

Fintech's Financial Products and Regulatory Sandbox^(*)

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Abstract

The term FinTech refers to how technology (Tech) has influenced financial services (Fin). FinTech is a new type of firm that mainly provides financial services via technologically advanced mobile and internet platforms. Fintech firms are currently reshaping the financial sector.

This raises the question of how FinTech firms' financial products operate and how these firms are regulated. Descriptive and analytical research will be conducted to answer this question. FinTech provides a variety of alternative financial products on a financial level. Crowdfunding and robo-advisory are two of these products that may aid in the promotion of new businesses. Sandboxes offer a safe environment with regulatory reliefs for testing FinTechs at the regulatory level.

If Kuwaiti legislators provide, on the one hand, regulations governing crowdfunding and robo-advisory, and, on the other, a few amendments to the sandbox, the desired goal of promoting FinTech companies will be met.

Keywords: central bank of Kuwait, crowdfunding, regulatory sandbox, robo-advisory, and small business.

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1. Introduction

The global financial system is undergoing structural and technological upheaval on a scale never seen before. In fact, a wide range of advances are enabled by the fast drop in computer costs, along with widespread availability of reliable, high-speed internet connectivity, and an explosion of freshly obtained data about a wide range of personal and business characteristics and traits⁽¹⁾. One facet of these fundamental developments is FinTech (Financial Technology), which refers to the use of technology to supply financial solutions⁽²⁾.

The term FinTech has no formal meaning, and it is commonly employed in different ways by different authors and in various studies. This term was coined in reference to a Citicorp (now Citigroup) Financial Services Technology Consortium, which aimed to stimulate rather than hinder technology collaboration with other industries⁽³⁾. Therefore, Citigroup is widely credited with coining the word “FinTech” in the nineties as part of an initiative aimed at facilitating technical collaboration.

Since then, FinTech has become a common term to designate an economic industry made up of companies that employ technology to improve the efficiency of financial processes⁽⁴⁾. FinTech, for instance, has been characterized as “technology enabled financial solutions” or “the use of technology to deliver financial solutions”⁽⁵⁾. Nevertheless, the definition evolves and changes in tandem with the technologies⁽⁶⁾.

In accordance with the preceding definitions, the Central bank of Kuwait's (CBK) regulatory sandbox framework document described FinTech as follows:

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- (1) Howell, A. Jackson, «The nature of the FinTech firm», *Journal of law & policy*, Washington University, USA, Vol.61, Iss.1, (2020), p.11.
 - (2) Douglas W. Arner, János Barberis, Ross P. Buckley, «FinTech, RegTech, and the Reconceptualization of Financial Regulation», *Northwestern journal of international law & business*, School of law, Northwestern University, USA, Vol.37, Iss.3, (2017), p.372.
 - (3) George Walker, «Financial technology law - A new beginning and a new future», *The International Lawyer*, American bar association, USA, 2017, Vol.50, Iss.1, (2017), p.140.
 - (4) Aaron C. F. Salerno, «Regulating the FinTech Revolution: How Regulators Can Adapt to Twenty-First Century Financial Technology», *New York University Annual Survey of American Law*, School of Law, New York University, USA, Vol.75, Iss.2, (2020), p.366.
 - (5) George Walker, «Financial technology law - A new beginning and a new future», *The International Lawyer*, American bar association, USA, 2017, Vol.50, Iss.1, (2017), p.140.
 - (6) Jennifer Elisa Chapman, «Fintech: Is the Water Fine?», *Journal of International and Comparative Law*, Sweet and Maxwell, Hong Kong, Vol.8, Iss.2, (2021), p.438.

“new technologies that relate to the financial industry [financial services’ firms and businesses] and aim to improve and develop the financial activities including launch of advanced products, services and business models in the financial services industry”⁽⁷⁾.

In a word, FinTech is a new type of firm that mainly provides financial services via technologically advanced mobile and internet platforms⁽⁸⁾. These are technology companies such as Google, Facebook, Amazon, Apple, Alibaba, Tencent, and others that have integrated financial services into their business models in order to improve their own products and create new revenue streams⁽⁹⁾.

These FinTech firms’ primary focus is on technological products such as payment (PayTech), digital currency (CoinTech), and smart contracts (SmarTech), as well as alternative funding tactics such as crowdfunding, peer-to-peer lending, and robo-advisory services. Moreover, the FinTech sector also includes existing IT and ecommerce organizations as well as new start-ups, all of which are using technology to address challenges and generate opportunities within their respective industries⁽¹⁰⁾.

Therefore, FinTech firms and start-ups are as diverse as the problems they attempt to solve. They range from conventional financial and banking applications to specialized cyber security technologies designed to protect financial data. Hence, the main focus of this article is to examine two innovative business models or alternative funding strategies employed by FinTech companies: crowdfunding and robo-investing.

The disruptive nature of this wave of technology has put politicians throughout the world in a bind. One side of the discussion has chosen a proactive stance. On this front, regulators and policymakers are working to foster the growth of FinTech ecosystem. The primary help provided by these

(7) Central bank of Kuwait, «Regulatory Sandbox framework document», p.1. Available on: <https://www.cbk.gov.kw/en/legislation-and-regulation/regulatory-sandbox/general-framework> (Last access, August 8, 2022).

(8) William Magnuson «Regulating FinTech.» *Vanderbilt Law Review*, Vanderbilt University Law School, USA, Vol.71, Iss.4, May 2018, p.1174.

(9) Jill Westmoreland Rose, et al. «Introduction to the FinTech Ecosystem», *Department of Justice Journal of Federal Law and Practice*, Executive Office for United States Attorneys, USA, Vol.69, Iss.3, May 2021, p.36.

(10) Douglas W. Arner, János Barberis, Ross P. Buckley, «FinTech, RegTech, and the Reconceptualization of Financial Regulation», *Northwestern Journal of International Law & Business*, School of law, Northwestern University, USA, Vol.37, Iss.3, (2017), p.381.

jurisdictions revolves around regulatory sandboxes, which aim to stimulate creative technical solutions through flexible regulation⁽¹¹⁾.

In this context, it is crucial to highlight that the regulatory sandbox landscape in the Gulf Cooperation Council countries is still relatively new. For example, in Bahrain, the sandbox began in June 2017, in Kuwait and Abu Dhabi, it began in September 2018, and in Saudi Arabia, it began in February 2019⁽¹²⁾.

Others have taken a more cautious approach to regulating new FinTech enterprises, owing to the uncertain hazards with this latest influx of technology disruption⁽¹³⁾.

Whether one believes that a proactive or passive approach is necessary, the regulatory structure must adjust to the market's disruptive technology. The inherent risk of investing in a new company, along with the industry's hazy legislative future, may result in an unfavorable impediment to expansion⁽¹⁴⁾.

Based on the above, the fundamental question that we attempt to answer here is as follows: How do FinTech financial products function, and how might regulatory sandboxes support FinTech?

To answer this question, descriptive and analytical research will be conducted. We will be able to characterize the framework of FinTech financial products as well as the FinTech regulatory sandbox through descriptive research. While analytical study will enable us to evaluate FinTech in terms of their ability to contribute to the promotion of small businesses.

We will attempt to address this question by studying the FinTech market (2) and the regulatory sandbox (3).

(11) Ross P. Buckley et al., «Building Fintech Ecosystems: Regulatory Sandboxes, Innovation Hubs and beyond», *Washington University Journal of Law & Policy*, School of Law, Washington University, USA, Vol.61, Iss.1, (2020), p.55.

(12) Arab Monetary Fund, *The Arab Region Fintech Guide*, Arab Regional Fintech Working Group, Second Edition, 2021, p.71. Available on: <https://www.amf.org.ae/en/publications/arab-regional-fintech-working-group/arab-region-fintech-guide-second-edition> (Last access 26/9/2022).

(13) Michael M. Piri, «The Changing Landscapes of FinTech and RegTech: Why the United States Should Create a Federal Regulatory Sandbox», *Business & Finance Law Review*, School of Law, George Washington University, USA, Vol.2, No.2, April 2019, p.234.

(14) Hilary J. Allen, «Regulatory Sandboxes», *George Washington Law Review*, College of Law, American University, Washington, USA, Vol.87, No.3, (2019), p.644.

2. FinTech market: New financial products

2.1. Crowdfunding (LoanTech)

2.1.1. The emergence of crowdfunding

Credit availability has long been a pillar of the economy⁽¹⁵⁾. Small businesses have traditionally relied on banks to meet their financial needs. Nevertheless, small businesses all across the world have increasingly sought credit from non-bank FinTech lenders over the last two decades⁽¹⁶⁾. This is because the 2008 global financial crisis reduced bank competitiveness and profitability, limited loan availability for individuals and SMEs, and resulted in a high rate of unemployed persons who resorted to technology to invest their education and abilities⁽¹⁷⁾.

Therefore, it is clear that the crisis acted as a driver for the emergence of fresh, tech-savvy companies in the financial services industry⁽¹⁸⁾. Non-traditional, digital competitors have successfully gained market share by providing tailored services to consumers, developing new simplified business models, and unbundling the retail banking sector, reducing reliance on banks⁽¹⁹⁾.

Due to this, it was reasonable that small businesses sought loans elsewhere, through innovative technologies like crowdfunding. In fact, with the help of the internet, startups and small enterprises can elevate modest sums of money from a significant pool of individuals, the crowd, by using the financing technique known as crowdfunding. In other words, Crowdfunding enables people and businesses to raise funds from the general public to support a

(15) Christopher K. Odet, «Consumer Bitcredit and Fintech Lending», *Alabama Law Review*, School of Law, University of Alabama, USA, Vol.69, No. 4, (2018), p.783.

(16) Lenore Palladino, « Small Business FinTech Lending: The Need for Comprehensive Regulation», *Fordham journal of corporate & financial law*, School of Law, Fordham University, USA, Vol.24, Iss.1, (2019), p. 78.

(17) Anthousa Agathokleous, «From FinTech to regtech: How have European countries responded to the development of FinTech through regulation?», 2019, p. 6. Available on: https://www.researchgate.net/publication/337874271_From_FinTech_to_RegTech_How_have_European_countries_responded_to_the_development_of_FinTech_through_regulation? (Last visit, 18/7/2022).

(18) Christopher G. Bradley, «FinTech's Double Edges», *Chicago-Kent Law Review*, IIT Chicago-Kent College of Law, USA, Vol.93, Iss.1, (2018), p.70.

(19) Anthousa Agathokleous, «From FinTech to regtech: How have European countries responded to the development of FinTech through regulation?», 2019, p.6. Available on: https://www.researchgate.net/publication/337874271_From_FinTech_to_RegTech_How_have_European_countries_responded_to_the_development_of_FinTech_through_regulation? (Last access 18/7/2022).

business, initiative, campaign, or individual⁽²⁰⁾.

This method was first made well-known by websites that aimed to assist businesses in raising capital without implicating the securities laws. These websites only permitted businesses to offer rewards, like free merchandise, instead of enabling them to raise money through the sale of stock or other securities⁽²¹⁾.

Fintech platforms are where crowdfunding is conducted. Typically, these platforms use web-based, mobile platforms to spread information about the crowdfunding possibility and to facilitate participation by managing the collection and distribution of funds raised⁽²²⁾.

In this regard, it is worth noting that the United Kingdom's Financial Conduct Authority (FCA) established peer-to-peer lending and crowdfunding in April 2005. On the other side of the Atlantic, in the USA, the Jumpstart Our Business Startups (JOBS) Act of 2012 amended the Securities Act of 1933 to permit equity crowdfunding. Moreover, the Securities and Exchange Commission (SEC) issued "Regulation Crowdfunding," a set of rules and regulations that companies must follow, in late 2015. For these reasons, in the USA, equity crowdfunding started formally under JOBS Act and Regulation Crowdfunding in May 2016⁽²³⁾.

There are mainly five sorts of crowdfunding⁽²⁴⁾; however, at this time, we are only interested in two: equity crowd funding and debt crowdfunding.

2.1.2. Equity crowdfunding

To begin with, FinTech has transformed one of the most important roles in finance: capital raising. The main objective of the financial industry has always been to decide which companies and individuals obtain loans and investments

(20) George Walker, «Financial technology law - A new beginning and a new future», *The International Lawyer*, American Bar Association, USA, 2017, Vol.50, No.1, (2017), p.156.

(21) Jason W. Parsont, «Crowdfunding: The real and the illusory exemption», *Harvard business law review*, Harvard Law School, USA, Vol.4, (2014), p.283.

(22) Anne Matthew, «Crowd-Sourced Equity Funding: The Regulatory Challenges of Innovative Fintech and Fundraising», *University of Queensland Law Journal*, The University of Queensland, Australia, Vol. 36, No.1, (2017), p.46.

(23) Andrew A. Schwartz, «Crowdfunding Issuers in the United States», *Washington University Journal of Law & Policy*, Washington University, St. Louis, USA, Vol.61, (2020), p.155.

(24) Jason W. Parsont, «Crowdfunding: The real and the illusory exemption», *Harvard business law review*, Harvard Law School, USA, Vol.4, (2014), p.288.

to enable them to prosper and flourish⁽²⁵⁾. Massive banks have generally ruled the sector because they have the financial resources and marketplace experience to oversee massive debt issuances, initial public offerings, and other similar transactions. However, FinTech has begun to disrupt the capital-raising industry⁽²⁶⁾.

Indeed, with corporations struggling to raise cash in the aftermath of the global financial crisis, FinTech assisted in meeting borrower requirements more efficiently by introducing new ways for businesses and individuals to generate capital, especially through the pioneering of crowdfunding. More precisely, entrepreneurs can directly solicit investment (funding) from the general public (crowd) through equity crowdfunding, bypassing the customary (and expensive) process of an initial public offering⁽²⁷⁾.

In this regard, in the USA, for instance, title III of the JOBS Act of 2012 introduced a new section 4(a)(6) to the Securities Act of 1933. Therefore, for the first time, start-ups and entrepreneurs are enabled to raise capital via securities-based crowdfunding. Start-ups, and small businesses, will be capable of selling shares of their companies to retail investors through approved crowdfunding portals without first registering the securities with the SEC. In other words, the JOBS Act added another exemption from the 1933 Securities Act's registration requirements. This will allow start-ups to gain access to a new source of capital without incurring the regulatory costs related to the securities sales⁽²⁸⁾.

To be more specific, crowdfunding is the mechanism of initial stage businesses collecting cash from large groups of online users, sometimes with the help of social networks and widespread promotional tools⁽²⁹⁾. FinTechs, for instance, use their websites to facilitate the gathering of funds from vast audience of investors, permitting them to buy equity stakes in start-ups without the large minimum commitments typically demanded by venture capital

(25) Anne Matthew, «Crowd-Sourced Equity Funding: The Regulatory Challenges of Innovative Fintech and Fundraising», *University of Queensland Law Journal*, The University of Queensland, Australia, Vol.36, No.1, (2017), p.52.

(26) William Magnuson, «Regulating FinTech», *Vanderbilt Law Review*, Vanderbilt University Law School, USA, Vol.71, No.4, May 2018, p.1179.

(27) Andrew A. Schwartz, «Crowdfunding Issuers in the United States», *Washington University Journal of Law & Policy*, Washington University in St. Louis, USA, Vol.61, (2020), p.155.

(28) Matthew A. Pei, «International crowdfunding», *Columbia law review*, No.3, (2014), p. 856.

(29) Joseph Hogan, «Like oil and water: Equity crowdfunding and securities regulation», *Lewis & Clark law review*, Lewis & Clark Law School, USA, Vol.18, No.4, (2014), p.1092.

firms⁽³⁰⁾. Equity crowdfunding sites permit purely online transactions, with FinTech companies just acting as middlemen⁽³¹⁾. Therefore, the fundamental advancement that FinTech has made in capital raising is the invention of crowdfunding.

It is worth noting that Kuwait has a limited number of crowdfunding companies and platforms. Nonetheless, there is currently no legal framework in Kuwait for crowdfunding⁽³²⁾.

In this regard, a Kuwaiti regulation addressing specifically equity crowdfunding may be required, as this method may be viewed as exempting crowdfunded offerings from the ordinary registration and disclosure requirements for public offerings. The American regulatory system could serve as a model for the Kuwaiti-recommended regulation, as it imposes caps on companies and investors to ensure the success of the former's funding campaign and to prevent the latter from putting more money at risk than they can afford.

Indeed, the JOBS Act legalized securities crowdfunding in this context, but it also imposed monetary constraints on both companies and investors. Companies are permitted to raise a maximum of \$1 million annually, and the law places a cap on the number of crowdfunded securities that an investor may buy annually. For most people, the maximum amount will be between \$2,000 and \$5,000⁽³³⁾. As a result, the Kuwaiti regulator could draw inspiration from these caps and tailor them to the realities of the Kuwaiti market.

2.1.3. Debt crowdfunding

Along with capital raising, FinTech has also achieved substantial advances in debt finance for both firms and people. More specifically, lending to SMEs has always been a risky and expensive marketplace, and several banks curtailed their lending after the financial meltdown. FinTech has filled this hole with a lot of innovations, probably most notably in peer-to-peer lending.

(30) William Magnuson «Regulating FinTech.» *Vanderbilt Law Review*, Vanderbilt University Law School, USA, Vol.71, No.4, May 2018, pp.1180-1183.

(31) Darian M. Ibrahim, «Equity Crowdfunding: A Market for Lemons», *Minnesota Law Review*, University of Minnesota law school, USA, Vol.100, No.2, December 2015, p.586.

(32) OECD Reviews of Innovation Policy, Kuwait 2021, p.49. Available on: <https://doi.org/10.1787/49ed2679-en> (Last access 10/8/2022).

(33) Andrew A. Schwartz, «The Gatekeepers of Crowdfunding», *Washington and Lee University school of law, Washington and Lee Law Review*, Vol.75, No.2, Spring 2018, pp.900-901.

Indeed, debt crowdfunding, often known as peer-to-peer lending (P2P lending), is a type of debt fundraising from individuals and other organizations. It refers to a firm or individual borrowing money from the general public with the assumption that the money will be repaid with interest, without the requirement for an official financial institution to function as an intermediary, and without the need for a regulatory burden⁽³⁴⁾. The loans are mostly short-term, and repayment is accomplished through daily deductions of a fixed amount of money or a percentage of sales from the borrower's bank account.

Moreover, "peer-to-peer" lending platforms are backed by individual investors, connect lenders and borrowers and make lending decisions using a combination of big data analytics and machine learning⁽³⁵⁾. Said differently, to assess creditworthiness, this model leverage alternative data sources and "big data"⁽³⁶⁾ driven algorithms⁽³⁷⁾.

In this line, FinTech's ability to rapidly and efficiently determine creditworthiness is one of its distinctive features. The majority of FinTech lenders make funding decisions within two to three days. As previously said, FinTech combines data-rich algorithms using unorthodox data sources to make decisions rather than the relationship-based and standard credit variables such as credit scores and income verification. These unorthodox data sources include social media, online shopping, payment applications, and mobile phone accounts⁽³⁸⁾.

This sort of scoring provides a more comprehensive perspective of borrowers' financial lives and assists in filling the credit gap for persons who

(34) Anthousa Agathokleous, «From FinTech to regtech: How have European countries responded to the development of FinTech through regulation?», 2019, p.9. Available on: https://www.researchgate.net/publication/337874271_From_FinTech_to_RegTech_How_have_European_countries_responded_to_the_development_of_FinTech_through_regulation? (Last access 18/7/2022).

(35) Lenore Palladino, «Small Business FinTech Lending: The Need for Comprehensive Regulation», *Fordham Journal of Corporate and Financial Law*, Fordham University School of Law, USA, Vol.24, No.1, (2018), p.86.

(36) Big-data is defined as a "high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making". See, Alison Lui, Nicholas Ryder, *FinTech, artificial intelligence and the law- Regulation and crime prevention*, Routledge, London, 2021, p.32.

(37) Lenore Palladino, «Small Business FinTech Lending: The Need for Comprehensive Regulation», *Fordham Journal of Corporate and Financial Law*, Fordham University School of Law, USA, Vol.24, No.1, (2018), p.80.

(38) Jane Bambauer, Tal Zarsky, «The Algorithm Game», *Notre Dame Law Review*, University of Notre Dame, USA, Vol.94, No.1, (2018), p.19.

are unable to obtain a loan due to a lack of credit history⁽³⁹⁾.

If a potential borrower meets the algorithmic requirements, the loan is approved by a bank initially, but the bank is quickly reimbursed with funds provided by investors, whose interest in the loan is finally demonstrated by a note issued by the online platform⁽⁴⁰⁾. The inventive use of unconventional data by FinTech allows new or previously unqualified borrowers to obtain credit. In other words, Fintech has the ability to provide credit to those who would not otherwise be able to obtain it from a bank. In light of this, it is evident that FinTech financing has the potential to become a significant new source of lending for small businesses⁽⁴¹⁾.

2.2. Robo-advisory

Human behavior, which was long regarded to be essential for achieving financial goals, is being superseded by the rise of digital replacements. Indeed, asset management is one sector of finance where FinTech has made significant progress⁽⁴²⁾. The truth is that, in addition to offering alternative lending options, FinTech is actually expanding its presence in sectors like asset management through robo-advisory services⁽⁴³⁾.

Thoughts of a humanoid robot providing financial advice may quickly come to mind when we hear the word “robot”, but this perception is only partially accurate. In fact, there are two types of robo-advisers. On the one hand, a pure robo-advisor is a financial product that is totally online and offers algorithm-based, automated wealth management services devoid of human intervention. A hybrid robo-advisor, on the other hand, mixes a dedicated

(39) Franklin Allen, Globalization and finance and FinTech in the MENA region, Economic Research Forum, Working paper No.1489, September 2021, p.8.

(40) Hilary J. Allen, «Experimental strategies for regulating FinTech», Journal of law & Innovation, Penn Carey Law – University of Pennsylvania, USA, Vol.3, No.1, (2020), pp.8-9.

(41) Lenore Palladino, «Small Business FinTech Lending: The Need for Comprehensive Regulation», Fordham Journal of Corporate and Financial Law, Fordham University School of Law, USA, Vol.24, No.1, (2018), p.84.

(42) Nicole G. Iannarone, «Computer as Confidant: Digital Investment Advice and the Fiduciary Standard», Chicago-Kent Law Review, IIT Chicago-Kent college of law, USA, Vol.93, No.1, (2018), p.148.

(43) Anthousa Agathokleous, «From FinTech to regtech: How have European countries responded to the development of FinTech through regulation?», 2019, p.9. Available on: https://www.researchgate.net/publication/337874271_From_FinTech_to_RegTech_How_have_European_countries_responded_to_the_development_of_FinTech_through_regulation? (Last access 18/7/2022).

human watchdog with an automated, algorithm-based approach⁽⁴⁴⁾.

As a result, robo-advisors are digital platforms with dynamic and smart user support elements that help customers navigate an automatically generated financial advisory process⁽⁴⁵⁾. Thus, robo-advisors offer wealth management services online, replacing face-to-face savings and investment counseling with data-driven, algorithmic methods to investing⁽⁴⁶⁾. For this reason, robo-advisors are the most promising tool for automatic portfolio management, providing online, targeted, and automated tailored financial advice and monitoring twenty-four hours a day, seven days a week⁽⁴⁷⁾. Moreover, robo-advisors frequently use well-developed and intricately intertwined mobile applications to provide services and advise to consumers via blogs and emails rather than personal connections⁽⁴⁸⁾.

FinTech companies have consequently provided the customer with more advanced products for wealth management, in addition to cutting costs. Investors are preferring low-fee financial services due to the close association between lower fees and increased profitability. These features enabled FinTech firms to access a group of consumers, such as small businesses, previously disregarded by the investment management industry⁽⁴⁹⁾.

Furthermore, robo-advisory firms provide consumers with automated investment services that strive to be as excellent as what a human financial advisor can deliver, but at a fraction of the price.

Trust in robo-advice can also be strong because conventional counsel may be seen as prejudiced. In addition, software biases are easier to detect than

(44) Bret E. Strzelczyk, «Rise of the Machines: The Legal Implications for Investor Protection with the Rise of Robo-Advisors», *DePaul Business & Commercial Law Journal*, DePaul University college of law, USA, Vol.16, No.1, (2017), p.56.

(45) Dominik Jung, Florian Glaser, «Robo-advisory: opportunities and risks for the future of financial advisory: recent findings and practical cases», p.5. Available on: https://www.researchgate.net/publication/328390383_Robo-Advisory_Opportunities_and_Risks_for_the_Future_of_Financial_Advisory_Recent_Findings_and_Practical_Cases (Last access 3/8/2022).

(46) John Lightbourne, «Algorithms & Fiduciaries: Existing and Proposed Regulatory Approaches to Artificially Intelligent Financial Planners», *Duke Law Journal*, Duke University School of Law, USA, Vol.67, No.3, (2017), p.652.

(47) Philipp Maume, «Regulating Robo-Advisory», *Texas International Law Journal*, University of Texas School of Law, USA, Vol.55, No.1, (2019), p.51.

(48) William Magnuson «Regulating FinTech.» *Vanderbilt Law Review*, Vanderbilt University Law School, USA, Vol.71, No.4, May 2018, pp.1176-1177.

(49) William Magnuson «Regulating FinTech.» *Vanderbilt Law Review*, Vanderbilt University Law School, USA, Vol.71, No.4, May 2018, p.1178.

human biases. Every aspect of program activity can be logged, and those logs can be scrutinized if necessary⁽⁵⁰⁾. Advantages over human advisors include decreased industry expenses and enhanced customer accessibility to wealth management services, robot advisers clearly offer a big advantage⁽⁵¹⁾.

It is worthwhile to mention that the securities regulators typically monitor robo-advisory firms because they commonly offer their clients both financial advice and transaction execution⁽⁵²⁾.

On the Kuwaiti level, it is important to note that the National Bank of Kuwait was the first to implement robo-advisory. Indeed, NBK Capital Smart Wealth is a company that offers a powerful robo-advisor, the first of its type in Kuwait, where clients may monitor their portfolios via the company's mobile application and website⁽⁵³⁾. Soon after, a few Kuwaiti banks followed suit and began offering robo-advisory services.

In this regard, there is currently no legal structure in Kuwait for robo-advisory. However, this should not be a problem because robo-advisory might be governed by the same previous investment advisory regulations.

In the United States, for example, the Investment Advisers Act (IAA) of 1940 governs robo-advisors. In fact, robo-advisors operate within the legal framework that centers around owing customers a fiduciary duty⁽⁵⁴⁾. Due to this, robo-advisors are required to register with the SEC, just like human advisors, and must abide by the same securities regulations as conventional broker-dealers, in particular the IAA⁽⁵⁵⁾.

(50) Alison Lui, Nicholas Ryder, *FinTech, artificial intelligence and the law- Regulation and crime prevention*, Routledge, London, 2021, p.20.

(51) Anthousa Agathokleous, «From FinTech to regtech: How have European countries responded to the development of FinTech through regulation?», 2019, p.9. Available on: https://www.researchgate.net/publication/337874271_From_FinTech_to_RegTech_How_have_European_countries_responded_to_the_development_of_FinTech_through_regulation? (Last access 18/7/2022).

(52) Bret E. Strzelczyk, «Rise of the Machines: The Legal Implications for Investor Protection with the Rise of Robo-Advisors», *DePaul Business & Commercial Law Journal*, DePaul University college of law, USA, Vol.16, No.1, (2017), p.58.

(53) The NBK capital Smart Wealth robo advisor use case. Available on: https://bowaba.com/bodigital/bowaba_portfolio/nbk-capital-smart-wealth/ (Last access 10/8/2022).

(54) John Lightbourne, «Algorithms & Fiduciaries: Existing and Proposed Regulatory Approaches to Artificially Intelligent Financial Planners», *Duke Law Journal*, Duke University School of Law, USA, Vol.67, No.3, (2017), p.653. Also see, Caelainn Carney, «Robo-Advisors and the Suitability Requirement: How They Fit in the Regulatory Framework», *Columbia Business Law Review*, Vol.2018, No.2, (2018), p.591.

(55) Bret E. Strzelczyk, «Rise of the Machines: The Legal Implications for Investor Protection with the

The Capital Markets Law (CML) was enacted in Kuwait as Law No. 7 of 2010, managing the “Establishing a Capital Market Authority (CMA) and Regulating Securities Activities”. The Capital Markets Authority is tasked with issuing the appropriate bylaws and directives to carry out the CML. Investment advisor activities are one of the securities activities that require a license from the CMA, according to article 63 of Law No. 7 of 2010⁽⁵⁶⁾. As a result, robo-advisory in Kuwait may be covered by CML and hence regulated by the CMA.

3. Regulatory sandbox

3.1. The concept of the regulatory sandbox

Technology entrepreneurs aiming to access the financial services sector frequently struggle to understand the legislation that would apply to a new financial product. In order to stimulate FinTech innovation, legislators have implemented a number of tools to assist innovators in navigating the appropriate financial regulations.

The most obvious of them is the “regulatory sandbox”, which allows innovators to perform restricted tests of FinTech goods and services in a regulatory environment that reduces burdens or offers exemptions from regulatory requirements⁽⁵⁷⁾. In this regard, the exemptions’ system for regulatory sandbox participants includes licensing, certification, accreditation, and other relaxations⁽⁵⁸⁾.

Since the Financial Conduct Authority created the first sandbox in the United Kingdom in 2016, sandboxes have become extremely popular among financial regulators globally⁽⁵⁹⁾. Indeed, other regulators rapidly followed, and more than sixty members nowadays have joined the ranks⁽⁶⁰⁾.

Rise of Robo-Advisors», DePaul Business & Commercial Law Journal, DePaul University college of law, USA, Vol.16, No.1, (2017), p.56.

(56) Article 63 was amended by Law No.22 of 2015 amending some provisions of Law No.7 of 2010 regarding the establishment of the Capital Markets Authority and the regulation of securities activity.

(57) Christopher K. Odinet, «Consumer Bitcredit and Fintech Lending», Alabama Law Review, University of Alabama School of Law, USA, Vol.69, No.4, (2018), p.856.

(58) Elizaveta Gromova, «Regulatory sandboxes (experimental legal systems) for digital innovations in BRICS», BRICS law journal, University of Tyumen, Russia, Vol.7, Iss.2, (2020), p.34.

(59) Chang-Hsien Tsai., et al. «The Diffusion of the Sandbox Approach to Disruptive Innovation and Its Limitations», Cornell International Law Journal, Cornell Law School, USA, Vol.53, No.2, (2020), p.269.

(60) William Magnuson, Blockchain democracy - Technology, law and the rule of the crowd, Cambridge University Press, UK, 2020, p.183.

The term “sandbox” derives from the realm of software development, where it refers to a closed testing environment created for safely experimenting with online or software projects. From a business perspective, a regulatory sandbox is a secure environment that allows businesses to experiment new technologies on actual consumers in order to enhance competitiveness⁽⁶¹⁾.

A regulatory sandbox, in other words, is a simulated space that enables for the controlled and time-bound evaluation of novel products and services. Indeed, it is open to new business concepts, goods, and processes, both regulated and unregulated, or that may become regulated in the future⁽⁶²⁾.

Firms and businesses will be therefore driven to invest in innovative technology as part of a strategy that frequently involves supervised experiment in a live setting in order to stimulate innovation and influence interrelations with businesses while enabling policymakers to maintain a close eye on developing financial services⁽⁶³⁾.

Accordingly, there are two main potential market benefits in the event that a regulatory sandbox is implemented. The first benefit is a boost to innovation. The second is how much the regulator stands to learn regarding advances. In fact, a sandbox sends a clear message to industry that a regulator is open to new ideas⁽⁶⁴⁾.

Additionally, it is worth noting that sandboxes are likely to be most effective in jurisdictions with a considerable number of innovation-focused firms, and less effective in developing countries with a low number of startups and innovation firms⁽⁶⁵⁾. In general, the success of these regulatory actions

(61) Aaron C. F. Salerno, «Regulating the FinTech Revolution: How Regulators Can Adapt to Twenty-First Century Financial Technology», *New York University Annual Survey of American Law*, School of Law, New York University, USA, Vol.75, No.2, (2020), p.385.

(62) International Bank for Reconstruction and Development, *How Regulators Respond to FinTech*, 2020, pp.14-34. Available on: <https://documents1.worldbank.org/curated/en/579101587660589857/pdf/How-Regulators-Respond-To-FinTech-Evaluating-the-Different-Approaches-Sandboxes-and-Beyond.pdf> (Last access 26/7/2024).

(63) Chang-Hsien Tsai., et al. «The Diffusion of the Sandbox Approach to Disruptive Innovation and Its Limitations», *Cornell International Law Journal*, Cornell Law School, USA, Vol.53, No.2, (2020), p.268.

(64) Deirdre Ahern, «Regulators Nurturing Fintech Innovation: Global Evolution of the Regulatory Sandbox as Opportunity-Based Regulation», *Indian Journal of Law and Technology*, National Law School of India University, India, Vol.15, No.2, (2019), p.350.

(65) Ross P. Buckley; Douglas Arner; Robin Veidt; Dirk Zetsche, «Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and beyond», *Washington University Journal of Law & Policy*, School of Law, Washington University, USA, Vol.61, (2020), pp.70-72.

will certainly be judged over time. Nevertheless, in an increasingly complex financial services sector, the regulatory sandbox is proving to be a launching pad for modern financial regulation⁽⁶⁶⁾.

3.2. International experiences

3.2.1. The UK and USA experiences

In general, policymakers cannot question the reality and scope of FinTechs, and seem to be forced to choose between a proactive and a passive stance to financial regulation. The consensus view appears to be to establish a proactive plan modeled after the UK's regulatory sandbox. However, the United States has not followed the same pattern to this time.

On the one hand, it is true that the Financial Conduct Authority (FCA) of the United Kingdom was the first regulatory agency to establish a FinTech regulatory sandbox in 2016, describing it as “a safe space” in which firms could evaluate unconventional goods, services, and business models, while protecting consumers⁽⁶⁷⁾.

The FCA serves as a valuable illustration of an existing regulatory sandbox⁽⁶⁸⁾, and it has identified three key advantages that it intend to gain with the sandbox: “reduced time-to-market at potentially lower cost”, “better access to finance” (for innovators), and “more innovative products reaching the market”. These benefits are compatible with the FCA's purpose to “encourage competition in financial services markets”⁽⁶⁹⁾.

Candidates chosen by the FCA receive six months of regulatory relief before transitioning to a fully regulated environment (if the business model is sufficiently effective). The regulatory relief given is in the form of a limited authorization, which businesses can use to test their financial products and

(66) Cheng-Yun Tsang, «From Industry Sandbox to Supervisory Control Box: Rethinking the Role of Regulators in the Era of FinTech», *University of Illinois Journal of Law, Illinois College of Law, USA, Technology & Policy*, Vol.2019, No.2, (2019), p.391.

(67) William Magnuson, *Blockchain Democracy - Technology, Law and the Rule of the Crowd*, Cambridge University Press, UK, 2020, p.183.

(68) Brian R. Knight, Trace E. Mitchell, «The Sandbox Paradox: Balancing the Need to Facilitate Innovation with the Risk of Regulatory Privilege», *South Carolina Law Review, University of South Carolina School of Law, USA*, Vol.72, No.2, Winter 2020, p.446.

(69) Hilary J. Allen, «Experimental strategies for regulating FinTech», *Journal of law & Innovation, Penn Carey Law – University of Pennsylvania, USA*, Vol.3, No.1, (2020), p.6. Also see, Jacob S. Sherkow, «Regulatory Sandboxes and the Public Health», *University of Illinois Law Review, USA*, Vol.2022, No.1, (2022), p.366.

services with a small group of clients while avoiding the cost and time required in applying for a full authorization⁽⁷⁰⁾.

On the other hand, some large financial systems have avoided creating regulatory sandboxes, notably the majority of regulatory agencies in the United States⁽⁷¹⁾. On this issue, the “fragmented” nature of the financial regulatory system may explain the deferred rate at which the federal government of the United States reacts to emerging innovations in the financial services sector⁽⁷²⁾.

In fact, the regulation of financial markets in the United States is fragmented due to diverse regulatory frameworks at the federal and state levels, making the construction of a single unified sandbox for the country difficult. This is true since there hasn't been any move by Congress to put in place a regulatory sandbox at the federal level. While some states have implemented or are considering implementing regulatory sandboxes⁽⁷³⁾.

For instance, Arizona established the first sandbox at the State governments level in 2018, allowing start-ups, entrepreneurs, and even established businesses to test their innovative financial goods or services in a regulatory-friendly setting⁽⁷⁴⁾.

3.2.2. The emergence of the Kuwaiti experience

Kuwait was placed fourth in the Gulf Cooperation Council (GCC) by the Global FinTech Index 2020. The same ranking was attained in 2021 at the Arab FinTech Index⁽⁷⁵⁾. Nevertheless, Kuwait must continue to increase its economic competitiveness and appeal in comparison to GCC countries such as the UAE and Bahrain.

(70) Hilary J. Allen, «Experimental strategies for regulating FinTech», *Journal of law & Innovation*, Penn Carey Law – University of Pennsylvania, USA, Vol.3, No.1, (2020), p.20.

(71) Ross P. Buckley; Douglas Arner; Robin Veidt; Dirk Zetzsche, «Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and beyond», *Washington University Journal of Law & Policy*, Washington University School of Law, USA, Vol.61, (2020), p.58.

(72) Michael M. Piri, «The Changing Landscapes of FinTech and RegTech: Why the United States Should Create a Federal Regulatory Sandbox», *Business & Finance Law Review*, George Washington Law School, USA, Vol.2, No.2, April 2019, p.249.

(73) Hilary J. Allen, «Sandbox Boundaries», *Vanderbilt Journal of Entertainment & Technology Law*, Vanderbilt University Law School, USA, Vol.22, No.2, (2020), p.303.

(74) Ramona Rupeika-Apoga, Eleftherios I. Thalassinou, « Ideas for a Regulatory Definition of FinTech», *International Journal of Economics and Business Administration*, Vol.8, Iss.2, (2020), p.143.

(75) Arab monetary fund, *The Arab region FinTech guide*, Arab regional FinTech working group, 2nd edition, 2021, p.71. Available on: <https://www.amf.org.ae/en/publications/arab-regional-FinTech-working-group/arab-region-FinTech-guide-second-edition> (Last access 18/7/2022).

For this reason, the Kuwaiti government established the Kuwait Vision 2035 program. This vision aims to boost Kuwait's competitiveness by digitizing the economy, looking to diversify revenue away from oil, converting the state into a regional financial hub, and establishing a new dynamic ecosystem of various government agencies, private businesses, and FinTech entrepreneurs. Indeed, the Central Bank of Kuwait (CBK) announced a number of FinTech efforts aimed at revamping and upgrading the IT infrastructure of existing financial systems in Kuwait in order to adhere to global best practices⁽⁷⁶⁾.

The most intriguing move in this arena is the establishment of a regulatory sandbox framework⁽⁷⁷⁾. Indeed, in 2018, the CBK launched its "FinTech regulatory sandbox", allowing Kuwaiti entrepreneurs to test innovative software products and services in a secure environment while temporarily being exempt from the need to meet regulatory requirements⁽⁷⁸⁾.

The Kuwaiti regulatory sandbox framework document of the CBK described the regulatory sandbox as follows: "A safe space that allows for experimentation with innovative products and services relating to FinTech without incurring the cost of obtaining official licenses. The environment caters for either products and services that are based on, or relevant to, electronic payment of funds that require the Central Bank of Kuwait's approval prior to their launch in the local market, or the other innovative products and services that are based on new or innovatively applied technology"⁽⁷⁹⁾.

Hence, the CBK regulatory sandbox framework enables businesses that want to develop innovative goods and services linked with electronic payment of assets (FinTechs) to do so within a framework that safeguards the safety and stability of the financial industry. These advantages could be realized by pursuing the following objectives: First, lower the time and expenses associated

(76) Ahmad Rabaa'i, «FinTech in Kuwait: a survey study», January 2022, p.9. Available on: https://www.researchgate.net/publication/357551866_FinTech_in_Kuwait_a_survey_study (Last access 18/7/2024).

(77) John Truby, Andrew Dahdal, Imad Ibrahim, «Sandboxes in the Desert: Is a Cross-Border 'Gulf-Box' Feasible?», Qatar university college of law, Working paper No. 2021/002, p.15. Available on: https://www.researchgate.net/publication/356137913_Sandboxes_in_the_Desert_Is_a_Cross-Border_Gulf-Box_feasible (Last access 8/8/2022).

(78) Ahmad Rabaa'i, «FinTech in Kuwait: a survey study», January 2022, p.7. Available on: https://www.researchgate.net/publication/357551866_FinTech_in_Kuwait_a_survey_study (Last access 18/8/2022).

(79) Central bank of Kuwait, «Regulatory Sandbox framework document», p.1. Available on: <https://www.cbk.gov.kw/en/legislation-and-regulation/regulatory-sandbox/general-framework> (Last access 8/8/2022).

with launching the suggested product or service in the local market. Second, making it simpler to evaluate the proposed product or service before releasing it to the local market. Third, fostering collaboration between innovators and CBK to make it easier to fully comply with all laws that are pertinent to the use of the proposed good or service⁽⁸⁰⁾.

The Kuwaiti regulatory sandbox framework consists of four stages that must be fulfilled within one year: The first stage is the application stage, where the regulatory sandbox application form must be completed and submitted with the necessary supporting documentation. The decision of CBK to accept or reject the application will be communicated to the applicant and will be based on the eligibility criteria of local deployment and innovation, product/service applicability, value proposition, readiness to test, and deployment plan.

The application will be thoroughly evaluated in terms of all technological, security, and regulatory concerns related to the proposed product or service during the second stage. Third, the proposed product or service is assessed in a testing environment during the experimentation stage. Fourth, there is the accreditation stage, in which CBK provides its authorization to promote the proposed product or service in the market⁽⁸¹⁾.

Having said that, it is vital to note that Kuwait does not limit the scope of the sandbox to specific sectors, whereas Switzerland and Hong Kong, for instance, confine their sandboxes to recognized financial institutions operating both with and without FinTech firms. As a result, the Kuwaiti regulatory sandbox allows for the testing of a wide range of financial products and services. This is a prudent approach by the CBK because sartorial limits do little for FinTech and should be avoided if possible⁽⁸²⁾.

Furthermore, the time a FinTech is permitted to play in the sandbox is often limited. For instance, periods span from six months (United Kingdom)

(80) Central bank of Kuwait, «Regulatory Sandbox framework document», p.2. Available on: <https://www.cbk.gov.kw/en/legislation-and-regulation/regulatory-sandbox/general-framework> (Last access 8/8/2022).

(81) Central bank of Kuwait, «Regulatory Sandbox framework document», pp.3-4. Available on: <https://www.cbk.gov.kw/en/legislation-and-regulation/regulatory-sandbox/general-framework> (Last access 8/8/2022).

(82) Ross P. Buckley; Douglas Arner; Robin Veidt; Dirk Zetsche, «Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and beyond», *Washington University Journal of Law & Policy*, Washington University School of Law, USA, Vol.61, (2020), p.64. Also see, Chang-Hsien Tsai, et al. «The Diffusion of the Sandbox Approach to Disruptive Innovation and Its Limitations», *Cornell International Law Journal*, Cornell Law School, USA, Vol.53, No.2, (2020), p.270.

to twelve months (the initial Australian sandbox) to twenty-four months (Arizona)⁽⁸³⁾. Consequently, we see that the CBK has chosen a twelve-month time limit for the sandbox, which is the median attitude among the various foreign experiences.

Nevertheless, three suggestions could be made in this regard to improve Kuwait's regulatory sandbox. First, CBK should assess the competitiveness and performance of the sandbox's operation in the near future in order to remain competitive in the race to attract FinTech talent.

Second, the Kuwaiti sandbox testing period should be extended to 24 months, as is the case with the Australian enhanced regulatory sandbox (ERS), which became operational in September 2020 and is twice as long as the initial one, allowing for more time range to test new and emerging FinTech.

Third, the Kuwait sandbox should continue to embrace new sorts of activities, such as crowdfunding services, in order to keep up with modern technology⁽⁸⁴⁾.

4. Conclusion

While the term "FinTech" is relatively new, the relationship between finance and technology is not⁽⁸⁵⁾. However, the uniqueness of FinTech companies originates from the fact that they provide a service-oriented and customer-centric industry free of outdated technology, software, hierarchies, and business methods. This technological proficiency is key to the "revolutionary" potential of these companies⁽⁸⁶⁾. The following two tools are examples of Fintech innovative products that have the potential to improve monetary and financial systems.

On the one hand, the rise of the FinTech revolution altered the conventional

(83) Amy Harriman, «Playing in the Sandbox: Lessons U.S. Regulators Can Learn from the Successes of Fintech Sandboxes in the United Kingdom and Australia», *Wisconsin International Law Journal*, University of Wisconsin-Madison Law School, USA, Vol.37, No.3, (2020), pp.626-631.

(84) Anton N. Didenko, «A Better Model for Australia's Enhanced FinTech Sandbox», *University of New South Wales Law Journal*, University of New South Wales Law School, Australia, Vol.44, No.3, (2021), p.1100.

(85) Douglas W. Arner, János Barberis, Ross P. Buckley, «FinTech, RegTech, and the Reconceptualization of Financial Regulation», *Northwestern journal of international law & business*, School of law, Northwestern University, USA, Vol.37, Iss.3, (2017), p.377.

(86) Alison Lui, Nicholas Ryder, *FinTech, artificial intelligence and the law- Regulation and crime prevention*, Routledge, London, 2021, p.18.

lending structure, making credit more accessible as it went online⁽⁸⁷⁾. FinTech firms offer loan services outside of the traditional regulated banking system, creating a substantial new source of funding for small enterprises: equity and debt financing transformed through crowdfunding. Indeed, FinTech startups have demonstrated that enterprises can raise cash in more inventive ways, particularly through equity and debt crowdsourcing⁽⁸⁸⁾.

On the other hand, robo-advisors offer low cost, online, personalized, automated assistance and execution of wealth management services, making them the most promising tool for automatic portfolio management for small businesses.

As a direct result of the aforementioned FinTech technologies, smaller, more agile competitors will be able to enter the financial system.

Regulated entities have an edge over uncontrolled entities in terms of regulation: trust. Nonetheless, the FinTech revolution is fraught with dangers, such as cybersecurity flaws, fraud and money laundering, and insufficient data integrity, to mention a few. Fintech regulation is crucial for user protection and payment security⁽⁸⁹⁾.

As previously demonstrated in this study, there is no specific regulatory structure for Fintechs in the legal systems analyzed (Kuwait, US, and UK). Nonetheless, what legal systems interested in approaching Fintechs (such as the United Kingdom and Kuwait) have in common is the regulation of a testing environment (regulatory sandbox) to promote them. Regulatory sandboxes are safe zones in which FinTech startups and other creative businesses can develop and test their products in a less stringent regulatory environment while working in close collaboration with regulators⁽⁹⁰⁾. Therefore, a consistent approach to regulation will definitely be a powerful accelerator for economic progress.

(87) Christopher K. Odinet, «Consumer Bitcredit and Fintech Lending», *Alabama Law Review*, University of Alabama School of Law, USA, Vol.69, No.4, (2018), p.784.

(88) William Magnuson «Regulating FinTech.» *Vanderbilt Law Review*, Vanderbilt University Law School, USA, Vol.71, No.4, May 2018, p.1179.

(89) Nazariy Hazdun, «Fintech regulation: legal and regulatory aspects». Available on: <https://www.forbes.com/sites/forbestechcouncil/2022/07/20/fintech-regulation-legal-and-regulatory-aspects/?sh=33aa59202e38> (Last access 26/9/2022).

(90) Ross P. Buckley; Douglas Arner; Robin Veidt; Dirk Zetsche, «Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and beyond», *Washington University Journal of Law & Policy*, Washington University School of Law, USA, Vol.61, (2020), p.56.

On the Kuwaiti level, the government is still constructing the infrastructure required to enhance the climate for FinTech in order to keep up with an increasingly fast-paced, dynamic, and sophisticated financial world. For these reasons, on the one hand, the Kuwaiti legislator is invited to regulate FinTech financial products such as crowdfunding and robo-advisory. The CBK, on the other hand, is invited to improve its regulatory sandbox in order to increase its competitiveness as a beacon for FinTechs in the GCC region.

In conclusion, finance is a dynamic industry that is being swiftly propelled by global advances in technology and digitization. In this regard, FinTech products are novel tools that are spreading swiftly on a global scale in response to the growing demand for digital financial services⁽⁹¹⁾. As a result, there is a potential to deliver significant advantages to the economy as a whole, and to small businesses in particular, such as expanded availability of funds, more equitable lending practices, and improved financial advising⁽⁹²⁾.

(91) Rabah Arezki, Lemma Senbet, World bank group, « Transforming Finance in the Middle East and North Africa», 2020, p.12. Available on: <http://documents1.worldbank.org/curated/en/935611593023039875/pdf/Transforming-Finance-in-the-Middle-East-and-North-Africa.pdf> (Last access 26/7/2022).

(92) William Magnuson «Regulating FinTech.» Vanderbilt Law Review, Vanderbilt University, Law School, USA, Vol.71, No.4, May 2018, p.1168.

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PRINCIPLES OF CRIMINOLOGY

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