

Regulation of Markets that Pose a Less Systemic Risk—The Crypto Asset Market Is an Example

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Abstract

It has been argued that ‘Some markets pose a such little systemic risk to the overall financial system that they should never be regulated.’ However, even markets that are small and pose less systemic risk should also be regulated scientifically and appropriately. The crypto-asset market is currently one of the markets that the Financial Conduct Authority regulates to a lesser extent, so this paper uses this as an example to analyse the various risks that the crypto-asset market may pose in terms of consumer protection, financial crime, and systemic risk, and then explores a series of regulatory measures that the Financial Conduct Authority is currently taking to address these risks, such as consumer protection guidance, anti-money laundering directives, regulatory sandboxes, etc. Finally, the need for effective regulation of financial markets is analysed in terms of enhancing consumer confidence, promoting financial innovation, and protecting good financial competition. In this way, it is concluded that the financial regulatory system should have to adhere to prudential regulation and strict supervision to maintain market order and prevent excessive risk-taking.

Keywords: cryptographic asset markets, systemic risk, Financial Conduct Authority, financial regulation

1. Introduction

Crypto assets and related products and services have grown rapidly in recent years. Not only that, but the links between the crypto-asset market and the regulated financial system are also growing.¹ However, as it stands, crypto assets are not fully regulated in most jurisdictions, and all holders of crypto assets are dependent only on the issuer and the trading platform. This also means that all transactions are not protected by financial regulators, which greatly increases the risk for all parties involved in the transaction. To date, the crypto asset market has not had a significant impact on financial stability. Therefore, in the current situation, crypto markets can simply be considered to pose little risk to the financial system.² However, this is no reason to ignore the regulation of crypto-asset markets; nothing is absolute. While the financial risks associated with crypto applications are currently limited, the limited risk situation will not necessarily last for long. In today’s world of rapid financial and technological development, such markets, including crypto-assets, should be properly regulated.

In the wake of the international financial crisis in 2008, countries have stepped up their efforts to reform their financial regulatory systems.³ With the rapid development of the financial sector and the gradual diversification of financial markets, financial regulators will face various challenges. The core of the regulatory governance matter for financial regulators remains to maintain the stability of the entire financial system and effectively avoid systemic risks.⁴ Alan Greenspan once said, “There is always a remote possibility that a chain reaction, a cascading sequence of defaults, will eventually implode in finance if it is allowed to continue.”⁵ The reason systemic risk is taken so seriously is that the damage generated by a market cannot remain entirely within that market; the damage is likely to spread throughout the financial system and even have an impact on other areas of

the economy. Therefore, the regulation of the financial system, regardless of the size of the risk generated by the market, should go into appropriate, effective and reasonable regulation.

A comprehensive discussion of all markets that pose lesser systemic risks is beyond the scope of this study, so this paper selects one of the more representative crypto-asset markets as the main subject of study. The paper is structured as follows: the next section discusses the main risks that may exist in the crypto-asset market, which include threats to consumer protection, constituting illegal transactions such as money laundering and fraud, and the potential negative impact of the crypto-asset market on maintaining order in the market and keeping the financial system in question. This specifies the various reasons why financial regulators should appropriately regulate markets that pose lesser systemic risks. Part III will analyse the current regulatory approach to crypto assets taken by the UK Financial Conduct Authority and use this as a basis for further discussion of the rationale for regulating the crypto asset market. The fourth section summarises the need and importance of regulating such markets or financial markets in general. Finally, it concludes with a discussion of the full text.

2. Risks that May Be Posed by the Crypto Asset Market

The crypto asset market is growing at a rapid pace and is also innovating.⁶ There is no denying that all innovations including bitcoin, stable ratios, and central bank digital currencies are picking up speed. While the innovation and diversification of the crypto asset market will bring many potential benefits worth exploiting, it also already brings with it a number of risks that financial regulators must understand and address, risks that are likely to pose some threat to the stability of the financial system as a whole in the near future. Risk identification is therefore a prerequisite and foundation for effective regulation.

2.1 Significant Risks in the Area of Consumer Protection

Since 2011, there have been more than 30 heists on cryptocurrency exchanges, with over 980,000 bitcoins stolen, worth an estimated \$4 billion.⁷ In the cases that have occurred so far, such losses are virtually irrecoverable and investors are entirely dependent on cryptocurrency exchanges for compensation for their losses. This shows that the decentralised and untameable nature of cryptocurrencies has put consumers in a very passive position both at the pre-transaction and post-transaction stages, which is not conducive to the protection of consumer rights.

The first possible reason is that cryptocurrencies are a highly technical system, and consumers are naturally at a disadvantage when they are unable to understand the technical complexities and significant risks involved in the exchange to avoid liability. The second reason is that consumers have very limited information at the time of trading and there is a significant information asymmetry between exchanges and consumers,⁸ with all transactions relying solely on investors being new to the issuer and the relevant trading platform, which results in consumers not being able to make decisions that are in their best interests. Cryptocurrency companies also promote increasingly complex products that are often not adequately disclosed and there is little accountability for companies that make misleading claims.⁹

As cryptocurrencies themselves have no value, most crypto assets are highly volatile and their value is affected by many factors such as the state of supply and demand in the market and the regulatory policies of financial regulators. Compared to products in traditional financial markets such as securities and futures, cryptocurrencies tend to be more volatile in price and more likely to cause irreparable losses to investors.¹⁰ At the same time, most major crypto-asset exchanges allow investors to make unusually large investments compared to their capital base (up to 125 times), so investors have to take risks beyond their solvency.¹¹

In addition, there is still a large proportion of crypto assets that are not currently regulated by regulators.¹² This means that consumers are likely to be unprotected by the relevant regulatory measures when trading in crypto-assets, which is also a potential detriment to consumers.

2.2 Risks Arising from Money Laundering, Fraud, Hacking, and Other Incidents

While the encrypted, anonymous nature of crypto-assets provides excellent protection for consumers' privacy, it also facilitates a range of criminal acts such as money laundering and fraud.¹³ The existence of cryptocurrencies on the internet, the lack of verification of the true identity of crypto-asset holders on platforms, and the lack of comprehensive regulation have led to the crypto-asset market becoming a major venue for money laundering, fraud, and other crimes. For example, the famous Silk Road darknet, which was mainly traded via bitcoin, was even the largest drug trading hub on the darknet at its height, with various types of black deals occurring on the site until it was shut down by the US in 2013. It was shut down by the US in 2013.¹⁴

In addition, illegal profits through fraud are common due to consumers' unfamiliarity with how cryptocurrencies work and the technology.¹⁵ Criminals often take advantage of the technical complexity of cryptocurrencies to trick consumers into investing in them, while secretly manipulating the price of cryptocurrencies in order to make illegal profits. The many crimes mentioned above-involving fraud, money laundering and more further illustrate the many negative effects of crypto-assets.

With regard to the potential for hacking in the crypto-asset market. As all transactions in crypto assets must be made through a crypto asset trading platform, the platform often acts as a holding facility for the trader during the transaction, which makes it a prime target for hackers. According to public reports, cryptocurrency criminals made a total of \$1.9 billion through hacking, fraud, and theft during 2020, and CipherTrace also found that crime-related wallets, which owned by black markets, ransomware participants, hackers, and fraudsters, transferred \$3.5 billion worth of bitcoin in 2020.¹⁶ The root cause of the high incidence of such crypto-asset security risks is the lack of regulation of crypto-asset trading platforms.

2.3 Impacts on a Market Order, Financial System Stability

There are multiple transmission channels between the crypto asset market and the traditional financial system.¹⁷ However, they are currently still limited in scale. Risk transmission depends to a large extent on the interconnectedness between the two systems (i.e., the extent of crypto asset adoption). Before the COVID-19 epidemic, crypto assets appeared to be isolated from the financial system.¹⁸ There was little correlation between Bitcoin and other crypto assets and other financial markets, which helped to alleviate concerns regarding financial stability. However, as the financial and economic landscape continues to evolve, crypto-asset markets are becoming more closely linked to traditional financial markets, and demand from investors is increasing. It is often this highly connected, high-demand market that is more likely to affect the stability of the financial system as a whole in the event of a collapse. The crypto asset market is growing rapidly in size and if current trends continue, crypto assets will pose a risk to financial stability. While the interconnectedness between crypto assets and the traditional financial sector has grown significantly, interconnections and other channels of contagion have so far been very small.¹⁹

Price volatility in the markets for crypto assets can also be a threat to the stability of the financial system as a whole and market order, with more volatile markets being more susceptible to fraud or manipulation and frequently fostering the emergence of bubbles that may eventually burst and cause a significant redistribution of wealth.²⁰ There will be chaos in the market as a result of the high volatility of cryptocurrency asset prices and the lack of effective prior regulation. At the same time, there will be a recurring risk of hacking in crypto-asset markets, which could easily cause consumer panic and, in extreme cases, mass selling, which could lower the value of crypto assets. Additionally, some crypto-asset markets could experience a run, and the risk could spread to the financial system as a whole.

3. The Financial Conduct Authority's Current Approach to the Regulation of Crypto Assets

With the aim of continuing the UK's status as a pre-eminent international financial center, the UK established a Cryptocurrency Taskforce in 2018, comprising the Bank of England and the Financial Conduct Authority, designating the Financial Conduct Authority as the regulator of the cryptocurrency industry.²¹ Separating responsibility for prudential regulation of systemic firms and conduct of business regulation makes the Financial Conduct Authority an agency with a remit and ability to specifically protect consumers and promote confidence in financial services and markets. The UK Financial Conduct Authority has always pursued a regulatory philosophy of 'internally managed' and 'technology neutral'. This is also the case for the regulation of the crypto industry.²²

This article will further describe the various regulatory measures established by the FCA in light of the preceding discussion of hazards. Since its creation, the FCA has taken a number of steps to avoid dangers in the market for crypto assets.

3.1 Consumer Protection Aspects

In the UK, financial consumer protection has been further strengthened by the reform of the financial regulatory system and the establishment of the Financial Conduct Authority, which separates the financial consumer protection function from the prudential regulator and avoids internal conflicts arising from the dual objectives of prudential regulation and financial consumer protection.²³ Financial consumer protection aims to prevent and reduce the exposure of consumers to fraud and other unfair treatment by regulating the business practices of financial institutions.

Comprehensive, scientific and effective financial regulation is conducive to ensuring the relevant rights and interests of consumers, and consumer protection in financial markets has become an issue of global concern. As an innovation in the financial market, crypto assets are not only more complex and risky than traditional financial products, but consumers are also more likely to be disadvantaged due to the low barriers to entry in the crypto asset market, making consumer protection one of the aspects of financial regulation to be considered.

The UK Financial Conduct Authority can prohibit the sale, marketing and distribution of derivatives and exchange-traded instruments that reference certain types of crypto-assets to retail consumers without going through the enforcement process.²⁴ The Financial Conduct Authority may use this power where a financial consumer is likely to suffer actual or potential financial loss and where the promotion by a financial institution

adversely affects a financial consumer's rational choice or optimal trading decision. When exercising this power, the Financial Conduct Authority will first issue a direction to the financial institution prohibiting the promotion of a financial product or service and provide the financial institution with the reasons for prohibiting the financial promotion. Financial institutions may make representations to the Financial Conduct Authority if they believe that it has made an incorrect decision. Based on the financial institution's appeal, the Financial Conduct Authority has the power to decide whether to continue, vary or revoke its policy.

The Financial Conduct Authority also warns consumers about crypto asset scams and provides guidance on how consumers can protect themselves.²⁵ In order to achieve these aims, the Financial Conduct Authority has also published a list of warning notices for companies known to be running scams. In addition, HMRC is currently running a consultation and requesting evidence.²⁶

There is currently a wide range of assets available on crypto asset trading platforms, ranging from highly liquid assets with relatively stable prices, such as bitcoin and ethereum, to less liquid asset classes. Consumers generally choose their investments as if they were shopping in a supermarket, without a full and sufficient understanding of the assets they are choosing. It is worth noting that most consumers are investing in crypto assets not out of some recognition of crypto assets, but rather a blind following under the appearance of high returns, a blindness that only further accrues the risks that consumers may need to take. Furthermore, unlike fiat currencies, crypto assets do not have a uniform value and crypto asset trading platforms do not fully disclose information about their products,²⁷ making it difficult for investors to determine what is truly valuable. Therefore, given the multiple overlapping financial and cyber risks of crypto-assets, the Financial Conduct Authority's strict prohibitions and related safeguards can both increase consumers' own vigilance and lead to more regulated behaviour in the crypto-asset market.

3.2 Prevention of Criminal Activities Such as Money Laundering

The decentralised, encrypted and unmanageable nature of crypto assets provides a good reason for unscrupulous individuals to use crypto assets for criminal activities such as money laundering and terrorist financing.²⁸

From 10 January 2020, the Financial Conduct Authority will formally become the anti-money laundering and counter-terrorist financing regulator for firms involved in certain crypto-asset activities. Despite leaving the EU in 2020, the UK already incorporated the 5AMLD and 6AMLD's regulatory provisions for cryptocurrencies into local legislation. All UK cryptocurrency asset companies that have operations or market offerings in the UK or provide services to UK resident clients must register with the UK Financial Conduct Authority as of January 10, 2021.²⁹ The purpose of these regulations is to promptly detect, deter and disrupt unlawful activity, such as money laundering, by crypto-asset-related businesses using the various characteristics of crypto-assets. Under the relevant regulations, from 10 January 2020, firms already carrying on crypto asset-related business in the UK (operating before 10 January 2020) will be required to comply with the Anti-Money Laundering, Terrorist Financing and Transfer of Funds (Payer Information) Regulations 2017.³⁰ They must also register with the Financial Conduct Authority by 9 January 2021 in order to continue operating, failing which firms must cease all relevant business from 10 January 2021. If firms fail to register or cease trading in accordance with the relevant requirements, they may be subject to the criminal and civil enforcement powers of the Financial Conduct Authority. Because the industry is so closely integrated with traditional financial services, there is a need to actively strengthen industry cooperation to ensure that the FCA's anti-money laundering requirements are implemented in this area.

In accordance with the EU's Fifth Anti-Money Laundering Directive, HM Treasury (HMT) will expand its anti-money laundering/counter-terrorist financing (AML/CTF) regulatory standards to crypto-assets.³¹ The Fifth EU Anti-Money Laundering Directive (5AMLD) will expand AML/CTF laws to entities for the related activities listed below, including transactions involving one or more additional types of cryptoassets and the exchange of digital assets for fiat currency.

Randell also acknowledges that the Financial Conduct Authority currently plays a limited role in the regulation of crypto-asset trading platforms registered in the UK with regard to anti-money laundering issues. Binance is a member of a large global conglomerate that provides consumers with complex and high-risk financial products, and it is part of this conglomerate. The UK's Financial Conduct Authority has claimed that due to capacity limitations, it is unable to adequately supervise Binance's UK subsidiary, despite having started the wave of worldwide regulation of the Binance cryptocurrency.³²

3.3 Introduction of Regulatory Sandboxes

The UK was one of the first countries to introduce a regulatory sandbox system, defined by the Financial Conduct Authority as a safe space where firms can test innovative products, business models, delivery mechanisms, etc. without facing immediate regulatory consequences for their actions.³³

The Financial Conduct Authority (FCA) has made the sandbox available to cryptocurrency firms for regulatory

testing. After submitting an application and being evaluated, the firm will discuss the specifics of the testing parameters and protections with the FCA; after both parties have agreed, the firm enters the sandbox to experiment and test its products in a simulated market environment. The entire procedure is supervised by the Financial Conduct Authority. The business is expected to provide a test report following the testing. If the plan is found to be valuable and sustainable by the Financial Conduct Authority after evaluation, it will be further promoted and the business will be given a full business licence. To guarantee that the cryptocurrency industry develops in a controlled and orderly manner, the regulator will also be able to comprehend the fintech business model in advance.

The friction that now exists between cryptocurrency innovation and regulation might be reduced by a regulated sandbox system. Regulators being “fault-tolerant” does not imply that regulation is permissive, and regulatory sandboxes clarify the testing scope and corrective measures to prevent the risk of test items.³⁴ On the one hand, regulatory sandboxes offer “trial and error” opportunities for crypto currency innovation by allowing companies to break out of existing controls within a certain price bracket. At the same time, regulatory sandboxes foster productive communication between the regulated and the regulator.³⁵ Test projects have the chance to regularly assess the genuine worth of their creations, which lowers compliance costs for businesses, fosters compliance awareness, and boosts faith in regulatory policies. The creation of a regulatory sandbox environment offers authorities the chance to thoroughly investigate cryptocurrencies.³⁶ The cryptocurrency market requires technical expertise in a variety of areas, including arithmetic, cryptography, blockchain, and many others. Through the regulatory sandbox, authorities may thoroughly comprehend the technology that underpins cryptocurrencies and improve the science of their regulatory actions. Due to the complexity of cryptocurrencies, regulatory sandboxes address the regulatory gap left by qualitative regulation by assisting regulators in determining the genuine nature of test projects. There are many different projects and products in the cryptocurrency market. Through the innovation test, the regulator will be able to weed out the initiatives that are actually unique before evaluating them. This will make it easier for “bad money to drive out good money” in the cryptocurrency industry. The regulatory sandbox approach is helpful to regulators’ efforts to isolate and prevent present risks while thoroughly examining possible risks and gaining experience for subsequent regulation because of the extended duration, numerous forms, and rapid transmission of risks in cryptocurrencies.

4. The Need for Regulation of Such Markets

A strict, scientifically based regulatory framework will bring order to the entire financial market, inspire consumer confidence in their investment decisions, define the parameters of what is permitted on crypto-asset trading platforms, and create a secure environment for future beneficial innovation. Cryptographic assets, an important breakthrough in technological and financial innovation, bring benefits as well as risks.³⁷ Digital cryptocurrencies create an environment conducive to criminal activities such as money laundering and terrorist financing, and the inability to develop a uniform legal policy for regulation has allowed criminals who use digital cryptocurrencies to launder money to do so with impunity. One of the main problems facing financial regulators today is striking a balance between financial innovation and financial risk. An important assurance for the healthy growth of the crypto-asset market is the regulation of crypto-assets with the goal of assuring financial safety. This regulation encourages financial innovation in crypto-assets.³⁸

Cryptocurrency is fundamentally a financial innovation propelled by financial technology from the standpoint of financial technology. With the aid of blockchain technology, cryptocurrencies have increased financial efficiency, decreased information asymmetry, and lowered the barrier to entry for engaging in financial business, making the characteristics of financial popularisation more and more explicit. However, the popularisation of finance has also resulted in the generalisation of financial risks, and the emergence of cryptocurrencies has made the same financial risks more serious and stronger in transmission. Financial regulators should take action to control the market order in light of the financial innovation reward and possible threats posed by cryptocurrencies.³⁹

Appropriate regulation of markets that pose less systemic risk can prevent the formation of monopolies in these markets as they develop, thus protecting good competition while addressing the suppression of competition. Financial regulation in the digital economy should create a market environment that fosters competition and prevents monopolies in advance, as in the digital economy it is often too late to regulate when monopolies are discovered; equal and transparent access to relevant platforms, the establishment of open standards and the fluidity of data are all areas of regulation that deserve attention. In particular, markets that pose less systemic risk also need to be regulated. These businesses may engage in monopolistic practises in addition to potentially harming customers’ interests. In general, a suitable, reasonable, and efficient can provide the developing industry room to expand and keep the risks under control in a forward-looking way, thus improving financial inclusion and fostering sustainable growth.

5. Conclusion

The UK has always been cautious about new things, and this is no less true of cryptocurrencies. The financial

system is a system in which all types of markets are closely interlinked, and it is because of this close interlinking that it is all the more important for the financial regulatory system to maintain prudential and strict regulation in order to maintain order in the markets and prevent excessive risk-taking. However, there are two sides to everything and the same applies to financial regulation. As crypto-assets become more mainstream, their potentially important impact on the financial system and other areas of the economy is bound to increase.⁴⁰ The question is how to structure a regulatory mechanism that maximises the dividends of financial innovation brought about by cryptocurrencies, while keeping the risks as manageable as possible and striking a balance between financial regulation and financial innovation.

The statement that “some markets pose so little systemic risk to the wider financial system that they should never be regulated” is too one-sided and extreme.

References

- Ahern DM, (2020). Regulators Nurturing Fintech Innovation: Global Evolution of the Regulatory Sandbox as Opportunity Based Regulation. European Banking Institute Working Paper Series-no. 60.
- Allen F, Gu X and Jagtiani J, Fintech, (2022). Cryptocurrencies, and CBDC: Financial Structural Transformation in China, *Journal of International Money and Finance*, 124, 102625.
- Al-Tawil TN and Younies H, (2021). The Implications of the Brexit from EU and Bitcoin, *Journal of Money Laundering Control*, 24, 137.
- Ante L, (2020). Bitcoin Transactions, Information Asymmetry and Trading Volume, 4 Bitcoin Transactions, Information Asymmetry and Trading Volume. *Quantitative Finance and Economics*, 365.
- Bains P and others, (2022). Regulating the Crypto Ecosystem: The Case of Stablecoins and Arrangements, FinTech Notes.
- Barnes P, (2018). Crypto Currency and Its Susceptibility to Speculative Bubbles, Manipulation, Scams and Fraud, *Journal of Advanced Studies in Finance (JASF)*, 9, 60.
- Buttigieg CP and others, (2019). Anti-Money Laundering Regulation of Crypto Assets in Europe's Smallest Member State, *Law and Financial Markets Review*, 13, 211.
- Dale R, (1996). Regulating the New Financial Markets, The Future of the Financial System, Proceedings of a Conference, Reserve Bank of Australia.
- du Plessis P, (2014). The Nature of Decentralized Virtual Currencies: Benefits, Risks and Regulations, Master of International Law and Economics, World Trade Institute.
- Ducas E and Wilner A, (2017). The Security and Financial Implications of Blockchain Technologies: Regulating Emerging Technologies in Canada, *International Journal*, 72, 538.
- Estrada JCS, (2017). Analyzing Bitcoin Price Volatility, University of California, Berkeley.
- European Securities and Markets Authority., (2022). Crypto-Assets and Their Risks for Financial Stability. (Publications Office 2022) <<https://data.europa.eu/doi/10.2856/548378>> accessed 20 January 2023.
- Ferran E, (2014). The Break-up of the Financial Services Authority in the UK, Institutional Structure of Financial Regulation, Routledge.
- Ferreira A and Sandner P, (2021). Eu Search for Regulatory Answers to Crypto Assets and Their Place in the Financial Markets' Infrastructure, *Computer Law & Security Review*, 43, 105632
- Financial Times, (2022). Spain Leads European Crackdown on Crypto Promotions.
- Giannino A, Di Maio D and Vianelli A, (2020). Innovation through Regulation: A Comprehensive Regulatory Framework for Blockchain-Based Services and Products, *Journal of Financial Compliance*, 3, 147.
- González Páramo JM, (2017). Financial Innovation in the Digital Age: Challenges for Regulation and Supervision, *Revista de estabilidad financiera*, (32), p. 9-37.
- Goo JJ and Heo J-Y, (2020). The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation between Regulatory Sandboxes and Open Innovation, *Journal of Open Innovation: Technology, Market, and Complexity*, 6, 43.
- HM_Treasury_Cryptoasset_and_Stablecoin_consultation.Pdf<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/950206/HM_Treasury_Cryptoasset_and_Stablecoin_consultation.pdf> accessed 21 January 2023.
- Huang SS, (2021). Crypto Assets Regulation in the UK: An Assessment of the Regulatory Effectiveness and Consistency, *Journal of Financial Regulation and Compliance*.

- International Monetary Fund, (2016). He MD and others, Virtual Currencies and beyond: Initial Considerations.
- Johannes Wirtz, LL.M., (2022). The EU Regulatory Framework for Crypto Assets after the recent turmoil - a comparison between the EU MiCAR and the FSB recommendations, <<https://www.twobirds.com/en/insights/2022/global/the-eu-regulatory-framework-for-crypto-assets-after-the-recent-turmoil>> accessed 21 January 2023.
- Johnson WG, (2022). Caught in Quicksand? Compliance and Legitimacy Challenges in Using Regulatory Sandboxes to Manage Emerging Technologies, *Regulation & Governance*.
- Lo AW, (2009). Regulatory Reform in the Wake of the Financial Crisis of 2007-2008. *Journal of Financial Economic Policy*.
- Mangano R, (2018). Blockchain Securities, Insolvency Law and the Sandbox Approach, *European Business Organization Law Review*, 19, 715.
- Mohsin K, (2022). Cryptocurrency Legality & Regulations–International Scenario. *International Journal of Cryptocurrency Research*.
- Perkins DW, (2018). *Cryptocurrency: The Economics of Money and Selected Policy Issues*. Washington DC: US Congressional Research Service.
- Quintyn M & Chenard K, (2004). Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis, *IO: Regulation*.
- Rao A & others, (2022). Revisiting the Financial Market Interdependence during COVID-19 Times: A Study of Green Bonds, Cryptocurrency, Commodities and Other Financial Markets, *International Journal of Managerial Finance*.
- Risk TRV, (2022). Crypto-Assets and Their Risks for Financial Stability. European Securities and Markets Authority.
- Rustgi N, (2021). Crypto Criminals Bagged Nearly \$2 Billion in 2020, <<https://cryptobriefing.com/crypto-criminals-bagged-nearly-2-billion-in-2020/>> accessed 21 January 2023.
- Sandner PG, Ferreira A and Dunser T, (2022). Crypto Regulation and the Case for Europe, Handbook on Blockchain, Springer.
- Sotiropoulou A & Guégan D, (2017). Bitcoin and the Challenges for Financial Regulation, *Capital Markets Law Journal*, 12, 466.
- Street M, Time to Shut Revolving Doors.
- Sugimoto NCC and Morozova A, (2020). Regulation of Crypto Assets. International Monetary Fund.
- Treasury HM, (2021). UK Regulatory Approach to Cryptoassets and Stablecoins: Consultation and Call for Evidence.
- Van Hout MC and Bingham T, (2014). Responsible Vendors, Intelligent Consumers: Silk Road, the Online Revolution in Drug Trading, *International Journal of Drug Policy*, 25, 183
- Young J, (2019). Round-up of Crypto Exchange Hacks so Far in 2019: How Can They Be Stopped.

¹ Parma Bains and others, (2022). 'Regulating the Crypto Ecosystem: The Case of Stablecoins and Arrangements' 2022 FinTech Notes.

² Evangeline Ducas and Alex Wilner, (2017). 'The Security and Financial Implications of Blockchain Technologies: Regulating Emerging Technologies in Canada' *International Journal*, 72, 538.

³ Andrew W Lo, (2009). 'Regulatory Reform in the Wake of the Financial Crisis of 2007-2008', *Journal of Financial Economic Policy*.

⁴ Marc Quintyn and Kina Chenard, 'Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis'.

⁵ Richard Dale, (1996). Regulating the New Financial Markets', *The Future of the Financial System, Proceedings of a Conference, Reserve Bank of Australia*.

⁶ Philipp G Sandner, Agata Ferreira and Thomas Dunser, (2022). 'Crypto Regulation and the Case for Europe', *Handbook on Blockchain*, Springer.

⁷ J Young, 'Round-up of Crypto Exchange Hacks so Far in 2019: How Can They Be Stopped'.

⁸ Lennart Ante, (June 2, 2020). 'Bitcoin Transactions, Information Asymmetry and Trading Volume' 4 Bitcoin Transactions, Information Asymmetry and Trading Volume. Lennart Ante. *Quantitative Finance and Economics*, 365.

-
- ⁹ (17 January 2022). 'Spain Leads European Crackdown on Crypto Promotions' *Financial Times*.
- ¹⁰ Julio Cesar Soldevilla Estrada, (2017). 'Analyzing Bitcoin Price Volatility' University of California, Berkeley.
- ¹¹ European Securities and Markets Authority, (2022). *Crypto-Assets and Their Risks for Financial Stability*. (Publications Office 2022) <<https://data.europa.eu/doi/10.2856/548378>> accessed 20 January 2023.
- ¹² 'HM_Treasury_Cryptoasset_and_Stablecoin_consultation.Pdf' <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/950206/HM_Treasury_Cryptoasset_and_Stablecoin_consultation.pdf> accessed 21 January 2023.
- ¹³ Christopher P Buttigieg and others, (2019). 'Anti-Money Laundering Regulation of Crypto Assets in Europe's Smallest Member State' 13 *Law and Financial Markets Review*, 211.
- ¹⁴ Marie Claire Van Hout and Tim Bingham, (2014). 'Responsible Vendors, Intelligent Consumers: Silk Road, the Online Revolution in Drug Trading' 25 *International Journal of Drug Policy* 183.
- ¹⁵ David W Perkins, (2018). 'Cryptocurrency: The Economics of Money and Selected Policy Issues' Washington DC: US Congressional Research Service.
- ¹⁶ Rustgi Nivesh, (2021). 'Crypto Criminals Bagged Nearly \$2 Billion in 2020' Crypto Briefing. <<https://cryptobriefing.com/crypto-criminals-bagged-nearly-2-billion-in-2020/>> accessed 21 January 2023.
- ¹⁷ TRV Risk, 'Crypto-Assets and Their Risks for Financial Stability'.
- ¹⁸ Amar Rao and others, (2022). 'Revisiting the Financial Market Interdependence during COVID-19 Times: A Study of Green Bonds, Cryptocurrency, Commodities and Other Financial Markets' *International Journal of Managerial Finance*.
- ¹⁹ Mr Dong He and others, (2016). *Virtual Currencies and beyond: Initial Considerations*. International Monetary Fund.
- ²⁰ Franklin Allen, Xian Gu and Julapa Jagtiani, (2022). 'Fintech, Cryptocurrencies, and CBDC: Financial Structural Transformation in China' 124 *Journal of International Money and Finance* 102625.
- ²¹ HM Treasury, (2021). 'UK Regulatory Approach to Cryptoassets and Stablecoins: Consultation and Call for Evidence'.
- ²² Renato Mangano, (2018). 'Blockchain Securities, Insolvency Law and the Sandbox Approach' 19 *European Business Organization Law Review* 715.
- ²³ Eilis Ferran, (2014). 'The Break-up of the Financial Services Authority in the UK', *Institutional Structure of Financial Regulation*, Routledge.
- ²⁴ Sherena Sheng Huang, (2021). 'Crypto Assets Regulation in the UK: An Assessment of the Regulatory Effectiveness and Consistency' *Journal of Financial Regulation and Compliance*.
- ²⁵ Paul Barnes, (2018). 'Crypto Currency and Its Susceptibility to Speculative Bubbles, Manipulation, Scams and Fraud' 9 *Journal of Advanced Studies in Finance (JASF)* 60.
- ²⁶ Treasury (n 21).
- ²⁷ 'The EU Regulatory Framework for Crypto Assets after the recent turmoil - a comparison between the EU MiCAR and the FSB recommendations' <<https://www.twobirds.com/en/insights/2022/global/the-eu-regulatory-framework-for-crypto-assets-after-the-recent-turmoil>> accessed 21 January 2023.
- ²⁸ Paul du Plessis, (2014). 'The Nature of Decentralized Virtual Currencies: Benefits, Risks and Regulations' Master of International Law and Economics, World Trade Institute.
- ²⁹ Kamshad Mohsin, (2022). 'Cryptocurrency Legality & Regulations–International Scenario' *International Journal of Cryptocurrency Research*, ISSN 2790.
- ³⁰ Antonio Giannino, Damiano Di Maio and Andrea Vianelli, (2020). 'Innovation through Regulation: A Comprehensive Regulatory Framework for Blockchain-Based Services and Products' 3 *Journal of Financial Compliance* 147.
- ³¹ Tareq Na'el Al-Tawil and Hassan Younies, (2021). 'The Implications of the Brexit from EU and Bitcoin' 24 *Journal of Money Laundering Control* 137.
- ³² Main Street, 'Time to Shut Revolving Doors'.
- ³³ Jayoung James Goo and Joo-Yeun Heo, (2020). 'The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation between Regulatory Sandboxes and Open Innovation' 6 *Journal of Open Innovation: Technology, Market, and Complexity* 43.
- ³⁴ Deirdre M Ahern, 'Regulators Nurturing Fintech Innovation: Global Evolution of the Regulatory Sandbox as Opportunity Based Regulation'.
- ³⁵ Walter G Johnson, (2022). 'Caught in Quicksand? Compliance and Legitimacy Challenges in Using Regulatory Sandboxes to Manage

Emerging Technologies' *Regulation & Governance*.

³⁶ Ducas and Wilner (n 2).

³⁷ José Manuel González Páramo, (2017). 'Financial Innovation in the Digital Age: Challenges for Regulation and Supervision' [2017] *Revista de estabilidad financiera*. Nº 32 (mayo 2017), p. 9-37.

³⁸ NCC Sugimoto and Anastasiia Morozova, 'Regulation of Crypto Assets'.

³⁹ Anastasia Sotiropoulou and Dominique Guégan, (2017). 'Bitcoin and the Challenges for Financial Regulation' 12 *Capital Markets Law Journal* 466.

⁴⁰ Agata Ferreira and Philipp Sandner, (2021). 'Eu Search for Regulatory Answers to Crypto Assets and Their Place in the Financial Markets' Infrastructure' 43 *Computer Law & Security Review* 105632.

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