Decrypting the Signs of Regulatory Competition in Regulating Cryptoassets
Iris H-Y Chiu*

1. Introduction

Initial coin offerings (ICOs)[1] which became popular from 2017, introduced a new financial asset known as the 'token' or 'cryptoasset'.[2] The cryptoasset has its origins in cryptocurrency such as bitcoin[3] which has galvanised imagination in relation to an alternative economic order powered by privately supplied money.[4] Although cryptocurrency has been introduced as an innovation since 2009,[5] its penetration into mainstream commerce and economic life has been limited.[6] Cryptoassets have now captured the attention of mainstream financiers,[7] and an explosion in their market capitalisation[8] has led regulators to consider how they may address cryptoassets in their regulatory repertoire.

Regulators in different jurisdictions have taken rather different approaches towards cryptoassets.[9] This chapter focuses on the regulatory diversity, not from the point of view of what *ought* to be the regulatory regime: ie whether cryptoassets are financial products or not, and how they fit into existing categories of regulated financial products. Rather we pose a more limited research question as to whether regulatory competition is reflected in such diversity, and what flaws in regulatory thinking such competition reveals. As Section 2 explains, the characteristics of cryptoassets do not easily cohere with established financial product categories that are subject to regulation. This has given rise to regulators' different perceptions on the appropriate policy for them.

It may be argued that regulatory diversity is not necessarily due to 'competition' in the form of races to the top or bottom.[10] This presumes that regulators are designing regulatory regimes on a calculative basis to augment their market share, especially in the era of globalisation.[11] Regulators do face demand-side pressures[12] and have incentive-based reasons

- Professor of Corporate Law and Financial Regulation, UCL.

[1] Defined in Section 2.

[2] ibid.

[3] Satoshi Nakamoto, 'Bitcoin: A Peer to Peer Electronic Cash System' (2008) at https://bitcoin.org/bitcoin.pdf.

[4] John Flood and Lachlan Robb, 'Trust, Anarcho-Capitalism, Blockchain and Initial Coin Offerings' (2017) at http://ssrn.com/abstract=3074263.

[5] Nakamoto (2009).

[6] Revealing Reality, 'How and Why Consumers Buy Cryptoasse**ts:** A Report for the FCA' (2019) at https://www.fca.org.uk/publication/research/how-and-why-consumers-buy-cryptoassets.pdf.

[7] Eg 'Fidelity rolls out cryptocurrency custody business' (Financial Times, 18 Oct 2019); the rise of specialist hedge funds investing only in cryptoassets, PwC, '2019 Crypto Hedge Fund Report' (2019) at https://www.pwc.com/gx/en/financial-services/fintech/assets/pwc-elwood-2019-annual-crypto-hedge-fund-report.pdf; the rise of venture capital and private equity funds investing in cryptoassets, Lin and Nestacorva (2019).

[8] Coinmarketcap statistics shows the market capitalisation of many cryptoassets to be at least in the tens of millions in USD, with Tether being the most highly capitalised at over USD$46 bn, https://coinmarketcap.com/tokens/.

[9]Apolline Blandin, Ann Sofie Cloots, Hatim Hussain, Michel Rauchs, Rasheed Saleuddin, Jason Grant Allen, Bryan Zhang & Katherine Cloud, 'Global Cryptoasset Regulatory Landscape Study' (Sep 2019) at https://ssrn.com/abstract=3379219, and Section 3.

[10] Claudio Radaelli, 'The Puzzle of Regulatory Competition' (2004) 24 Journal of Public Policy 1.

[11] Institutional, political and social needs underlie regulatory and legal choices, J Samuel Barkin, 'Racing All Over the Place: A Dispersion Model of International Regulatory Competition' (2015) 21 European Journal of International Relations 171. Regulatory differences however create arbitrage opportunities and regulatory

for generating regulatory policy.[13] Such policy can be proactive[14] or defensive/reactive[15] but is not necessarily poised to lead a 'race'. Moreover, they also face institutional constraints and political contexts[16] and do not always respond to global regulatory developments in a manner that treats their regulatory regimes as competitive products.[17] Further, even in an incentive-based context where regulatory constituents are able to vote with their feet due to their mobility,[18] constituents' preferences for regulators range from the law in books, ie the legal standards and frameworks, to the law in action, referring to regulators' enforcement policies, as well as more informal attributes such as their accessibility and willingness to engage for discussion and guidance.[19] Hence, regulators can engage in different ways to persuade their regulatory constituents to exercise voice and remain, instead of threatening to exit.[20]

We do not adopt a singularly Tieboutian[21] model of proactive regulatory competition in order to examine international regulatory developments for cryptoassets. The observed regulatory diversity in relation to cryptoassets reflects signs of incentive-based approaches to regulatory policy. After all, regulators are mindful of the need to attract financial assets perceived to be useful for financial and economic development in any jurisdiction.[22] Regulatory diversity in this space seems to be consistent with the explanations for regulatory diversity in other bodies of financial regulation, such as bank regulation discussed by commentators.[23] However, regulatory diversity also reflects a mixture of regulatory goals such as the protection of existing institutions and social compacts.[24] The international regulatory diversity reflects an experimental space for regulators still working out the terms of

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policy may further respond to such, Pierre Schammo, *EU Prospectus Law: New Perspectives on Regulatory Competition in Securities Markets* (Cambridge: CUP 2011) at ch9; Amit M. Sachdeva, 'Regulatory Competition in European Company Law' (2010) 30 European Journal of Law and Economics 130.

[12] Alissa Amico, 'A Regulatory Race to the Bottom?' (Project Syndicate, 14 Aug 2017); Douglas Cumming and Sofia Johan, 'Demand-driven Securities Regulation: Evidence from Crowdfunding' (2013) 15 Venture Capital 361. But there are two sides to any market that may pressure regulators in different ways, see Andreas Haufler and Ulf Maier, 'Regulatory Competition in Capital Standards: A 'Race to the Top' Result' (2019) 106 Journal of Banking and Finance 180.

[13] Dale D Murphy, *The Structure of Regulatory Competition: Corporations and Public Policies in a Global Economy* (Oxford: OUP 2007) at ch1.

[14] See n12; Colin Provost, 'Competition and Coordination in Bank Regulation: The Financial Crisis of 2007–09' (2016) 39 International Journal of Public Policy Administration 540 on regulatory policy responsiveness to incentives such as regulatees' preferences and public choice.

[15] Johanna Stark, *Law for Sale: A Philosophical Critique of Regulatory Competition* (Oxford: OUP 2019), ch1.

[16] n11.

[17] On law as a product, see opposing accounts in Horst Eidenmuller, 'The Transnational Law Market, Regulatory Competition, and Transnational Corporations' (2011) 18 Ind J Global Legal Stud 707 and Stark (2019).

[18] Such as asset mobility discussed in Murphy (2007); Florian Buck and Eva Schliephake, 'The Regulator's Trade-Off: Bank Supervision Vs. Minimum Capital' (2013) 37 Journal of Banking and Finance 4584.

[19] Robert Baldwin, Martin Cave, and Martin Lodge, 'Regulatory Competition and Coordination' in *Understanding Regulation: Theory, Strategy, and Practice* (Oxford: OUP 2011)..

[20] Barbara Sennholz-Weinhardt, 'Regulatory Competition as a Social Fact: Constructing and Contesting the Threat of Hedge Fund Managers' Relocation from Britain' (2014) 21 Review of International Political Economy 1240.

[21] Charles Tiebout, 'A Pure Theory of Local Expenditures' (1956) 64 Journal of Political Economy 416, often used as the starting point for regulatory competition discussions though its fit with global conditions is usually questionable.

[22] Buck and Schliephake (2013); Joel F Houston, Chen Lin and Yue Ma, 'Regulatory Arbitrage and International Bank Flows' (2012) 67 Journal of Finance 1845.

[23] Murphy (2007), ch8.

[24] Section 3.

competition in relation to their influence on regulatory policy. This article's purpose is to discuss how such terms of competition are being worked out and their influence on substantive regulatory policy. The limitation in this article is that it does not discuss what *ought* to be the optimal regulatory policy, an endeavour that is beyond its space. The narrative of regulatory competition that contributes to policy-making can incentivise regulators to embark on deeper sense-making and learning regarding the supply and demand sides of the cryptoasset market. Three broad movements are analysed in relation to key jurisdictions in relation to their development of regulatory policy for cryptoassets. We argue that these are (a) hegemonic approaches such as taken by several US agencies and in China, (b) self-regulatory approaches which are in effect taken by the popular ICO jurisdictions of UK, Switzerland and Singapore and (c) new enabling regimes designed by emerging financial regulatory regimes such as Malta, Israel and Thailand. Jurisdictions are categorised in relation to likely policy effects of the approach, not because their regulatory frameworks are the same. Indeed different policy frameworks can approach similar effects upon markets, and that is the point of regulatory competition. We argue not only that regulatory competition is an apt lens through which to perceive regulatory differences but it also offers regulators a platform for continued discovery of substantive aspects through working out the terms of such competition.

Although financial regulators engage in collective forums such as the Financial Stability Board, an international body that now has a clear mandate to look over global systemic risks after the global financial crisis of 2007-9,[25] it can be seen from documents issued by the FSB[26] and IOSCO,[27] the International Organisation for Securities Commissioners, that national regulators have not sought international dialogue or convergence towards their consideration of regulatory policy in the realm of cryptoassets. Indeed international policy coordination or regulatory convergence is often an incentive-based and considered manoeuvre undertaken when problems of commons and mutual externalities compel such coordination.[28] The state of regulatory diversity also reflects regulators' perception that cryptoasset markets do not yet pose challenges for these needs to arise.[29]

In Section 2, we provide a condensed and high level overview of financial regulatory frameworks in key jurisdictions that have persisted along sectoral differences between major product types and in the US, along the lines of different sectoral regulators. This provides the context for explaining why there is a regulatory lacuna in respect of cryptoassets. Extant financial regulation frameworks and architecture, as well as their perceived dominance over markets affects regulators' stance in regulatory competition in shaping their substantive policies. Section 3 discusses the three regulatory approaches above. This Section calls for a constructive engagement with the possibilities offered by regulatory competition, towards learning and discovery of new supply and demand side needs, for fashioning substantive regulatory policy. This chapter aims to provide part of the roadmap towards substantive regulatory policy and does not itself offer full solutions.

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[25] www.fsb.org.

[26] FSB, 'Cryptoassets' (May 2019) at https://www.fsb.org/wp-content/uploads/P310519.pdf.

[27] IOSCO has not attempted to issue a clarification on cryptoassets' characterisation, https://www.iosco.org/publications/?subsection=ico-statements.

[28] Baldwin et al (2011); Stavros Gadinis, 'The Politics of Competition in International Financial Regulation' (2008) 48 Harvard International Law Journal 447.

[29] That cryptoassets do not pose international financial stability risks is opined in Mark Carney, in a letter as Chair of the Financial Stability Board, 13 March 2018 at http://www.fsb.org/wp-content/uploads/P180318.pdf.

2. The Regulatory Lacuna for Cryptoassets

Why do crypto-assets give rise to a regulatory lacuna? Our existing bodies of financial regulation have grown exponentially over the years, from the US New Deal establishing a system of securities regulation and investment advisers regulation since the 1930s[30] and 1940s[31] to the growth in harmonised financial regulation in the EU in banking and securities since the 1970s.[32] More recent exponential growth in financial regulation has also taken place since the Financial Services Action Plan of 1999[33] and the post-crisis de Larosière report in 2009.[34] Although financial products and services have increasingly been captured within the scope of regulation,[35] the organisation of regulatory regimes may nevertheless give rise to gaps. These gaps arise in two ways. First, regulatory regimes have been developed along 'sectoral' lines for a long time, these sectoral lines reflecting major financial product business models. Cryptoassets offer a particular challenge as to their 'fit' within major financial product models or 'packages'.[36] Second, regulatory regimes identify certain mainstream financial institutions as regulated subjects, creating regulatory relationships between regulators and corporatized entities, whether they are issuers, intermediaries or markets. The cryptoasset paradigm creates challenges for regulators in terms of new actors that may not comfortably be regarded as functionally equivalent to familiar regulatees.

2.1 What are Cryptoassets

Cryptoassets *have become* treated as financial assets although they are more accurately and functionally known as 'application tokens'. To understand the nature of application tokens, one needs to first understand the nature of cryptocurrency. The bitcoin blockchain was introduced in 2008 by a pseudonymous Satoshi Nakamoto[37] in order to allow private payments to be made securely and efficiently between individuals without needing to involve existing intermediaries in the banking and financial system. The global banking crisis of 2007-9[38] loomed large in the context and this development can be seen not only as a

[30] Securities Act 1933, Securities Exchange Act 1934.
[31] Investment Advisers Act 1940.
[32] The First Banking Directive 1977 towards liberalisation of the EU banking market and harmonising regulation in the 1980s Solvency and Own Funds Directives, Second Banking Directive 1989; in securities regulation, the Admission Directive 1979 and Listing Particulars Directive 1980 were early efforts to introduce mutual recognition of listed issuers and to harmonise rules for securities offers and listing.
[33] Commission, 'Financial Services Action Plan: Implementing the Framework for Financial Markets' (Communication) COM (1999) 232.
[34] Jacques de Larosière and others, *Report by the High Level Group on Financial Supervision in the EU* (Brussels, 25 February 2009) http://ec.europa.eu/internal_market/finances/docs/de_larosiere_report_en.pdf.
[35] The UK had a long history of self-regulation in banking and investment services until the first Banking Act 1979 and a semi-formal Securities Investments Board, Financial Services Act 1986, that oversaw self-regulatory trade associations and did not have direct relationships with regulatees, see Iris H-Y Chiu and Joanna Wilson, *Banking Law and Regulation* (Oxford: OUP 2019) at ch6; Julia Black, *Rules and Regulators* (Oxford: Clarendon 1998), chs 2 and 3.
[36] Such as recognised 'packages' or mixtures of elements of established financial products such as banking, insurance and fund investment products, EU Packaged Retail and Insurance-based Investment Products Regulation 2014.
[37] Nakamoto (2008).
[38] FSA (2009); Howard Davies, *The Financial Crisis: Who is to Blame* (Polity 2010).

technological innovation but as a statement of distrust of the prevailing institutions and financial intermediaries at that time.[39]

Cryptocurrencies, supported by a blockchain and the mining protocol for maintenance of the system, have become a basic infrastructure for private value transfer in a peer-to-peer network. The cryptocurrency is a protocol token, endogenous to the blockchain system, creating and transferring novel value outside of the conventional monetary and financial systems. However, cryptocurrencies have not *per se* given rise to a new economic system of markets as their rudimentary monetary systems are meant to support the existing real economy, and provide an alternative to intermediated systems of payment in the real economy. Cryptocurrencies are not massively utilised in mainstream commerce because their distributed architecture for maintenance is costly in terms of its energy footprint[40] and they are not necessarily as speedy as existing payment systems dominated by large providers such as Visa and Mastercard.[41]

Innovations have since been made on the basis of the cryptocurrency infrastructure. The Ethereum blockchain, which went live in 2015, provides an infrastructure blockchain, and a protocol token, the ether, that codes in basic laws of functionalities that can be further programmed to execute specific 'smart contracts'. The ether is the native token of the ethereum blockchain, just as the bitcoin is the native token of the bitcoin blockchain. But other than representing and transferring value, and recording balances, which are the limited functionalities of bitcoin, the script of the ether token (the most popular of which is ERC-20) is coded with more universal functional qualities such as transferring information, rights and value. These universal qualities allow coders to build upon with more specific functions which can be automated upon the satisfaction of certain conditions (smart contracts).[42] ERC-20 tokens can be used for the building of application tokens that are ERC-20 compatible, upon the ethereum blockchain.[43] These applications offer new opportunities for economic and commercial activity, such as the purchase and sale of digital art, like cryptokitties, over the internet.[44]

Since 2015, business innovations have exploded, built on this framework, and other platforms with their own native coins have also been developed to compete with ethereum, such as Tezos,[45] Eos[46] and Tron.[47] In other words, application tokens are multifunctional in nature, and are in essence a representation of the (a) holder's entitlement, (b) value, (c)

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[39] Dan Bousfield, 'Crypto-coin Hierarchies: Social Contestation in Blockchain Networks' (2019) 19 Global Networks 291; Moritz Hütten and Matthias Thiemann, 'Moneys at the Margins: From Political Experiment to Cashless Societies' in Malcolm Campbell-Verduyn (ed), *Bitcoin and Beyond: Cryptocurrencies, Blockchains, and Global Governance* (Oxford: Routledge 2018) at ch2.

[40] Jean Bacon and Johan David Michels and Christopher Millard and Jatinder Singh, 'Blockchain Demystified: a Technical and Legal Introduction to Distributed and Centralized Ledgers' (2018) 25 Rich JL & Tech 1.

[41] 'PayPal And Visa Warned Bitcoin Presents A 'Ludicrous' Existential Challenge' (March 2019), https://www.forbes.com/sites/billybambrough/2019/03/04/paypal-and-visa-warned-bitcoin-presents-a-ludicrous-existential-challenge/.

[42] 'ERC-20 Tokens Explained' in https://cointelegraph.com/explained/erc-20-tokens-explained.

[43] Jonathan Rohr and Aaron Wright, 'Blockchain-based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets' (2019) 70 Hastings LJ 463 on the difference between protocol and application tokens.

[44] https://www.cryptokitties.co/.

[45] https://tezos.com.

[46] https://eontechnology.org.

[47] https://tron.network.

information/data, (d) contractual performance and (e) the currency of the system all in one.[48] They are the new portal for participation in new technologically-framed business activities.

Development projects for blockchain applications began to crowd-source for funds, known as 'initial coin offerings' (ICOs). Developers offer application tokens in return for cryptocurrency from supporters of the project. These are envisaged to be used on the distributed ledger platform when the project goes live. Application tokens confer a variety of consideration in return for supporters' funds. [49] For example, utility tokens confer on subscribers a right (in the future) to use or enjoy certain services.[50] These come in a different variety in terms of whether they may be user-based, or include other participation rights.[51] 'Fun' tokens may confer a benefit to the community at large or to another without consideration.[52] Investment tokens confer on subscribers a right to participate in a form of investment and risk being classified as falling foul of existing financial markets or securities regulation.[53] Currency tokens may confer on subscribers a right to use for payment in a more interoperable manner than utility tokens. Tokens may also be coded with a mixture of the abovementioned characteristics, depending on how it ought ultimately to function on the distributed ledger platform.[54] The majority of application tokens issued at ICOs are utility type tokens.

Tokens conferred on purchasers at pre-sales can usually be immediately traded away, on one of many digital asset exchanges that have now arisen all over the world,[55] for more popular cryptocurrencies such as bitcoin or ether, which can then be exchanged for fiat currencies. The 'liquefication' of tokens fundamentally allows them to become financialised, turning tokens into 'crypto-assets', which the Bank of England now defines as 'generally held as investments by people who expect their value to rise.'[56] Both protocol and application tokens have become highly financialised as bitcoin and ether can be held as speculative instruments themselves, and application tokens built upon ethereum, TRON or Eos are equally tradeable and can be held as speculative assets. The million-dollar question is whether they are financial assets and if so, what type of financial asset as recognised under extant regulation? This question has tended to be answered by regulators by comparing the tokens and their characteristics with extant regulated financial product categories. However, clear answers are seldom derived as tokens challenge these regulatory boundaries for financial products. The

[48] Lawrence J Trautman, 'Bitcoin, Virtual Currencies, and the Struggle of Law and Regulation to Keep Peace' (2018) 102 Marq L Rev 447; Dragan Zelic and Nenad Baros, 'Cryptocurrency: General Challenges of Legal Regulation and the Swiss Model of Regulation' in Conference Proceedings of 33rd International Scientific Conference on Economic and Social Development – "Managerial Issues in Modern Business" , Warsaw, 26-27 September 2018 (Heidelberg: Springer 2018) at 168. Sandra Díaz-Santiago, Lil María Rodríguez-Henríquez, Debrup Chakraborty, 'A Cryptographic Study of Tokenization Systems' (2016) 15 International Journal of Information Security 413 argues that multifunctional tokens are efficient.

[49] Philip Hacker and Chris Thomale, 'Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law' (2018) ECFR 645; Dirk Zetzsche, Ross P Buckley, Douglas Arner and Linus Foehr, 'The ICO Gold Rush: It's a Scam, it's a Bubble, it's a Super Challenge for Regulators' (2017) at http://ssrn.com/abstract=3072298.

[50] ibid.

[51] Carol Goforth, 'Securities Treatment of Tokenized Offerings under U.S. Law' (2018) Pepperdine Law Review.

[52] Zetzsche et al (2017).

[53] SEC, Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO (25 July 2017) at https://www.sec.gov/litigation/investreport/34-81207.pdf.

[54] Goforth (2018).

[55] Such as Bittrex, Poloniex, BlockEx.

[56] https://www.bankofengland.co.uk/knowledgebank/what-are-cryptocurrencies.

interpretive possibilities have given rise to a diversity of international regulatory approaches and we argue that these approaches are shaped to an extent by forces of regulatory competition. Regulatory competition thus provides a lens to explain why the diversity exists and we argue that it also provides the lens for exploring what remains to be learnt by regulators in forging regulatory policy.

2.3 What Type of Financial Product are Crypto-assets?

How cryptoassets may fit within existing financial regulation ontologies depends on how these ontologies are constructed. We argue that financial product ontologies are usually delineated along sectoral lines between full and partial intermediation in many jurisdictions. However different jurisdictions' regulatory architecture for full and partial intermediation products have a marked impact upon regulatory policy.

2.3.1 The Ontologies of Financial Regulation

Financial regulation has developed largely along sectoral business lines. The banking sector products of deposit-taking and private money creation by loan underwriting are regulated differently from investment sector products. Banks take on full intermediation of financial risks, allowing them to maximise the private profits of risk-taking while providing socially useful services to customers in relation to money safekeeping and payment.[57] Securities products on the other hand, are credence goods. Investors hope for a future return that cannot be guaranteed at the time of participation.[58] Where financial institutions take on full intermediation, their products are subject to legal and regulatory duties unlike in the case of credence or investment goods where investors bear the capital risk. Hence 'banking products' have attracted legal duties with regard to deposit return,[59] the facilitation of payment services arising out of the safekeeping function of deposits,[60] and duties in relation to credit,[61] as well as micro-prudential regulation that introduces law and economics techniques to moderate risk-taking behaviour in full intermediation.[62] Insurance products which also have full intermediation features in terms of underwriting risks, are subject to legal duties in underwriting[63] and microprudential regulation to incentivise appropriate risk-taking.[64] In

[57] *Foley v Hill* (1848) 2 HLC 28, 9 ER 1002.
[58] 'A credence good is a type of good with qualities that cannot be observed by the consumer after purchase, making it difficult to assess its utility', https://www.investopedia.com/terms/c/credence-good.asp.
[59] *Foley v Hill*, above
[60] *Sierra Leone Telecommunications Co. Ltd v Barclays Bank Plc* [1998] CLC 501.
[61] regulatory duties and banking standards with regards to overdrafts, *Standards of Lending Practice: Personal Customers* (July 2016) at: https://www.lendingstandardsboard.org.uk/wp-content/uploads/2016/07/Standards-of-Lending-Practice-July-16.pdf; Financial Conduct Authority, *Consumer Credit Sourcebook (CONC)* at: https://www.handbook.fca.org.uk/handbook/CONC.pdf; Chiu and Wilson (2019), ch4.
[62] The Basel I (1988), II (2003) and III (2009-2017) Accords transposed into law in the EU under the Capital Requirements Directive and Regulation 2013, Iris H-Y Chiu, **'**Rethinking the Law and Economics of Post-Crisis Micro-prudential Regulation- The Need to Invert the Relationship of Law to Economics? (2019) 38 Review of Banking and Financial Law 639.
[63] duty of unberrimas fides, RA Hasson, 'The Doctrine of Uberimma Fides in Insurance Law' (1969) 32 Modern Law Review 615
[64] Solvency II Directive 2009.

Europe for example, the synergies between banking and insurance business has also led to 'banassurance' business models.[65]

Securities products are not subject to product regulation as such. This means that legal and regulatory governance over securities do not presume to govern their performance in certain ways, but rather, securities are subject to mandatory disclosure regulation at point of sale[66] and on a continuing basis[67] so as to fully inform investors of material contexts[68] in order to assist investors' decision-making. In a similar manner, collective investing in funds that trade in securities and other financial assets are also regarded as credence goods but with a twist, as fund management involves discretionary judgment in selecting and managing portfolios. Hence collective investment products such as mutual funds are subject to a similar regulatory technique of mandatory disclosure regulation,[69] but there is a greater extent of regulatory governance of aspects of fund management.[70] Such regulatory governance has grown over the years as occupational pension saving in funds has become staple,[71] and in the UK, mandatory.[72]

The different business models in full intermediation in banks and partial intermediation in securities and investments also underpinned the establishment of different regulatory agencies overseeing these activities, such as the Office of Thrift Supervision and Office of Comptroller of Currency (which has since 2011 absorbed the Office of Thrift Supervision) overseeing deposit-taking banks in the US and the US Securities Exchange Commission overseeing securities issuers, intermediaries and markets. In the UK, the Bank of England was the bank regulator between 1979 and 2000[73] while securities issuers were subject to the London Stock Exchange's rulebook, as a self-regulatory system until 2000.[74] Securities and

[65] 'Global Bancassurance Market Trends, Share, Size, Growth, Opportunity and Forecasts, 2011-2018 & 2019-2024', https://www.globenewswire.com/news-release/2019/04/19/1806973/0/en/Global-Bancassurance-Market-Trends-Share-Size-Growth-Opportunity-and-Forecasts-2011-2018-2019-2024.html.

[66] by prospectus prior to making of a public offer of securities, EU Prospectus Regulation 2017, US Securities Act 1933.

[67] Mandatory continuous disclosure regimes assist ongoing investment decisions on the secondary market by allowing investors to constantly evaluate buying and selling decisions, based on the efficient capital markets hypothesis, Jeffrey N Gordon and Lewis A Kornhauser, 'Efficient Markets, Costly Information and Securities Research' (1985) 60 New York University Law Review 761; Merritt B Fox, 'Rethinking Disclosure Liability in the Modern Era' (1997) 75 Washington University Law Quarterly 903.

[68] EU Market Abuse Regulation 2014, Art 17, interpretation in *Markus Geltl v Daimler AG* [C-19/11] (2012).

[69] A prospectus is required for retail collective investment schemes such as UCITs (Art 68-74) and NURs (Non-Ucits Regulated Schemes) (FCA Handbook COLL 4). A Key Investor Information Requirement that provides an accessible summary is also part of mandatory disclosure, Commission Regulation (EU) No 583/2010, Arts 7-19. Continuing disclosure is mandated, Arts 69(3) and 68, UCITs Directive 2009 and FCA Handbook COLL 4.5 for NURs.

[70] These duties deal with valuation and redemption (Art 85, UCITs Directive, FCA Handbook COLL 6.3, 6.6A), governance (FCA Handbook COLL 6.10-12), portfolio management (for UCITs, duties under Commission Directive 2010 Arts 21-26), and increasingly investment management best practices such as securities lending policies (FCA Handbook COLL 8.8A, 8B) and 'stewardship' see European Shareholders' Rights Directive 2017 Arts 3g-l, implemented in FCA Handbook COBS 2.2B.

[71] Bassett et al (1998).

[72] S3, Pensions Act 2008 on automatic enrolment of employees into occupational pension schemes.

[73] Banking Acts 1979 and 1987.

[74] Ranald C Michie, *The London Stock Exchange: A History* (Oxford: OUP 1999).

investment intermediaries were separately regulated under a self-regulatory system before 1986 and gradually became subject to regulation from 2000.[75]

The rise of the financial 'supermarket' or conglomerate[76] since the 1990s, facilitated by the abolition of the Glass-Stegall Act in the US which forcibly kept banking and securities businesses separate, gave rise to financial institutions with multi business lines, gradually allowing banking, insurance and securities and investment services to be cross-fertilised. The precursor to the global financial crisis 2007-9, the collateralised debt obligation, a financial asset which featured loan assets packaged in 'slices' and 'tranches' into securities, is a type of financial innovation borne out of the new liberation and blurring of sectoral lines.[77] Industry and product structure changes paved the way for a rethink in terms of both sectorally-developed product regulation as well as the appropriateness of regulatory structures. A number of regulators in the world including the UK[78] moved to the single regulator architecture in order to house all regulatory and supervisory functions over the entire financial sector.[79] Some regulators opted for an 'objective-based' system or 'twin peaks' where the full intermediation aspects of financial business which carried prudential risk were supervised by a prudential regulator, and the financial products, services and markets aspects of financial business were supervised by a conduct regulator.[80] The UK ultimately took this approach in 2013[81] after a decade of the single regulator which did not prove effective against the banking crisis that occurred.[82] The US however continued to maintain sectoral lines of regulation although the merger of the Office of Thrift Supervision into the Office of the Comptroller of Currency was mandated in the Dodd-Frank Act 2010 after the crisis.[83]

Regulatory ontologies for financial products have very slowly responded to financial innovation that challenge sectorally-based boundaries. For example, money market funds 'behave' like deposit products but have never been subject to bank-like duties to customers or micro-prudential regulation.[84] They are regarded as 'fund' products and subject to investment regulatory regimes applicable to credence goods. They engender an impression of being as stable and reliable as deposit products as they are invested in highly liquid assets and can be subject to short redemption notice. This impression was challenged during the global financial crisis when a large money market fund, the Reserve Primary in the US, could not

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[75] Financial Services Act 1986 which retained a semi-self regulatory system until the passage of the Financial Services and Markets Act 2000.

[76] Arthur E Wilmarth Jnr, "The Transformation of the Financial Services Industry: 1975-2000, Competition, Consolidation and Increased Risks" (2002) University of Illinois Law Rev 215.

[77] Richard E Mendales, "Collateralized Explosive Devices: Why Securities Regulation Failed To Prevent The CDO Meltdown, And How To Fix It" (2009) University of Illinois Law Review 1359.

[78] Eilis Ferran, 'Examining the UK's Experience in Adopting a Single Financial Regulator Model' (2003) 28 *Brooklyn Journal of International Law* 257; Clive Briault, 'Revisiting the Rationale for a Single Financial Services Regulator' (2002) FSA Occasional Paper, http://www.fsa.gov.uk/pubs/occpapers/op16.pdf.

[79] Financial Services and Markets Act 2000, s19.

[80] Giorgio di Giorgio and Carmine di Noia, 'Financial Market Regulation And Supervision: How Many Peaks For The Euro Area?' (2003) 28 Brooklyn Journal of International Law CHK.

[81] Financial Services Act 2012 setting up the Prudential Regulation and Financial Conduct Authorities.

[82] The Financial Services Authority, the single regulator was criticised in FSA, *The Turner Review: A Regulatory Response to the Global Banking Crisis* (March 2009).

[83] S312, Dodd-Frank Wall Street Reform and Consumer Protection Act.

[84] Iris H-Y Chiu, "Transcending Regulatory Fragmentation and the Construction of an Economy-Society Discourse: Implications for Regulatory Policy Derived from a Functional Approach to Understanding Shadow Banking" (2016) 42 Journal of Corporation Law 327.

meet redemptions at the dollar due to losses suffered on the underlying assets held.[85] Although money market funds regulation has been reformed in the US[86] and EU,[87] financial regulators have created bespoke regimes for financial innovations that adopt mixed elements of the full and partial intermediation roles. This example reflects the fact that regulators do not fundamentally rethink product ontologies. Instead, reforms are built upon the full-partial intermediation binary in a rather patchwork manner. Another example is the exchange-traded fund, an investment structure premised on being tied to an index, therefore giving investors exposure to a range of indexed securities while trading closely to the transparent market price of the index.[88] However, as Hu and Morley point out, hidden arbitrage strategies are employed by the exchange-traded fund operator and the fund may not be trading close to the index at different times of the trading day.[89] These apparently 'securities' or investment fund-like products are placed in the fund category but they are functionally more equivalent to full intermediation type products as fund operators undertake endeavours to maintain value reliability. Regulatory governance has however not engaged with these features. In this manner, regulatory ontologies have become industry-led, and are not technologically neutral.

The path dependence of regulators on established financial product or sectoral ontologies has led to regulatory gaps. Cryptoassets pose a unique challenge to the regulatory ontologies for financial products, as they are not, unlike many financial innovations, developed based on techniques that mix features of existing financial products. Rather they are developed within a functional environment, with certain technological protocols, and present new features as well as features that resemble full or partial intermediation techniques. Sectoral delineations between financial products may be further accentuated by regulatory architecture. For example, the fragmented nature of US regulatory architecture,[90] in relation to FinCen's role for money service businesses, the Securities and Exchange Commission's (SEC's) role for securities and investments regulation and the Commodities and Futures Trading Commission's (CFTC's) role over commodities and futures trading reinforces an approach to crypto-assets that predominantly attempts to fit them into existing product categories and therefore regulatory perimeter. The EU has also established its architecture of pan-European regulators over national regulators, the European System of Financial Supervision, along sectoral lines. The System comprises of the European Banking Authority,[91] the European

[85] in commercial paper issued by Lehman Brothers, which became insolvent on 15 September 2008. 'Reserve Primary Money Fund Falls Below $1 a Share', *Bloomberg* (16 Sep 2008).

[86] The SEC's Money Market Fund reform rules in 2014, 17 CFR Parts 230, 239, 270, 274 and 279 Release No. 33-9616, IA-3879; IC-31166; FR-84; File No. S7-03-13 at https://www.sec.gov/rules/final/2014/33-9616.pdf. They key reform is the adoption of a floating net asset value which makes MMFs more like investment funds.

[87] The EU Money Market Funds Regulation 2017 mandate publishing of changing net asset value prices as well as prescriptive actions and duties for funds that intend to maintain a constant net asset value. This approach is different from the US as it continues to support funds that are closer to investment funds and those closer to deposits separately.

[88] David J Abner, *The ETF Handbook: How to Value and Trade Exchange-Traded Funds* (Chicester: John Wiley & Sons, 2010) at ch2. Gary L Gastineau, 'Mutual Funds versus Exchange-Traded Funds' in John D Haslem (ed), *Mutual Funds: Portfolio Structures, Analysis, Management, and Stewardship* (Chicester: John Wiley & Sons 2010) at ch14.

[89] Henry TC Hu and John D Morley, 'The SEC and Regulation of Exchange-Traded Funds: A Commendable Start and a Welcome Invitation' (2019) 92 Southern California Law Review 1155.

[90] Howell E Jackson, "Regulation in a Multi-sectored Financial Services Industry" (1999) 77 Washington University Law Quarterly 319.

[91] European Parliament and Council Regulation (EU) 1093/2010.

Securities and Markets Authority,[92] the European Insurance and Occupational Pensions Authority,[93] and a joint committee of the three to look at cross-sectoral issues.[94] The UK adopts a twin-peaks approach but the Prudential Regulation Authority, under the Bank of England, is effectively the 'bank' regulator, although there is good evidence[95] of working jointly with the Financial Conduct Authority, the conduct of business regulator for all financial firms. This architecture has influenced a more objective-based approach to cryptoassets.

2.3.2 The Uneasy Fit of Crypto-assets

As a result of the traditional sectoral delineations, protocol tokens that are regarded as private currency are associated with payment instruments and attract comparisons with payment services and anti-money laundering regulations. In particular, the fears over cryptocurrency being used for illegal purposes,[96] and the internationalisation of laws against money laundering[97] are key to a somewhat convergent approach taken by most jurisdictions that extend anti-money laundering regulation to locations where significant levels of cryptocurrency activity converge, such as cryptocurrency exchanges. In the EU, regulation has been extended to crypto-exchanges between fiat and cryptocurrency, so that they are subject to anti-money laundering regulations.[98] This is a similar position taken in the US[99] and elsewhere.[100]

However, the extension of anti-money laundering regulation to protocol tokens does not mean recognition of them as payment instruments. Regulatory approaches are more diverse in this respect. European policy-makers do not regard cryptocurrency as falling within the European Payment Services Directive nor the Electronic Money Regulations.[101] This is because the legislations make certain assumptions that cannot apply to cryptocurrencies. Electronic money is assumed to be provided by commercial providers who are able to issue, redeem and safeguard the electronic units of money vis a vis customers, including banking and non-banking credit card issuers or online money remitters. The regulation of payment services providers is broader, covering a wide scope[102] of account servicing providers such as banks, payment initiation services that may be separate but plugged into bank or credit card

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[92] European Parliament and Council Regulation (EU) 1095/2010.
[93] European Parliament and Council Regulation (EU) 1094/2010.
[94] The Joint committee focuses on cross-sectoral issues such as consumer protection, financial crime etc.
[95] eg the FCA, Bank of England and Treasury, 'Cryptoassets Taskforce: final report' (Oct 2018) at https://www.gov.uk/government/publications/cryptoassets-taskforce.
[96] *AA v Persons Unknown & Ors, Re Bitcoin* [2019] EWHC 3556 (Comm) on cryptocurrency being used as ransome money for cyberhackers against companies.
[97] The Financial Action Task Force's recommendations on anti-money laundering see https://www.fatf-gafi.org.
[98] The Fifth EU Anti-Money Laundering Directive 2018 requires the registration of virtual currency exchange providers and storage services (wallets) and to subject them to the requirements of the Directive in relation to customer due diligence and monitoring, as well as reporting, to detect suspicions of money laundering, Arts 10-24, 47(1).
[99] Financial Crimes Enforcement Network's regulatory remit, discussed in Scott D. Hughes, 'Cryptocurrency Regulations and Enforcement in the U.S' (2017) 45 W. St. U. L. Rev. 1.
[100] Such as Singapore, Switzerland.
[101] ECB Crypto-assets Task Force, *Crypto-Assets: Implications for Financial Stability, Monetary Policy, and Payments and Market Infrastructures* (May 2019).
[102] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015.

accounts to initiate payments, such as Paypal or Apple Pay,[103] and money organising services such as Money Dashboard.[104] The current regulatory regime captures commercial outfits providing various aspects of payment services in order to allocate responsibilities to users and payment services providers such as in the event of fraud or mistake.[105]

The regime for risk and responsibility allocation is a governance order attached to certain recognised regulated entities, a position also reflected in payment legislation at the US federal level as well as Art 4A of the Uniform Commercial Code.[106] In contrast, the value transfer systems in cryptocurrencies are usually open infrastructures that can be maintained by any volunteer. Participants rely on volunteers' incentives and the protocols operating in the system for validation. It is difficult for regulation to be attached to individual transacters or even miners, hence regulation attaches incompletely, and in a path dependent manner, to locations of convergence of activity as the equivalent of commercial service providers, so they can be made to owe duties to consumers and the regulator. This is why New York specifically introduced its Bitlicense scheme[107] to license money service businesses servicing the crypto-community and the Uniform Law Commission has recommended enabling legislation to recognise and regulate cryptocurrency exchange and remittance services.[108] Singapore now recognises and subjects digital token payment providers to the same regulatory regime for payment services providers generally,[109] and such fluidity of approach may stem from its unified regulatory architecture, under its central bank, which has relative agility in determining its appropriate regulatory perimeter. The Singapore regime covers largely cryptocurrency exchanges of a centralised character.[110] However the readiness to absorb cryptocurrency service providers within the regulatory remit does not represent a comprehensive regulatory regime for cryptocurrency as payment instruments or for the protection of users.

The developers of cryptocurrency initiate its 'value creation' but value creation is maintained in a decentralised manner by network protocols and miners in a permissionless blockchain. The transactional and validation operations on cryptocurrency blockchains remain self-regulating. The 'incomplete' treatment of protocol tokens as payment instruments or money services in many jurisdictions reflects not only doctrinal dilemmas regarding the coherent fit between these novel concepts and accepted payment instruments, but also policy dilemmas in relation to how far regulators wish to give them recognition and legitimacy.

Besides, would application tokens be regarded as payment instruments? In most jurisdictions, although application tokens also embed a value recording and transfer function, ie payment, they are not usually regarded to be in the same category as protocol tokens, which are likened to payment instruments for mainly crime-prevention purposes but not for legitimation

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[103] Iris H-Y Chiu, 'A New Era in Fintech Payment Innovations? A Perspective from the Institutions and Regulation of Payment Systems' (2017) 9 Law, Innovation and Technology 190.
[104] https://www.moneydashboard.com.
[105] Articles 69, 70, Payment Services Directive 2 (2015).
[106] Regulation E, Electronic Funds Transfer Act and other legislation dealing with checks, cards and interchange fees, https://www.federalreserve.gov/paymentsystems/other-regulations.htm.
[107] N.Y. Comp. Code Rules & Regs. tit. 13, ch. 1, pt. 200 (2015), available at http://www.dfs.ny.gov/legal/regulations/adoptions/dfsp200t.pdf.
[108] Regulation of Virtual Currency Business Act, at https://www.uniformlaws.org/committees/community-home?CommunityKey=e104aaa8-c10f-45a7-a34a-0423c2106778.
[109] s5, Payment Services Act 2019.
[110] Part 3, Sched 1, ibid.

purposes.[111] These tend to be compared with securities because of their key role in facilitating fund-raising for development projects. Such treatment is partly due to entrenched sectoral thinking which is pronounced especially in the US as reinforced by regulatory architecture.

As Section 3 will elaborate, the US has since 2015 tended to apply the Howey test[112] to application tokens to determine if they are securities. The CFTC may also treat tokens as commodities,[113] or as giving rise to futures trading on the secondary trading markets, as tokens involve future rights.[114] Competition between sectoral agencies and the global importance of the US financial markets are key reasons for the US' preferred approach to fit cryptoassets within existing product categories. This approach assumes the normative and doctrinal correctness and timelessness of regulatory institutions in the US and limits the room for regulators to consider cryptoassets as novel especially in relation to their 'non-financial' characteristics.

Many other jurisdictions take a different approach, as observed in important financial jurisdictions with a different regulatory architecture (such as the UK and Singapore) and emerging financial jurisdictions competing for global importance. In the EU, the EU agencies' hesitation in achieving a convergent position may be due to intra regulatory competition amongst its Member States and this may have prompted commentators to support a more convergent position, centring upon analogies with financial regulation. Maume et al[115] opine that the European definition of securities turns upon liquidity in secondary markets and tokens have become liquid tradeable assets. Collomb et al also take the view that utility tokens serve the purpose of fund-raising for the start-up and are therefore the functional equivalent of securities issued by companies.[116] However, Hacker and Thomale[117] argue that utility tokens are unlikely securities for the lack of conferment of equity participation and governance rights, which is typical of equity securities, and the lack of debt repayment and coupon rights, which is typical of debt securities. The characteristics of tradeability and fungibility[118] may push us into the direction of characterising these as close to securities but the characteristics of functionality[119] and non-redeemability, unlike equity securities,[120] would likely push us into the opposite direction of distinguishing tokens from securities. Other than normative and doctrinal reasoning that underlie debates in

[111] Other than in Singapore, as discussed above which applies an all-encompassing capture of digital tokens that can be used for payment under payment services regulation.
[112] Whether an investment contract qualifies as 'security'- The U.S. Supreme Court's *Howey* case and subsequent case law find that an "investment contract" exists when there is investment of money in a common enterprise with a reasonable expectation of profits to be derived from the efforts of others, SEC, 'Framework for Investment Contract Analysis of Digital Assets' at https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets.
[113] By the CFTC, see Section 3.
[114] ibid.
[115] Philipp Maume and Mathias Fromberger, "Regulation of Initial Coin Offerings: Reconciling U.S. and E.U. Securities Laws," (2019) 19 Chicago Journal of International Law 548.
[116] Alex Collomb, Primavera de Fillippi and Klara Sok, 'Blockchain Technology and Financial Regulation: A Risk-Based Approach to the Regulation of ICOs' (2019) 10 European Journal of Risk Regulation 263.
[117] ibid.
[118] Philipp Paech, 'Securities, Intermediation and the Blockchain: An Inevitable Choice between Liquidity and Legal Certainty' (2016) 21 Unif L Rev 612 on the need for fungibility for financialisation.
[119] Jay Preston, 'Initial Coin Offerings: Innovation, Democratization and the SEC' (2017-2018) 16 Duke L & Tech Rev 318; Oren (2019).
[120] Rohr and Wright (2019).

analysis as to cryptoassets' nature, regulatory tradition and architecture are important factors shaping regulatory tendency towards presumptions of whether they are 'financial' or not, and hence which financial product category they should be analysed with.

In the UK, there is an additional question as to whether tokens can be regarded as units in a collective investment scheme.[121] Tokens do not quite fit the definition as they are not necessarily parts of a 'pooled' investment, and may not be held for expectation of profit alone.[122] For example, it can be argued that the Decentralised Autonomous Organisation (DAO), characterised as a security offering by the US,[123] could be a collective investment scheme in the UK. It was a pioneer template[124] for smart contract applications to be built upon the ethereum platform to:

(a) enable participants to send funds in ether to an address on the blockchain, and the address mentioned to receive the funds in a pooled form;
(b) enable participants to vote on where the funds should be deployed;
(c) enable the recording and tallying of investment votes to meet the majority number trigger;
(d) enable funds to be sent to the investment destination the majority of votes support.

Although the DAO had features of pooling funds, there was no centralised management other than the majority voting protocol on the blockchain. The collective investment scheme regulation in the UK targets intermediaries who attract investors into pooled schemes they manage,[125] hence the need to subject points of sale and the intermediaries themselves to duties governing their roles. No such discretionary power is similarly exercised over the DAO participants by the protocol or the developers.

Finally, the crypto community is experimenting with the development of stablecoins to improve the moneyness of cryptocurrency and to mitigate their volatility. The two key techniques for stablecoins involve either a monetary provision and management function, like a central bank, or the pegging of a token's value to a basket of financial assets whose market values can be readily ascertained.[126] The FSB and IOSCO have identified similarities between stablecoins with payment mechanisms,[127] electronic money,[128] commodities,[129] bank deposits,[130] and money market funds.[131]

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[121] S235, Financial Services and Markets Act.
[122] Iris H-Y Chiu, Decoupling Tokens from Trading: Reaching Beyond Investment Regulation for Regulatory Policy in Initial Coin Offerings' (2018) International Business Law Journal/ Revue de droit affaires internationale 265.
[123] SEC (2017).
[124] See Slock.it.com, 'The History of the DAO and Lessons Learnt' at https://blog.slock.it/the-history-of-the-dao-and-lessons-learned-d06740f8cfa5 where the DAO is described as an open source project that is intended to inspire others to develop DAOs.
[125] Even for exotic assets such as landbanks, see *Asset Land Investment Plc v The Financial Conduct Authority* [2016] UKSC 17.
[126] Dirk Bullman, Jonas Klemm and Andrea Pinna, 'In Search for Stability in Crypto-assets: Are Stablecoins the Solution?' (ECB Occasional Paper 2019) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3444847; Ingolf GA Pernice, Sebastian Henningsen, Roman Proskalovich, Martin Florian, Hermann Elendner and Björn Schuermann, 'Monetary Stabilisation in Cryptocurrencies- Design Approaches and Open Questions', 2019 Crypto Valley Conference on Blockchain Technology, IEEE, 2019 at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3398372.
[127] FSB, 'Regulatory Issues of Stablecoins' (Oct 2019) at https://www.fsb.org/wp-content/uploads/P181019.pdf.
[128] Ibid and Bullman et al (2019).

3. Three Approaches in Regulatory Competition

In light of the regulatory gaps as well as diversity observed on the part of many jurisdictions, we now discuss three 'groups' of regulatory approaches to the characterisation of cryptoassets. We focus on application tokens as they have generated a greater extent of diverse responses than protocol tokens. Further, application tokens, which are usually generated by nascent businesses, may be the subjects of new economic productivity and wealth creation that jurisdictions wish to attract. The diversity in approaches to application tokens reflects regulators' motivations in relation to capturing new financial products and actors, hence, an underlying competition narrative is appropriate for their comparison. However such regulatory competition is affected by institutional traditions and path dependencies in jurisdictions which shape regulators' perceptions as to what the 'terms for competition' may be. We suggest that the competition lens allows us to discern certain flawed assumptions regarding the 'terms' of competition, and that regulators should position themselves for learning and discovery instead to shape their thinking on regulatory policy.

3.1 Hegemonic Approach

We identify as a 'hegemonic' approach one that seeks to capture and fit cryptoassets within a regulatory agency's regulatory jurisdiction. It may be argued that such an approach is merely 'coherentist' as suggested by Brownsword.[132] A coherentist approach seeks to interpret new developments within the corpus and ontologies of existing legal frameworks as an approach of least disruption, and seeks to reconcile and indeed develop the law in a 'coherent' and continuing narrative. This approach is understandable as law can be perceived to inhere fundamental values, and such a bedrock should be timeless. However, at the logical extreme, a coherentist approach would not be able to tolerate law reform, which can be counterproductive. A hegemonic approach would not only be coherentist, but it seeks to advance a coherentist agenda as far as is possible, in order to entrench a dominant position and to marginalise challenge.

We suggest that coherentism is likely in jurisdictions with less agile institutions and is also compatible with the incentives of regulatory agencies with 'clout', as Gadinis[133] has demonstrated. The sectoral delineations in the US are particularly important for each agency defending the relevance of its regulatory perimeter conceptually and extending it to cryptoassets where fits can be discerned, even if imperfectly.[134] Regulatory agencies also tend to insist on extending and applying extant laws to innovations, when they perceive that they oversee dominant markets. The conditions of dominance are that (a) a jurisdiction's national financial industry maintains the largest market share globally and (b) the wealth available for investment within that state's borders is significantly larger than that of other states. A jurisdiction with such comparative advantage like the US would tend to maintain and extend its regulatory application, rather than reform it.

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[129] FSB (2019).
[130] Ibid.
[131] IOSCO, 'Statement on IOSCO Study of Emerging Stablecoin Proposals' (2019) at https://www.iosco.org/news/pdf/IOSCONEWSS550.pdf.
[132] Roger Brownsword, *Law, Technology and Society* (Oxford: Routledge 2019), pp191-196.
[133] Gadinis (2008).
[134] This is not necessarily just public choice theory in action, as regulators can genuinely perceive the need to steward their objectives and address innovations that come close to their regulatory perimeter.

This approach is observed in the treatment of cryptoassets by the SEC and the CFTC. In a different way, this approach is also observed in China which has banned all cryptocurrency and cryptoassets. Although coherence with institutions and protection of existing institutions may to an extent be maintained, the contrivations are also clear. These contrivations show that institutionally-shaped regulatory competition plays a key role in policy conceptualisation which is not merely normatively or doctrinally derived in an objective manner.

3.2 The SEC and CFTC

The SEC and CFTC signal tough stances against regulatory arbitrage and the need to secure investor protection and market integrity.

The SEC has issued guidelines on how 'digital assets' may be treated as securities,[135] and in particular does not exempt 'utility' tokens from being securities.[136] In this manner, the SEC has maintained its hegemony in securities regulation over cryptoassets although the results of application achieve no real clarity and are likely counterproductive for genuinely innovative blockchain-based business developments.

The 'investment contract' category of securities as defined in the *Howey* test and explicated in the SEC guidance seeks to capture tokens with trading and appreciative characteristics even if these exist alongside functional or potentially functional characteristics (for projects under development). The more dominantly functional tokens are, in comparison to their tradeability or potential to provide gain as 'financialised' items, the more likely they are not securities. A number of indicators are suggested in order to determine if tokens are closer to the end of the 'financialised' spectrum or the 'functional' end, such as whether centralised efforts exist to develop the project and arrange for tokens to be traded, as opposed to ministerial functions for the blockchain system. It would also be relevant whether the token is offered more broadly (presumably to attract investment interest) or more narrowly to a targeted market interested in functionality.

However, the SEC's presumption of functionality versus financialisation is misplaced as tokens likely have both sets of characteristics. Financialisation need not undercut the functional characteristics that exist, as we think about residential property as being both fully functional and financialised in many developed economies. Although such a binary may be useful for capturing scams and frauds, where bare functionalities are a façade for those taking advantage of the ICO hype,[137] it can pose a genuine problem for tokens that are poised to be successful both functionally and financially. The approach presumes that genuinely functional tokens would be niche in nature and artificially delimits the prospects of token-based businesses. The SEC took enforcement against Munchee, an ICO for tokens to be used in a food review application under development. The reason for enforcement is that Munchee's disclosure made reference to appreciation of token value by developers' efforts and was on the financialised end of the spectrum for 'investment contracts'.[138] This can be tantamount to objecting to any significant entrepreneurial effort in developing a blockchain-

[135] https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets.
[136] SEC, 'Statement on Digital Asset Securities Issuance and Trading' (16 Nov 2018) at https://www.sec.gov/news/public-statement/digital-asset-securites-issuuance-and-trading.
[137] Ana Alexandre, 'New Study Says 80 Percent of ICOs Conducted in 2017 Were Scams' (2018) at https://cointelegraph.com/news/new-study-says-80-percent-of-icos-conducted-in-2017-were-scams.
[138] https://www.sec.gov/litigation/admin/2017/33-10445.pdf.

based project, which can be unduly restrictive. It may however be argued that reference to token appreciation in secondary trading also damaged Munchee's case.

In light of significant uncertainty for ICOs, developers have turned to new legal mechanisms, such as the SAFT agreement[139] that provides a template for token offers to be made only to accredited investors in the US, therefore exempt from having to register with the SEC as a public securities offer.[140] This was undertaken in Filecoin, an ICO for developing a peer-to-peer cloud storage system, which did not attract enforcement.[141] It may be argued that the SEC's tough stance is possible because of the dominant US market for capital investments,[142] and it provides a self-regulatory alternative if no retail investors are targeted. Even if ICOs are globally mobile, the need to appeal to a dominant market allows the SEC to exert is jurisdictional hegemony. Further, the deep private markets in the US for accredited investors is a viable alternative.[143]

The CFTC's remit extends to trading in various derivative contracts specified in legislation. The Commodities Exchange Act administered by the CFTC requires registration of trading operators and empowers the CFTC to exercise enforcement authority over fraudulent or manipulative activity on markets.[144] Although the CFTC's 'Advisory' does not clarify what tokens are likely to be treated as 'commodities',[145] a number of enforcement decisions potentially have wide import. In the CFTC's enforcement against My Big Coin Pay Inc,[146] which is a token designed to be a cryptocurrency interchangeable for other cryptocurrencies, but purportedly backed by gold, the decision can be interpreted narrowly or more broadly. A narrower interpretation would be confined to the CFTC's enforcement against fraudulent schemes, as My Big Coin was issued in order to fund the founder's lavish lifestyle and not for project development. However, the basis for enforcement against fraudulent schemes is that a 'commodity' is involved and the characterisation of My Big Coin as a commodity[147] would potentially implicate most currency tokens of a similar nature. Further, as utility tokens are presales and would likely involve future delivery beyond the spot market exemption of 28 days, they could also fall within the definition of commodity futures.[148] There is potentially comprehensive jurisdiction that the CFTC can assert over tokens if an

[139] https://saftproject.com/.
[140] Regulation D.
[141] Freshfields Bruckhaus Deringer, 'Is FileCoin's $200m ICO the first SEC-compliant token sale?' (29 Aug 2017) at https://digital.freshfields.com/post/102edvn/is-filecoins-200m-ico-the-first-sec-compliant-token-sale.
[142] Gadinis (2008).
[143] 'Investors, 'starved for returns,' flood private markets in search of high-growth opportunities' (13 Aug 2019) at https://www.cnbc.com/2019/08/12/investors-starved-for-returns-flood-private-markets.html.
[144] US Commodity Exchange Act 7 U.S.C. § 2a(1)(A)- (C).
[145] CFTC, 'Customer Advisory: Use Caution When Buying Digital Coins or Tokens' (July 2018) at https://www.cftc.gov/sites/default/files/2018-07/customeradvisory_tokens0718.pdf.
[146] *CFTC v My Big Coin Pay Inc* (26 Sep 2018) at https://www.cftc.gov/sites/default/files/2018-10/enfmybigcoinpayincmemorandum092618.pdf.
[147] See decision above, where Justice Zabel refers to the definition of 'commodity' in the Commodity Exchange Act in order to determine the nature of My Big Coin and found in favour of the CFTC's argument that My Big Coin is a commodity.
[148] Commentators have noted that over the years, although the CFTC's jurisdiction has broadened over all sorts of commodities, there is also a rise in the liberation of trading in their derivatives. Hence inclusion within the scope of 'commodity' is not the same as achieving a prohibitive effect, see Alexandra G Balmer, *Regulating Financial Derivatives* (Cheltenham: Edward Elgar 2018) at ch8; Chris Muellerleile, 'Speculative Boundaries: Chicago and the Regulatory History of US Financial Derivative Markets' (2015) 47 Environment and Planning 1805.

expansive interpretation of 'commodity' is taken.[149] However the CFTC's advisory seems to respect the SEC's jurisdiction over tokens 'if initial buyers are told that the developers or promoters will bring them a return on their investments, or if the buyers are promised a share of future returns of the project'.[150] Clarity is further needed over the delineation between the two agencies' jurisdictions.

3.3 China

China has banned crypto-asset commercial activity ie purchasing, trading, intermediating crypto-asset investments, and payment and exchange services relating to crypto-assets. The Chinese ban[151] has been attributed to policy-makers' concerns that crypto-asset investment and payment systems would facilitate the transfer of Chinese capital to overseas markets and evade capital controls put in place by the government.[152] Further, this ban is also in line with China's crackdown on shadow banking in general, where financial activity has been shifting away from mainstream regulated institutions that are perceived to be too restrictive or expensive.[153] However, a recent Shenzhen arbitral tribunal was willing to recognise property rights in crypto-assets so that they can be enforced.[154] This creates confusion as to the legal position, as property rights 'illegally' obtained in violation of the ban laws should be tainted by *ex turpi causa.* Such a position may be interpreted as recognising the 'grandfathered' rights of crypto-asset holders acquired before the ban. But it may hint of a contrary movement in private dispute resolution that could still support private ownership of cryptoassets, but without any onshore channels for realising their liquidity or value.

Nevertheless, the ban does not affect China's enthusiasm for developing the use of blockchain technology in mainstream commercial activity.[155] While the disintermediated economic ethos that emanates from the bitcoin-blockchain may be resisted by the institutional ethos of ordered economic planning in China, the efficiencies of blockchain technology seem appealing. In particular, China is developing a central bank digital currency (CBDC).[156] One way to interpret these developments is that the Chinese authorities are outlawing the privately supplied blockchain infrastructure ie private cryptocurrency and putting in place an official alternative.[157] The CBDC can become the native currency of blockchain-based businesses so that the Chinese market is fenced in and leaks out to private cryptocurrency-supported blockchain systems would be prevented.

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[149] Neil Tiwari, 'The Commodification of Cryptocurrency' (2019) 117 Michigan Law Review 612.
[150] See CFTC Customer Advisory, above.
[151] 'China Officially Bans All Crypto-Related Commercial Activities' (Aug 2018) at https://bitcoinist.com/china-officially-bans-crypto-activities/.
[152] 'China Bans All Crypto Events After Spending $3 Billion to Fund Blockchain Startups' (22 Aug 2018) at https://www.newsbtc.com/2018/08/22/china-bans-all-crypto-events-after-spending-3-billion-to-fund-blockchain-startups/.
[153] Wei Shen, *Shadow Banking in China: Risk, Regulation and Policy* (Cheltenham: Edward Elgar 2016) chs 5-9.
[154] 'Chinese Court Rules Bitcoin Should Be Protected as Property' (26 Oct 2018) at https://www.coindesk.com/chinese-arbitration-court-says-bitcoin-should-be-legally-protected-as-property.
[155] China Bans All Crypto Events After Spending $3 Billion to Fund Blockchain Startups' (22 Aug 2018) at https://www.newsbtc.com/2018/08/22/china-bans-all-crypto-events-after-spending-3-billion-to-fund-blockchain-startups/.
[156] 'China's Central Bank Likely to Pilot Digital Currency in Cities of Shenzhen and Suzhou: Report' (9 Dec2019) at https://www.coindesk.com/chinas-central-bank-likely-to-pilot-digital-currency-in-cities-of-shenzhen-and-suzhou-report.
[157] Especially in the face of the offering of Libra backed by Facebook, to be discussed in Section 4.

As the SEC's and CFTC's approaches represent a hegemonic one where old institutions are maintained and entrenched for their perceived institutional timelessness and superiority, the Chinese approach is to install new institutions that are officially supervised and controlled to capture domestic markets. In both cases a sizeable domestic market forms the basis for such hegemonic approaches. In other words, regulators bank on the existing markets' relative immobility on the demand side, due to home bias, familiarity with home institutions or indeed the compulsion to rely on home institutions. In this manner, even if the supply side is globally mobile, its threat to exit is mitigated.

3.4 The Self-regulatory Approach

The self-regulatory approach refers to regulators' refrain from extending the regulatory perimeter particularly in relation to capturing application tokens as securities. This approach bears a similarity with the hegemonic one in that regulators are sticking to familiar regulatory ontologies but it actually yields an opposite effect. The hegemonic approach forcibly captures cryptoassets within its regulatory perimeter albeit with contrivations, but the self-regulatory one maintains its regulatory perimeter and excludes the novel assets. In this sense application token-type cryptoassets would be regarded as unregulated. This would not necessarily achieve clarity for cryptoassets but it can be queried as to what extent 'legal certainty' is needed. In the US, Filecoin's approach of only targeting accredited investors under Regulation D and therefore being exempt from a public securities offer requirements seems to have achieved success, therefore carving out a scope of private offering that is self-regulatory within the certainty of known regulatory exemptions.

The self-regulatory approach can on the one hand appear to be robust as existing regulation is defended but can implicitly be attractive for the purposes of regulatory competition. For example, in 2018, Switzerland clarifies that payment and utility tokens are not subject to securities law, and indirectly permits them to be offered as being outside of the regulatory perimeter, via the process of seeking a 'no-action' letter from FINMA.[158] Only offers of securities tokens are to be in compliance with securities regulation. Singapore also clarifies that only securities tokens are caught within its regulatory perimeter.[159] Application tokens which necessarily have payment features are unlikely caught within the Payment Services Act 2019 which is targeted at centralised cryptocurrency or cryptoasset exchanges. Although no formal 'exemption' regimes are articulated in Switzerland or Singapore, 'implicit permission' can be derived from the authorities' delineation of the regulatory perimeter for securities and the inapplicability of securities regulation. This seems to achieve a balance between the desire to embrace innovation and prevent existing regulation from unduly stifling such innovation, and providing an appearance of the strength of existing regulation

[158] 'How FINMA's ICO Guidelines impact future ICOs in Switzerland' (KPMG, 26 Feb 2018) at https://home.kpmg/ch/en/home/insights/2018/03/how-finmas-ico-guidelines-impact-future-icos-in-switzerland.html. Also see Dragan Zelic and Nenad Baros, 'Cryptocurrency: General Challenges of Legal Regulation and the Swiss Model of Regulation' paper presented at 33rd International Scientific Conference on Economic and Social Development – "Managerial Issues in Modern Business" – Warsaw, 26-27 September 2018.

[159] Monetary Authority of Singapore, 'A Guide to Digital Token Offerings' (13 Dec 2018) at http://www.mas.gov.sg/~/media/MAS/Regulations%20and%20Financial%20Stability/Regulations%20Guidance%20and%20Licensing/Securities%20Futures%20and%20Fund%20Management/Regulations%20Guidance%20and%20Licensing/Guidelines/A%20Guide%20to%20Digital%20Token%20Offerings%20last%20updated%20on%2030%20Nov%202018.pdf.

and law. These approaches are based on *not* expanding the existing regulatory perimeter, and have influenced the UK's approach.

The Financial Conduct Authority in the UK consulted on the regulatory perimeter for crypto-assets,[160] and has adopted the token classification first adopted by the Swiss authority, ie utility, securities and payment tokens. The FCA now clarifies[161] that only tokens that confer investment and/or governance rights would fall within the scope of securities tokens, and that payment and utility token offerings do not have to comply with securities regulation. Payment tokens have to be compliant with payment services regulation and other commercial or business regulations such as anti-money laundering. The FCA is also keen to emphasise that it provides consultation opportunities for innovation and the regulatory sandbox provides a safe space for testing innovations that may need financial regulatory authorisation.[162]

The 3-fold token classification approach allows the UK, like Switzerland and Singapore, to delineate the regulatory perimeter, achieving a form of refrain from over-regulating crypto-assets. The chief benefit is that such implicit permission may be a way attracting ICOs which are largely issuances of utility-type tokens. The UK, Switzerland and Singapore are highly popular jurisdictions for conducting token issuances.[163] It can be argued that this is tantamount to a 'race to the bottom' although the jurisdictions appear to defend their existing securities, investments and payment services laws. However, it may also be argued that the self-regulatory approach reflects the purported lack of governance needs by blockchain-based businesses, as these businesses crucially rely on peer-to-peer exchange and do not create business-consumer relationships. The automated protocols on the blockchain provide for the functional and self-governing needs of the system's participants, and such businesses may be argued to be not in need of external institutions of governance anyway.

However, as the experience with self-regulating cryptocurrency blockchains have shown, all permissionless blockchains encounter situations where incomplete contracting gaps not envisaged by the smart contract code needs to be filled,[164] or that collective goods or commons need to be protected.[165] Would it be more optimal for regulators to provide such collective standards and protect commons, or should this be left further for self-regulation? For regulators, it is uncertain what approach would be more competitive- to introduce governance and standards in the name of transaction-cost efficiency, which can provide legal clarity, or to allow bottom-up solutions to evolve. The former can create dissonance with other regulatory and legal institutions[166] and are costly for regulators and regulatees. Further,

[160] FCA (2019).
[161] ibid.
[162] Chapter 5, ibid.
[163] https://icobench.com/stats under 'Top countries by raised funds'.
[164] Eliza Mik, 'Smart Contracts: Terminology, Technical Limitations and Real World Complexity' (2017) 9 Law, Innovation and Technology 269; Roger Brownsword, 'Smart Contracts: Coding the Transaction, Decoding the Legal Debates' in Ioannis Lianos, Philipp Hacker, Stefan Eich and Georgios Dimitropoulos (eds), *Regulating Blockchain* (Oxford: OUP 2019) at ch17.
[165] Elinor Oström, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press 1990); OECD, 'Trust In Peer Platform Markets' (OECD Paper 263/2017); Cantero Gamito, Marta, 'Regulation.com. Self-Regulation and Contract Governance in the Platform Economy: A Research Agenda' (2017) 9 European Journal of Legal Studies 53; Marc Rocas-Royo, 'Decentralization as a New Framework for the Sharing Economy' in Russell W. Belk, Giana M. Eckhardt and Fleura Bardhi (eds), *Handbook of the Sharing Economy* (Cheltenham: Edward Elgar, 2019) at ch17.
[166] Any reforms would have to be considered within the context of financial regulation as a whole, as well as the regulatory objectives sought to be served.

it is uncertain if standardised solutions are indeed optimal for the blockchain-based community.[167] It can also be argued that the existing private law institutions in the UK and Singapore, based on common law concepts of contract and property, provide a favourable backbone for dispute resolution in the blockchain space. Commentators have argued that property rights in crypto-assets are sufficiently protected under private law,[168] and that contractual doctrines should work within the reasonable expectations of transactors.[169] Commentators on Swiss law have also provided similarly assuring opinions.[170]

The self-regulatory approach may not be a 'race to the bottom' as it may indeed be a continuing experimental but engaged endeavour to understand the needs of the blockchain-based community in relation to legal and regulatory institutions, and what structures may provide the certainty needed for those businesses. This approach may also arguably be superior to the exempt private market approach in the US which confine ICOs to accredited investors and the institutional investment market, shutting out retail participation. As blockchain-based businesses are fundamentally peer-to-peer networks that provide opportunities for anyone to join in the enterprisal efforts as well as financialised prospects,[171] the prevention of retail participation in the name of retail investor protection ironically leads to the result of their marginalisation from an innovative economic frontier.

Further, the self-regulatory approach may be transitory in nature as regulators have to grapple with the demand side of the ICOs market consistent with the 'law and finance' literature[172] in relation to their preference for protective legal institutions. This balance of supply and demand side pressures can be reflected in the evolution of regulatory regimes for online crowdfunding, such as in the UK[173] and US,[174] that ultimately permitted new forms of platform intermediation for private loans or fund-raising balanced against the mandatory registration of platforms and investor protection regulations. Switzerland, Singapore and the UK already have established reputations as jurisdictions of significant financial sector activity and the self-regulatory approaches do not preclude further refinement. These jurisdictions do not benefit from the dominant market advantage that the US enjoys,[175] but

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[167] Francesca Musiani, Alexandre Mallard, and Cécile Méadel, 'Governing What Wasn't Meant to Be Governed: A Controversy-Based Approach to the Study of Bitcoin Governance' in Malcolm Campbell-Verduyn (ed), *Bitcoin and Beyond: Cryptocurrencies, Blockchains, and Global Governance* (Oxford: Routledge 2018) at ch7.

[168] David Fox, 'Cryptocurrencies in the Common Law of Property' in David Fox and Sarah Green (eds), *The Law of Cryptocurrencies* (Oxford: OUP 2019) at ch6; UK Jurisdiction Taskforce, 'Legal Statement On Cryptoassets And Smart Contracts' (Nov 2019) at https://35z8e83m1ih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056_JO_Cryptocurrencies_Statement_FINAL_WEB_111119-1.pdf.

[169] Blaise Carron and Valentin Botteron, 'How Smart can a Contract be?' in Daniel Kraus, Thierry Obrist and Olivier Hari (eds), *Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law* (Cheltenham: Edward Elgar, 2019) at ch5 but see Jared Arcari, 'Decoding Smart Contracts: Technology, Legitimacy, & Legislative Uniformity' (2019) 24 Fordham Journal of Corporate and Financial Law 363.

[170] Carron and Botteron (2019).

[171] Alyse Killeen, 'The Confluence of Bitcoin and the Global Sharing Economy' in David Lee (ed), *The Handbook of Digital Currencies* (Elseiver 2015) at ch24.

[172] For example Rafael La Porta et al, 'What Works in Securities Laws' (2006) 61 Journal of Finance 1.

[173] FCA, 'Loan-based ('peer-to-peer') and investment-based crowdfunding platforms: Feedback to CP18/20 and final rules' (June 2019) on investor protection measures such as investor restrictions, the need for advice for retail customers and platform governance and responsibilities.

[174] SEC Crowdfunding Regulation 2015 under the JOBS Act 2012; Cumming and Johan (2013) on the market forces that shaped regulation.

[175] Gadinis (2008) and statistics still show the US to be the leading ICO jurisdiction by far, see https://icowatchlist.com/statistics/geo.

they can provide sufficient contestation to maintain competitive divergences[176] that are responsive to the market developments that are already responding to their self-regulatory regimes.[177]

3.5 Enabling Regimes

A number of jurisdictions have embarked on providing tailor-made regimes to legitimise and facilitate ICOs. Such a policy move can be aimed at attracting ICOs to their jurisdictions in order to boost their innovative financial regulatory reputations and to attract inflows of capital and investment. However these endeavours may be too instrumental in nature and are not underpinned sufficiently by clear doctrinal or normative clarification as to why application token-type cryptoassets are treated as financial instruments and what their relationship with existing financial instruments is, if any.

An early proactive facilitative regime that has already passed legislation is Thailand. Thailand offers an authorisation regime[178] for token offerings whether they are designed to function as crypto-currency (medium of exchange), utility tokens (conferring rights in respect of goods or services) or securities tokens (conferring rights in respect of participation in investment), as well as a regime for authorising ICO portals (the platforms used for conducting token offers), digital asset exchanges, brokers and dealers. However, recognising that regulation operates in a landscape where the unregulated crypto-economy has already established its own marketplaces and practices, a list of seven established cryptocurrencies are exempt from the regime and authorised as permitted media of exchange for tokens.[179] Further, a token offering for already functional utility tokens for goods and services is exempt, suggesting that this would be treated as general sales and not 'investment' products.

The Thai authorisation regime seems to be a pared down version of the securities regulation model, requiring issuers to file a registration statement and prospectus containing the key aspects of business plan, token type and rights conferred, the source code and terms and conditions of the smart contracts used for executing token subscription. The disclosure statements are vetted by the authorised ICO portal over which the token offering must be conducted as well as by the Office of the Securities Exchange Commission (SEC). Issuers are to be registered corporate personalities in Thailand, and the SEC seems to reserve discretion in vetting if the company's management is of good repute, has a 'fundamentally sound business plan', and is financially sound from audited financial statements. It is therefore uncertain to what extent this is also a form of pared-down prudential regulation, and on what basis this is applied, such as whether the focus is on payment characteristics. Offers of tokens may be made to sophisticated, high net worth and institutional investors, and retail investors subject to an investment cap for minimising their exposure. Overall there is significant derivation from securities regulation.

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[176] Above.

[177] Switzerland, Singapore and the UK remain highly popular ICO jurisdictions, https://icowatchlist.com/statistics/geo. Further, Winifred Huang & Michele Meoli & Silvio Vismara, 'The Geography of Initial Coin Offerings' (2019) Small Business Economy at https://doi.org/10.1007/s11187-019-00135-y finds that developed financial jurisdictions with good technology infrastructure remain crucial to ICOs, therefore favouring 'peer' level challengers to the US.

[178] Baker and McKenzie, 'A Complete Guide to Cryptocurrencies and ICOs in Thailand' at https://www.bakermckenzie.com/-/media/files/insight/publications/2018/09/bk_thailand_completeguidecryptoicos_sep18.pdf?la=en.

[179] Bitcoin, Bitcoin Cash, Ethereum, Ethereum Classic, Litecoin, Ripple, and Stellar.

The Thai regime also regulates ICO portals, digital asset exchanges, digital asset brokers and dealers that are incorporated in Thailand. They are subject to initial capital regulation, perhaps to prove that they are sufficiently capitalised and unlikely to engage in scams. These are imposed with regulatory obligations not unlike their functional equivalents in the financial economy, ie the underwriter for a securities offer, markets for financial instruments, and brokers and dealers. These are relatively skeletal and general, such as being required to maintain robust operational, secure systems and sound governance, being compliant with anti-money laundering regulations and customer protection. As the regulatory requirements not extensive, Thailand offers a gateway for legitimising the activities of the cryptoasset market. However, the fees levied upon would-be applicants are not insignificant, as token issuers face an application fee of over USD$10,000 from January 2020 onwards and a filing fee which is a percentage of the intended token offer (about 0.05%). Digital asset exchanges, brokers and dealers also face licence fees of USD$30-50,000 and annual fees based on a percentage of trading volumes. To date a cryptocurrency exchange and two digital asset brokers have been licensed in Thailand, seeming to indicate that the price for legitimation is not that deterring.[180]

Malta offers a similar tailor-made regime for virtual assets under the Virtual Financial Assets Act.[181] Virtual assets cover the scope of digital tokens that are not merely for consumption, payment or a financial instrument as falling within European legislation definitions. This seems to cover a new asset class defined as distinguished from payment instruments and securities. But tokens are novel only in the sense that these aspects are mixed in an unprecedented manner. Hence the Maltese Act may have to clarify if tokenisation as such makes a new asset class or that only novel features that are tokenised are captured. The Act requires issuers of virtual assets to be a legal person in Malta, and a white paper with items of mandatory disclosure are to be filed and published. Investor protection is further secured by limiting investment to 5,000 euros per retail investor. The Maltese Act also requires an issuer to appoint a Virtual Financial agent that would be responsible for the anti-money laundering compliance aspectsof fund-raising. The Act also provides a regime for regulating key intermediaries- blockchain-based digital asset exchanges and related intermediaries, in relation to anti market abuse, conduct and standards in the market, prudential requirements for exchanges and their risk governance and compliance capacity.[182]

The above regimes compete in offering 'legitimising' opportunities for ICOs, attracting them to buy into the legal certainties provided in the tailor-made regulatory regimes. However without a dominant captured market of investors, these regimes may not be that attractive to US investors for example. Further there is no harmonised recognition for virtual assets legitimately offered in Malta in the rest of the European Union, and other jurisdictions remain free to regard a Maltese offering as being in breach of Union prospectus rules[183] if in excess of a million euros over 12 months.

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[180] 'Thailand's Finance Ministry Grants Licenses to Three Crypto Exchanges' (CNN, 9 Jan 2019) at https://www.ccn.com/newsflash-thailands-finance-ministry-grants-licenses-to-three-crypto-exchanges.

[181] summary of Malta Virtual Financial Assets Act by Grant Thornton, at https://www.grantthornton.com.mt/industry/fintech-and-innovation/The-Malta-Virtual-Financial-Asset-Act/.

[182] Vlad Burilov, 'Regulation of Crypto Tokens and Initial Coin Offerings in the EU' (2019) 6 European Journal of Comparative Law and Governance 146; Christopher Buttgieg and Christos Efthymiopoulos, 'The Regulation of Crypto Assets in Malta: The Virtual Financial Assets Act and Beyond' (2019) 13 Law and Financial Markets Review 30.

[183] Prospectus Regulation 2017 at Art 1(3).

It is also uncertain if these regimes meet the needs of cryptoasset issuers and markets. First, if the 'issuer' to be incorporated is the developer, the developer may not wish to be formalised as a company and be subject to a state's company law rules. This is because in some blockchain projects such as Filecoin[184] and Decentraland,[185] the developers envisage withdrawal from the project in due course as it becomes mature, so that the blockchain can be left entirely into the hands of the community of participants to operate and maintain. The need to incorporate and maintain ongoing compliance with company or securities rules may be dis-incentivising.

Further, even though offerings are to be registered and trading regulated, there is a potential lacuna in terms of regulatory treatment of the blockchain-based system itself. Is the blockchain system itself to be incorporated so that token purchasers have continuing clarity of rights beyond the sale of tokens? But blockchain systems are often regarded as peer-to-peer marketplaces and not legal persons such as corporations. The derivation from securities regulation is likely to skew token-purchasers in relation to their expectations, and this may be counterproductive for crypto-businesses. If incorporation requirements attach to the blockchain system itself, then the fitting of blockchain systems into a state's company law rules is likely to cause severe friction. In a peer-to-peer blockchain system, there is no ready ascertainment of the management organ. Would miners or core developers be regarded as taking on that role and the enormous responsibilities that normally attach to management?[186] It remains unclear if token holders are the equivalent of shareholders and whether the rights, duties and liabilities established in company law jurisprudence should apply. This treatment would also render it rather pointless that a bespoke fund-raising has been created but without the support of a fully considered regime for the business formation and governance of blockchain businesses.

3.6 Reflections

ICOs raise a unique challenge for financial regulators who are still grappling with their mixture of novel and familiar characteristics as regards fund-raising. Hence, the 'terms for competition' are up for challenge and yet to be determined. It may be presumptuous for both hegemonic and enabling regimes to assume that they are addressing the equivalents of corporate issuers. A number of blockchain-based businesses that have conducted successful ICOs are not structured in the conventional corporatized manner. A developer entity that kickstarts the project can be established as a corporation, a Foundation (such as for ethereum) or be unincorporated. As blockchain-based projects are peer-to-peer networks by nature, the network can become mature with sufficient participants who carry out operations and the protocols for maintenance (such as for verification and recording of transactions). The developer entity may not continue to exert a pronounced presence on the blockchain and may move onto another project.[187] For many developers, the main reward for development would be in the form of the initial coins raised for development that also go towards paying for their time and efforts. They are, dissimilar to platform companies such as eBay or Uber, not owners of the blockchain network as their proprietary asset and usually not intent on

[184] https://filecoin.io.

[185] https://decentraland.org.

[186] Angela Walch, 'In Cod(ers) We Trust' in Ioannis Lianos, Philipp Hacker, Stefan Eich and Georgios Dimitropoulos (eds), *Regulating Blockchain* (Oxford: OUP 2019) at ch3.

[187] Decentraland's developers plan to withdraw from the blockchain-based virtual reality game in due course, see https://www.businesscloud.co.uk/opinion/daily-briefing-virtual-reality-land-selling-for-millions.

maintaining an ongoing relationship of rent or value extraction on the network.[188] Developers work towards the self-maintenance of blockchains in a distributed manner by consensus protocols and do not offer centralised management and governance.[189] As such, the fund-raising event may be regarded as a separate phenomenon from the ongoing development and maturation of the blockchain network itself, and such unique supply side characteristics are not taken into account of in the hegemonic approach or the enabling regimes that overwhelmingly assume that regulation attaches to the corporatized developer entity on an ongoing basis. This is also hazardous for the demand side as the demand side's understanding of the nature of the blockchain-based business may be incorrectly framed by the need to fit ICOs into a form of securities regulation. Nevertheless, although self-regulatory approaches do not hold out any assumptions, regulators may be doing too little to contribute to sense-making in the market.[190]

The lens of regulatory competition is useful for regulators in reflecting on their taken-for-granted assumptions regarding the supply and demand sides of the cryptoasset markets, as being similar to conventional securities markets. However engagement in regulatory competition may allow us to discover what terms matter for regulatory constituents, such as their appetite for regulatory or private legal frameworks,[191] to what extent legal institutions matter,[192] and how on the whole the crypto-economy can interface with the mainstream one. This does not mean that the existing approaches taken by regulators are all misplaced, but we have highlighted where there are uneasy contrivances and point out room for further development of regulatory policy. The processes of learning and discovery can be teased out in competitive dynamics to further the development of regulatory policy.

4. Regulatory Coordination in Sight?

It may be argued that the divergent and apparently competitive approaches taken by financial regulators discussed above can be resolved via a form of international coordination. There are signals of such internationally concerted action in relation to Libra,[193] the proposed digital currency to be launched by the Libra Association of which Facebook is a key founding member.[194]

The Libra Association is based in Geneva, Switzerland, and its founding members, led by Facebook, includes companies such as PayU, Farfetch, Uber, Spotify, Coinbase etc and a number of venture capital funds and not-for-profit organisations such as Women in Banking that aim to service the unbanked. The Association's plan is to develop a global payments blockchain using a private stablecoin. The stablecoin will be issued in return for fiat currency that is held in a reserve backed by low-risk assets such as deposits and government securities

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[188] Jonathan M Barnett, 'The Costs of Free: Commodification, Bundling and Concentration' (2017) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2916859.

[189] Giulia Leoni and Lee D Parker, 'Governance and Control Of Sharing Economy Platforms: Hosting on Airbnb' (2018) British Accounting Review forthcoming.

[190] Consumer warnings alone do not really educate consumers about the nature of financialisation or the nature of the cryptoasset, see FCA, 'Consumer warning about the risks of investing in cryptocurrency CFDs' (Nov 2017) at https://www.fca.org.uk/news/news-stories/consumer-warning-about-risks-investing-cryptocurrency-cfds; 'ESAs warn consumers of risks in buying virtual currencies' (12 Feb 2018) at https://eba.europa.eu/-/esas-warn-consumers-of-risks-in-buying-virtual-currencies.

[191] Discussed above.

[192] Houston et al (2012).

[193] https://libra.org/en-US/.

[194] At https://libra.org/en-US/association/.

in order to ensure each Libra coin is fully backed and stable in value.[195] The reserve is managed by asset managers and custodians subject to the Association's oversight. Transactions in Libra are validated by the founding members who are the validator nodes on the blockchain. Despite this set-up being a blockchain, it is in fact to be centrally managed by the Association, which extracts rent from users on an ongoing basis. This is not fully distributed unlike permissionless blockchains.

As Facebook is in a position to galvanise 2 billion users to participate in Libra, the potential scalability of Libra has drawn regulators' attention to it. Financial Stability Board Chair Randall Quarles and Bank of England Governor Mark Carney have warned that the use of Libra could generate systemic risk,[196] a warning that has not been aimed at the cryptofinance market so far.[197] Zetzsche at al[198] also shed light on the regulatory implications for Libra, ranging from payment service registration and compliance to anti-money laundering compliance, including due diligence for all its users. The management of the Libra reserve could also attract characterisation as a collective investment scheme or a money market fund, and these are extensively regulated in the EU and many other developed financial jurisdictions.

The FSB's interest may signal the advent of a coordinated approach internationally vis a vis cryptofinance developments. However this is likely limited to Libra and similar projects led by 'BigTech' firms. Such firms, unlike cryptoasset developers, are likely to adopt a platform model for their business, allowing them to centrally manage and extract rent on a continuing basis. These corporatized entities that are commercial in nature are familiar subjects to which regulators can easily attach regulatory obligations.[199] BigTech firms are likely to attract systemic risk monitoring by regulators[200] as many of them have vast social footprint. The regulatory trajectory for Libra and similar projects is not likely to be the same as for the cryptoasset industry, as the former is not distributed in nature and raise less novel issues for regulatory extension than the latter.

5. **Conclusion**

The ICOs market has challenged financial regulators in terms of determining fit with existing regimes. Regulatory divergences have emerged in a number of jurisdictions and we discuss three dominant approaches in relation to hegemonic, self-regulatory and enabling regimes. These reflect different assumptions and regulators' understandings of the cryptoasset industry, and we argue that the 'terms for competition' in relation to supply and demand side needs are still being discovered and are incomplete. This provides a unique opportunity for regulators to jettison familiar assumptions in relation to corporatized securities issuers or institutional investors in order to discover what governance needs are truly at stake. This may

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[195] Libra White Paper, https://libra.org/en-US/about-currency-reserve/#the_reserve.

[196] 'Global regulators deal blow to Facebook's Libra currency plan' (Financial Times, 25 June 2019) at https://www.ft.com/content/0c1f3832-96b1-11e9-9573-ee5cbb98ed36.

[197] Mark Carney, in a letter as Chair of the Financial Stability Board to the G20 Finance ministers and central bankers, 13 March 2018 at http://www.fsb.org/wp-content/uploads/P180318.pdf.

[198] Dirk Zetzsche, Ross Buckley and Douglas Arner, 'Regulating LIBRA: The Transformative Potential of Facebook's Cryptocurrency and Possible Regulatory Responses' (2020) Oxford Journal of Legal Studies forthcoming.

[199] Structures for supervising significant cross-border banks and financial conglomerates have been established since the end of the global financial crisis, see Basel Committee, 'Principles for Effective Supervisory Colleges', at https://www.bis.org/publ/bcbs287.pdf, and 'Principles for Supervising Financial Conglomerates' (2012) at http://www.bis.org/publ/joint29.pdf.

[200] Zetzsche et al (2020).

pose challenges for coherence with existing regulation but coherence should not itself be an obstacle for learning and potentially, reform. We also argue that signs of international regulatory coordination in relation to the Libra project are not necessarily reflective of a wider trend for the cryptoasset industry. This is because regulators can apply existing and familiar financial regulation paradigms more easily to the Libra Association, in particular its leading founding member Facebook. The cryptoasset market is still likely to give rise to diversity and should facilitate the discovery of new bases for regulatory thinking and policy, uncoordinated or otherwise.