
COMPREHENSIVE OVERVIEW OF FINTECH INDUSTRY: DEFINITIONS, EVOLUTION AND SEGMENTS

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Abstract: The rapid growth of technology leads to drastic changes in almost every industry. One of the industries where technology has made a serious disruption is the financial services industry. When it comes to financial services and technology, special focus is put on FinTech industry. This paper seeks to present the significance of FinTech industry as a way of providing innovative and modern financial services by using technology. The paper includes a comprehensive overview of FinTech industry stressing the core segments of the industry. Firstly, the paper examines the term FinTech and its popularity over the past few years. Along these lines, note is taken of a number of definitions which point out to the importance of FinTech. In that context, the scope of the FinTech industry is presented with the aim of identifying the players on the FinTech market. Secondly, the analysis continues with an examination of the rapid evolution of the industry. Concurrently, the history of finance and technology is briefly presented, whereby some of the most important technological innovations in terms of finance are mentioned. Thirdly, the paper spells out the characteristics of FinTech companies. Along these lines, the paper highlights the main characteristics of FinTech start-ups. Fourthly, the growth of the industry is substantiated by facts and figures. Namely, FinTech development in the main markets of the industry is explored. The most popular regions concerning FinTech activities are also underlined. Finally, the paper elaborates on the segments of FinTech industry, including various types of classification used by different authors. The most significant segments of FinTech industry are explicitly presented. The profound theoretical analysis indicates that the term FinTech is a coin term from financial technology referring to new and innovative financial technology providing financial services. The use and popularity of the term FinTech is particularly emphasized in the last few years. The evolution of FinTech industry is in its peak and its growth will continue in the future. At the moment, there is talk of three evolution stages, but a fourth stage is also being announced to come soon. FinTech can mainly be described as innovative, flexible and scalable which are their main features. Also, growth of investments in FinTech industry had been fairly constant until the year of 2014, and what followed was their rapid growth over the next years. When it comes to the segments, FinTechs tend to revolve around financial services in payments and lending areas. Moreover, the most progressive FinTech companies are mainly found in strong and well-regulated markets, to illustrate the USA, the UK and China. The final conclusion would be that FinTech industry has significant effects on the financial services market by providing new, cheaper and faster services for consumers and businesses.

Keywords: FinTech, financialtechnology, FinTechindustry, financialservices

INTRODUCTION

Today's turbulent and dynamic environment causes drastic changes in almost every industry in the world. Undoubtedly, the main drivers of these changes are worldwide globalization, increased competition, customers' raised expectations, exponential growth of technology etc.

Financial services industry was not immune to all these global transformations. Hence, the rapid growth of technology has definitely led to core changes in the financial technology market. That is what Narain attempts to point out in her *Two Papers of Change* "Finance is the biggest focus of technology firms, and technology (particularly information and communication) is a big budget item for banks and other financial sector firms." (<http://www.imf.org/external/pubs/ft/fandd/2016/09/narain.htm>, accessed 31st of December 2017). Dozens of innovative financial services using the new technology have emerged on the market, also known as financial innovations. On the other hand, customer expectations are constantly raising and are hard to be met by traditional financial institutions, including banks. Therefore, many new non-traditional companies, emerging on the market, are

offering innovative financial services that comply with customers' expectations, or as Bernardo would like to explain "FinTech organizations, mainly startups, are reshaping financial services industry, offering customer-centric services of combining speed and flexibility, backed by forward-looking strategies, and cutting-edge business models" (Bernardo, 2017, p. 3). However, there are also existing tech giants that have started using new technologies in order to enter into the financial market. The phenomenon of using new technologies for creating innovative financial services is known as FinTech or financial technology. "Financial technology tries to reinvent financial services by using technology applications like consumer products that compete with established players" (Seth, 2016, p. 1).

FinTech industry has great potential and this has been proven by billions of investments made each year in the aforementioned industry. Also, the impact of FinTech can be recognized in the information "that 40% of the City of London's workforce is employed just in financial and technology services" (Luigi, 2017, p. 2). Moreover, the evolution of FinTech industry increases the competition on the financial services market, providing the most benefits for the end users that are now able to use innovative, cheaper and fast financial services. FinTech services have been accepted by banking customers, for example, a study stated that "50.2% of banking customers across the globe are using the products or services of at least one FinTech provider" (https://thefinancialbrand.com/62074/FinTech-future-banking-experience/?utm_medium=email&utm_source=FinTechweeklycom, accessed 31st of December 2017).

LITERATURE REVIEW

Many authors, agencies, companies and experts have been discussing and analyzing the role of FinTech industry in terms of the new market situation. The discussion about FinTech was particularly extended within the past 2 to 3 years.

Patrick (2016) has meticulously explored the term FinTech and concluded that FinTech is a new financial industry that employs technology to improve financial activities. Karl and Shariq (2017) have defined FinTech as technological innovations that support and enable banking and other financial services, potentially disrupting the financial services sector and/or making it more efficient.

Bernardo (2017) has distinguished three eras of FinTech evolution. He highlights that the third stage is characterized by new startups and renowned technology companies that enable financial services directly for both businesses and consumers. Furthermore, he envisions a FinTech era 4.0 as a period when FinTech companies will connect to traditional financial institutions. Douglas et al. (2017) in their paper concentrating on the evolution of FinTech industry have divided the evolution of FinTech into three stages as well. They have named the first stage *From Analogue to Digital*, the second stage *Development of Traditional Digital Financial Services*, and the last one *Democratizing Digital Financial Services*.

The research of Ernst and Young LLP (2016), summed up in the report *EY UK FinTech*, differentiates between the FinTech sectors as follows: Banking and Payments, Credit and Lending, Insurance, Retail Investments and Pensions, Investment Management, Wholesale Banking and Capital Market. The World Economic Forum (2017) distinguishes between and divides the FinTech sector into seven segments: Payments, Insurance, Digital Banking, Lending, Investment Management, Equity Crowdfunding and Market Infrastructure.

Upon reviewing FinTech literature and analyzing research studies by different authors and market research companies, it is easy to conclude that there is no single definition for FinTech, but all definitions tend to revolve around providing financial services via technology. All authors unanimously agree that there are three stages in the evolution of FinTech industry. When it comes to the segments of FinTech industry, different stances exist, but all authors agree that the most prominent areas are payments and lending.

DEFINITIONS AND SCOPE OF FINTECH INDUSTRY

Although technology has always been part of financial services, the term FinTech has become widely popular over the past few years. It is interesting that there is still no consensus around a definition of FinTech. Therefore, it is inevitable to present several definitions by different authors and papers, in order to fully understand the meaning of FinTech.

The paper on FinTech issued by DTCC company states that FinTech "refers to technological innovations that affect financial services." (DTCC, 2017, p. 3), whereas, the EY report defines FinTech "as high-growth organisations combining innovative business models and technology to enable, enhance and disrupt FS" (Ernst & Young LLP, 2016, p. 20.). Patrick Shueffel in his paper *Taming the Beast: A Scientific Definition of FinTech*, attempts to define the term FinTech based on a process of reviewing more than 200 scholarly articles making reference to the term FinTech. After presenting dozens of definitions of FinTech in his paper, the author proposes

the following definition: "FinTech is a new financial industry that applies technology to improve financial services" (Patrick, 2016, p. 45). The book *FinTech in Germany*, defines that "FinTech" denotes companies or representatives of companies that combine financial services with modern, innovative technologies." (Gregor et al, 2017, p. 5). Karl and Shariq define FinTech as "technological innovations that support and enable banking and other financial services, potentially disrupting the financial services sector and/or making it more efficient" (Karl & Shariq, 2017, p. 22). In his book *The Digital Banking Revolution*, Luigi has described FinTech industry "as an industry composed of companies that use technology to make financial services more efficient" (Luigi, 2017, p. 48).

Although some authors state that the term FinTech had been used much earlier, the term was used actively within the past few years, as a result of the growth of FinTech industry. In fact, it is a trendy word, but many people, even most of the people involved in tech industry itself do not quite understand the word (Jacob, 2016). When it comes to the popularity of the term FinTech over the years, it is easy to conclude that the term has been getting more popular within the past few years parallel to the growth of FinTech industry.

Undoubtedly, FinTech industry covers various actors, even though it is sometimes understood that FinTech industry refers to start-ups only. The European Banking Federation states that FinTech often alludes to both start-ups and tech-giants, but there are also banks that develop such innovative financial services solutions. In fact, the EBF considers that "FinTech concept should be understood as finance enabled by or provided via new technologies, affecting the whole financial sector in all its aspects" (European Banking Federation, 2017, p. 2). Furthermore, many of the FinTech industry actors tend to be start-ups, but there is also another segment of the industry involving established technology companies, such as *Apple, Google, Facebook*. The EBF articulates that "any actor can be a FinTech, regardless of the kind of legal entity it is. The concept of FinTech should be connected to the products and services offered to the client and is therefore activity/services-based. Banks are also FinTech companies." (European Banking Federation, 2017, p. 2).

HISTORY AND EVOLUTION OF FINTECH INDUSTRY

As it has been previously stated FinTech is a relatively new term that is used for financial innovations using technology. However, technological innovations started occurring much earlier, such as the introduction of the telegraph (1838) and the construction of the first transatlantic cable in 1866, which were the basics for financial globalization of the late 1800s. The banking industry is one of the first industries that have used computers to improve their daily operations. One of the greatest financial technology innovations of the last century is the automatic teller machine (ATM). "Barclays Bank installed the first ATM in the city of Enfield, UK, on the 27th of June 1967" (Bernardo, 2017, p. 15). Moreover, a shift from analog to digital technologies for the financial services industry started in 1990 and it was marked by the development of World Wide Web and one of the first experiments of internet banking. In addition, the industry of financial services has moved to digitalization starting from the twenty-first century. Also, the mobile phone has brought significant changes in FinTech industry in terms of using financial services via a mobile phone (Bernardo, 2017).

Nevertheless, there are three main eras, or stages of FinTech industry. The first stage, known as FinTech 1.0, entails a period "from 1866 to 1967, when the financial services industry remained largely analogue despite being heavily interlinked with technology" (Douglas et al., 2017, p. 3). The period from 1968 to 2008 refers to FinTech era 2.0, which encompasses digitalization of financial services (Bernardo, 2017), "beginning with the first ATM and culminating in e-banking" (Douglas et al., 2017 p. 2). The third stage, known as FinTech 3.0 has started since 2009. The third era has been characterized by new startups and tech giants that have begun to "deliver financial products and services directly to businesses and consumers" (Bernardo, 2017, p. 17). It is possible to imagine a FinTech era 4.0, which will include integration of FinTech companies with traditional financial institution. Namely, it is a "vision of an increased connection between physical and virtual industrial machines" (Bernardo, 2017, p. 17).

CHARACTERISTICS OF FINTECH COMPANIES

There are certain features relating to all FinTechs, such as, targeting a certain customer group - usually unserved by other financial institutions, as well as providing great user experience. Also, FinTechs are available for scale-up, and are not pressured by strict regulations followed by financial institutions. Last but not least, FinTechs possess flexible business models attuned to customer's needs, which tend to bypass complex processes. Moreover, there are several common distinctive features of FinTechs: customer-centric, legacy-free, asset light, scalable, simple, innovative and compliance light. However, these features are not applicable for the traditional FinTechs that are also included in FinTech industry (Ernst & Young LLP, 2016).

David and Ernie outline five important attributes of successful FinTech businesses: 1. Low margin, 2. Asset light, 3. Scalable, 4. Innovative, 5. Compliance Easy (David & Ernie, 2015, p. 3). They define these characteristics as LASIC principles. At the mere beginning, successful FinTech businesses have to offer low-margin products and services in order to obtain a large mass of users. Also, they need to avoid high fixed costs and minimize initial setup costs. Although, they may start small, it is inevitable to be scalable in order to use benefits of their networks. Innovation is a key characteristic of FinTech business both in their products and operations. Furthermore, businesses that operate in a lightly regulated environment spend fewer resources on compliance activities (David & Ernie, 2015).

GROWTH OF INVESTMENTS AND MARKETS IN FINTECH INDUSTRY

J.P. Morgan in his *FinTech Revolution* expresses confidence that "Funding for financial technology (FinTech) has exploded over the past few years, and it is driving a torrent of new tools and platforms that are disrupting and advancing the financial landscape" (<https://commercial.jpmorganchase.com/pages/commercial-banking/industry-expertise/technology/FinTech-revolution>, accessed 31st of December 2017). The exponential growth of FinTech industry will also be supported by facts and figures.

Jacob points out that "recent financial reports have found that investments in FinTech on a global scale started at \$930 million in '08 and have increased to more than \$12 billion since 2015" (Jacob, 2016, p. 1). "According to estimates from the *Statista Digital Market Outlook* the transaction value of the global FinTech markets has reached US\$2.6 trillion in 2016 and will continue to grow to almost US\$7 trillion in 2021" (Dev & Ksenia, 2017, p. 2). A greater part of global investments of \$12.21 billion in 2014 belonged to the US market, but Europe has the highest level of growth. "London, San Francisco/Silicon Valley and New York have already established themselves as key hubs for innovation, and are fast being followed by new innovation centres around the world. Amsterdam, Stockholm, Paris, Berlin and Dublin, for example, have all been identified as key growth areas within Europe's FinTech ecosystem, and are complemented by thriving sectors in locations such as Tel Aviv" (BNY Mellon, 2015, p. 3). According to the paper *FinTech: Ecosystem, business models, investment decisions, and challenges*: "China and the US are leading countries in FinTech startups and companies" (In & Yong, 2017, p. 36).

SEGMENTS OF FINTECH INDUSTRY

FinTech companies offer various kinds of financial services using technology. Below is a classification of the segments of FinTech industry derived from various sources.

A report by *Financial Stability Board* organized FinTech activities in five categories: "(i) payments, clearing and settlement; (ii) deposits, lending and capital raising; (iii) insurance; (iv) investment management; and (v) market support" (Financial Stability Board, 2017, p. 8). The authors of the books *FinTech in Germany* have divided FinTech companies into four major segments in line with their business models: financing, asset management, payments and other FinTechs (Gregor et al., 2017). The World Economic Forum in the paper titled *Beyond FinTech: How the Successes and Failures of New Entrants are Reshaping the Financial System* distinguishes between seven segments of the FinTech sector and elaborates thereon: Payments, Insurance, Digital banking, Lending, Investment Management, Equity Crowdfunding and Market Infrastructure (World Economic Forum, 2017). On the other hand, the EY UK's *FinTech Report* presents the shares of FinTech firms in the UK by sectors, whereby it entails the following sectors: Banking and Payments, Credit and Lending, Insurance, Retail Investments and Pensions, Investment Management, Wholesale Banking and Capital Market. Moreover, the same report states that the UK FinTech sector has mostly been concentrating on payments. A *Citigroup* report informs that most of FinTech investments from 2010 to 2015 were allocated in the areas of payment and lending (<http://www.imf.org/external/pubs/ft/fandd/2016/09/narain.htm>, accessed 31st of December 2017).

A differentiation between FinTech segments by more authors allows getting a clear picture for the areas in which FinTech companies provide new products and services. Although, authors classify the segments pursuant to research needs, it is easy to conclude that most of the FinTech products and services have been created in payments, lending and insurance area.

CONCLUSION

The paper seeks to present the significance of FinTech industry in view of the financial services market disruption. A comprehensive overview of FinTech industry has been provided and a painstaking theoretical research was conducted by using up-to-date literature. Consequently, the most relevant conclusions have been summarized below.

From the analyses of various definitions, it can be concluded that FinTech industry employs new technologies to provide financial services. The popularity of the term continuously increases parallel to the growth of the industry itself, as testified in the last few years. Moreover, FinTech industry encompasses start-ups and tech giants that emerge on the financial services market, as well as banks that provide financial services using innovative technology. When it comes to the history of financial technology, the evolution of FinTech industry has been divided into three stages, whereby the last stage, which started in 2009, is still ongoing. This current stage has been characterized by new start-ups and technology companies that started delivering financial products and services. A lot of facts and figures cited in the paper denote the growth of FinTech industry globally as well as across different markets. Huge investments were made in FinTech industry over the past few years. The USA, China and the UK have been mentioned as leaders in FinTech industry. The paper presents several classifications of FinTech areas which help identify the main segments in which FinTech companies provide financial services. According to the data presented above, the most often mentioned segments are payments, lending, insurance and investments. To sum up, the final conclusion would be that FinTech industry has significant effects on the financial services market by providing new, cheaper and faster services for consumers and businesses.

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