IMPACT OF DIGITALIZATION ON THE REGULATION OF FINANCIAL MARKETS[1]

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Abstract

The study examines the impact of digitalization on the money market, primarily from a regulatory perspective. New digital financial services pose a challenge for both supervisors and legislators when they are performed by unregulated financial services providers. The article points out these challenges and examines how legislation responds to them. The problem will be analyzed in the case of the European Union and also Hungary. Comprehensive solutions have not yet been found, but there are attempts to address the problem. The findings of the study may help to further examine the topic and find new solutions.

Keywords: *Digitalization, Financial Market, Financial Services, Innovation Hub, Regulatory Sandbox.*

1. Introduction

Technological advancement and innovation are rapidly infiltrate in the industrial, commercial and service sectors. Within the service sector, the financial sector has also undergone constant transformation, and as a result of development, digitalization has transformed financial services in many areas. However, this technological development has taken place within the sector and has been progressing continuously but slowly. The financial and economic crisis has also set these processes aside by the transformation of resources and regulation. From a resource point of view, bank profitability problems hindered innovation developments[1], and banks had to devote their resources to covering the losses resulting from the crisis, leaving them with neither the determination nor the financial capacity to face the challenges of digitization. At the same time, the financial economic crisis also meant a crisis of confidence, which led to a decline in consumer confidence regarding the financial services of the banks, which strengthened their turn away from banks and the search for new financial solutions.

In addition, accelerated digitalization and widespread networking[2], Internet-

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[1] Eszes Dorottya-Sajtos Péter-Szakács János-Törő Ágnes: A digitalizáció hatása a bankrendszerre, in: *Bankok a történelemben: innovációk és válságok* (szerk.: Fábián Gergely-Virág Barnabás), Budapest, Magyar Nemzeti Bank, 2018, p. 625

[2] Barabási Albert-László: *Behálózva- A hálózatok új tudománya*, Budapest, Libri Kiadó, 2003, pp. 216-220 The author points out that network science is important not only in mathematics and physics, but also in other disciplines.

enabled services, and the strengthening of technology firm"s role in the money market have fueled the money market. The changing economic situation and the emergence of new technology players have created new challenges and competition for financial services providers in the money market.[3] The focus is no longer on the importance of internal technological developments, but on technological innovations of external nonbanking players, which are spreading faster as new generations enter the market, where digitalization and electronic services have a significant market advantage. FinTech innovators, technology companies are emerging on the market, providing financial services via the Internet through the introduction of new technologies. The literature deals with the development of the coming period in several ways. There are three types of output that technology companies can bring to the financial market. If new service technology companies emerge in underdeveloped financial markets, they may face strong competition or crowd out traditional financial service providers. But in advanced financial markets, it is possible to cooperate or even buy another provider.[4]

Technological development also poses a challenge to the legal framework. It is necessary to create a regulatory environment in a highly regulated area which allows the development of services while preserving the operational security of the financial market, ensuring a level playing field for market participants and protecting consumer interests.

Important areas for regulation in connection with technological developments are the emergence of digital money, community funding, new financial services and the emergence of robot advisors.

2. Analysis of the Impact of Financial Technology at EU Level

The concept of FinTech (financial technology) has come to the international literature as an accepted concept, although there is no uniform definition for it. Literature approaches financial technology as a broad concept that includes digital ledger technology, robot consultants, compliance and data provision technologies, and virtual money.[5] It is, in fact, the application of innovative digital technology in financial services, embracing the technology-driven development of the entire financial sector.[6]

However, financial innovations are not entirely new, occurring within financial service providers or induced by external technology companies. By the end of the 19th century, we were talking about financial technology, as telegraph and later the phone had already connected financial service providers and customers. The modern beginnings of the development of

Beyond the structure of companies, networks play an increasingly important role in each market. The question is whether a company can adapt to these rapidly changing market conditions. Companies that use strategies which includes the utilization of networks have an advantageous market power.

[3] Richard Scott Carnell-Jonathan R. Macey- Geoffrey P. Miller: *The Law of Financial Institutions*, New-York, Wolters Kluwer, 2013, pp. 183-187

[4] Eszes-Sajtos-Szakács-Tőrös: i.m. p. 626

[5] Kerényi Ádám-Müller János: *Szép új digitális világ? - A pénzügyi technológia és az információ hatalma*, Hitelintézeti Szemle, 18.évf.1.szám, 2019. március, pp. 7-8

[6] Innováció és stabilitás- FinTech körkép Magyarországon, MNB Konzultációs dokumentum, 2017, mnb.hu/letoltes/konzultacios-dokumentum.pdf. (Last access: 2019.07.07.) According to the Financial Stability Board, FinTech is a technology-driven financial innovation that can result in new business models, applications or products that can have a significant impact on financial markets and institutions, as well as financial services.

financial technology were the advent of cash dispensers and the application of digital technology in the financial market. Digitized products and transactions result in automated processes that transform financial services.[7] All these processes have contributed to the globalization of the financial market. A new era in the development of financial technology is institutional change. Following the 2008 economic crisis, technology companies have entered the financial market and financial services are not provided only by regulated, traditional financial market players. New products and services appear on the market, creating competition for traditional operators.[8]

There were several reasons for the emergence of new technological solutions and new entrants.[9] The literature points out that this includes changing consumer habits. The technological background and the spread of the Internet have affected the consumer habits of the new generation. Internet banking and commerce on the Internet have transformed the financial services market. The new consumer prefers the technology, which may be provided by a technology firm that is emerging on the money market. Loyalty to an institutional service provider is less dependent on where and how they use the services.

Another important factor is the extensive and rapid technological development. The spread of digital services is increasingly enabled by the technological background. The development of software and hardware backgrounds is shifting financial services providers towards services available via mobile phones that function as computers. In addition, there was a great deal of innovation made possible by blockchain technology. This enabled financial transactions to be carried out without the intervention of a general ledger or service provider.[10]

It is important to highlight the macroeconomic and regulatory environment, in agreement with the literature. As a result of the financial and economic crisis, the regulatory environment for financial markets has changed, with strong, rigorous regulation in place in some states that served to reduce risks and was less receptive to innovation, and to restore liquidity for banks, as opposed to the development of new innovative services. The result of this regulatory attitude has been that new innovative services have emerged outside the banking system, which in return are carried out by technology firms without strict financial market regulation. The literature defines this phenomenon as the shadow banking system. The term refers to service providers (mostly technology firms) that provide financial services as nonfinancial institutions.[11]

[7] V. Gerard Comizio: *International Banking Law*, St.Paul, West Academic Publishing, 2016, pp. 336-339

[8] Gál Zoltán: A nemzetközi pénzügyi rendszer fenntarthatóságának kihívásai és a FinTech forradalom, in: Környezet-Gazdaság- Társadalom Tanulmányok Kerekes Sándor 70.születésnapja tiszteletére (szerk.: Parádi-Dolgos Anett-Fertő Imre-Marjainé Szerényi Zsuzsanna-Kocsis Tamás-Bareith Tibor), Budapest, Agroinform Kiadó Kft., 2018, pp. 86-89

[9] Kerényi Ádám-Molnár Júlia: A FinTech-jelenség hatása-Radikális változás zajlik a pénzügy szektorban? Hitelintézeti Szemle, 16.évf.3.szám, 2017.szeptember, p. 34-38 The authors list changing consumer habits, revolutionary innovation, technological development, and the macroeconomic and regulatory environment as reasons for it.

[10] Győrfi András- Léderer András-Paluska Ferenc-Pataki Gábor-Trinh Anh Tuan: Kriptopénz abc, Budapest, HVG Kiadó Zrt, 2019, pp. 57-68

[11] Kecskés András-Zéman Zoltán: Az árnyékbankrendszer klasszikus és jövőbeni kihívásai Magyarországon, Gazdaság és Pénzügy 2018/4. The authors point out that investment banking activities are intertwined with

The European Union is also looking for answers to technological and market challenges.[12] EU regulation extends financial technology to the entire financial sector, meaning that the financial operations provided by the technology range from banks to insurance companies, pension funds, investment advice to market infrastructure.

This financial technology offers significant benefits:

- faster, cheaper, more transparent and better financial services,
- creation of new financial services, opportunities,
- increasing the cost-effectiveness of the financial system,
- lower service prices,
- development of alternative lending and investment channels,
- develop the single EU financial market.

At the same time, technological development is a challenge for EU regulation. The current approach to financial market regulation, which is based on two pillars, institutional regulation and activity regulation, needs to be changed. By developing new methods of financial services, non-financial institutions provide non-traditional, innovative services. This creates confusion for conventional regulatory frameworks. As a result, each country is working on different regulatory frameworks, which may also hamper the functioning of the single EU financial market. It is therefore important for the EU to steer the individual Member States towards a uniform regulation. It is important to ensure a level playing field, as financial institutions are subject to much stricter regulatory requirements, even when introducing innovative products. On the other hand, non-financial institutions are not subject to strict regulation when applying technological innovations in their financial services. To this end, the EU has set out principles for the regulation and supervision of financial technologies.

These principles are:

- regulation of financial services, regardless of domicile and institution,
- technology neutral control,
- risk-based supervisory measures.

The EU is also proposing solutions for regulation in order to implement the principles. The most important issue is to stimulate new technologies and reap the benefits of the market. This is a particularly important task for the supervisory authorities. Supervisors should facilitate controlled experimentation with new technologies during licensing and should be professionally prepared to audit financial technology services.

In order to preserve financial stability, it is necessary to obtain information on financial activities which are available in case of the traditional service providers but not in the case of the nonbanking institutions. Therefore, imposing an obligation to provide information on nonbank providers is also an important regulatory and supervisory issue.

traditional banking activities. However, the extent of this cannot be determined due to the lack of transparent records. The study points out that the shadow banking system has several definitions. According to the Financial Stability Board, the shadow banking system is a credit transformation system that includes providers and activities outside the traditional banking system. The definition is overshadowed by the Fed"s definition that the shadow banking system carries out certain financial service activities without a state guarantee and access to central bank resources. http://www.bankszovetseg.hu/Public/gep/2018/364-376%20Kecskes.pdf (Last access: 2019.08.21.)

[12] 2018/C 307/6 FinTech: a technológia hatása a pénzügyi szektor jövőjére- 2016/2243(INI) Az Európai Parlament 2017. május 17-i állásfoglalása a pénzügyi technológiáról (FinTech): a technológia hatása a pénzügyi szektor jövőjére, Az Európai Unió Hivatalos Lapja C 307, pp. 57-66 Az uniós szabályozás a dokumentum alapján kerül elemzésre.

All these problems affect many areas of regulation, both at European Union and Member State level. The banking systems of each country are also seeking answers to the challenges of digitization, which is well illustrated by digitization proposal of the Hungarian Banking Association.[13] The literature points out the most important areas for digitization in the banking sector.

Three such areas are highlighted:

- expanding digital payment options,
- digital lending and customer service,
- improving financial literacy.

Significant cash holdings have significant economic disadvantages for the economy and society. The reasons for the high level of cash stock is explained in the literature. In my opinion, some of the reasons can be the financial habits of the older generation and the mistrust of the banking system, which has been exacerbated by the financial and economic crisis. Although it is about accelerating digitization processes, a significant part of the Hungarian population is "stuck" in the use of cash, and it is difficult to move out of it, especially in smaller villages, where there is no bank or internet banking.[14]

The financial sector is open to the use of digital applications and significant improvements have been made in this area, partly due to competition from technology companies. However, the digitalization of individual services also requires the underlying administrative environment to evolve, which may be an obstacle to the digitization of some services.[15]

The literature also emphasizes the development of financial literacy, particularly in the field of education, which imposes new tasks on public education as well as higher education. In my opinion, this is not only a question related to digitalization, but also to the general financial culture, as Hungary has significant backlogs, and only after can we enter the world of digital banking.

The study of Hungarian relations does not deal with the issue of digital money, although this area may have a significant impact on the banking system, in particular, because it reinforces nonbank financial activities and nongovernmental cash flow.

3. Regulatory Solutions and Concepts

The two ends of the regulatory approach are permissive and prohibitive regulation. Neither is a good solution at all. On the one hand, totally prohibitive regulation will make it impossible for new technologies to be applied on the market and thus have a negative impact on economic competitiveness. On the other hand, this type of service goes into the gray zone, consumers use the service but become more vulnerable to non-banking players without regulation, without state control. Enforcement is, however, difficult as it can be provided as a cross-border service from outside Europe. Completely permissive regulation puts traditional bank players at a competitive disadvantage because their activities are subject to strict regulation.

[13] Becsei András-Bógyi Attila-Csányi Péter-Kovács Levente: A jövő bankja, a bankok jövője - A Magyar Bankszövetség digitalizációs javaslatai, http://www.bankszovetseg.hu/Public/gep/2019/299-310%20BecsBodCsaKo.pdf, (Last access: 2019.05.05), pp. 299-302

[14] Becsei-Bógyi-Csányi-Kovács: i.m . p. 300 The study lists several reasons for high cash holdings. These include low money market interest rates, transaction fees, limited free cash withdrawals, cash withdrawals from the black economy and the social sphere.

[15] Becsei-Bógyi-Csányi-Kovács: i.m . p. 301 According to the proposal, e-administration, data asset management and access must be developed.

New technology start-ups have a competitive advantage in services because they are not subject to strict institutional and activity licensing conditions that apply to capital, risk, and personal and technical conditions.

The literature points out that there is usually a good solution between the two extremist regulatory attitudes and that most countries are moving in that direction. The solution lies in the fact that technology companies do not have to be subject to banking regulation but must be regulated from an operational point of view. It is necessary to distinguish between exclusive banking activities which cannot be performed by technology firms and to define the services that non-banking actors can provide. It would be important to define the EU framework when defining the level of regulation. The position of the European Central Bank emphasizes national regulation and supervision on this issue, but in my opinion, this will not be sufficient enough, since a large part of the digitized financial service covers cross-border services. Therefore, global regulation will be necessary in the longer term, but until it is realized, it is necessary to regulate the issue at least at the level of each integration.[16] The literature points out that it is a great challenge for the law to track and prevent technological innovation, as technology is implemented at a global level and legislation is implemented locally. Harmonization of concepts is the first step towards harmonization of regulation. However, so far only resolutions have been issued by central banks and supervisors and there is rarely any regulatory solution to the issue.[17]

In addition to regulation, it is at least as important to develop the supervisory activities that is needed to control digital services. This requires regulatory application of innovation technologies, international cooperation of supervisors, cooperation with non-financial market authorities, and initiating regulatory changes.[18]

The Hungarian Banking Association has also made proposals for the future regulation. A large part of the proposals is a proposal to facilitate the digital switchover, which affects several areas of law.[19] The proposals for the reform of regulation are based on the principle of the same activity, the same regulation. At the moment, this is not the case, so technology firms, unless restricted by the authorities, have a competitive advantage in the money market. Regarding this, institutional regulation in this area should be abandoned and only activity regulation should be prioritized, meaning that the same rules apply to banking

[16] Kerényi Ádám- Müller János: Szép új digitális világ? - A pénzügyi technológia és az információ hatalma, Hitelintézeti Szemle, 18.évf.1.szám, 2019.március, p. 16-19 The literature highlights the supervisory priorities for new technology finance solutions based on the FinTech work plan of the European Banking Authority. Such priorities include mapping and analyzing the regulatory area, enhancing supervisory cooperation, investigating prudential risks, enhancing cyber security, addressing consumer issues, and assessing money laundering risks.

[17] Szalay Gábor: A kriptovaluták nemzetközi szabályozási trendjei- Kriptotőzsdék és ICO-k értékpapírjogi perspektívából, Jogtudományi Közlöny, 2019. 3.szám, p. 133-134 In the context of cryptocurrencies, Malta has adopted an innovation technology package. In addition, the European Banking Authority and the Central Bank of Hungary have issued warnings about the high level of risk associated with virtual assets.

[18] Kerényi-Müller: i.m. pp. 17-18

[19] Becsei-Bógyi-Csányi-Kovács: i.m. pp. 302-306 It summarizes its substantive general proposals on digitization in 11 points, by which they understand the same principle of the same regulation, the possibility of concluding an independent digital framework contract, clarifying the rules for digital payments, the issue of certified electronic copies of paper documents, the full power of digital statement, automated bank signatures, switching to digital document management, re-regulating the civil status of electronic declarations, changing tax rules (transaction fee, bank tax).

and non-banking actors carrying out the same activity. This principle brings the regulatory constraint with it that some services need to be re-regulated and that digital services should be confined within this framework. Another important area of competition is taxation. The transaction fee, the bank tax, puts banking operators at a competitive disadvantage against technology companies who are not subject to these special taxes.

Consumer attitudes towards FinTech are fundamentally influenced by trust in the service provider, which is fundamentally determined by the consumer protection created by the law. It is therefore very important to have a legal regulatory background behind the application of new technologies. From the regulatory point of view, the literature considers the development and application of the internationally recognized Innovation Hub and the Regulatory Sandbox.[20] Within the Innovation Hub, information is exchanged between the regulatory authority and the FinTech companies, with the aim of facilitating the interpretation of legislation and developing a consistent legal practice. At the same time, the established platform will allow the supervisor to assess regulatory gaps and make recommendations to the legislator on legislative issues. This solution can facilitate the acquisition of activity licenses through consulting. The Regulatory Sandbox offers the opportunity to test innovative technologies within a limited framework. Through testing, monitoring will provide an overview of possible operational problems and solutions for the problems. Successful testing will enable entry into the market, reducing the risk that comes with innovation. In addition, the method is also beneficial for innovation firms, as they can test the financial product and business model on consumers without the full regulatory constraints on the service provider. However, only firms determined by the supervisory authority may participate in the testing. Consumers typically participate in testing on a voluntary basis, with consumers being compensated for any losses they may have and a specific redress mechanism ensuring that consumer risks are mitigated.[21]

4. Summary

Digitization will bring significant changes to the financial markets in the coming years, which will be a challenge for both supervisors and the legislator. Traditional institutions have tried to incorporate the technological changes that have taken place in their services in recent years, but due to the caution and prudence of the traditional service providers, the process of incorporation was slow, and it has not been induced by the market situation either. The risk-averse behavior of traditional financial institutions has not facilitated rapid technological progress, which has been exacerbated by the financial and economic crisis. However, the entry of new technology companies into the financial market has accelerated the processes, created strong competition and prompted supervisors to take action. At the heart of the regulatory problem is the challenge that banking

[20] Innováció és stabilitás- Fintech körkép Magyarországon, MNB Konzultációs dokumentum, 2017, mnb.hu/letoltes/konzultacios-dokumentum.pdf. (Last access: 2019.07.07.) i.m. pp. 30-33 The purpose of the Innovation Hub is to assist banking and nonbanking actors with legal issues regarding innovation. The Regulatory Sandbox is used to test innovative solutions, providing companies with a temporary exemption from prudential requirements.

[21] Eszes-Sajtos-Szakács-Tőrös: i.m. pp. 665-670 The literature indicates that Regulatory Sandbox is being deployed in more and more countries, including Canada, the United Kingdom, the Netherlands, Switzerland, Australia, among others, and more and more country is considering it.

regulation relies primarily on institutional regulation and that activity regulation is only secondary. This means that financial service activities should be carried out primarily by financial institutions within a defined and separately regulated field. A question has arisen whether technology companies could ever provide certain financial services without the permission of their supervisors. New digital financial constructions, on the other hand, either exist as unregulated cross-border services or outside of traditional designated financial services therefore operate without authorization and control. In my opinion, though, new entrants have not yet fully faced the risks associated with traditional financial services and can only be mitigated if they have the necessary professional skills and operational experience. There was also no significant damage from consumers" side that would undermine confidence in non-traditional banking providers. However, the most likely scenario may be that traditional service providers will blend in with technology firms, meaning that banking expertise and experience is combined with technological innovation. This solution would represent the best opportunity for both the supervisor and the legislator, since regulated institutions would operate in a regulated market, so that activities would continue to be carried out in a controlled manner. It is also necessary to be prepared for the fact that this is not the case with market processes and that currently unregulated institutions will provide a significant part of financial services. In this case, there are a lot of regulatory challenges that a country may not be able to solve on its own, a higher level, integrated regulation is needed, and financial culture also needs to be strengthened. The latter can also have an impact where regulation does not have the means to protect consumers, which will surely be exemplified by the rapid changes of the digital technology.

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