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Fintech Regulations in the United States Compared to Regulations in Europe and Asia

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Fintech Regulations in the United States Compared to Regulations in Europe and Asia

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Abstract

Fintech, or financial technology, is an up and coming industry and yet at the same time has been around since the 1950s. In Europe and Asia, there has been a lot of innovation, and lawmakers have been forced to keep up with regulating the rapidly growing industry. However, the United States has not risen to the occasion of properly regulating this industry and can learn from countries in Europe and Asia on how to effectively regulate fintech. This essay explains generally what fintech is, why it must be properly regulated, how countries in Europe and Asia regulate it, and how the US should begin to implement their own regulations. Fintech is already a lucrative business that will just continue to spread and grow. However, without the proper regulation, it could become a hazard that affects many different people, but with the proper regulations, it can become a very helpful and profitable tool. Using the method of comparative analysis, the objective of this thesis is to make a recommendation for how the United States can begin regulating fintech.

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Table 1: Comparison of Regulations by Type of Fintech/Topic

1. Introduction: The Impact and Future of Fintech

Finance has existed for thousands of years, although not necessarily by that name. Exchanging money for goods and services is not a new concept, however, there have been many changes in how this is done. The use of credit and debit cards, rather than cash, is a prime example of this change. Applications and websites such as PayPal, which focus on the virtual transfer of money, are more recent examples. These innovations have grown rapidly throughout the years, and the term used to describe this new industry is “fintech.” Fintech combines the phrase “financial technology” into a newly recognized term. As a result of fintech’s popularity, new technology has been developed. Although Fintech has precipitated simpler, and more innovative financial services, it has also complicated the world of money and how people relate to it. It is no surprise that there has been an increase in technological innovation, in this area. Providing background information will help readers gain a greater understanding of the various aspects of fintech, and allow them to draw their conclusions on how it should best be used and regulated.

As previously stated, fintech is the use of technology for financial services. It is not a new concept and began as early as the 1950s. Falguni Desai writes in his Forbes article that Fintech began with the rise of credit cards in the 1950s, then “the 1960s brought ATMs to replace tellers and branches. In the 1970s, electronic stock trading began on exchange trading floors. The 1980s saw the rise of bank mainframe computers and more sophisticated data and record-keeping systems. In the 1990s, the Internet and e-commerce business models flourished” (Deasai, 2016). Although fintech has existed for decades, many advancements have been made in the last 15 years. For this reason, fintech may be perceived as a new concept. Innovating for streamlining financial services is what led to so many new advancements.

Fintech plays a huge part in the world today and needs proper regulation. One of the challenges in regulating fintech is due to the technology and its uses being so new. In his essay, Luke Thomas discusses this dilemma: “Due to the current regulatory landscape in the United States, fintech companies are often faced with ambiguity and confusion as to which laws, regulations, and agencies govern their products and services” (Thomas, 2018). It is all cutting edge, and most of the current laws and regulations generally deal with traditional banks and organizations, rather than online services and servers such as Blockchain or crowdfunding platforms. This being said, the United States should glean from the approach of lawmakers in Europe and Asia to regulate fintech in this country.

2. Research Question

How should the United States regulate fintech, and which aspects of Asia’s and Europe’s fintech regulations should the US adopt?

3. Methodology

In order to answer the research question, the method of a comparative analysis is used. The frame of reference for this paper is fintech regulations in the United States, Europe, and Asia. Regulations are analyzed in sections, and in each section there is a different type of fintech, or concern (i.e. cryptocurrency, robo-advising, anti-money laundering, etc.). For every section, a relevant regulation in each part of the world is listed. The types of fintech and concerns examined are determined by the popularity of each type listed in the sources of this research.

The grounds for comparison provides the reason for the importance of this question, and why comparing the United States (US), Europe, and Asia is relevant to it. Innovation in fintech is

growing rapidly and the US has minimal regulations to guide the growing industry. Countries in Europe and Asia are more advanced when it comes to fintech and its regulations. The reason the entire continents of Europe and Asia are being considered is due to the reality that no single country has perfected their regulations, therefore, all countries in those regions are being considered.

The thesis presents how the objects of this comparison are examined. In this case, the objects provide an extension of each other. The research uncovers the fintech regulations of countries in Europe and Asia that can help enhance the regulations in the US. The comparison will highlight where the regulations in Europe and Asia differ from those in the US.

The organizational scheme shows how the paper is organized. In this case, this paper is organized using the text-by-text method, which discusses all parts of the object first, before moving on to the next. More time is spent examining the existing laws in Europe and Asia, rather than those in the United States. A table was created to clearly compare fintech regulations in the United States, Europe, and Asia. Lastly, the links between each part of the discussion are analyzed at the end of the comparative analysis. Exact regulations and practices the United States should adopt from European and Asian countries are explored.

4. Literature Review

The literature on how countries in Europe and Asia regulate fintech was examined to help grasp how the United States can add to and improve upon its own fintech regulations. Currently, the discussion surrounding the regulation of fintech has gained importance, as the existing literature on the United States' fintech regulations reveals that it is lacking. Regulators in the US have been described as “perplexed” when it comes to how to properly regulate areas of fintech

(“Fintech regulation: where do we stand?”, 2019). Meanwhile, Europe and Asia are seen as the leaders in fintech and its regulations.

4.1 General Information on Fintech

Fintech is used in the average person’s everyday life, even if they do not realize it. Fintech companies are looking to serve the “unbanked” or “underbanked,” those who do not have banks or belong to any financial institution. Fintech services are creating “products aimed at addressing this portion of society, providing them with digital-only solutions to open up their access to the financial services” (Browne, 2017). There are about 10 million people considered “unbanked” in the US alone, and these services will allow the financially disadvantaged to have greater access to financial services. Along with serving the “unbanked”, fintech’s other purpose is to develop innovative financial services.

TheStreet lists the types of fintech as crowdfunding platforms, Blockchain and cryptocurrency, mobile payments, robo-advising, and stock-trading apps, and budget apps (“What is Fintech? Uses and Examples in 2019”, 2019). Crowdfunding platforms allow any person the ability to invest in projects or ideas by simply using the website or app. A cryptocurrency is a virtual currency that is exchanged using online virtual currency exchange websites, like Coinbase, and it is tracked using Blockchain technology. Blockchain tracks the records of cryptocurrencies in a digital ledger, and the data cannot be changed, which helps prevent fraud. Mobile payment technology is one of the simpler fintech products, and it allows the user of the app or website to link their bank to the service, thus sending/receiving payments to/from another user. Stock trading apps are self-explanatory in the way that they are online applications that can be used to sell or purchase stock. Budget apps are helpful tools that can allow the user to track their spending and income and can help the user adhere to a certain

budget. Lastly, robo-advising provides “algorithm-based asset recommendations and portfolio management that has increased efficiency and lowered costs” (“What is Fintech? Uses and Examples in 2019”, 2019). Robo-advising is usually used through artificial intelligence (AI) technology. All of these tools are revolutionizing financial services and changing how people relate to finance.

AI, or artificial intelligence, is one of the more complex technologies that is sometimes used in fintech, specifically for robo-advising. An article from *International Banker* presents the challenges that AI might create in fintech. The first challenge that Sébastien Meunier, the author, raised was that using AI to automatically make financial decisions for you could be detrimental since AI makes its decision based on data, which can sometimes be biased. The second challenge was something called “The Black-box effect.” Since the outcome of the “intelligent algorithms are opaque and not verifiable”, sometimes the outcomes are correct, but on a specific case-by-case basis, they can be very problematic. There is a “hidden bias” that is hard to pinpoint, making robo-advising using AI risky (Meunier, 2018). Besides this, the third challenge is that AI does not feature emotional intelligence, and it lacks “the ability to contextualize information,” and both of those are crucial to making smart investing decisions. The last main challenge that he lists is that when things go wrong, who would be to blame? AI may make riskier decisions because it will not have anyone to answer to and if the outcome is catastrophic, there is no emotional intelligence, and no ability to empathize.

To allow fintech companies to grow their businesses and create more innovation without the harsh traditional banking regulations, “regulatory sandboxes” are being developed throughout the world. This is a new concept, but it has already been rolled out in Europe and Asia, and they are continuing successfully. In an article written by Luke G. Thomas for the *North*

Carolina Banking Institute, he states the need for greater emphasis on flexibility and supervision in the regulatory sandbox because it “ensures that a balance is struck between enforcing regulations essential to consumer protection and relaxing unnecessary regulations that burden the fintech firm” (Thomas 2018). They do this on a “case-by-case basis” to ensure that these regulations are tailored to each fintech firm and what works for them. Without this flexibility, these services might not be as profitable or as safe for investors.

4.2 Fintech Regulations in the United States

As of now, fintech firms in the United States are being held to the traditional banking standards which stunt innovation and growth in the industry. The *US Official News* recapped a press release from the Commodity Futures Trading Commission (CFTC) regarding their approach going forward with regulating fintech. They call the approach “principles-based” opposed to “rules-based”. The principles-based approach is less “detailed, prescriptive rules and relying more on high-level, broadly-stated principles to set standards for regulated firms and products” (“ICYMI: Fintech Regulation Needs More Principles, Not More Rules”, 2019). From there, each fintech firm would follow their own path that they deem best to meet general requirements. This method allows for more flexible regulations that can be enforced, or not, when applicable. A case-by-case path as it relates to regulating fintech can allow for positive growth, while still keeping harmful situations from occurring. However, this shows that the CFTC still believes that a balance between principles-based and rules-based regulations will be most beneficial. Hence, the rules-based regulations would need to focus on protecting the customer.

The *International Financial Law Review*'s “Fintech regulation: where do we stand?” discusses the fintech regulations that the United States actually does have in place. In the spring

of 2019, the SEC released a guide called the *Framework for 'Investment Contract' Analysis of Digital Assets* that helps identify if a token is a security or not. The guideline uses the “third prong of the Howey test”, which states that if “an investor reasonably expects to derive profits from the efforts of others” it will be considered a security and will be regulated under the SEC’s traditional securities laws, like the Securities Act of 1933. However, “price appreciation resulting solely from external market forces ... impacting the supply and demand for an underlying asset generally is not considered 'profit' under the Howey test” and under those terms, the token will not be considered security (“Fintech regulation: where do we stand?”, 2019).

Digital Tokens/ICOs. The United States has limited regulations in relation to digital tokens/ICOs. Since 2015, the CFTC has been prosecuting those who have not complied with the regulatory requirements regarding virtual currencies. In recent news, two bills regarding tokens were introduced to the House for review, the Token Taxonomy Act of 2019 (TTA) and the Digital Taxonomy Act of 2019 (DTA). The TTA would set exact specifications on what a digital token is, and it would ultimately rule out digital tokens as being securities. The DTA would allocate \$25 million per year to the Federal Trade Commission (FTC) to allow them to “prevent unfair and deceptive practices in digital token transactions” (Wink, 2019). Another part of the DTA is that every year the FTC would write a report detailing their enforcement actions and recommendations for extra legislation regarding digital tokens and submit to Congress to review. The law review also highlights how state legislation is leading the way in fintech regulations and why the federal government is falling behind.

Another kind of digital token is an initial coin offering (ICO), which is one that lacks specific regulations. ICOs allow companies to raise capital by issuing their own form of cryptocurrency in exchange for money, usually in the form of a more popular cryptocurrency,

like Bitcoin. This allows for the growth of capital, without giving up a portion of the ownership of the company (Sherry, 2019). ICOs are also being regulated using the “Howey Test” the same way most tokens are being regulated. This may work for those being considered securities, but for other types of ICOs there is much risk involved in investing in them, such as fraud and loss.

Cryptocurrency. The only cryptocurrency regulations in the US are in relation to “administrators” and “exchangers” of cryptocurrencies (“Designing a BSA/AML Framework for Virtual Currencies”, 2018). These “administrators” and “exchangers” are required to follow certain anti-money laundering guidelines that will be discussed in the next section. For the other uses for cryptocurrency, there are some state regulations, but nothing on a federal level.

Anti-Money Laundering/Terrorism Financing. The anti-money laundering regulations regarding fintech are not extensive and only cover money laundering related to virtual currencies. Typically, the Bank Secrecy Act (BSA) establishes the guideline to help financial institutions enforce AML measures within their companies. In 2013, the Financial Crimes Enforcement Network (FinCEN) clarified that the BSA would only be enforced upon fintech institutions that work as “administrators” or “exchangers” for virtual currencies (“Designing a BSA/AML Framework for Virtual Currencies”, 2018). Virtual currency is under scrutiny since they can be used anonymously and also in illegal activities, such as money laundering. There is a list from the Office of Foreign Assets Control (OFAC) that names companies or individuals that pose threats to national security or the economy. The OFAC would not be able to detect if an individual on the list was using one of the more private and secure virtual currencies because it allows for anonymity.

Electronic Funds Transfer. Electronic fund transfers (EFT) in the US are regulated by “Regulation E”. Regulation E is “a basic framework that establishes the rights, liabilities, and

responsibilities of participants in electronic fund transfer systems such as automated teller machine transfers, telephone bill-payment services, point-of-sale (POS) terminal transfers in stores, and preauthorized transfers from or to a consumer's account" ("Compliance Guide to Small Entities Regulation E: Electronic Fund Transfers 12 CFR 205", 2019). This is one of the more basic regulations in relation to one of the more basic financial technologies; however, it is important to supervise them in order to protect the consumer. Consumers use these basic technologies often, showing the necessity for fintech regulations to protect the consumer.

Peer-to-Peer. The peer-to-peer (P2P) regulations in the United States are described as "fragmented". Under the current regulations, "lending platform requests a bank to originate a loan from the platform to the borrower. The platform then issues a debt security to the lender, who becomes a creditor of the platform. There are significant regulatory hurdles for new entrants. As well as needing to obtain licenses from state governments" (Nemoto, 2019). This method is expensive for the P2P platforms, and it is less seamless than how it is in other countries. The idea of P2P lending platforms is to match lenders directly to borrowers and allow the borrower to get the money directly from the P2P platform.

Crowdfunding. The regulations related to crowdfunding in the United States are fairly limited, but "Regulation Crowdfunding" by the SEC only covers how companies are to exchange securities through crowdfunding. The SEC notes through the Jumpstart Our Business Startups (JOBS) Act, that with this type of crowdfunding all transactions are "to take place online through an SEC-registered intermediary, either a broker-dealer or a funding portal", can only raise \$1,070,000 per year, and must provide information regarding transactions to the SEC ("Regulation Crowdfunding", 2017).

As of now, the United States does not have official laws or specific regulations in place for robo-advising in relation to AI, and there are no federal regulatory sandboxes, nor Blockchain/DLT regulations in the United States.

4. 3 Fintech Regulations in Europe

In Europe, many countries want to become leaders in certain areas of fintech. Therefore, most European countries have more fintech specific regulations in place. The purpose of Europe's regulations is mostly centered around encouraging innovation, while still protecting the customers using these technologies.

Digital Tokens/ICOs. France's digital tokens/ICO regulations give a good example of the comprehensive way the technology should be regulated. ICOs are complex in nature, and therefore regulating them is also complex. In the "Joint ESA Report on Regulatory Sandboxes and Innovation Hubs", the ESMA warns that ICOs can be used for illegal or unethical reasons, again, related to money laundering and fraud ("Joint ESA report on regulatory sandboxes and innovation hubs", 2019). ICOs that are considered securities are regulated the traditional way, similar to how normal securities are treated. Those not considered securities will allow certain ICOs to slip through the cracks of regulation. Seeing this, France added a second chapter to Book V, Title V of the French Monetary and Financial Code (CMF), called "token issuers". This new chapter characterizes ICOs as "any offer to the public, in any shape or form, to purchase tokens" (Scanlan, 2018). This chapter is the addition of regulations for the tokens that do not fall under the category of security. All the ICOs that act as securities must continue to follow the traditional laws regarding securities. Under the new regulation, those that issue ICOs need to inform buyers about the status of the project they invested in. In addition, issuers of ICOs need to request permission to issue their ICO by obtaining an "AMF visa".

Cryptocurrency. The UK's Financial Conduct Authority (FCA) released the "Guidance on Cryptoassets" which outlines how they believe crypto-assets should be, and already are regulated. Electronic money, or "e-money", and security tokens are regulated under the FCA. It is not necessary for utility tokens to be regulated by the FCA because they do not act as a security or a traditional financial asset. Cryptocurrency-based derivatives, like a contract for differences (CFDs), options, futures, and exchange-traded notes (ETNs), are completely banned from use because of the high risk it entails ("Guidance on Cryptoassets", 2019). France has also been making strides in regulating cryptocurrency. Firms that want to issue or trade cryptocurrency will be required to become certified with France's market regulators to prevent fraud and limit the risk to investors that goes along with unregulated cryptocurrencies. Hence, cryptocurrencies can be closely monitored by French authorities, while simultaneously allowing the cryptocurrency market to grow ("France to ask EU partners to adopt its cryptocurrency regulation", 2019).

Anti-Money Laundering/Terrorism Financing. AML regulations in Europe are under a complete Anti-Money Laundering Directive. Although the article "Regulation of FinTech Must Strike a Better Balance between Market Stimulation and the Security and Stability of the Financial and Economic System" has a lengthy title, it perfectly describes the article's content ("MIL-OSI Europe", 2018). The article outlines the European Economic and Social Committee's criticism and beliefs regarding the European Commission's Action Plan for regulating fintech. Identifying the risk of certain fintechs and later deciding regulations does not indicate that the EESC believes that deregulation is the key. Instead, the EESC notes that deregulation actually causes higher risk to using those fintechs, and that it is unfair for traditional banking services if fintechs lack regulations or are completely deregulated. The EU has enacted the Anti-Money

Laundering Directive for member countries to implement. Some member countries use their own laws to add on to this directive, like the Swedish Anti-Money Laundering and Terrorism Financing Act, which just goes into greater detail about what is expected for financial services when it comes to combating fraud and money laundering.

Electronic Funds Transfer. A large part of electronic funds transfer regulations is the EU's Revised Payment Services Directive (PSD2), which aims to improve existing electronic payment regulations. It lays out the strict requirements for protecting user's data, defending against fraud, and encouraging transparency. Beneficially, the addition of Regulation (EU) 2015/751, debit and credit card fees will lessen for shopkeepers or retailers ("Summary of Revised Rules for Payment Services in the EU", 2019).

Peer-to-Peer/Crowdfunding. The EU's regulations on peer-to-peer lending and crowdfunding are specific to the type of lending involved. If a consumer desires to receive a loan for personal or non-professional reasons, the Consumer Credit Directive would regulate the activity. The Mortgage Credit Directive regulates when a consumer needs a loan to purchase an "immovable property" ("Lex Access to European Union Law", 2018). As of now, there only exists a proposal for regulating peer-to-peer and crowdfunding platforms, and the current EU regulations are fragmented. Individual countries in the EU have started to fill the regulation gap when it comes to crowdfunding with their own specific regulations. For instance, France issued the Ordinance 2014-559 of 30 May 2014, which specifically deals with crowdfunding platforms. Crowdfunding through the "subscription of financial securities issued by an unlisted company must be registered in the ORIAS as a crowdfunding advisor" ("Crowdfunding", 2018). Also, projects on these crowdfunding platforms that act as loans with or without interest need to

register as crowdfunding intermediaries. Crowdfunding platforms that are in the form of donations do not need to be registered with ORIAS.

AI/Robo-Advising. There are not any definitive regulations or laws specifically directing how AI should be regulated in relation to fintech or robo-advising. The possibility of AI being held to an even higher standard than human advisors is discussed and emphasizes how fintech companies using AI must be completely transparent (“Fintech Europe 2019: Key Takeaways”, 2019). The UK’s Digital Economy Bill is said to lightly address regulating AI, but only in the way of protecting shared data. The European Commission brought together a group of experts and formed the “Expert Group on Regulatory Obstacles to Financial Innovation”, whose purpose is to provide informed recommendations on how aspects of fintech should be regulated. The group suggested that there needs to be an emphasis on AI and Digital Ledger Technology (DLT), like Blockchain, because of how different this technology is to traditional finance (“Blockchain Technologies” 2020). The UK’s Financial Conduct Authority (FCA) is working on better monitoring and developing regulations for AI by creating a regulatory sandbox for robo-advising. Not many are involved in the sandbox as it is not as popular as the general regulatory fintech sandbox created by the FCA.

Regulatory Sandbox. Several countries in Europe have regulatory sandboxes, or at least innovation hubs to help guide the regulations enforced on fintechs. The “Joint ESA Report on Regulatory Sandboxes and Innovation Hubs” lists Denmark, Lithuania, the Netherlands, Poland, and the United Kingdom as having established these sandboxes at the time that this report was written. As an example, the UK’s is supervised by the Financial Conduct Authority (FCA), and the report states that preparing for entry into it allows the fintech businesses to get a better grasp of what is expected during their time in it. While being guided and regulated under close

supervision, it prepares the fintech businesses for what they will need to do after the sandbox (“Joint ESA report on regulatory sandboxes and innovation hubs”, 2019). At the time of this report, many other European countries were in the process of developing their own regulatory sandboxes because of the benefit of fostering and boosting fintech innovation, while keeping their services under close supervision. The report also lists the “phases” of regulatory sandboxes, which are: “Application”, “Preparation”, “Testing”, and “Evaluation”. First, the business applies for the opportunity to be involved in the sandbox and propose their fintech business and what they hope to accomplish. Then, there’s preparation to be done, such as applying for the proper licenses or testing various parameters. The next step would be to allow the firm to operate under the set guidelines and adjust as needed. Lastly, is the evaluation of the performance and outcome of the time in the sandbox. In this concluding period, the fintech firm, along with those that helped guide them, determine the next steps for continuation in regulating after the sandbox. This phase is becoming crucial in Europe to ensure innovation will flourish.

Blockchain/DLT. DLT regulation is mentioned in the “Guidance on Cryptoassets”. The FCA notes that DLT has an impact on questions regarding custody and settlement, and that it raises unique operational issues that need to be continuously observed for regulation (“Guidance on Cryptoassets”, 2019). Besides this, the European Commission wants members of the EU to become the leaders in Blockchain and DLT services. Therefore, the European Blockchain Partnership was created in 2018 between all of the EU members to allow the use of Blockchain to improve the overall “potential of blockchain-based services for the benefit of citizens, society and economy” (“Blockchain Technologies”, 2020). The European Blockchain Services Infrastructure (EBSI) was created in conjunction with the Partnership, and its purpose is to bring its services to “EU-wide cross-border public services” (“Blockchain Technologies”, 2020).

Those in the market that have an interest in participating can join the “open market consultation activities”. Its purpose is to identify uses for Blockchain and subsequently, develop regulations around them.

4.4 Fintech Regulations in Asia

Asian fintech regulations are arguably the most comprehensive and in-depth in the world. The fintechs in Asia are also some of the most advanced and have been more advanced for longer, which means that the fintech regulations have been around for longer. Asia wants certain fintechs, such as peer-to-peer lending platforms, to become part of the day-to-day and are promoting innovation as much as possible. Asia focuses on regulations that inspire innovation, but that are not a high risk to customers.

Digital Tokens/ICOs. In Asia, the laws pertaining to initial coin offerings (ICOs) and other digital tokens are much more specific than in other parts of the world. ICOs are illegal in China, and in South Korea, the use of any virtual currency for raising funds is banned. In Hong Kong, ICOs are closely watched for fraud. If an ICO is not backed by a legitimate project or if the company it is backed by is fraudulent, charges will be brought against it. Cases have been brought against tokens that are registered as “utility” tokens but may actually be used as security. Digital tokens that act as securities are regulated by traditional local securities laws and anyone that is connected to “dealing, advising, marketing and managing” the tokens must be licensed with the Hong Kong Securities and Futures Commission (SFC) (Lai, 2018). In Singapore, the Monetary Authority of Singapore (MAS) issued a handbook stating that digital tokens will need to adhere to the Securities and Futures Act and must file a prospectus. In Japan, ICOs that are exchanged as payment for bitcoin or a different virtual currency are not regulated under any

traditional financial instrument acts because they are both not considered money or regular currency under the law.

Cryptocurrency. As for cryptocurrency, the Japanese Financial Services Agency (JFSA) created the Virtual Currency Act, which is under the Payment Services Act. This Act was created because of the fall of the Mt Gox bitcoin exchange, which resulted in the arrest of its chief executive officer and more than 800,000 bitcoins disappeared” (Lai, 2018). This is just one example of what can happen when fintech is not properly regulated and supervised. As a result, cryptocurrency exchanges must register with the Japanese government, and undergo annual audits by a certified accountant, install a secure IT system, and only then may obtain a license. Cryptocurrency exchanges must also separate clients’ assets from their own accounts and keep customers updated regularly. In Thailand, the Emergency Decree on the Digital Asset Businesses and the Emergency Decree on the Amendment of the Revenue Code regulate cryptocurrencies and utility tokens. Under this law, cryptocurrencies are “electronic data units created by an electronic system or network for the purpose of being a medium for exchanging goods, services, and rights, and the trade of digital assets” (Kietduriyakul, 2018). Digital tokens are described as “cryptocurrencies that are used to determine the rights of an investor to participate in a project or business, or that have rights to receive specific goods or services as agreed upon”. However, digital tokens created by the Bank of Thailand and regular cryptocurrencies that are simply for the purpose of “being a medium of exchanging goods, services, rights, and trade of digital assets” are not subject to the regulations under those laws (Kietduriyakul, 2018). Singapore also regulates cryptocurrency with its own specific law. Under the Payment Services Act of 2019, any organization with an online payment service is required to have a license for the business to provide the service.

Anti-Money Laundering/Terrorism Financing. Anti-money laundering (AML) regulations are also prevalent in Asia. In Taiwan, the Money Laundering Control Act of 2018 supervises cryptocurrency trading platforms and exchanges to identify illegal or illicit activities. Similarly, Japan mandates cryptocurrency exchanges compliance with the Act on Prevention of Transfer Criminal Proceeds to limit money laundering. An article in the International Financial Law Review, the author Fumiaki Ohashi states how the focus of the Act is to require businesses to identify their customers and verify that they are not involved in any illegal activities (Ohashi, 2019). The Act lays out the method through online verification. The customer must send pictures of their face, along with verification documents, which provides a record of each user of the online fintech services (Ohashi, 2019). In Singapore, the MAS requires that all those that provide “digital-payment-token dealing or exchange services” need to meet the anti-money laundering and to counter the financing of terrorism requirements (Zhang, 2019). Most of the Asian laws involving AML and for the prevention of financial terrorism revolve around fintech services knowing their customers and tracking their virtual currency transactions to ensure that no illegal practices are taking place.

Electronic Funds Transfer. In Singapore, the Payment Services Act of 2019 details the exact licenses each particular electronic payment service must obtain. The article “A Brief Overview of the Payment Services Act 2019” by Dharma Sadasivan outlines the three kinds of licenses that a payment service may obtain: a money-changing license, a standard payment institution license, and a major payment institution license (Sadasivan, 2019). If the payment service is a simple money-changing service, it requires a money-changing license. If the service is any other payment service (i.e. an e-money issuance service, a digital payment token service, etc.), it must be approved through the standard payment institution license. A payment service

that provides additional services besides money-changing services, but that goes over a certain threshold amount for a transaction, a major payment institution license is required. Furthermore, major payment institutions must uphold a minimum amount of security, or cash deposit, with the MAS in order to protect customers. Major payment institutions must also be able to facilitate services between accounts and services, as well as additional services (Sadasivan, 2019).

Taiwan, Thailand, and South Korea have similar regulations.

Peer-to-Peer. When it comes to peer-to-peer (P2P) lending services, Thailand has set operational guidelines. The Bank of Thailand (BoT) sent out an announcement in 2018 regarding the regulation of P2P platforms. A *Bangkok Post* article summarizes these requirements, including their need of at least 5 million bahts (Thai currency) registered in their service, and 75% of the stakeholders must be Thai. The maximum amount of money for one project is 50 million bahts, while lenders can only lend 500 thousand per year (Banchongduang, 2018). A maximum amount raised ensures that projects on P2P platforms remain small, as intended. Any that exceed those amounts must apply for a loan the traditional way through a bank. The *Bangkok Post* reports that some P2P platforms will be required to operate in Thailand's regulatory sandbox before operating independently. Once a platform is ready to operate, it will then obtain a license from the Finance Ministry. To minimize risk, the P2P platforms must have "credit scoring, debt collection and a risk management system" (Banchongduang, 2018).

Crowdfunding. Generally, Japan splits crowdfunding platforms into two types. New Amendments from Japan's Financial Instruments and Exchange Act are discussed in an article titled "Japan Adopts New Legislation to Facilitate Equity Crowdfunding For Start-ups". In the article, the authors state that the crowdfunding platform would register as Type I if it "offers equity directly in a company" and Type II "if it offers fund interests" (Sugita, 2014). For Type I,

the required capital was lowered to JPY 10 million, and for Type II, the required capital was lowered to JPY 5 million. The registered platforms must also disclose certain information regarding the companies being invested in and adhere to “general duties of good faith” (Sugita, 2014). The new Amendments allow for the startup of more businesses using crowdfunding platforms that otherwise would be unable to secure traditional startup loans.

AI/Robo-Advising. Artificial intelligence (AI) used for robo-advising in Hong Kong and Singapore have very specific regulations and Singapore. In the article, “Keeping Pace with Asia’s Evolving Robo-Advisory Regulatory Landscape”, Hong Kong and Singapore’s current robo-advising regulations are examined. In Hong Kong, robo-advising platforms must obtain a license and must include details of how risk is rated, informing customers of both the range and limits of its services. The robo-advisor must also be able to troubleshoot bugs or problems with the algorithm, thus preventing faulty transactions from occurring (Lee, 2019). Singapore is similar to Hong Kong in these regulations requiring robo-advising platforms to obtain a license, comply with in-depth auditing for the first-year, and have experienced staff that has previous knowledge about “fund management” (Lee, 2019).

Regulatory Sandbox. In order to continue innovating and establishing leadership in fintech, many countries in Asia have set up regulatory sandboxes. Singapore is arguably the most ahead when it comes to its regulatory sandbox which was one of the first since its inception in 2016. MAS’ “FinTech Regulatory Sandbox Guidelines”, states that to be eligible to participate, the proposed fintech must be a unique technology that fulfills a need or benefits consumers in an innovative way that has not been done before (“FinTech Regulatory Sandbox Guidelines”, 2016). It must also be ready to use and have great potential for expansion even after leaving the sandbox. There needs to be a proposed outcome, and progress must be reported to the MAS on

the agreed-upon schedule. Before testing the product in the sandbox, the MAS requires that the fintech service have predetermined boundaries that protect consumers from risk and have a thorough outline of potential risks. Lastly, there must be an exit strategy for the end of their time in the sandbox, or if it is necessary to exit early. The MAS also outlines the three stages of the sandbox in their guidelines, listing the “Application Stage”, “Evaluation Stage”, and the “Experimentation Stage”. The stages are self-explanatory as the “Application Stage” is the application process that the company goes through, in the “Evaluation Stage”, the MAS reviews the application adjusting the criteria for the particular service that the fintech addresses. The “Experimentation Stage” allows all that were approved for testing to release their products to consumers to use (“FinTech Regulatory Sandbox Guidelines”, 2016).

Blockchain/DLT. Blockchain service regulations in Asia seem to be centered around confirming the identity of the customer to ensure that the use of the technology is used legally. Laney Zhang documents the expectation for Chinese Blockchain or DLT services in the article, “China: Rules on Blockchain-Based Information Services Issued Requiring Authentication of Users’ Real Identities”. According to the article, users are required to provide “organization codes, ID card numbers, or mobile phone numbers,” and anyone who refuses is banned from using the Blockchain service (Zhang, 2019). All national security laws must be obeyed and if the Blockchain service discovers a user participating in illegal activities or breaking the service agreement, the service must issue a warning or deactivate the account. The key is to store all of the information regarding the user in case the information is ever needed in litigation against the user.

5. Comparative Analysis

A table was created to clearly compare fintech regulations in the United States, Europe, and Asia. The table compares the regulations/guidelines for nine fintechs or common concerns of the three regions. Each section of the table is color-coded based on the quality of the regulation, or whether it is specific enough to the topic or has room for improvement.

Table 1: Comparison of Regulations by Type of Fintech/Topic

	Digital Tokens/ICOs ¹	Cryptocurrency	AML ² /Terrorism Financing	EFT ³	P2P ⁴	Crowdfunding	AI/Robo-Advising	Regulatory Sandbox	Blockchain/ DLT ⁵
United States	-If a token is considered a security, it is regulated by traditional security regulations.	-Regulated only if those administering the cryptocurrency are considered “administrators” or “exchangers”.	-If the company is required to register as “administrator” or “exchanger” they must comply with traditional AML regulations.	-Regulation E guides the responsibilities that electronic fund transfer systems have.	-Very fragmented regulations that do not allow P2P work the way it is intended.	-Only covers crowdfunding through exchanging securities, or through the JOBS Act using an online SEC-registered intermediary funding portal.	-Treats robo-advisors as traditional financial advisors.	-No federal regulatory sandbox.	-No Blockchain /DLT specific regulations.
Europe	-France’s second chapter to Book V, Title V of the French Monetary and Financial Code categorizes what is considered an ICO and what is required from ICOs.	-PS19/22: Guidance on Cryptoassets, lists the groundwork for what EU members should put into place regarding cryptoassets/ cryptocurrency, and how certain cryptocurrencies are characterized. -In France, firms issuing or trading cryptocurrency must become certified to prevent fraud and limit risk.	-EU’s Anti-Money Laundering Directive explains how EU member countries should protect against money laundering. - Sweden adds to the EU’s directive with the Anti-Money Laundering and Terrorism Financing Act. It goes into greater detail of what is expected in Sweden.	-EU’s Revised Payment Services Directive (PSD2) outlines the requirements electronic payment services must meet regarding protecting customer’s information.	-Regulated depending on type of lending. EU regulations are fragmented.	-France’s Ordinance 2014-559 requires crowdfunding platforms to be registered in ORIAS as a crowdfunding advisor.	-In the UK, it is being tested under a robo-advising regulatory sandbox. The UK’s Digital Economy Bill lightly touches on regulating AI in regards to protecting shared data.	-Denmark, Lithuania, Netherlands, Poland, and the UK have established regulatory sandboxes.	-European Blockchain Partnership develops the uses for Blockchain/ DLT. No specific regulations yet.

¹ ICOs = Initial Coin Offerings
² AML = Anti-Money Laundering
³ EFT = Electronic Funds Transfer
⁴ P2P = Peer-to-Peer
⁵ DLT = Distributed Ledger Technology

Asia	-In Hong Kong, ICOs must be backed by a legitimate project or company. -Singapore requires that digital tokens adhere to the Securities and Futures Act, and file a prospectus.	-Japan’s Virtual Currency Act requires cryptocurrency exchanges to register with the Japanese government and complete annual audits, install a secure IT system, and possibly obtain a license. -Thailand’s Emergency Decree on the Digital Asset Businesses and Emergency Decree on the Amendment of the Revenue Code details what characterizes a cryptocurrency and digital token.	-Taiwan’s Money Laundering Control Act of 2018 oversees cryptocurrency trading platforms and exchanges to watch for illegal financing. -Japan’s Act on Prevention of Transfer Criminal Proceeds requires businesses to know exactly who their customers are to prevent fraud.	-Singapore’s Payment Services Act of 2019 outlines what licenses are required from each electronic payment service.	-Thailand’s guidelines for P2P platforms lists the maximum amounts that can be borrowed through the platforms and what licenses are required.	-Japan’s new Amendments in the Financial Instruments and Exchange Act provide the set maximums that can be raised via crowdfunding and outlines the differences between Type I and Type II crowdfunding.	-Hong Kong requires robo-advising platforms obtain a license and give details on how risk is rated on said platform. -Singapore requires licensing and compliance with auditing standards.	-Singapore’s MAS Fintech Regulatory Sandbox -Other countries, like Taiwan and South Korea have working regulatory sandboxes.	-China’s regulations for Blockchain requires confirming the users’ identities.
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Key

Regulations Cover Majority of Topic/Issue

Regulations Partially Cover of Topic/Issue

No Regulations on Topic/Issue

As shown in the table, Asia is far ahead of the US when it comes to regulations adapting to fintech. Europe has important standards for regulations, but can be improved when it comes to peer-to-peer, robo-advising, and Blockchain/DLT. The United States is behind in many ways, especially without specific regulations for robo-advising, absence of federal regulatory sandbox, and for Blockchain/DLT.

Digital Tokens/ICOs. The US gives direction to how ICOs/digital tokens should be regulated as it pertains to whether they are security tokens. However, when they are not securities, no guidelines currently exist. France’s second chapter to Book V, Title V of the French Monetary and Financial Code requires that those that issue ICOs obtain an “AMF visa” apprising investors of the status of their investments. If the US combined Hong Kong and France’s regulations, they could be implemented here. With the assurance of having ICOs attached to legitimate projects and mandating the AMF visa, there would be better supervision of

ICOs and digital tokens. Considering ICOs are viewed as high risk for anonymously aiding illegal activities, there must be proper regulations.

Cryptocurrency. Regulations for cryptocurrencies in the US are incomplete, and only require those that are considered “administrators” or “exchangers”. The EU’s “Guidance on Cryptoassets” outlines the expectations of all of the specific cryptocurrencies by the risk each type involves. In France, besides “Guidance on Cryptoassets”, traders and issuers of cryptocurrency must be certified to minimize the risk of fraud through a cryptocurrency. Japan’s Virtual Currency Act requires registration with the government, compliance with audits, and a strong internal technology system to protect data. Thailand’s laws clearly define what makes a cryptocurrency or digital token, and lists requirements of these crypto-assets.

Anti-Money Laundering/Terrorism Financing. Anti-money laundering (AML) regulations in the United States are not directly related to fintech, but are geared towards the traditional methods of such laundering. Again, only those that are considered “administrators” or “exchangers” are required to comply with AML regulations. In Europe, the EU released the AML Directive, which details how member countries should guard against money laundering in new finance technology. Since everything is digitized, making it easier for people to hide behind screens, it is important that those in the fintech field are carefully screened. Similarly, in Asia, Taiwan’s Money Laundering Control Act watches for illegal financing activities. In Japan, AML protections require that businesses know their customers and can confirm their identities.

Therefore, if anything illegal occurs, they know exactly who was involved.

Electronic Funds Transfer. Electronic funds transfer (EFT) in the United States is the only fintech that is properly regulated in this country. Regulation E outlines the responsibilities and rights of those involved in electronic fund transfers. Meanwhile, in Europe the Revised

Payment Services Directive (PSD2), which is similar to Regulation E in the way that it protects consumers by providing guidelines for EFT services, and the measures are taken to properly protect customer's information. Customers' rights are clearly stated as they pertain to EFT. In Singapore, EFT regulations go a step further by requiring certain types of services to hold various types of licensure.

Peer-to-Peer. In both the US and Europe, peer-to-peer (P2P) lending has fragmented regulations that are not comprehensive. In the US, P2P can only occur through the lender originating the loan through a bank, which is then given to the borrower. P2P platforms are very direct, and the US regulations do not allow it to be operated that way. In Europe, there are no P2P-specific laws or regulations, with the exception, for instance, for personal expenses or for buying property. In these cases, regulations for that type of lending must be followed. However, in Asia, P2P lending is a large part of the economy, as it is the main means of funding startups. In Thailand, P2P platforms perform as they are meant to, but there are maximum amounts that can be borrowed. Someone seeking a loan for an amount greater than the maximum must obtain a loan through a traditional bank. To protect against risk, credit scores and risk assessments must be performed by the P2P platforms.

Crowdfunding. Crowdfunding in the United States is only regulated when funds are raised through exchanging securities or through the JOBS Act, which allows this to be done through the SEC's crowdfunding portal. In France, the Ordinance 2014-559 requires that crowdfunding platforms be registered with the ORIAS as a crowdfunding advisor. Japan's crowdfunding regulations specify maximum amounts that can be raised, and also separates crowdfunding platforms into two "types". The types are determined by how the crowdfunding is

raised, such as through securities or equity. Splitting up the method of raising funds allows for clear guidelines and expectations for each type of crowdfunding.

AI/Robo-Advising. With robo-advising using artificial intelligence (AI), the United States does not have specific regulations. As of now, robo-advisors are regulated in the same way as a human financial advisor. In the United Kingdom (UK) robo-advising is being supervised under the FCA's regulatory sandbox, but there are no specific regulations. The Digital Economy Bill briefly touches on AI and protecting users' data, but not in the robo-advising arena. In Hong Kong, it is specifically regulated, and such platforms are required to obtain a license. They must also provide clarity for how risk is calculated and rated on the platform. Similarly, in Singapore, licenses are required, and compliance with auditing standards is necessary.

Regulatory Sandbox. There are no federal regulatory sandboxes in the United States. In both Europe and Asia, there are countrywide regulatory sandboxes that promote fintech innovation, while sheltering customers and companies from the risks that accompany innovative financial services. In both regions, each country has its own unique process that fintechs pass through in order to participate. Generally, there is the application and licensing process, a testing period, and an evaluation process. During this time, their advice is also given on how to smoothly exit the sandbox.

Blockchain/DLT. Again, in the United States, there are no Blockchain or distributed ledger technology (DLT) specific regulations. Although many government officials in Europe encourage that Blockchain regulations should be developed, there are no specific guidelines on how this could look. However, Blockchain innovation is very important to the EU, and the European Blockchain Partnership was created to continue to improve innovation and find new

ways to use Blockchain. As time goes on and the Partnership expands, greater priority will be given to improve Blockchain-related regulations. On the other hand, China's Blockchain regulations hinge on knowing who is using the technology and confirming their identities. Blockchain can be manipulated for illegal or unethical reasons, and it is important to know who is using the service.

6. Recommendations

Digital Tokens/ICOs. The United States (US) should take notice of how Europe and Asia are regulating fintech, and adopt some as their own regulations. Based on the comparison of regulations in the three regions, recommendations can be made as follows: When it comes to ICOs and digital tokens, the US should outline how non-security tokens should be regulated. There should be a comprehensive definition of what an ICO is and, like France's Chapter V, Book V of the French Monetary and Financial Code, those issuing ICOs should be required to have specific licenses that will allow licensed entities to issue digital tokens. This would inhibit fraudulent ICOs, or those issuing ICOs for illegal funding purposes. As in Hong Kong, those issuing ICOs should be required to have legitimate projects or businesses backing them. There must be a legitimate business purpose for issuing ICOs.

Cryptocurrency. When it comes to cryptocurrency, the United States only regulates those that are "administrators" or "exchangers", but there are more than just two parties involved. The US should glean from France and the UK by detailing the other parties involved in cryptocurrency. This way, each party has its own regulations that they must follow. The US can also take note from France and Japan and their requirement to be registered with market regulators so that anyone involved with these virtual currencies is certified and safe. Another part

of Japan's regulations that the US should adopt is to institute annual audits to ensure that all practices linked to the cryptocurrency are above board. The US should also make it a requirement to have a strong IT structure as it pertains to cryptocurrency so all information is kept secure.

Anti-Money Laundering/Terrorism Financing. The EU has the Anti-Money Laundering Directive to guide how innovations in fintech should protect their services from being used for illegal purposes, and the US should learn from this approach. AML regulations in the US are all linked to traditional means of money laundering, rather than the new convert methods of fintech which are anonymous, hidden behind a screen. Regulators in the US must closely investigate how fintech is used for illegal financing, and develop specific ways to prevent it. The US can learn from Japan's approach to protecting against AML by ensuring that fintech services know their customers, and exactly with whom they are doing business. In doing so, anyone that has been linked to illegal financing would be prevented from using these services because they would need to go through a verification process. This can be accomplished by requiring the person to provide their social security number, driver's license number, photo identification, etc. This would eliminate the ability to "trick" the fintech into allowing a criminal to use their services for fraudulent reasons.

Electronic Funds Transfer. Regulation E is one of the most complete fintech regulations in the US, and there is not much to say on how EFT should be regulated. It properly outlines the responsibilities of individuals in electronic funds transfers (EFTs). It is further along in development because it is one of the older fintechs, including ATM services and transferring funds from one account to another using bank websites. In Europe and Asia, there are similar

regulations that essentially have the same aspects. As of now, EFT regulations in the US are up to date and do not need much improvement.

Peer-to-Peer. Peer-to-peer (P2P) regulation can be an amazing tool to aid businesses in obtaining loans from their peers that believe in their business or project. In the US and Europe, peer-to-peer regulation is fragmented and not specialized enough and can learn from how Asia regulates P2P. However, in Asia, P2P is more prominent in funding businesses and is seen as a cutting edge means of boosting the economy. In Thailand, the government plans to expand P2P as much as possible, so their regulations are more explicit. The US can glean from Thailand and implement a set maximum amount of money that can be raised on P2P platforms for each project. They can also require that P2P platforms be licensed to ensure ethical practices. A set maximum ensures that if the project requires a large amount of money, it can be forced to go through a bank to get the loan. The P2P platforms need controls and a ceiling that cannot be surpassed. Larger loans should go through highly regulated traditional banks because the larger the loan, the greater risk.

Crowdfunding. General crowdfunding platforms are only moderately regulated in the United States. US regulators should learn from France and require crowdfunding platforms to be licensed. Based on Japan's regulations, the US should specify the types of crowdfunding and create the licenses for each. Japan also restricts raising more than the threshold amount. The US should outline the types of crowdfunding, what licenses are required for each type, and the maximum amounts that can be raised for each type on crowdfunding platforms.

AI/Robo-advising. Robo-advising using AI technology is one of the types of fintech that have zero regulation in the US, and there is room for improvement. Since Europe is also lacking in this area, the US only has Asia to refer to. The US should adopt Hong Kong's requirements

for robo-advising platforms to be licensed and registered with financial regulators and to clearly list how risk is calculated and rated on the platform. This would allow customers to understand how the robo-advisors are basing their decisions and weighing the risks of certain investments. Singapore's auditing requirements would be helpful for the US to ensure that robo-advising platforms are maintaining legal accounting practices. Routine auditing would protect customers from utilizing services linked to illegal or unethical practices.

Regulatory Sandbox. Crucial to creating innovation in fintech is a regulatory sandbox to allow them to thrive while still being monitored and supervised. Since the US does not have a federal nationwide regulatory sandbox, as what exists in many European and Asian countries, fintech innovation has been stunted in the US. The regulatory sandboxes in European and Asian countries are different from each other but mostly have similar structures. The US should create its own federal regulatory sandbox, basing processes in the other regulatory sandboxes globally. The US' regulatory sandbox should include an application process where fintechs propose their products' uses. During the application process, it should be clear why current regulations outside the sandbox inhibit businesses from starting, or the difficulties for the fintech to thrive and comply under current regulations. Next is the "testing" period where those that were accepted into the sandbox can test their product or service under regulatory standards that work best for them. The testing period should be one to three years. During this period, those running the sandbox can note how particular types of fintech can be regulated to protect against risk while allowing them to thrive. Then there should be an "evaluation" process where the lows and highs are examined to see how the sandbox and the technology can be improved. Implementation of a sandbox in the US is needed to kickstart fintech innovation and regulation. Although there are

individual statewide sandboxes, it limits the reach and expansion, which is why a federal sandbox would greatly improve this industry as a whole.

Blockchain/DLT. Blockchain or distributed ledger technology (DLT) is unregulated in the US and is only moderately regulated in Europe. The US should implement China's "know-your customer" (KYC) regulation pertaining to Blockchain services. There is a large emphasis in fintech about knowledge of the user since it is not face-to-face transacting. This reality makes illegal uses more attractive. Blockchain is another service where knowledge of the customer is important, which is why the US should implement a KYC requirement for Blockchain services in the US. Identification processes to ensure that the person using the Blockchain service is who they say they are is crucial to this industry.

7. Conclusion

The challenge of regulating fintech is navigating the tension between traditional regulations that stunt innovation while still protecting customers. Ideally, there would exist a level playing field between fintech businesses and traditional banking services. It is important that customers are educated on the varieties of fintech they participate in, specifically the complexity of technologies associated with AI. As it is important for customers to know who/what they are working with, it is of equal necessity for fintech businesses to know their customers, which can be accomplished through know-your-customer (KYC) technologies.

Petru Sorin Dandea, the rapporteur for the EESC is quoted as saying, "FinTech players should be subject to the same rules as the financial sector, particularly as regards resilience, cyber security and supervision" ("MIL-OSI Europe", 2018). Certain traditional regulations should remain for fintech firms to abide by, and not everything requires a new law or new

regulation (although it is necessary sometimes). The bottom line is that the consumer is protected as far as the security of their information and their money. The idea is “same risk, same rules, same supervision” for both traditional financial services and fintech services (“MIL-OSI Europe”, 2018). Fintech regulations should be guided by the risk that they entail.

Although fintech is just recently becoming more prominent, it is not a new industry. With its growth comes the need for more awareness and understanding of what it is and how it works. This will impact everyday investing as it already does with financial services. Fintech regulation must protect consumer information from being leaked or stolen, keep practices ethical, detail what the technology can and cannot be used for, and protect the market from increased volatility caused by the new technology. If the United States begins to improve regulations based on the previously mentioned recommendations, it would mean better protection for all and more room for growth and innovation within the fintech industry.

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