office functions among others (Románova & Kudinska, 2016). This becomes very strategic giving the fact that classical banking has undergone considerable changes in the last decades and currently is facing the new era of digitalization (Hung & Luo, 2016).

Furthermore, the cryptocurrency which is sometimes called digital currency has become alive due to the frustrations with the conventional banks on the aftermath of the 2007-2009 global financial crises. This has succeeded in reshaping our modern financial systems where much reliance on convention financial intermediaries are being constrained. This is in consonance with the present-day reality of the digital world and has facilitated trade and international finance among nation states. However, the interactions between financial internet technology and financial system expose the global financial system to greater systemic risks of a global financial crisis. Therefore, Han, Liu and Xu (2017) argued that although the Bitcoin is based on a proof of work, it has a serious waste of computational resources, poor scalability and bad monetary policy. A case in point is the Black-Friday Bitcoin scandal of an amount that has been estimated to the tune of United States Dollars of \$100 billion in the last days of January 2018. Although, the Bitcoin which was just proposed in October 2008 and implemented in January 2009, has spread throughout the world (Han *et al.*, 2017).

A big challenge is an association of fintech, robotic (4th Industrial Revolution) and the development of the global banking industry. The most apparent challenge is the absence of a feasible and articulate regulatory framework that can check the activities of fintech and protect our fragile global financial system, stimulate trade and fast-track and widen the financial intermediation. Han *et al.* (2017) maintained that in the absence of a trusted third party, the cryptocurrencies headed by the Bitcoin realized the consistency of the distributed ledger successfully.

Going by the infancy of fintech and its scanty documented empirical evidence, it might not be out of place to assume that very little is known about its effects on banking industry hence the



need for further studies. Shim and Shin (2016) opined that despite the recent growth of the fintech industry, little academic literature has explored the effect of the fintech on the global banking industry. Furthermore, Romānova and Kudinska (2016) suggest that further development and integration of fintech stimulated by the quick development of hardware such as mobile devices and software called “fintech revolution” will reshape finance. Thus, this proposed study will be best underpinned by co-opetition theory which revolves around the framework that enables organisations to classify players within the industry and explains the behaviour of different kinds of stakeholders within the same industry and beyond (see, for example, Hung & Luo, 2016).

Thus, the rest of the paper will be as follows: Section 2 deals with FinTech companies, Section 3 discusses the activities Big Tech companies, Section 4 describes the role of Big Data, Section 5 highlights the future of Global banking and Section 6 which is on conclusion revolves around what the future holds and policy recommendations for the banks and regulators as well as the direction for future research.

2. Fintech Companies

The recent proliferation of the FinTech companies is said to be an upshot of the financial crisis in 2008, that is, the global financial crisis (GFC) which compelled financial institutions to have looked into new business development opportunities to sustain their industry as increased regulatory measures escalate the cost of operations (Ng & Kwok, 2007). FinTech is seen to have caused a disruption in the existing traditional banking system across deposit and lending, investment and insurance activities (Gupta & Xia, 2018). Also, they argued that this revolution permits us to have financial intermediation based on values that allow us to serve customers more efficiently, reduce risks to the financial system and accelerate returns to shareholders.

FinTech stands to be a conglomerate of financial products and/or services delivered through digital channels across the globe. There is no much dispute as to what constitute these substances. However, the literature suggests a payment system, peer-peer (P2P) loans and deposit platforms, advisory services as well as crowdfunding. Romānova and Kudinska (2016) maintained that the FinTech companies only provide complementary services to the banks which were traditionally covered by the latter, that is, payments. On the other hand Zhao, Li and Pan (2015) enhanced the service to include third-party payment, P2P, big-data financing, crowdfunding, internet-based traditional financial institutions and internet-financial portal website.’

However, FinTech companies do possess certain competitive advantages over traditional banks. The work of (Romānova & Kudinska, 2016) emphasized that these advantages of the FinTech companies include highly standardized and low-cost financial services; internet-based and therefore, geographically well spread; changing consumer behaviour and lower regulation of financial services. Also, it includes a lower risk of financial services/product such as borrower default risks and maturity risk. Moreover, Iwasaki (2018) classified the services to into four distinct categories made up of; mobile payment services; services that allow cash transfers using only mobile phone numbers; mobile overseas money transfer services and lending services based on the use of alternative data.



However, Ernst and Young (2019) in their report entitled Global FinTech Adoption Index 2019 broadly divided the services into Consumer FinTech Service (CFS) and SMEs FinTech Services (SFS). They contended that the CFS is made up of money transfers and payments, budgeting and financial planning savings and investments, borrowing and insurance. Nevertheless, those of the SFS are banking and payments, financial management, financing and insurance.

Although, the FinTech uses technology in lending, personal finance, payments, retail investments, institutional investments, equity financing, remittances, consumer banking, financial research and banking infrastructure (Románova & Kudinska, 2016). Furthermore, it is not out of place to include both e-commerce and cybersecurity to FinTech framework. Nevertheless, the numerous financial products/services and their advantages such as stimulating banking behaviour amongst the global unbanked populace and automated risks assessment, provided by the FinTech there are so many challenges confronting the innovations. The major ones amongst them are the fear that savings might be eroded as consumers may engage in spending their future earnings as the FinTech are strong in consumption-based loans and the fact that multiple spending channels make tracking a bit difficult.

FinTech companies have become an integral part of banking, and in recent time have started to strongly compete with conventional financial institutions. Moreover, in the recent time, the traditional financial institutions are facing increasing competition from other non-financial institutions providing, for instance, payment services (for example, Samsung Pay, Paypal and Apple Pay), search engines (for example, Google Pay/Gpay) and social networks (for example, Facebook Libra Cryptocurrency) have expanded their service hence interfering in the fields traditionally covered by the banks (see, for example, Románova & Kudinska, 2016).

3. Big Tech Companies

The traditional banks are currently under siege of the Big Tech companies confronting them from all fronts of the retail banking business. However, unlike the FinTech companies discussed above, the Big Tech platforms have large installed customer bases, established reputations, powerful brands considerable earnings, and unfettered access to capital markets (de la Mano & Padilla, 2018). The entry of Big Tech players such as Amazon, Alibaba, ebay, Facebook, and Google into the online banking has much more significant impact on competition in the retail banking as they can leverage on superior information about consumer preferences, habits, and conduct, that is, soft information (Big Data) (see, for example, Chan, 2017; de la Mano & Padilla, 2018).

These technology-based companies are strong in consumption-based loans and indeed intensifying competition and eroding existing margins on financial products/services amongst traditional financial institutions (Chan, 2017). Additionally, Románova and Kudinska (2016) believed that inventors like Paypal, M-Pesa, Samsung Pay, Apple Pay, Bitcoin, Google Wallet, and host of others are already well-known in the financial market worldwide. Furthermore, in the case of Nigeria, we have telecommunication companies such as MTN PLC being officially involved in money payments, transfer as well as deposits. Further, Zhao *et al.*, (2015) suggested that the internet-based financing mode has been developing rapidly in China and that it has been viewed as the third financing mode, which is different from indirect financing of commercial banks and direct financing of capital markets.



4. Big Data

The Big Data-based financing option has been seen as a collective mode of financing services, including analyzing a large number of unstructured data by cloud computing and big data analysis technology (Zhao *et al.*, 2015). They further maintain that the Big Data-based financing mode is the most well known, which has the most significant involvement and impact on society. The Big Data is mostly being leveraged upon by the e-commerce platforms as it represents the core and foundation of Big Data-based financing option and virtually financial services are dependent on the big data from the e-commerce. This process is mostly achieved through data mining.

The big Tech platforms are the better position to leverage the explosion of the big data on both individuals and firms, advances in artificial intelligence, computer power, cryptography, and the reach of the internet (de la Mano & Padilla, 2018). Data on unbanked population, smartphone penetration, and internet penetration has created retail side innovations such as mobile wallets, peer-peer (P2P) payments/lending, transfers and other real-time payment across the globe except for few countries such as China in Asia (Gupta & Xia, 2018). The Big Data provides automated information on the spending pattern as well as the timing of such spending of the consumers. Therefore, this makes the tracking of the patronized services and/or channels and taking their advantage but handling multiple channels make tracking a bit difficult. Furthermore, Big Data behaviour and analysis can help greatly in the area of credit risks management as well as loan pricing. The emergence of Big Data has made data more valuable than what they initially represent and has significantly impacted on quantitative finance. Therefore, driving remarkable impact on not only FinTech and Big Tech financial products and services delivery but only paving for the globalization of banking services.

5. The Future of Global Banking

The trend of global financial services delivery is indeed pushing for global banking activities. Therefore, in recent time, companies are providing unrestricted access to banking services worldwide regardless of the geographical locations of the banking populace. For example, the “InstaReM” mission remains to democratize money movements across the globe with innovative products that provide individual and enterprise users with seamless digital payments experiences (Ernst & Young, 2019). Also, “Juvo” is missioned of creating a YES economy by establishing financial identities for the billions of people worldwide who are creditworthy, yet financially excluded (Ernst & Young, 2019). Consequently, Ng and Kwok (2007) argued that the financial regulators around the world tempt to embrace such an opportunity while developing regulatory measures to enable the development of Fintech as a global trend. In recent time there is a growing number of fintech-related business that is emerging in Southeast Asia, reflecting increased interest as part of the global fintech boom(Iwasaki, 2018).

Tanda and Schena (2019c) maintained that a co-operation between authorities in the areas of regulation is key to the success of the new provisions, given the pervasiveness and innovative features of financial technologies. Therefore, it is expected that big players such as the Bank of International Settlements (BIS) should seek the collaboration of country level regulators such as the apex banks in that regards. Further, the full implementation of the Financial Intelligence



Charter will safeguard the world against the most feared global financial crimes and funding of terrorism activities.

Now more than ever, governments and apex banks, as well as other banking regulators around the world, need to assess and reassess the path of FinTech, Big Data and Big Tech as they are heading toward global banking which can unfold the future landscape of global banking in a few years down the lane (see, for example, Gupta & Xia, 2018). Also, Gupta and Xia further opined that as the normal world goes digital the banking world cannot continue to be analogue based on paper and wet signatures. The banks must take advantage of these financial innovations for them to make a difference. However, these advances are not without challenges some of which revolve around: collateralization, mortgages, privacy, security and loan recovery options to mention but a few.

Thus, for the future of the banks to be guaranteed and achieve full acceleration of the financial systems it is expected that the banks should consider the need for more of market niching, and retain their risk management, corporate banking and loan syndications capabilities. Other areas of strength for the banks are the loan pricing and the banks take a sway in terms of loanable capital bases compared to the Fintech and Big Tech companies.

Although, some key members of the financial industry see the activities of the FinTech and Big Tech companies and the role of Big data as threats to the traditional financial institutions nevertheless the banks and others are of the view that such threats can be turned into opportunities. For instance, Románova and Kudinska (2016) agreed that the rapid rise of FinTech has changed the business landscape in banking asking for more innovative solutions. Hence, the threat can be turned into an opportunity as it provides more flexibility, better functionality in some areas, and aggregation of services.

6. What does the future hold?

Nonetheless, beholding at both the opportunities and threats brought the banks by the activities of FinTech, Big Tech and Big data, a fundamental question that requires answers is “what is the way forward?” Therefore, to answer this question that demands answers, this paper suggests the way forward in terms of what banks, regulators, and researchers need to do collectively. It should be taken as a collective responsibility of these critical stakeholders in responding to the question raised by both opportunities and threats of Fin Tech, Big Tech and Big Data.

6.1 Banks

As the FinTech revolution is affecting the banks, in particular, the banks need to have a rethink in the way they transact their banking business in the face of current competition by focusing on the digitalization of their channels of distribution (see, for example, Tanda & Schena, 2019a; Tanda & Schena, 2019b). Although, an apparent competitive advantage of the recent development is the digitalization strengths of the non financial institutions, the banks and other financial institution should focus on multiple strategic approaches (Tanda & Schena, 2019c). These approaches should be categorized into strategies for large banks and smaller banks.

For the large banks should look at the option of outright acquiring of the FinTech companies and/or acquiring an ownership right of the Big Tech companies. However, for the small banks



should develop their digital channels through business model innovations and flexibility and/or partner with the Big Tech companies in the delivery of their services. Therefore, for all the categories of the bank the need to engage in co-operations and collaborations with the FinTech and Big Tech companies while they take advantage of the pool of Big Data at their disposal through transaction account monitoring but within the limits allowed by law without infringing the privacy rights of the customers (see, for example, Románova & Kudinska, 2016;Zhao et al., 2015).

6.2 Regulators

The challenges posed by financial technology is not only affecting the banks and other financial institutions but also the regulators. Therefore, in the face of these developments, the regulators must also key into the activities of FinTech and Big Tech companies by developing strategic approaches to tackle them as well as ease their processes. Tanda and Schena (2019c) opined that these companies work on an uneven regulatory playing field in which similar or equivalent activities are subjected to a diverse legal framework (that is, for the banks) and sometimes to none at all (that is, for the FinTechs and Big Techs).

The regulators must shift from their long position of “wait and see” and unequal regulatory framework. Regulators and authorities across the globe need to answer the wake-up call to design regulatory provisions and frameworks that will create an even and a fair playing ground for all in the financial market. This calls for an appropriate and commensurate technological innovation in designing the new regulatory framework. However, this needs to be done with caution so that the regulations will not adversely affect the gains achieved in the financial systems as a result of the activities of the FinTech and Big Tech companies as well as the legal and unarmful usage of the Big Data. Nonetheless, the regulations must be able to checkmate the variant of risks generated by these companies as well as ensuring that the financial product development, pricing, distribution and communication are done in the best interests of all stakeholders and the achievement of sustained financial stability and economic prosperity.

6.3 Direction for Future Researches

The academia has a very big role to play in setting a path for sustained financial stability, financial development and economic prosperity. To this effect the direction for future researches should revolve around; regulatory frameworks, transaction risks, cybersecurity, compliance and advisory services. Furthermore, other future research areas should include business development models, e-taxes, business combinations co-operations and collaborations, and globalization of financial services.

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