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# REQUISITES FOR DEVELOPMENT OF A REGULATED SECONDARY MARKET IN DIGITAL ASSETS

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**AIIFL Working Paper No. 33**

**April 2019**

Asian Institute of International Financial Law  
Faculty of Law  
The University of Hong Kong  
[www.AIIFL.com](http://www.AIIFL.com)



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## **REQUISITES FOR DEVELOPMENT OF A REGULATED SECONDARY MARKET IN DIGITAL ASSETS**

Syren Johnstone\*

### **Abstract\*\***

The component parts of a more complete market system in digital assets are steadily being assembled. The initial focus on the primary market has increasingly expanded to the secondary market. Cryptocurrency exchanges are a particular subject of interest given their growing predominance and the exchange-like or intermediary-like roles they may undertake at various times.

This paper considers the pathway issues for the development of a regulated secondary market in digital assets. It explores the conditions necessary to develop a regulatory framework that does not also serve to reshape and confine the possibilities offered by cryptographic consensus technology.

To achieve core regulatory objectives, what regulation attaches to will need to be sensitive to the characteristics of different centralized and decentralized cryptocurrency models as well as the digital assets traded on them. The problem of establishing accountability and anchoring *locus* in relation to decentralized cryptocurrency exchanges is considered. How the common characteristics of digital assets impact on the ability to develop secondary market regulation that meaningfully meets policy objectives is reviewed.

The potentially discriminating effect of imposing regulatory oversight on an industry in which different models of operation are still emerging must be carefully weighed. It is suggested that development of the regulatory framework should be model-neutral, form-independent and remain focussed on the oversight of functions and establishing accountability for wrongdoing. Regulation should not be prematurely imposed in a manner that may inhibit the ability of private market regulation to develop effective outcomes that align with public policy concerns. Any development of regulatory oversight must also contemplate the involvement of intermediaries providing services specific to digital assets as well as intermediaries already involved in traditional markets.

It is proposed that it is necessary to cease looking at the regulation of exchange systems and intermediary conduct in isolation from the characteristics of digital assets. There is a clear prospect for a more fundamental interaction between secondary market activity and the asset design process that could better facilitate the formation of regulatory building blocks. This depends on the development of an effective public-private partnership.

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\*\* This paper is an independent research study supported by the OAX Foundation Limited. The author would like to thank for their assistance David Tee, Paul Li, Wayland Chan, Pindar Wong, Tony Lai, Enuma Technologies, Gary Tiu, Mark Miller, and Kim Larkin. The views expressed and any errors remain solely those of the author.

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## **1. INTRODUCTION**

This paper considers the pathway options and hurdles for the development of a regulated secondary market in digital assets.<sup>1</sup> It explores the conditions necessary to develop a regulatory framework that does not also serve to reshape and confine the possibilities offered by cryptographic consensus technology ("CCTech").<sup>2</sup> A primary subject of regulatory oversight is the provision of services that enable the trading of digital assets ("cryptoexchanges", as such term is further discussed in Section 1.2 below).<sup>3</sup> How the common characteristics of digital assets impact on the ability to develop secondary market regulation that meaningfully meets policy objectives is reviewed.

How digital assets are characterized for the purposes of securities laws is not a concern of this paper.<sup>4</sup> As such, the approach taken permits of the idea that regulation may, and likely will, evolve a more developed concept of digital asset than fitting it within regulatory silos<sup>5</sup> established in a pre-CCTech era. This differs from the taxonomic approach adopted or proposed in some jurisdictions<sup>6</sup> that carve digital assets into securities, financial instruments and utility tokens. Such taxonomies may be recursive, appearing to "solve" the question of how existing securities laws apply, or should be developed to apply, to digital assets without changing the underlying assumptions.<sup>7</sup>

### **1.1 Components being assembled**

The component parts of a more complete, and familiar looking, market system in digital assets are progressively being assembled. This is occurring as a result of the usual developmental forces arising out of a burgeoning industry and regulatory responses that are shaped by the emergence of risks that affect the integrity of the public market. Industry developments covering products, services and practices include:

investor recognition of digital assets as a new asset class;<sup>8</sup>

an increase in the number and size of cryptoexchanges;<sup>9</sup>

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<sup>1</sup> When used herein, the term "digital asset" covers all types of cryptos based on cryptographic consensus technology, including cryptocurrencies, security tokens, utility tokens, virtual assets, etc.

<sup>2</sup> Blockchain and distributed ledger technology are examples of iterations of CCTech, i.e. a computer-based cryptographically secure mechanism that operates to establish a consensus among participants in the mechanism. Cryptocurrencies, security tokens, utility tokens, and similar ("digital assets") are all based on CCTech.

<sup>3</sup> Exchanges that are trading derivatives on digital assets are not incorporated within the term "cryptoexchange" as used herein (they are already subject to regulatory oversight in the United States and the UK).

<sup>4</sup> Although that will have clear implications on the currently applicable registration requirements for cryptoexchanges - for example, to register or be approved as a national securities exchange or broker-dealer in the United States, or as an ATS or licensed intermediary in Hong Kong.

<sup>5</sup> Such as fiat money, securities, futures, commodities.

<sup>6</sup> Such as in Switzerland and the UK (see "Guidance on cryptoassets", FCA Consultation Paper CP19/3, January 2019).

<sup>7</sup> Syren Johnstone, "Taxonomies of digital assets: recursive or progressive?", Stanford Journal of Blockchain Law and Policy, Vol. 2 No. 1, January 2019. Available at <https://stanford-jblp.pubpub.org/pub/taxonomies-digital-assets>

<sup>8</sup> RJ Greer, "What is an asset class anyway?" The Journal of Portfolio Management, 23(2):86-91, January 1997; C Burniske and A White, "Bitcoin: ringing the bell for a new asset class", research paper for coinbase and ARK Invest, January 2017.

emergence of intermediaries that specialize in trade execution and portfolio and risk management;<sup>10</sup>

asset management growth;<sup>11</sup>

improved indices of cryptocurrency prices that contribute to price transparency;<sup>12</sup>

evolving compliance standards and practices at cryptoexchanges and crypto-service providers;<sup>13</sup>

evolution of custodial services;<sup>14</sup>

specialized audit services;<sup>15</sup> and

tie-ups between traditional financial services and cryptoexchanges.<sup>16</sup>

At the same time, there have been important developments in legal clarity and regulatory agency oversight. This includes:

progress in the primary market on the categorization of digital assets for the purposes of existing laws;<sup>17</sup>

the validation and safeguarding provided by regulatory oversight including the NYDFC's<sup>18</sup> Bitlicense rules issued in June 2015 and the derivatives markets in the United States<sup>19</sup> and the UK;<sup>20</sup>

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<sup>9</sup> These generally fall outside of direct regulatory oversight *qua* exchange. As at February 2019, there are more than 200 cryptoexchanges known to be in operation (Coinmarketcap, 4 February 4, 2019).

<sup>10</sup> E.g., Omniex, <https://omniex.io/>; Caspian, <https://caspian.tech/>; TradeBlock, <https://tradeblock.com/>

<sup>11</sup> As at February 2019 there were over 700 crypto funds with assets under management in excess of US\$10 billion (Crypto Fund Research, Cryptocurrency Investment Fund Industry Graphs and Charts and Growth of Crypto Assets under Management, February 2019); 20% of hedge funds launched in 2018 comprised crypto funds, <https://finance.yahoo.com/news/report-crypto-funds-20-hedge-210313349.html>

<sup>12</sup> Such as the CME CF Bitcoin Reference Rate, the CME CG Bitcoin Real Time Index, BNC's BLX and ELX liquidity indices for Bitcoin and Ethereum on Nasdaq.

<sup>13</sup> It is estimated that 37% of cryptoasset-only providers have an in-house compliance team even when not subject to regulatory oversight (Michael Rauchs et al., "2nd global cryptoasset benchmarking study", Cambridge Centre for Alternative Finance, December 2018, page 60.

<sup>14</sup> Most custody services remain performed by large cryptoexchanges, with around two-thirds managing cold-wallets for their customers (Michael Rauchs et al op. cit., page 50), although segregated custodial services are starting to emerge.

<sup>15</sup> For example, Lukka – see <https://lukka.tech/>

<sup>16</sup> For example: Coinbase's launch of a Visa debit card in the UK that allows users to make purchases in the real economy directly from their crypto accounts with Coinbase (see "Coinbase launches cryptocurrency Visa debit card in UK", Financial Times, 10 April 2019); the tie-up between TD Ameritrade, an online stock broker, and ErisX, a cryptoexchange, to offer trading of digital assets to TD Ameritrade's client base, in addition to TD Ameritrade's existing business line in Bitcoin futures (see <https://www.tdameritrade.com/investment-products.page>).

<sup>17</sup> For a review, see Syren Johnstone, "Regulating Cryptographic Consensus Technology: Oxymoron or Necessity?", AIIFL Working Paper No. 32, October 2018, Section 3. Available at <https://ssrn.com/abstract=3264556>

<sup>18</sup> New York Department of Financial Services. The BitLicense was first issued in June 2015.

- the establishment of regulated futures and commodities platforms;<sup>21</sup>
- confirmation that the CFTC's regulatory oversight covers the use of manipulative devices when trading cryptocurrencies;<sup>22</sup>
- investigations of possible manipulative practices;<sup>23</sup>
- successful regulatory enforcement actions in the primary and secondary markets;<sup>24</sup> and
- the expansion of AML/KYC<sup>25</sup> requirements to cover cryptocurrencies.<sup>26</sup>

There remains much to be done before digital assets can fully service the potential range of uses to which they may be put. This ranges from, for example, the use of digital assets in corporate financing to the regulatory treatment of digital assets for the purposes of capital adequacy or financial resources requirements, and from the ability of cryptoexchanges to interact normally with the existing banking system to a significant lack of transparency in the industry's operations. Resolving such shortcomings is a necessary corollary to successful development of the industry – the recent case against Bitfinex and Tether is an example of the interconnectedness of these issues.<sup>27</sup>

## **1.2 Cryptoexchanges**

The term "cryptoexchange" is somewhat eponymous as the services actually undertaken may span activities that have become subject to a division of labour in traditional markets. This may include typical exchange-like acts (such as price

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<sup>19</sup> The CFTC (United States Commodities Futures Trading Commission) has since 2015 considered cryptocurrencies to be commodities falling within the ambit of their oversight pursuant to the Commodities Exchange Act 1936, a view confirmed in *CFTC v. McDonnell, et al.*, Case 1:18-cv-00361-JBW-RLM Document 29 Filed 03/06/18.

<sup>20</sup> The FCA (Financial Conduct Authority) has authorized Crypto Facilities to provide registered products and services, which includes providing exchange trading in Bitcoin and Ether futures.

<sup>21</sup> For example, in the United States, TeraExchange is registered as a swap execution facility (SEF), NADEX is registered as a SEF and a derivatives clearing organization (DCO), and LedgerX is registered as a SEF and DCO; in the UK, Crypto Facilities (acquired by Kraken in February 2018) is authorized by the FCA; there are no registered CENEX in Hong Kong.

<sup>22</sup> Changes introduced by the Dodd-Frank Act in the United States gives the CFTC enforcement oversight of persons using a manipulative or deceptive device or contrivance in connection with any "contract for sale of any commodity in interstate commerce", which will include cryptocurrencies (17 C.F.R. §180.1). See *CFTC v. Gelfman Blueprint*, Case No. 17-7181 (S.D.N.Y. Filed Sept. 21, 2017).

<sup>23</sup> Bitstamp, Coinbase, itBit, and Kraken. The CFTC's subpoena to Bitfinex and Tether has led to the filing of a case under the Martin Act – see footnote 27.

<sup>24</sup> For example: in the United States under the CEA 1936 (*In re Coinflip, Inc.*, CFTC No. 15-29, 2015 WL 5535736 (Sept. 17, 2015); *CFTC v. McDonnell, et al.*, Case 1:18-cv-00361-JBWRLM Document 29 Filed 03/06/18) and under the SEA 1934 (SEC action against BTC Trading Corp, 8 December 2014); as well as in Hong Kong ("SFC's regulatory action halts ICO to Hong Kong public", SFC, 19 March 2018).

<sup>25</sup> Anti-money laundering/know your client.

<sup>26</sup> E.g., AML/CTF EU directive 2018/843 ("AMLD5").

<sup>27</sup> The case illustrates some of the difficulties that can arise out being denied access to normal banking arrangements. The case was brought by the Attorney General of the State of New York under the Martin Act (New York General Business Law §354) against Bitfinex and Tether, 24 April 2019 (Index No. 450545/2019, NYSCEF Doc. No. 1), available through <https://iapps.courts.state.ny.us/nyscef/HomePage>

formation, order matching functions, clearing and settlement), the operation of OTC desks,<sup>28</sup> as well as acts more typical of intermediaries (such as market making, contract counterparty, broking, dealing, advisory, and custody) that are non exchange-like.

This bundle of services is often alternatively referred to as alternative trading services ("ATS"), or platforms in deference to existing regulatory frameworks. However, such terms often carry with them implicit presumptions about what the services are and how they can be regulated. They may presume a centralization of the service akin to what is observable and regulated in traditional markets, whereas CCTech offers new ways of engaging in services that do not necessarily involve a central point of control, via decentralization. The term *cryptoexchange* is therefore used herein as a neutral term that captures the broad range of services *de facto* being undertaken at the present point in time.

Nevertheless, the distinction between *cryptoexchanges* that operate on a centralized model (centralized *cryptoexchanges*, or "CENEX") and those that operate on a decentralized model (decentralized *cryptoexchanges*, or "DEX") is an important one to recognize having regard to regulatory concerns about market integrity and investor protection. Whereas centralization carries with it a central point of potential failure, decentralization implies distributed risk with no central point of failure. This distinction carries with it different types of characteristics that impact on the need for, and ability to implement, regulatory oversight. At the present point in time, significant regulatory focus has fallen on CENEX rather than DEX primarily as a result of risk considerations: CENEX are larger, attract more users, are prone to conflict issues owing to the multiple roles undertaken by a *cryptoexchange*, and tend to hold client assets.<sup>29</sup>

Different *cryptoexchange* models have evolved in response to a combination of technological capabilities, commercial considerations, user needs, negative market incidents such as cybersecurity and exchange failures, and of course regulatory considerations. Standards have increasingly been in the spotlight with investors, regulators and the *cryptoexchanges* themselves. This includes the mechanisms of ownership and investor protection as well as a greater awareness of what one is actually purchasing on different types of *cryptoexchanges*.

While *cryptoexchanges* have for some time already been vetting applications for new listings of digital assets to ensure they are not likely to be regarded as securities (which would trigger the application of securities laws), Coinbase's action in January 2019 to suspend trading in ETC<sup>30</sup> highlighted to the market that *cryptoexchanges* are capable of constructing and applying algorithms to digital assets to check for abusive activities. The continued development of real time indexes means that the actions of one *cryptoexchange* (such as the decision to suspend trading in a digital asset) may give rise to wider market effects, raising the question whether *cryptoexchanges* are or should be applying common standards when checking for abusive practices. This is important in the context of *cryptoexchanges* because, unlike traditional stock exchanges, a digital asset may be freely available for trading on a number of *cryptoexchanges* possessing

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<sup>28</sup> Over-the-counter desks enable direct trades to be entered into without market disclosure of price information.

<sup>29</sup> Around two-thirds of large CENEX retain control of customer assets (Michael Rauchs et al op. cit., page 50).

<sup>30</sup> Discussed below in Section 4.2.

significantly different characteristics as regards their operations and associated risks.<sup>31</sup>

What standards cryptoexchanges should adhere to in these regards has been evolving primarily according to perceived commercial advantage. As regulators begin to look at cryptoexchanges more closely, familiar regulatory concerns arise in relation to market integrity and investor risk. Regulatory agencies are presently relying to a significant extent on professional parties (such as lawyers and accountants) as control gateways and as centres of learning and experimentation with what works. This reflects an emergent coordination of efforts, as discussed further below. As regulatory oversight develops, this will give rise to legal and regulatory overhead capable of differentiating between models, possibly facilitating one model or approach over the other.

### **1.3 Other services**

As cryptoexchanges have developed, an ecosystem of specialized crypto-service providers has started to emerge. This is due to a number of considerations including technical developments, economic cost/efficiency and, perhaps most crucially, risk management and asset security. This includes a number of services often undertaken by cryptoexchanges including account management, trading services and custody. While such services have evolved for similar reasons as, and resemble, like-named services in the traditional market, unique features of digital assets give rise to new considerations different in nature from the traditional market. As regulatory oversight of cryptoexchanges develops, a comprehensive approach to secondary market regulation will need to countenance the further evolution of such services as standalone services from cryptoexchanges.

### **1.4 Layout of this paper**

Section 2 discusses the shift of regulatory attention from the primary to the secondary market and introduces the different regulatory considerations that apply.

Section 3 introduces different models of cryptoexchanges against the broader context of exchange development in the traditional markets of the 20<sup>th</sup> century. It notes that the regulation of exchanges has been driven by developments that arise out of commercial needs and industry responses, and discusses how attendant regulatory issues have been addressed.

Section 4 reviews the characterization of different CENEX and DEX models in view of the functions and risks in each, and considers how regulatory oversight might work in relation to them.

Section 5 considers the risks attendant on the intermediary role. It identifies the pending technical issues and regulatory building blocks that are in need of resolution to provide the necessary regulatory building blocks to implement effective oversight.

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<sup>31</sup> A security may of course be listed on more than one traditional stock exchange, such as in a dual listed stock, however there is a high degree of conformity in the practices undertaken by traditional exchanges – and it is typically a requirement of a stock exchange that securities can only be dual listed on another exchange with comparable standards.



Section 6 considers the sustainability of different regulatory responses that have emerged or been proposed. It concludes with a discussion of the ordering of industry and regulatory development, and to what extent this relationship is shaping the development of cryptoexchange models.

## **2. SHIFTING FOCUS TO THE SECONDARY MARKET**

In recent years regulatory agencies globally have been preoccupied with the categorization of digital assets for the purposes of fitting them within established regulatory silos. This has significantly focussed on the primary market, i.e. the raising of capital.<sup>32</sup> Nevertheless, there remains significant grey areas in many jurisdictions in determining whether a digital asset is a security and this has caused capital raising exercises to be limited to permissive jurisdictions or to be configured as an offering of securities made subject to exemptions from securities laws, i.e. as a securities token offering ("STO").<sup>33</sup> However, the relative ease of raising capital once seen in the ICO boom is not being replicated in the STO context.<sup>34</sup>

Changes in the primary market have been accompanied by a changing investor profile. Investors accustomed to established asset classes are increasingly expecting to see familiar investment documentation such as more detailed information memoranda and legal opinions. Similarly, expectations of customary practices and safeguards, and the usual accoutrement of services, are flowing over to secondary market activity, partly driven by an increased awareness of risk controls on the part of both investor and service provider. Investors have also started to turn to their service providers in established markets for assistance in relation to matters such as advice, execution and custody in relation to digital assets.

The preoccupation with the categorization of digital assets to date has left secondary market issues in need of more detailed discussion. Secondary market activity has become the next logical issue to address in the development of a complete regulatory framework for digital assets. While this has more recently become the subject of increased regulatory attention, a better understanding of how the secondary market can be regulated is required.

As compared to the event-driven nature of the primary market, different regulatory considerations apply in relation to the conduct of activities in the

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<sup>32</sup> For a summary, see Johnstone op. cit. (footnote 17), Section 3. Available at SSRN <https://ssrn.com/abstract=3264556>. Ever since the SEC's 2017 reports on The DAO (SEC, "Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO", 25 July 2017) and Munchee (SEC, "In the matter of Munchee," 11 December 2017) it has been very clear that raising capital via an initial coin offering ("ICO") can invoke securities laws.

<sup>33</sup> In an STO the token being offered is structured as a security and the offering is made subject to exemptions from securities laws. This would enable a clean legal opinion to be obtained - in practice it is easier for legal counsel to provide an opinion that an offering structured as a securities offering fits within an applicable exemption, than it is to provide an opinion that a utility token is not subject to securities laws, particularly because of the risk that an enforcement agency may reach a different conclusion. Legal opinions have become more important as regulatory agencies step up their enforcement activities and because investors in traditional markets increasingly wish to participate in this sector and look to being provided with the same set of assurances they are accustomed to in relation to securities offerings.

<sup>34</sup> STOs are generally being done via Reg D exemptions, as opposed to Regulation A+, as the latter appears to be experiencing delays - see <https://dilendorf.com/resources/another-year-in-review-current-state-of-reg-a-tokenized-offerings.html>

secondary market, which are of an ongoing nature. Oversight is typically established by requiring some form of licensing, authorization or other form of approval by a regulatory agency (together, "licensing") for certain types of activity. This may range from market infrastructure provided by exchanges to the intermediaries that service various needs, and includes both prudential and conduct regulation.

## **2.1 Crypt exchanges and regulatory efficiency**

Where digital assets and activities related to them do not fit into an existing regulatory construct, the powers of the regulatory agency may not be triggered. The unwanted concomitant of this is a *vires* problem: regulatory agencies have no power to regulate what they may see as an area in need of regulatory oversight, for example because of consumer protection issues or because of interactions with public capital and efficient capital formation.

This gives rise to a difficult quandary to resolve in the secondary market. In well-regulated markets, digital assets that are not securities may be readily tradable on crypto exchanges but they do not fit comfortably into any regulated class of asset that an intermediary – and the regulations that apply to it – are set up to handle. On the other hand, digital assets that are securities are not generally available on crypto exchanges in regulated markets because that would require the crypto exchange to become registered,<sup>35</sup> which is difficult or impossible because it invokes regulatory standards that may not be able to be satisfied in relation to digital assets (as discussed further in Section 5 below). It also presents a regulatory lacuna for crypto exchanges willing to engage in higher standards that are seeking the validation and assurance provided by regulatory oversight. Resolving this problem in each case rests in how to shape the specific regulatory requirements to the characteristics of digital assets.

Where a crypto exchange chooses to operate is currently determined by the following factors: the characterization of their activities, what digital assets they trade in, who they are prepared to provide trading services to, what are the requirements of applicable laws in relation to each of the foregoing, and how the crypto exchange's business model interacts with each of the foregoing. A crypto exchange may therefore exercise regulatory arbitrage opportunities to operate in jurisdictions that do not cause problems for its business model.

Some jurisdictions have introduced new legislation that caters to the problem<sup>36</sup> or are considering to bring digital assets within existing legislation,<sup>37</sup> while other jurisdictions such as the United States, Hong Kong and the UK are treating crypto exchanges under the existing securities laws as best they can.<sup>38</sup>

Applying existing regulations to crypto exchanges has had limited success in de-risking the market in digital assets. A not insignificant volume of trading of digital assets has moved to exchanges that operate in jurisdictions that provide little or no regulatory oversight protection to investors, which merely pushes the problem to being someone else's problem. While some of these crypto exchanges will only

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<sup>35</sup> As an exchange, ATS and/or broker-dealer.

<sup>36</sup> In particular, Gibraltar, Malta, and Bermuda.

<sup>37</sup> The Financial Services Agency of Japan has been considering to treat cryptocurrencies as a financial product to bring it under the Financial Instruments and Exchange Act.

<sup>38</sup> A crypto exchange trading securities would need to be registered as an exchange or ATS and intermediaries providing services to investors would need to be licensed or authorized (e.g. under the Securities Exchange Act of 1934 in the United States, the Securities and Futures Ordinance in Hong Kong, or the Financial Services and Markets Act 2000 in the UK).

accept investors that do not invoke legal and regulatory issues, given the ease of cross-border activity within a secure and pseudonymous environment there is a residual risk that local investors remain exposed to unregulated offshore cryptoexchanges. This has led many regulators to pursue a path of investor education.

In such an environment, regulatory efficiency fares poorly. The opportunities for digital assets to be transacted in regulated jurisdictions are diminished, pushing liquidity to unregulated environments, as opposed to bringing about greater oversight. This creates increased opportunities for secondary market activity to service the needs of persons not permitted to access established regulated markets (such as persons suspected of money laundering). Remoteness from regulatory oversight also increases the risk of abusive practices that have been problematic in well-regulated markets, such as market manipulation and front running.

These are some of the concerns that have given rise to the argument that regulatory agencies and lawmakers must respond to the development of CCTech by adopting "attraction regulation".<sup>39</sup> The hallmark of overseeing traditional markets - disclosure based regulation backed by enforcement - has been successful because of the inherently observable nature of the player involved. However, the particular ability of CCTech to subvert oversight makes this difficult or impossible.<sup>40</sup> Accordingly, it will be important that regulatory oversight is accompanied by a significant level of buy-in from cryptoexchanges.

The prospect of some form of regulatory oversight seems inevitable. There is now increased regulatory interest (encompassing information gathering exercises<sup>41</sup> and enforcement<sup>42</sup>), anti-money laundering and counter terrorist financing ("AML/CTF") laws are gradually being imposed,<sup>43</sup> and new licensing regimes for their activities are being proposed that may encompass a wider class of digital assets than securities.<sup>44</sup>

The developments in the futures and commodities markets as a result of clear regulatory oversight by the CFTC and the FCA have not gone unnoticed. The prospect is that the regulation of cryptoexchanges could facilitate them tapping into a significantly larger market, including institutional and other investors seen in traditional markets. In response to the foregoing considerations, cryptoexchanges may self-impose higher standards in expectation of perceived regulatory inevitability,<sup>45</sup> and there has been an increased willingness to engage with regulatory agencies to find a meaningful pathway forward.<sup>46</sup>

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<sup>39</sup> Johnstone, op. cit. (footnote 17), Section 5.3. Available at SSRN, <https://ssrn.com/abstract=3264556>

<sup>40</sup> Johnstone, op. cit. (footnote 17), Section 5.3, pp 39-40. Available at SSRN <https://ssrn.com/abstract=3264556>

<sup>41</sup> See the Virtual Markets Integrity Initiative Report issued by the New York State Attorney General in September 2018.

<sup>42</sup> See footnote 24 above.

<sup>43</sup> E.g., AMLD5.

<sup>44</sup> "Statement on regulatory framework for virtual asset portfolios managers, fund distributors and trading platform operators", SFC, 1 November 2018; " Proposed Framework for Crypto-Asset Trading Platforms", Joint Canadian Securities Administrators/Investment Industry Regulatory Organization of Canada, Consultation Paper 21-402, 14 March 2019.

<sup>45</sup> A CFTC commissioner informally recommended that crypto-exchanges should establish self regulatory organizations to "develop standards around cyber policies, data retention, record keeping, financial records obligations, insider trading, ethics, codes of conduct" (see Per Brian Quintenz, see <https://www.newsbtc.com/2018/02/11/cftc-commissioner-crypto>

Any regulatory focus on the eponymous “cryptoexchange” will need to bring within its consideration the various non-exchange, intermediary-like functions a cryptoexchange undertakes. This will be an important component of improving the standards and safety of the secondary market for digital assets, and for the development of a full complement of attendant services. This is discussed further in Sections 4 and 5 below.

### **3. EXCHANGE MODELS IN A CCTECH ERA**

The concept of an exchange is based on furnishing a means of bringing together supply and demand.<sup>47</sup> While that is an exceedingly simple concept, several features are required to ensure that those means are operationally effective. Regular operation under uniform rules must govern its operation. Mechanisms must exist to facilitate price formation and discovery. Gateway requirements determine what goods are available for transacting and who is able to transact. Deals entered into must result in binding contracts and, where necessary, those mechanisms must enable effective enforcement.<sup>48</sup>

Within that general infrastructure, every exchange must provide more specific mechanisms for order input, order matching, clearing and settlement.<sup>49</sup> While these four stages (together, the “Trading Mechanism”) necessarily operate in a linear sequence, the degree of transparency to the market at each stage will vary according to different exchange models or customs.

While these processes have persisted since the earliest formation of exchanges, how they have been achieved has evolved over time. In particular, ideas about the venue of an exchange, exchanges as centralized phenomena, and the role of intermediation have undergone significant changes in response to technological developments.

#### **3.1 A brief history of exchange development**

Formalized exchanges, from their beginnings in Continental Europe and England around the 15<sup>th</sup> to 17<sup>th</sup> centuries<sup>50</sup> through to close to the end of the 20<sup>th</sup> century, grew out of the practical recognition that it was easier to make trades if interested parties met at the same place (i.e. a physical location) and time. This facilitated market transparency and the development of standard customs and market practices that contributed to the efficiency of dealings in the market. It also reinforced the utility of market participants as reputational intermediaries, with those not complying with acceptable market behaviour or having otherwise

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industry-should-regulate-itself/ and <https://www.youtube.com/watch?v=RzIslvE3WE4>). See also CryptoUK (<http://www.cryptocurrenciesuk.info/>).

<sup>46</sup> Although this is not ubiquitous. Kraken’s response to the VMII is notable for its admission that manipulative scams are rampant in the industry and its assertion that crypto traders know it and don’t care (VMII, page 20).

<sup>47</sup> This is, for example, reflected in the definition of exchange in each of s. 3(a)(1) of the SEA 1934 and the SFO (Schedule 1).

<sup>48</sup> See generally Ruben Lee, “What is an exchange? The Automation, Management, and Regulation of Financial Markets”, OUP, Oxford 1998. See also S. Valdez, J. Wood, “An Introduction to Global Financial Markets”, 4th Edition, New York 2003, p. 156.

<sup>49</sup> Respectively: the receipt of buy/sell orders; matching buy and sell orders; the transmission of payment and transfer instructions prior to settlement; and the discharge of the obligations of the parties that trade.

<sup>50</sup> Michael Blair, George Walker, and Stuart Wiley, “Financial Markets and Exchanges Law”, 2ed, 2013, Part I.

lost their reputation being excluded.<sup>51</sup> This reflects the importance of transparency and accountability to market development.

Although such markets were ostensibly self-governed peer-to-peer markets that did not require a central authority, central authorities were increasingly involved. Market practices were reinforced by private law court decisions. The government provided licenses to places where markets operated, and eventually to the people who acted as intermediaries within them. The role of centralized means of control became more important as markets grew larger, more complex, and the mobility of capital (human and money) increased; for example, it became necessary to have better mechanisms of excluding certain intermediaries from the market who violated accepted practices and norms.

Stock exchanges in the modern era bore out this resemblance by being formed by reputational intermediary brokers who were willing to sponsor company securities into the trading system, effectively putting their reputation behind the securities both on their initial listing and in subsequent secondary market trading. This system works because the broker's business model depends on its certifications being accurate.<sup>52</sup>

Exchanges based on member-brokers started to undergo structural changes at the end of the 20<sup>th</sup> century in tandem with increasing public regulation and the recognition of exchanges as a public utility servicing a larger social need to support innovation and the real economy. The growth of market size and complexity also brought with it increased capital demands on exchanges to keep up with constantly evolving market expectations to deliver services at a reduced overall cost, as well as to meet the requirements of public regulatory oversight. This led to a wave of demutualizing and corporatizing exchanges in which self-regulating member-brokers were relegated to intermediaries subject to exchange rules governed by a public regulatory agency. As externally-owned public listed companies, it also became necessary for regulation to be wholly or partially externalized.<sup>53</sup>

Each of these developments served to facilitate the operational, informational and allocation efficiency of markets that were essentially defined by a venue, an investible product, and intermediaries who facilitated bringing together supply and demand. While intermediaries were understandably key to all three of these elements of market efficiency, the ability of reputation alone to safeguard market integrity nevertheless had its limits.

### **3.2 Venue versus function**

Venues in the form of trading halls having a physical location was a consequence of having no other means of reliable communication that satisfied the core objectives already noted. This changed with the advent of electronic

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<sup>51</sup> Knorr Cetina, Karin, and Alex Preda "The Sociology Of Financial Markets", Oxford: OUP 2004.

<sup>52</sup> Davies and Worthington, "Gower and Davies Principles of Modern Company Law" 9ed 2012, 25-27 at page 926.

<sup>53</sup> Different markets have employed different approaches. For example: in the United States, rules made by the SEC are reflected in listing rules made by the exchanges and reinforced by Federal reporting requirements; in Hong Kong, both the exchange and the SFC operate under a dual responsibilities model in which they act as the frontline regulator and the industry regulator, respectively; in the UK, responsibility for listing has been moved to the FCA.

communications networks ("ECN") and alternative trading systems ("ATS")<sup>54</sup> that provided the possibility of a physical exchange venue being replaced by an electronic "place-less" one, albeit still transacting in traditional products. Originally broker-to-broker institutional systems, the advent of the Internet propelled proprietary networks to a significantly wider audience.

The primary problem of how to bring ECNs and ATs within regulatory oversight was really a conceptual one wrapped up in grasping the idea that an exchange's functions could be serviced in ways not essentially dependent on a bricks and mortar venue. The question was less significant than at first blush. IOSCO<sup>55</sup> reported in 1994 that at least 13 jurisdictions had fitted ECNs and ATs within their regulatory framework.<sup>56</sup> This was often implemented by focussing on the providers of the network.

The most successful electronic exchange was Nasdaq, which at various stages of its development possessed both centralized and decentralized elements. On its commencement in 1971 it served only as an ECN among participating members of the NASD<sup>57</sup> to provide quotations, and was successful in reducing trading spreads. It later added trading on an OTC<sup>58</sup> basis, and subsequently provided trading systems.

#### Centralization and intermediation

Like traditional exchanges, Nasdaq remained characterized by functions that were centralized in the operations of the network that facilitated quotations and later trading. It necessarily involved the participation of third party intermediaries that continued to bring together demand and supply as a result of a membership gateway mechanism that controlled who could participate in the facilities of the network cum exchange. However, unlike traditional exchanges, the network was operated over its participating members and in that sense was distributed, or decentralized.

Regulatory oversight of Nasdaq prior to it becoming registered as a national securities exchange was able to be effected as a result of two factors arising out of the Securities Exchange Act of 1934: (1) the activities undertaken over the electronic network involved the trading of securities subject to registration requirements,<sup>59</sup> and (2) participating members of the electronic network were engaged in activities<sup>60</sup> that gave rise to a requirement to be registered with the SEC as a broker-dealer and a member of the NASD, which was itself subject to the regulatory oversight of the SEC.<sup>61</sup> This meant that rules governing activities in securities undertaken over the Nasdaq system could be meaningfully enforced by the SEC via their hold over the participating members.

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<sup>54</sup> Also sometimes called automated trading systems. In Hong Kong, ATS is defined in the SFO as "automated trading services".

<sup>55</sup> International Organisation of Securities Commissions.

<sup>56</sup> "Issues in the Regulation of Cross-Border Proprietary Screen-Based Trading Systems", IOSCO Technical Committee (1994). This included the United States and the UK. Prior to the enactment of the SFO in 2003, Hong Kong regulated ATS in a manner that stretched existing legislative concepts in a somewhat unsatisfactory manner.

<sup>57</sup> National Association of Securities Dealers (now Financial Industry Regulatory Authority (FINRA))

<sup>58</sup> Over-the-counter.

<sup>59</sup> In particular, s. 12(g) of the Securities Exchange Act of 1934 required the securities to be registered with the SEC (unless they were exempt therefrom).

<sup>60</sup> ss. 3(a)(4)(A) and 3(a)(5)(A) of the Securities Exchange Act of 1934.

<sup>61</sup> ss. 15(a)(1) and 15A of the Securities Exchange Act of 1934.

Accordingly, although there was an element of decentralization (prior to Nasdaq's demutualization),<sup>62</sup> from a regulatory oversight perspective electronic exchanges could nevertheless be regarded as centralized largely because regulatory oversight can be centralized by attachment to persons responsible for accessing exchange functionality.<sup>63</sup> Whether the Trading Mechanisms are centralized or distributed may be largely irrelevant for enforcement purposes.

### Risk and market integrity

The ability to enforce against intermediary members was important because intermediary misconduct has presented important challenges to market integrity. This has been addressed via continued strengthening, particularly since around the late 1990s and again following the 2008 financial crisis, the mandate of regulatory agencies to supervise, investigate and undertake enforcement actions against intermediaries. Prudential and conduct regulation have focused on ensuring intermediaries are adequately capitalized and engage in appropriate order execution and segregation of client assets. This increase of powers has also generally been extended to the problem of market abuse, whether engaged in by intermediaries or other third parties.

The regulation of exchanges has also had to deal with structural issues, particularly market events that have had an impact on transaction integrity. Stock market crashes, particularly those in 1973 and 1987, highlighted the need to create a better system for ensuring the integrity of transactions that were not conducted on a delivery-versus-payment basis ("DVP"). This centred on the role of the central counterparty ("CCP") and its robustness to withstand market events including risk control, default and governance rules. However, where transactions are able to be conducted on a strict DVP basis, counterparty risk falls away.

In sum, a central concern of regulatory agencies is to identify and put in place mechanisms that seek to control different types of risk in the financial marketplace. Actors in regulated markets take considerable assurance from this regulatory de-risking. While the risks involved in an electronic exchange are different in their detail, they are in concept generally the same set of issues as arise on a traditional exchange. This includes operational risk, intermediary risk, credit risk, market risk, and legal risk, among others.

### **3.3 Characterization of cryptoexchanges**

The advent of CCTech and the creation of digital tokens based on it, has led to the development of cryptoexchanges that bring together supply and demand for digital assets.

Some cryptoexchanges operate on a model that relies on, similar to a traditional stock exchange, a centralized trading platform managed by an exchange operator. Others operate on a decentralized basis that implement wholly different solutions to the underlying objectives of an exchange. In some cryptoexchange models the primary difference from traditional stock exchanges is merely the type of assets traded, while in other models the ability of the enabling CCTech to dovetail exchange functions with the digital nature of the underlying asset being traded represents a paradigm shift in how an exchange is capable of working.

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<sup>62</sup> Any element of decentralization was changed as a result of Nasdaq being demutualized and, in August 2006, becoming a registered national securities exchange under the Securities Exchange Act of 1934.

<sup>63</sup> For example, this is how automated trading services have been primarily regulated in Hong Kong.

This has presented to regulatory agencies questions as to when and how cryptoexchanges ought to be regulated, as well as the different kinds of consumer protection and market integrity issues presented by various cryptoexchange models.

### The “exchange” brand

In a pre-CCTech era, exchanges were subject to a relatively clear legal position because the nature of the product being traded on the exchange clearly located it within one or another regulatory silo, such as securities, futures, commodities, each of which had its governing legislation. The lack of regulatory clarity over digital assets has led to expectable issues that have not occurred without some regulatory consternation, including as to the meaning of the word “exchange” in the minds of the public.

At one time the SEC had sought, unsuccessfully, to cleave “on-line trading platforms” from “exchanges”, being of the view that the word “exchange” can give the misimpression to investors that a trading platform is SEC-registered and meets the regulatory standards of a national securities exchange.<sup>64</sup> However, where a platform cum exchange does not trade any category of product falling within an established silo they are not within the scope of the agency’s authority. There is no general prohibition on the use of the word “exchange” in such other contexts. Instead, they remain under the watchful eye of the regulators as regards the products admitted to trading, which provides the essential litmus test for whether or not the authority of the regulatory agency is invoked.<sup>65</sup>

When taken out of the regulated environment, the “exchange” word is also open to mean various things. While the concept of an exchange has been defined above as a means of bringing together supply and demand, the role of cryptoexchange operators may, in addition to operating the Trading Mechanism normally associated with the exchange function, be engaged in various non exchange-like acts including acting as broker/dealer, market maker or proprietary trader. A recent development, also distinct from traditional exchanges, is the advent of the IEO,<sup>66</sup> in which the cryptoexchange in effect acts as the promoter of a capital raising exercise - thus onboarding yet another business line that creates further potential for conflict of interest. As discussed in Section 5.1 below, these different roles give rise to quite different kinds of regulatory considerations.

### Different models emerging

An array of different models of cryptoexchanges are emerging, typically broadly classified into being either centralized or decentralized. Trading relationships in a CENEX can be characterized by a hub-and-spokes model: traders are positioned at the perimeter, communicating via the spokes with a central operator that provides the gateway for information and which connects supply and demand via the operator’s Trading Mechanism. This reflects a traditional stock exchange model.

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<sup>64</sup> “Statement on Potentially Unlawful Online Platforms for Trading Digital Assets”, 7 March 2018. <https://www.sec.gov/news/public-statement/enforcement-tm-statement-potentially-unlawful-online-platforms-trading#>

<sup>65</sup> The SEC, SFC and FCA have each issued warnings that cryptoexchanges trading securities would be subject to licensing requirements.

<sup>66</sup> Internet exchange offering. See <https://cryptopotato.com/what-is-an-initial-exchange-offering-ieo-and-how-it-differs-from-ico/>



In contrast, trading relationships in a DEX are formed via the Trading Mechanism embodied in a distributed computer code on a direct person-to-person (“P2P”) basis, giving rise to a matrix model of trading relationships. DEX are thus characterized by the absence of a centralized entity and the ability of investors to transact directly with each other without counterparty risk.

While that dichotomy is useful for several purposes, and will be used as a yardstick in this paper, it is an imperfect device. The operation of different exchanges sit along a spectrum from pure CENEX to pure DEX, and at the time of writing many DEX currently operating are not completely decentralized and there will often be a not insignificant element of centralized control over the deployed code and its use.

As argued in Section 4 below, a more useful approach to understanding the operations of cryptoexchanges, and how to regulate them, is to make a more granular assessment of the different functions an exchange provides and what risks each gives rise to. Broad tags such as “centralization” and “decentralization” obfuscate the similarities and distinctions, and may mean different things according to different purposes, for example, depending on whether one is concerned with the details of the Trading Mechanism *per se* of an exchange, the legal persons accountable for an exchange’s operations, the other third parties that may service or support the exchange’s operations, or the jurisdiction in which the exchange might be regarded as operating.<sup>67</sup>

The SEC has emphasized that it will take a functional approach to cryptoexchange regulation,<sup>68</sup> which is intended to be read broadly. It notes the development of decentralized trading systems and suggests that an exchange can be comprised in systems that display trading interest to other users, or that receive trading orders centrally for processing and execution.<sup>69</sup> This is essentially a reworking of the same concerns that were expressed in the SEC’s Regulation ATS, released over 20 years ago, which enabled ATS to register as national securities exchanges or broker-dealers.<sup>70</sup> However, because CCTech offers wholly new ways of undertaking exchange functions, the ability to conduct meaningful oversight may depend on how a decentralized system is deployed and maintained. While centrality has served as a useful and hitherto necessary nexus point, this may require revision as to how it might be applied to decentralized environments.

Importantly, one exchange model does not presuppose the extinction of the other. For example, Bitfinex, a CENEX, has announced it will develop a DEX.<sup>71</sup> Primary competition is for different types of investor seeking different types of product and trading opportunity. DEX may also develop in different directions and service different end users, including CENEX. For example, a DEX might come to service investor-facing CENEX that are looking to utilize the DEX’s Trading Mechanisms, either as an add-on to its own, or as an alternative to developing its own.

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<sup>67</sup> For example, see Wayland Chan, “What is decentralization?” 22 Feb 2019, [https://medium.com/@OAX\\_Foundation/what-is-decentralization-85a0fc993b5b](https://medium.com/@OAX_Foundation/what-is-decentralization-85a0fc993b5b)

<sup>68</sup> As per Exchange Act Rule 3b-16.

<sup>69</sup> SEC, “Statement on digital asset securities issuance and trading”, 16 November 2018.

<sup>70</sup> 63 FR 70844, Regulation of Exchanges and Alternative Trading Systems, 22 December 1998.

<sup>71</sup> <https://www.bitfinex.com/eos>

## CENEX

CENEX typically operate without any intermediary gateway and are in general open to anyone who completes the relevant CENEX's account opening procedures.<sup>72</sup> Information is passed via an electronic communications channel and the Trading Mechanism is operated centrally, neither of which necessitates the use of CCTech. Thus, while a CENEX may be facilitating customers' trading of digital assets, the CENEX itself does not need to itself utilize or interact with CCTech, except where the transaction will be recorded on-chain (this is discussed further in Section 4.2 below).

Although an exchange operator stands in the middle of all trading activities, it may do so in different capacities. Order execution may be undertaken in one of three basic ways: (1) the exchange operator acts as an intermediary that introduces client orders to each other for direct matching and settlement, (2) the exchange operator stands in the middle of automatically matched client orders, much as a CCP does, or (3) the exchange operator matches a client order with its own book much as a proprietary trader or market maker<sup>73</sup> might, possibly either taking a position or on a back-to-back (i.e. position neutral) basis. The possibility that it might also act as a promoter in relation to orders entered into in connection with IEOs has already been noted above.

A CENEX may employ each of these approaches at different times, and in an unregulated environment is generally free to do so subject to any representations it has made to investors as to how it conducts exchange operations. In each case, the risk implications are similar to those found in traditional exchanges, such as credit, liquidity and settlement risk. In addition, there is the risk that the operator may arbitrage between each method of order execution according to its own interests. For example, it might take a position of proprietary trader where there is a significant buy-sell spread that it can profit from, but match buy and sell orders directly where the spread is too small to profit from and instead receive commission only.

Examples of CENEX are Coinbase, Kraken, Bitfinex, Binance, bittrex, Poloniex, Huobi, ANXONE.<sup>74</sup>

## DEX

Unlike CENEX, in a DEX the Trading Mechanism (1) is undertaken by the underlying CCTech code constituting the exchange, and (2) is capable of being entirely operated by the code without the involvement of any entity other than the buyer and seller (as with a CENEX, no third party intermediary gateway is required). While in CENEX orders may be placed via an electronic communications channel, in a DEX the bringing together of supply and demand necessarily utilizes CCTech.

In a DEX, venue and centralization have been collapsed into a CCTech-based code supported over a network of participants in which the creator may no longer have a role. The Trading Mechanism operates without intermediation other than

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<sup>72</sup> Which may or may not involve client identity verification or other know-your-client procedures.

<sup>73</sup> Though in the latter case without the corresponding obligations of a market maker to post binding bid/offer prices.

<sup>74</sup> <https://www.coinbase.com/>, <https://www.kraken.com/>, <https://www.bitfinex.com/>, <https://www.binance.com/en>, <https://international.bittrex.com/>, <https://poloniex.com/>, <https://www.huobi.com/>, <https://anxone.io/>

the non-sentient operation of the code. It is for this reason that technologists may consider a DEX as centralized in the code.

The risk profile of a code-based Trading Mechanism in a DEX is different. The code eliminates the need for a CCP since settlement is effected on a DVP basis directly between the persons trading - because there is no CCP or possibility of a proprietary middleman cum market maker, conflict and other counterparty risks are absent. On the other hand, new risks may be created in the operation of the code.

DEX are in a significantly earlier stage of development than CENEX. This is in part due to the different technical challenges of developing the CCTech to provide for a P2P Trading Mechanism.

Examples of larger, better known DEX are IDex, EtherDelta and EthFinex,<sup>75</sup> while others are being developed by groups such as by OAX.<sup>76</sup> An open protocol for developing DEX was launched by Ox in 2017.<sup>77</sup>

#### **4. CHARACTERIZATION FOR REGULATORY PURPOSES**

##### **4.1 Form versus function**

For regulatory oversight to be meaningful and effective, there must be an ability to gather information, supervise and investigate, to punish and control, and to remedy. On a traditional approach to regulatory oversight, this assumes a person from whom information is gathered, and who is controlled and sanctioned.<sup>78</sup>

There is a clear structural similarity of the hub-and-spokes CENEX model to traditional exchanges insofar as all trading relationships are established by an entity that controls the Trading Mechanism. This creates a clear centre of accountability that facilitates regulatory oversight in a manner familiar to regulatory agencies, notwithstanding the other non exchange-like acts a cryptoexchange might engage in.

In contrast, the matrix DEX model gives rise to a regulatory conundrum – if all trading relationships are directly between the trading counterparties on a P2P basis, not via any central controller, on what should regulatory accountability bite? One of the difficulties regulatory agencies have with DEX is that because there is no obvious centralized nexus – a jurisdiction where an identified exchange controller resides – there appears to be no regulatory nexus either. One sometime hears the comment that in a DEX “there is nothing to regulate”. Accordingly, DEX are sometimes regarded not as exchanges but as P2P platforms, or OTC markets in which anyone can transact directly with anyone else in whatever they wish to trade. It is suggested that this overlooks the essential functions of an exchange, and is instead preoccupied with form.

Connecting regulatory oversight to the form of the exchange is an accident of history because venue previously always had formed an essential feature of exchanges, as discussed in Section 3 above. Physical venue provided a relatively easy target of implementing effective regulation and attaching accountability. When the undertaking of exchange functions became place-less, regulatory

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<sup>75</sup> <https://etherdelta.com> , <https://www.ethfinex.com/>

<sup>76</sup> <https://www.oax.org/en>

<sup>77</sup> The Ox whitepaper is available at [https://0x.org/pdfs/0x\\_white\\_paper.pdf](https://0x.org/pdfs/0x_white_paper.pdf)

<sup>78</sup> For example, the regulatory focus on NASD members participating in Nasdaq in its pre-demutualized era enabled each of these functions.

agencies instead found focus on the intermediary gateway mechanisms, namely, the members operating the exchange (or ATS), who were already subject to regulatory oversight via activities already governed by applicable laws.

While DEX present an understandable challenge to effective oversight, one might query to what extent is the possibility of exchange regulation truly contingent on the structural form of the exchange model, or whether form necessarily dictates what functions are capable of being meaningfully regulated.

Throughout the development of exchange regulation, regulation has emerged in response to, and has drawn its legitimacy from, a need to address risk and to improve market efficiency. It has not emerged in response to the characteristic of form *per se* but has been concerned with safeguarding the functions an exchange performs. The desirability of regulatory oversight to address risk and to improve market efficiency thus remains unchanged in relation to whichever form a cryptoexchange takes on to facilitate the trading of digital assets.

It runs counter to sense to suggest that if a DEX performs all the functions of an exchange but is not regarded as a regulated (or regulatable) exchange, then the usual safeguards and liability for wrongdoing would not apply, even though the same acts can be undertaken on an exchange subject to regulation, such as a CENEX. To take two examples: (1) the code constituting the DEX allows the asymmetric distribution of trading information based on user status;<sup>79</sup> (2) a user of the DEX engages in price-manipulative practices. In a regulated exchange context, these examples would pertain to market integrity and market abuse.

In a CCTech era, one may need to look at the problem of form versus function differently because the technology to some greater or lesser extent allows form to be dematerialized. While the trading participants in a DEX may be distributed, the Trading Mechanism functions are nevertheless centralized in the underlying code constituting the DEX.

In view of the foregoing considerations, it is suggested that, when considering the question of whether or how to regulate CENEX and DEX, a starting point more meaningful than the ostensibly different forms of these exchange models would be to instead consider how risk and efficiency might be best managed in each model, and how regulatory oversight might be implemented.

#### **4.2 Functions common to different models**

The recognition of CENEX and DEX as exchanges brings with it the usual set of regulatory concerns in relation to market integrity, transparency and fairness of the exchange's operations. This includes in relation to the listing function, access to trading, how clearing and settlement is effected, the robustness of the exchange's systems and controls, conflict management, rule development, and record keeping. Where clearing and settlement functions are undertaken, other issues such as rules regarding transaction finality, and credit and liquidity risk will be of concern.<sup>80</sup>

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<sup>79</sup> According to the VMII Report, Binance, Gate.io, Huobi, and Kraken (all CENEX) provide certain traders with benefits (such as additional order types) that could preference those traders at the expense of others. A DEX could be similarly constructed.

<sup>80</sup> For a complete list of concerns, see "Principles for financial market infrastructures", Bank for International Settlements and International Organization of Securities Commissions, April 2012, available at <https://www.bis.org/cpmi/publ/d101a.pdf>

How these functions are performed, will affect the risk profile of the market. The following sections discuss the design of the exchange model, the gateway mechanism for what products are admitted to trading, and how trading is undertaken. These will give rise to different concerns depending on the particular CENEX/DEX model employed. In each case, it is necessary to consider the prospect for ongoing regulatory accountability, and this is discussed further in Section 4 below.

Infrastructure (development/maintenance)

Developer role – responsibility for building the Trading Mechanism.

Controller role – responsibility for control of exchange’s Trading Mechanism.

Governance – how subsequent development of exchange functions are decided upon and implemented.

In CENEX, all these roles are normally undertaken by an identifiable legal person. This makes regulatory oversight of the exchange’s infrastructure relatively straightforward insofar as that there is a single contact point for information and control.

In DEX, only the developer role is clearly undertaken by an identifiable legal person (or group). The way the controller role and governance is undertaken will depend on how each DEX is organized. This could range from containing elements of centralization in relation to particular functions (such as providing order matching), to being completely open-sourced and fully decentralized, similar to the concept of a true DAO.<sup>81</sup>

So far as regulatory accountability is concerned, the issue is establishing a means of more clearly identifying how control of a DEX – and accordingly accountability – might evolve over time. The initial developers may or may not perform an important ongoing role. For example, although Ethereum is generally regarded as being fully decentralized<sup>82</sup> the Ethereum Foundation has, for the time being, *de facto* assumed a leading role in its continued development.<sup>83</sup> In contrast, Bitcoin is also fully decentralized but there is no equivalent to the Ethereum Foundation for Bitcoin. While both may be subjected to manipulative wrongdoing,<sup>84</sup> if the Ethereum Foundation was regarded as legally responsible for the operation of the underlying code, it would be a subject of potential accountability for any regulations that applied to it, whereas no such central point of responsibility appears possible to establish in relation to Bitcoin.

If one imagines a DEX that has a residual centre of ongoing control or significant influence in relation to one or more exchange-like functions, it may not be

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<sup>81</sup> Distributed autonomous organization.

<sup>82</sup> Particularly following comments made by a director of the Corporate Finance Division of the SEC. See William Hinman, “Digital Asset Transactions: When Howey Met Gary (Plastic)”, 14 June 2018, available at <https://www.sec.gov/news/speech/speech-hinman-061418>

<sup>83</sup> For example, the Ethereum Foundation runs a bounty program that makes payments to anyone who discovers and reports discovery of a bug on a private basis to the Foundation. This enables fixes prior to the bug being exploited by malicious users. See <https://bounty.ethereum.org/>

<sup>84</sup> For example, via 51% attacks. Some would argue that the hard-fork of The DAO in 2016 was consequential upon wrongdoing. For a discussion, see Johnstone, *op. cit.* (footnote 17), Sections 4.2-4.3. Available at SSRN <https://ssrn.com/abstract=3264556>

unreasonable for a regulatory agency to premise regulatory approval and oversight of the DEX on the continued presence of such a centre. This would likely require the relevant entity to accept submission to regulatory oversight. Otherwise how could the regulator procure compliance? This would undoubtedly create new commercial considerations for the initial developer cum controller, and for the design of the DEX model, but that may be part of a necessary trade-off for the validation provided by regulatory approval. In the extreme case of a fully open-source DEX where no-one is in control,<sup>85</sup> other problems emerge. This is discussed further in Section 4.3 below.

#### Admission to listing

Admission standards - rules for admitting a digital asset to the cryptocurrency's trading platform.

Ongoing standards - rules for continuance of the trading facility being offered to a digital asset. This would encompass ongoing integrity of the digital asset and transactions in it.

Adjudication mechanism - application of admission and ongoing standards.

The foregoing reflects the role of an exchange as not only a facilitator of bringing together supply and demand but also as a provider of assurance that may encompass the genuineness of the digital asset.

CENEX normally take direct control of standards because it is a core part of its business model. For example, it will avoid listing digital assets that might invoke securities laws. CENEX may also negotiate to the promoter of a token issuance to receive compensation for listing the digital asset. While this is not in itself different from traditional stock exchanges, there is a concern that compensation may override the consistent application of listing standards, a problem likely to be more acute in the context of an IEO.

CENEX are increasingly providing some form of verification or approval on the different digital assets it admits to its platform. For example, Binance has introduced a "gold label" programme in which they give a gold "v" for "verified" next to the projects cum digital assets that they have confirmed.

It would appear that only DEX with elements of centralization may be able to implement a system of restrictions on what can trade, and thereby provide the same level of assurance as a CENEX. This is because decisions about initial and ongoing standards will need to take into account subtle considerations that may be difficult or impossible to codify, which presents an issue for a DEX wishing to apply standards and also operate on a decentralized open-source basis. Various checks could be written into decentralized code, but it is difficult at the present point in time to expect code alone to replace the role of judgment in this form of human decision-making. Group-based decision making (such as via a 51% consensus mechanism) could be subject to detrimental gaming in advance of decisions being made.

A recent case in point was Coinbase's decision in January 2019 to pause transactions with the ETC<sup>86</sup> blockchain as a result of deep chain reorganizations

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<sup>85</sup> At present there do not appear to be any deployed DEX that are completely open sourced with no element of ongoing developer involvement and so the viability of a completely open sourced DEX free of any control remains untested.

<sup>86</sup> Ethereum Classic.

that contained double spends, thus putting some customers' ETC assets at risk of being valueless. In that case, the work process at Coinbase, a CENEX, was that a machine-based system alerted the issue to humans who subsequently made the call to make the suspension and related announcements,<sup>87</sup> which had a material impact on ETC prices.

Accordingly, the extent of decentralization of a DEX is likely to impact on the level of assurance that could be incorporated. One solution for DEX's wishing to provide assurance would be to outsource the production of assurance to third parties that provide services for reward.

The concern of regulatory oversight is whether a cryptoexchange is able to, and does, establish and enforce accepted minimum standards. While CENEX clearly can comply with externally imposed standards, the ability of DEX to do so effectively may depend on the model used.

### Trading Mechanism

Participants – who can access the exchange, via enduring membership or as peripatetic trader, and what rules govern means of access.

Order book transparency - visibility of posted orders pre-trade matching to exchange customers on a symmetric or asymmetric basis.<sup>88</sup>

Order matching sequence – whether the mechanism operates fairly to all customers.

On-chain or off-chain Trading Mechanism – where does matching, clearing and settlement occur.

CCP – presence or absence of; where present, assessment of CCP credit risk and method of final settlement.

Involvement of trusted third parties - intermediation, custodian, or direct P2P.

Dispute resolution system.

Abusive practices – whether mechanisms assert market transparency and enable the control of market-abusive practices.

Many of the above issues can be handled equally well by CENEX and DEX. Both can manage rules of membership, or investor on-boarding mechanism/identity verification, possibly by third parties that provide identify verification services for reward.

While order book transparency and order book sequence are simply questions of how the order book is managed/encoded, and capable of being handled equally well in both cryptoexchange models, there are different risks in a CENEX. The

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<sup>87</sup> "Deep Chain Reorganization Detected on Ethereum Classic (ETC)", The Coinbase Blog, 7 January 2019. Available at <https://blog.coinbase.com/ethereum-classic-etc-is-currently-being-51-attacked-33be13ce32de>

<sup>88</sup> I.e. available to all participants at the same time, although traditional stock exchanges have come to accept the validity of dark pool trading, i.e. the order is invisible to the market until it is matched. It is easy to imagine similar opaqueness to be lent to cryptoexchange trading provided appropriate rules are consistently applied.

presence of a controller that may also be undertaking intermediary-like acts presents risks that include client order front running, and execution and allocation anomalies. Where that happens, price transparency and fair treatment of investors suffer. This raises a regulatory question unique to CENEX, namely, how conflicts should be managed and whether a regulated context might require segregation, or possibly unbundling, of services provided by a CENEX.

The different approaches to on-chain and off-chain mechanisms on CENEX and DEX give rise to different considerations.

In CENEX, the exchange controller is generally facilitating the matching of supply and demand off-chain as liquidity provider - trading on-chain is notoriously slow and expensive. There are two important trade-offs for speed and cost reduction. First, to transact investors must transfer fiat currency or digital assets to the CENEX. Because CENEX store the investor's private keys, the investor is exposed to counterparty risks including credit, theft or fraud, hacking, and uncertainty as to the capacity in which the exchange controller is acting in relation to trades (i.e. exchange-like versus intermediary-like). Second, questions arise as to what is being traded and owned, with whom one is trading, and what additional risks are created.<sup>89</sup>

In contrast, DEX have traditionally been modelled on the concept of on-chain trading that allows investors to take custody of their own digital assets because matched transactions can be securely settled directly between seller and buyer on-chain. While no counterparty risks arise (because no CCP or trusted third party such as a custodian is required), on-chain trading means reduced transaction efficiency. This aspect of DEX is starting to evolve as Layer 2 solutions are developed that resolve one or more efficiency issues.<sup>90</sup> In a typical Layer 2 solution order input and matching is undertaken off-chain and transactions are only recorded on the underlying blockchain upon the trader exiting the Layer 2 hub to settle. For example, the testnet recently launched by OAX asserts transaction throughput of 1,000 transactions per second on a single node.<sup>91</sup>

As regards abusive practices, this includes identifying and controlling the risks of dealing market abuse (for example, manipulative practices as regards price or unfairly dealing with an information advantage) and information market abuse (for example, publishing false or misleading information).<sup>92</sup> For the reasons already discussed above, the element of human decision making involved may mean that DEX are in a more difficult position to respond to these regulatory expectations as compared to CENEX. The case of Coinbase's decision in January 2019 to pause transactions with the ETC blockchain has already been noted above.

Different cryptoexchange models thus give rise to regulatory concerns that are essentially the same as those seen in traditional markets, albeit with different characteristics as to how they may be managed and different regulatory challenges as to how accountability may be established. In addition, the evolution

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<sup>89</sup> For example, is the CENEX controller acting as exchange facilitator or proprietary trader, is the off-chain trade subsequently settled on-chain for the client account or is the CENEX acting as a derivatives exchange selling contracts for differences that are only settled in digital assets when the investor withdraws - if so, the investor assumes that the exchange holds sufficient assets to satisfy withdrawals.

<sup>90</sup> For examples, see <https://github.com/Awesome-Layer-2/awesome-layer-2>

<sup>91</sup> <https://cryptobriefing.com/oax-dex-mass-adoption/>

<sup>92</sup> Some of these forms of market abuse do not currently apply to digital assets that are not securities, as discussed further in Section 4.3 below.



of third party intermediary-like services<sup>93</sup> may also appear alongside CENEX or DEX and create risks traditionally associated with intermediaries such as management of conflicts and order execution. The additional regulatory considerations these give rise to are discussed in Section 5 below.

### **4.3 What might regulation attach to?**

#### CENEX

As already noted, the structural similarities of CENEX to traditional exchanges provide regulators with a certain level of comfort as to how regulatory oversight of CENEX might operate. There is a centralized operator responsible for the operations of the cryptoexchange that can be licensed, subjected to regulatory requirements, inspected, and disciplined. Ultimately, a licence given to a CENEX can be withdrawn for non-compliance, which will have commercial consequences for the cryptoexchange if its business model assumes a regulated status.<sup>94</sup>

#### DEX

In contrast, various features of DEX give rise to two questions as regards whether DEX are regulatable.

First, is it right to regard a DEX as an exchange that should be subjected to regulatory oversight?

This question misses the point discussed above that cryptoexchanges should be understood in terms of their function not their form. As discussed in Section 3 above, the generally accepted definition of an exchange turns on the presence of a Trading Mechanism - in the case of a DEX, the mechanism resides in the operation of the underlying code embodying a set of operational rules.

Accordingly, it is suggested that DEX can in principle be regulated on the basis they perform the same functions as any other exchange and, as discussed in Section 4.2 above, are subject to a similar range of issues as CENEX, other than counterparty risk.

This appears to be the approach the SEC has taken in relation to its enforcement action in relation to EtherDelta, a DEX, because the SEC considered EtherDelta satisfied the functional test for an exchange set out in the Securities Exchange Act of 1934.<sup>95</sup>

The characterization of DEX as anything other than an exchange is a product of the current development of DEX, which are generally in a much earlier stage of development and involve a significantly smaller market size as compared to CENEX.<sup>96</sup> As DEX evolve and grow, and the development of a more settled model emerges, the perception of DEX is also likely to develop.

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<sup>93</sup> Such as market making, contract counterparty, broking, dealing, transaction execution, advisory, research, portfolio management and custody.

<sup>94</sup> For example, withdrawal of licensing may impact on the types of customers willing to transact via that CENEX or potentially the ability for the CENEX to operate in that particular jurisdiction.

<sup>95</sup> Rule 3b-16(a). Securities Exchange Act Of 1934 Release No. 84553 / November 8, 2018 Administrative Proceeding File No. 3-18888.

<sup>96</sup> As already noted above, the greater urgency to regulate CENEX arises out of the higher risk associated with their holding of client assets.

Second, to what should regulation attach? This is the more difficult question and, at first blush, more intractable to answer satisfactorily.

Where a DEX becomes functional and fully distributed, *locus* may be difficult to establish. As discussed in Section 3.2 above, although Nasdaq was in its early days regarded as an electronic OTC market, *locus* was established because its operation required the continuing involvement of NASD members. The EtherDelta case demonstrates the relevance of accountability and *locus* - the enforcement action taken was against its developer and only in relation to the period during which the developer was in sole control of the website that hosted the order book;<sup>97</sup> EtherDelta continues to operate.<sup>98</sup>

Precursors to granting a DEX the validation of regulatory oversight as an exchange may be established in the same way as done in traditional exchanges (and CENEX), namely, by reference to standards that facilitate regulatory objectives. For example, by demonstrating that the DEX's underlying code complies with specified operational rules regarding how the Trading Mechanism works, how and when prices are published, and so on.

The regulatory validation of a DEX's Trading Mechanism via licensing and the subsequent oversight of its operations is not *per se* dependent on locus - these are after all merely functions. However, the difficult issues for regulatory agencies are wrapped up in establishing (1) responsibility, and (2) accountability, as follows.

As regards (1), how to establish responsibility for responding to regulatory enquiries and procuring ongoing compliance with regulatory requirements that may change over time? On the premise that a DEX's Trading Mechanism satisfies the relevant regulatory requirement at the outset, responsibility potentially could be managed in the same way that any other CCTech works, namely, via a consensus mechanism. In other words, responsibility mechanisms could be collapsed into the operation of the underlying code. For example, where changes to the underlying code became necessary to procure continued compliance with regulatory requirements, this could be achieved via majority consent, or by prior agreement that certain members have the requisite authority. The regulator may have specific requirements, such as the identification of an approved person, in which case this would need to be built in to the DEX's underlying code and could only be changed with the requisite consensus, and approval of the regulator.

As regards (2), accountability is problematic where a DEX's Trading Mechanism has no central component because it is unclear how to bring accountability to one or more actors in relation to regulatory non-compliance. Unlike the case with responsibility, it is not possible to entirely collapse this into the operation of the code - effective regulatory oversight of an exchange's operations ultimately requires a legal person to be held accountable to the imposition of sanctions where relevant requirements are not met. Potential approaches to this problem include the following.

First, to the extent the DEX may not be fully decentralized (such was the case in the SEC's enforcement action against EtherDelta already discussed above), there remains a central point of potential enforcement, albeit constrained by the nature of the role played by the central actor.

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<sup>97</sup> I.e., the date from which the developer established EtherDelta to the date on which he sold it (12 July 2016 to 15 December 15 2017).

<sup>98</sup> To the knowledge of the author the SEC has not commenced any action against any other party in relation to EtherDelta.

Alternatively, while a DEX may ostensibly be fully decentralized, it may nevertheless be possible to identify a person with enough authority or influence over the underlying code, whether *de facto* or *de jure*, to establish sufficient grounds for accountability – analogous to the concept of a shadow director.<sup>99</sup> Developers frequently continue to exert considerable influence over a deployed DEX, whether because of their unique understanding of the code, because of reputational issues, or because they maintain a reserve of membership tokens<sup>100</sup> that provide them with an ongoing economic interest. For example, while a DEX might be fully distributed, such incentives might nevertheless lead to a developer continuing to promote the DEX.

This consideration leads to a third, more regulatory-proactive means of approaching the problem. One can consider the regulated market place in terms of a “controlled environment”,<sup>101</sup> which can be described as an arena the entry to which requires acceptance of the rules of the arena and putting into escrow rights that are able to be actioned where the rules have been breached.<sup>102</sup> This would need to go beyond the ability of the regulatory agency to withdraw regulatory approval and would require rights of a private nature to be subjected, i.e. escrowed, to the rules of the arena. A potential target for this is membership tokens. For example, if a regulatory agency required as a condition to approval and oversight such benefits being escrowed,<sup>103</sup> this would serve to drive the development of DEX toward increasingly regulatable models. It would also give rise to new design considerations.

One rationale for regulators to move in this direction is based in economic theories of law that liability should be imposed on the most efficient risk-bearer.<sup>104</sup> Regulatory accountability rules may prescribe the party that bears the economic risk and social cost of non-compliance,<sup>105</sup> and require an appropriate undertaking cum escrow to be provided by the relevant person as a condition to licensing. On this analysis, the design of membership tokens and the decision to acquire membership tokens would need to weigh the associated compliance and accountability costs.

Developers are in the best position to manage relevant regulatory concerns on a prospective basis in the design of the DEX, and may remain so post-deployment. However, the efficacy of accountability on this basis turns on two related considerations. First, those with sufficient economic interest would only voluntarily proffer accountability if the cost of being regulated is outweighed by the benefits, and subject to the condition that they remain in a position of effective control. The potential evolution of ownership and influence over time would necessitate the continued appointment of one or more persons, sufficiently empowered and with sufficient economic interest, to bear the burden of

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<sup>99</sup> A shadow director is a person (other than a professional adviser) in accordance with whose directions or instructions others are accustomed to act.

<sup>100</sup> The development of a DEX will typically be funded by the issue of membership tokens that give its holder access to better trading terms, typically cheaper and/or faster trading.

<sup>101</sup> Butler W. Lampson, “A Note on the Confinement Problem”, *Communications of the ACM*, 16(10):613-615, 1973.

<sup>102</sup> Mark S. Miller, “Robust Composition: Towards a Unified Approach to Access Control and Concurrency Control”, May 2006, page 102. Available at <http://erights.org/talks/thesis/markm-thesis.pdf>

<sup>103</sup> The escrow could be achieved via third party arrangements and/or via mechanisms in the underlying DEX code.

<sup>104</sup> Nicholas L. Georgakopoulos, “Principles and Methods of Law and Economics: Enhancing Normative Analysis”, Cambridge University Press, 2005.

<sup>105</sup> Satish Kumar Jain, “*Economic Analysis of Liability Rules*”, New York: Springer, 2015.

accountability. Second, given that the underlying code is open source software, if the community of users of the DEX diverged from upgrades proposed by the developer, it would no longer make any regulatory sense to hold the developer accountable, and it would leave the regulator with an insufficient focus for establishing accountability elsewhere – regulatory effectiveness suffers where liability/accountability is spread broadly. In this scenario the regulator is left with a singular option of withdrawing its regulatory approval.<sup>106</sup> And indeed there might be no public policy justification to regulate a DEX if it is essentially limited to private law rights that together do not give rise to risks to the public capital market.

Nevertheless, there remain good arguments that regulators should consider exploring such a proactive approach. In the absence of an existing law or regulation being applicable, it is essentially a commercially-driven, voluntary scheme. As such, this is an example of "attraction regulation"<sup>107</sup> that hinges on an "if-then" trade-off: if one has sufficient economic interest in being regulated, then one can ensure possession of sufficient control/influence and submit to regulatory oversight and accountability.

This approach might also resonate with DEX that are in search of a clear jurisdictional connection. If one considers the situation with DAO, the lack of clarity as to their legal standing (such as in relation to securities, corporate and partnership laws) has led to jurisdictional arbitrage as blockchain projects seek to anchor themselves in a jurisdiction that provides the requisite certainty. Similarly, the certainty provided by establishing a clear regulatory nexus for a DEX may foster confidence in regulatory safeguards, and promote investor confidence in the DEX.

Attraction regulation framed in the manner described above will lead to a very jurisdictionally specific result. While some in the crypto community may regard this as being at odds with certain socio-political views of the crypto industry, it should be noted that there is nothing mandatory about it. As per the above arena analogy, the regulatory arena operates on the basis of requisite building blocks for regulation to be meaningful, of which accountability is one. Participants not interested in traditional jurisdictional boundaries can make their own assessment of whether or not to enter the arena.

Finally, some DEX's may be regulated in a derivative manner by regulatory agencies imposing on regulated entities (e.g. a licensed CENEX or other intermediaries) selection criteria in respect of any DEX they wish to utilize.<sup>108</sup>

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<sup>106</sup> At first blush this may seem unsatisfactory from a policy point of view because investors deciding to participate in the DEX as a result of the regulatory safeguards may be abandoned if the community subsequently decides regulatory oversight is no longer required and the regulator withdraws its approval. However, this is less of a problem when one considers that investors trading on DEX remain in control of their digital assets, are not exposed to counterparty risks, and are at liberty to shift their trading activity to another cryptoexchange operating in compliance with applicable regulations.

<sup>107</sup> Johnstone, *op. cit.* (footnote 17), Section 5.3. Available at SSRN <https://ssrn.com/abstract=3264556>

<sup>108</sup> This is a common strategy in the traditional financial markets, particularly with, for example, offshore services or asset managers choosing custodial services. It can also be compared with what is done in relation to offshore funds that are approved for distribution in a jurisdiction. The regulator must be satisfied that the operations of the fund are consistent with its regulatory standards, and that there is a local person that can be served with legal process.

### Traders using cryptoexchanges

Accountability of users of a CENEX or DEX can be established in the same way as it is in traditional markets in relation to persons who abuse the market via dealing activities (such as manipulative practices or unfairly dealing with an information advantage) or false information – provided their acts are undertaken in relation to products that fall within an applicable regulatory framework. For example, the powers of the CFTC in relation to manipulative and deceptive devices are only defined by the act and the product, and as such is not limited to acts undertaken on regulated markets.<sup>109</sup> This suggests that market-abusive practices could still be made subject to liability even if a CENEX or DEX continued to operate on a non-licensed basis.

An important shortfall in regulation is that various market abuse laws are premised on the affected asset being listed securities, commodities or futures product. For example, although laws addressing unfair dealing with an information advantage are not applicable to a digital asset that is not regarded as a security, it is nevertheless possible that an insider on a blockchain project can take advantage of non-public price sensitive information. For example, suppose a person at the Ethereum Foundation became aware of a critical problem in the Ethereum code likely to impact on its continued development (or alternatively a significant use-case breakthrough), or staff at Bitfinex or Tether had knowledge of a legal suit<sup>110</sup> ahead of public disclosure of the same – while events such as these are likely to have a bearing on the price of related digital assets once made public, trading ahead of a public announcement would not be covered by insider dealing laws if the digital asset is not regarded as a security.

While a complete reckoning of secondary market regulation would need to take such issues into account that is outside the present scope of this paper.

## **5. INTERMEDIATION**

The considerable amount of attention that has been given to what regulatory silos to fit digital assets into has started to give way to more detailed consideration being given to secondary market activity. This has initially focused on cryptoexchanges, which was the subject of Section 4.

In the interim, other pressures on the regulation of the secondary market are emerging as a result of the evolution of intermediary services in response to the development of cryptoexchanges. This includes services that emerge specifically in relation to digital assets and cryptoexchange activity (“cryptointermediaries”), as well as intermediaries in the traditional securities and futures markets (“traditional intermediaries”) to which investors are increasingly looking to obtain the services they are accustomed to receive.

This Section 5 considers the role of intermediaries, which is likely to expand more rapidly as cryptoexchanges become subject to regulatory oversight. However, how intermediary services might interact with oversight mechanisms is an area that has received relatively little attention to date.

This is unfortunate as the involvement of intermediaries may go some way to addressing the problem of establishing *locus* discussed above because these services are currently expected to be undertaken on a centralized basis. The development of intermediation can therefore be seen as helpful in progressing the

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<sup>109</sup> 17 C.F.R. § 180.1(a) (2017).

<sup>110</sup> Such as the one discussed at footnote 27 above.

ability to implement meaningful regulatory oversight of various components of the market in digital assets.

A central problem is that while regulatory concepts applied in the traditional market are equally applicable in the market for digital assets, the characteristics of digital assets present difficulties. This has been described as the regulatory building blocks problem,<sup>111</sup> and is discussed in Section 5.2 below.

The considerations in this Section 5 concerning cryptointermediaries apply equally to cryptoexchanges when they are undertaking intermediary-like acts. As such, this brings with it the usual set of prudential and conduct regulatory concerns depending on the particular role performed, for example, in relation to financial stability, client onboarding, suitability, custody, best execution, management of conflicts, and reports and record keeping.

## **5.1 Different types of intermediary involvement**

### Cryptointermediation

Cryptoexchanges currently operate on the basis that the investor deals directly with the exchange without the involvement of cryptointermediaries. Investor needs are expected to create demand for a range of usual intermediary services, such as advisory, trade execution, portfolio management, and custody in relation to both CENEX and DEX. In the case of CENEX, this may be motivated by a desire for investors to see some of these services segregated from the controller of the cryptoexchange in view of the conflicts of interest that exist. The segregation of such services may also occur in response to regulatory requirements. In the case of trading on DEX, there may be heavier technical demands on the investor that promotes execution services.

To this might be added custodial functions that sit alongside and connect into the cryptoexchange. An investor may prefer to deal with a CENEX where custody of assets is held or controlled independently of the CENEX. An investor trading on a DEX may be less comfortable with taking on the burden of holding their own digital assets and instead assign the task to a custodian that is subject to oversight controls and is accountable, and is able to interact with the DEX the investor wishes to trade on. The involvement of a cryptointermediary undertaking trade execution or portfolio management on behalf of a client may also necessitate a role for a third party custodian.

As cryptointermediaries begin to accompany and possibly subsume some of the services now obtainable through a cryptoexchange, it will be necessary to understand how they can be regulated independently. The assurance provided by regulatory oversight of the intermediary would facilitate investor confidence and industry development. Portfolio management is an obvious candidate and this is an area that is being explored by the SFC.<sup>112</sup>

### Traditional intermediaries

Investors familiar with using traditional intermediaries in established stock and futures markets may seek to use their services in relation to digital assets. This has already started to happen because investors seek the same set of safeguards via conduct rules and related protections from abuse they are accustomed to

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<sup>111</sup> Johnstone, op. cit. (footnote 17), Sections 3.4 & 4.5. Available at SSRN <https://ssrn.com/abstract=3264556>

<sup>112</sup> SFC November Statement, Appendix 1.

from having a relationship with an intermediary subject to regulatory oversight. However, existing regulated intermediaries have generally been unable to assist their clients in relation to digital assets and this is discussed next.

## **5.2 Regulatory building blocks**

### Common issues

From a policy point of view, regulation of either type of intermediary would be problematic if the basic building blocks of regulatory oversight and conduct management were absent.<sup>113</sup> This covers both investor protection and market integrity considerations, and includes the setting of conduct standards and prudential rules. This gives rise to detailed operational and compliance requirements and include:

the need to manage conflicts of interest and to put the interests of clients first;

the need to manage order execution and allocation fairly and in the interests of the client;

the adoption of appropriate account management practices including safeguarding client assets and asset segregation;

the need to enable proof of ownership to public audit standards;

the implementation of operational controls including books and records and risk assessment that safeguard its operations;

the need to undertake appropriate due diligence on clients, counterparties and investment products; and

the need to maintain adequate financial resources.

Many of these requirements have evolved out of principles of fiduciary law. The ability to implement the foregoing building blocks are precursors for effective, granular regulation to develop.

In general, they will also need to be applied to CENEX which, unlike a typical DEX, is in a position that it could take advantage of clients in the same way an intermediary handling client orders and client assets could. It is for this reason that a number of these issues have also been identified in the Virtual Markets Integrity Initiative Report issued by the New York State Attorney General in September 2018 (the "VMII Report").

However, if the CCTech underlying the relevant digital asset does not support the building blocks, it may be difficult or impossible for the intermediary to comply with relevant conduct requirements. For example, the absence of accepted audit standards for digital assets is an issue that accounting regulatory bodies are grappling with. This means that accounts and audits requirements may not be able to be complied with. It also has consequences for prudential requirements because the ability of a digital asset<sup>114</sup> owned by an intermediary (or other financial services provider) to serve a similar range of regulatory functions as

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<sup>113</sup> Johnstone, op. cit. (footnote 17), Sections 3.4 & 4.5. Available at SSRN <https://ssrn.com/abstract=3264556>

<sup>114</sup> Whether or not the digital asset is regarded as a security.

traditional securities, such as being counted toward capital adequacy requirements, remain uncertain. Similarly, standards for the custody of client assets that enable them to be traced (such as in the case of exchange or custodian failure or insolvency) are yet to be established.

Some headway has been made in these regards as a result of customer-driven demands that the provision of custody services be subjected to systems and organization controls ("SOC") reporting in accordance with AICPA<sup>115</sup> standards. In January 2019, Gemini (a CENEX) announced it had obtained from Deloitte a SOC 2 Type 1 report.<sup>116</sup> While this is a significant step forward as regards custodial functions, a Type 1 report only covers the procedures and controls that have been put in place at a particular point in time, as opposed to the effectiveness of operational controls over a period of time which is covered by a Type 2 report.

The absence of developed and accepted standards for regulatory building blocks leaves intermediaries only able to employ best efforts solutions. While that may be adequate to meet customer expectations, it may or may not be sufficient to meet the requirements of a regulatory agency that must have regard to its statutory duties and functions. This difficulty is acknowledged in several places in the SFC's policy statement in November 2018<sup>117</sup> (the "SFC November Statement"), which requires cryptoexchanges and portfolio managers to use best endeavours in relation to issues (such as audit and custody) that are not as yet subject to established standards.

This is a case where progress may be made down two routes. First, through mutual exploration of intermediaries with their customers and regulators to establish what are the best practices under the prevailing conditions. Second, in the longer term, the best solutions are going to come from recognizing that regulatory concerns can be addressed in the development of the digital assets themselves. This is a feature unique to digital assets (as compared to traditional asset classes) because it is built on CCTech that enables a range of rules and tests to be embedded. This idea is returned to in Section 6.3 below.

#### Difficulty for involvement of traditional intermediaries

Intermediation undertaken in relation to established asset classes is already subject to regulatory oversight. As such, the involvement of traditional intermediaries as providers of services in relation to digital assets at first blush offers the opportunity to bring certain activities in respect of digital assets within a well-established regulatory framework that would bring existing and well-established assurances to investors.

If one looks at this from the investor's point of view it offers the opportunity to interact with an intermediary that is already subject to a number of mandated conduct requirements that are otherwise absent or uncertain when dealing with cryptoexchanges. This includes the regulatory building blocks already discussed above and as such brings existing and well-established assurances to bear upon the intermediary's dealing with the customer.

To take a simple example, if an order to buy a cryptocurrency was to be subject to the same conduct requirements as apply to buying a security, then a

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<sup>115</sup> American Institute of Certified Public Accountants.

<sup>116</sup> <https://medium.com/gemini/gemini-completes-soc-2-review-a-worlds-first-for-a-cryptocurrency-exchange-and-custodian-d923790506d0>

<sup>117</sup> "Statement on regulatory framework for virtual asset portfolios managers, fund distributors and trading platform operators", SFC, 1 November 2018.



traditional intermediary would need to obtain execution of the order on the best available terms. This may require it to do due diligence on the operations of the relevant cryptoexchange, avoid conflicts, and it would need to keep proper records. It would also be subject to oversight controls such as supervision and enforcement mechanisms.

However, because the existing financial regulatory framework makes presumptions about the nature of assets being handled by a traditional intermediary, it is difficult for the traditional intermediary to act for a client trading digital assets and remain in compliance with its regulatory obligations. It is required to ensure client assets are promptly and properly accounted for and adequately safeguarded,<sup>118</sup> and to keep records sufficient to account for client assets and enable the tracing of movements of client assets,<sup>119</sup> however, the problems already noted in relation to audit and custody make it presently impossible to comply.

The trend toward issuing security tokens in response to laws governing the capital market does not alter the fundamental problem – this is because a security token remains subject to the same audit and custody problems as does any other digital asset. In short, the nature of a security token is sufficiently different from a security as traditionally understood that existing conduct regulations don't apply in the same way to these two types of securities.

Leveraging off of the existing licensing regime could facilitate the participation of licensed intermediaries in the crypto market and could serve to bring well-established duties and practices to bear on token issuance and secondary trading. It would also assist to resolve the present situation that investors in digital assets are isolated from adequate regulatory safeguards, which is contrary to investor protection policy objectives.

This must be weighed against other policy considerations. In particular, in the absence of adequate comprehensive regulatory development in relation to digital assets there is a risk of significantly blurring the lines currently tightly drawn around the securities industry and possibly promoting further public engagement in acquiring digital assets in the absence of accompanying protective laws and regulations.

To the extent the development of cryptoexchange regulation leads to a regulatory framework being imposed that meets the objectives of regulatory agencies, it is foreseeable that traditional intermediaries could begin to get involved. This may require amendment to the relevant laws and regulations that govern their activities.

#### Involvement of cryptointermediaries

The appearance of cryptointermediaries is problematic because if they are only handling digital assets and do not fall under any umbrella of cryptoexchange regulation, there is no available avenue to directly regulate their standards. To the extent a cryptoexchange is regulated, a cryptointermediary could be indirectly regulated by placing selection criteria on cryptoexchanges. However, this does not assist the development of cryptointermediaries that may be primarily client-facing, for example, providing custodial, trading execution and portfolio management services.

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<sup>118</sup> E.g. as required by the Code of Conduct for Persons Licensed by or Registered with the SFC (General Principle 8 and paragraph 11.1).

<sup>119</sup> s. 3(1)(a), Securities and Futures (Keeping of Records) Rules.

In the absence of legislative action, regulatory agencies may need to look for creative solutions. For example, if one considers the SFC November 2018 proposal (discussed further in Section 6.1 below), would it also be appropriate to use the licensing conditions device as a means of regulating a cryptointermediary, or would that be pushing the envelope of proper use of its administrative powers too far?

## **6. THE ORDERING OF DEVELOPMENT**

As the market in digital assets continues to develop the usual accoutrement of services to investors, regulatory agencies are increasingly challenged to respond.

The discussion has moved beyond the issue of existing regulatory silos and on to the question of how regulators will be able to apply appropriate oversight mechanisms where regulations developed in a pre-CCTech era might not be capable of being applied in the same manner to achieve overarching objectives.

This is a particular problem in the case of digital assets because, even where they are regarded as securities, they possess characteristics that may differ significantly from securities as traditionally understood. Consequently, although services may be developing along traditional pathways because the underlying needs are the same, the particular characteristics of digital assets can give rise to issues that are both familiar in traditional markets as well as novel issues. This necessitates both similar and different kinds of solutions.

### Private and public regulation

The regulated exchanges we see today are a product of evolution in which regulation by private law, itself built on established customs and practices, has given way to public regulation, that is, regulation imposed by a central agency charged with administrative powers.

This reflects a cascade of development that is driven first by the commercial self-interest of the actor and subsequently by externally imposed standards, either by transaction counterparties who are able to control resources desired or needed by the actor, or by industry associations or independent parties acting as certifiers of standards.<sup>120</sup> While such private-based regulation can be effective in developing commercially acceptable market standards, it lacks the ability to exert the enforcement controls able to be exercised by the state with a monopoly on the enactment of binding laws and regulations backed by the legitimate exercise of force. Regulation by the state is the ultimate form of risk management.<sup>121</sup>

There is an important question of ordering to consider in this cascade of development. In a rapidly changing environment – such as with digital assets and cryptoexchanges – policy development considerations suggest that prescriptive regulations may be less effective in fostering development as compared to market-led developments.<sup>122</sup> What has been called emergent coordination, i.e. letting the market explore through trial and error subject to a backstop of state-

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<sup>120</sup> David Levi-Faur, "Regulation and Regulatory Governance", *Jerusalem Papers in Regulation and Governance*, No. 1, 2010.

<sup>121</sup> David A Moss, "When All Else Fails. Government as the Ultimate Risk Manager", Cambridge: Harvard UP, 2002.

<sup>122</sup> Johnstone, op. cit. (footnote 17), Section 5.1. Available at SSRN <https://ssrn.com/abstract=3264556>

imposed disclosure and enforcement, may be more responsive to change as compared to bureaucratic oversight and regulatory diktat.<sup>123</sup>

Regulation typically develops in tandem with industry development, the latter often anticipating the requirements of the former as each edge toward a deeper understanding of the dynamics and constraints of the other. However, there is no “one size fits all” that dictates how a financial market must be organized in order for legitimate public regulatory concerns to be effectively addressed and, having regard to the considerations in Sections 3 to 5 above, this is amply demonstrated in the case of digital assets.

## **6.1 Regulatory responses**

Regulatory responses to cryptoexchanges internationally have varied according to the local regulatory system, and social and political considerations. A common initial concern was to bring cryptoexchanges within an oversight system that procured compliance with AML/CTF laws. Some of these approaches included rules addressing cyber security and the safeguarding of customer funds, such as the NYDFC BitLicence.

As the activities of cryptoexchanges continue to penetrate into the market, attention has been moving beyond AML/CTF considerations to the need for more comprehensive regulatory oversight in a manner similar to the regulation of traditional stock markets. This requires consideration of a wider range of concerns such as those set out in Sections 4 and 5 above.

The integrity of cryptoexchange practices has been brought into sharp focus by the VMII Report. It noted: (1) conflicts of interest between different business lines (for example, acting as exchange, broker-dealer and proprietary trader) and in relation to client trading information that were often not managed well or at all, (2) the absence of satisfactory market surveillance mechanisms (for example, that would identify and stop suspicious trading patterns) in a market context that is highly susceptible to abuse, and (3) the absence of adequate protections for customer assets in the possession of cryptoexchanges (for example, the absence of a consistent and transparent approach to auditing that make it difficult or impossible to ascertain whether customer assets are being held as claimed). To this list can be added a possible new role for a cryptoexchange as a promoter in an IEO.

Most major jurisdictions have been responding to the development of cryptoexchanges by exploring how they fit, or might be fitted into, the existing legal framework.<sup>124</sup> These approaches tend to turn on the question of whether or not securities are being traded on the cryptoexchange – where the answer is in the negative, no regulatory oversight applies. A handful of jurisdictions have introduced new bespoke laws, notably Gibraltar, Malta and Bermuda. In the interim, there has also been some development of self-regulatory organizations (“SROs”) that may serve as a precursor to bringing cryptoexchanges within an oversight regime (e.g. UK’s CryptoUK,<sup>125</sup> Japan’s JVCEA,<sup>126</sup> and GDF<sup>127</sup>), although currently these tend to be formed in terms of high-level principles, as opposed to

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<sup>123</sup> JK Winn, “The Impact of Regulation and Governance on Competition and Innovation in Payment Systems”, SWIFT Institute Grant No. 2015-003 (forthcoming)

<sup>124</sup> This includes the United States, Hong Kong, UK, Japan, Switzerland, Singapore, and Malaysia.

<sup>125</sup> <https://www.cryptocurrenciesuk.info/about/>

<sup>126</sup> Japanese Virtual Currency Exchange Association.

<sup>127</sup> Global Digital Finance, “Principles for token trading platforms” (undated), available at <https://www.gdf.io/gdfcode/>

more granular operating requirements. Certainly, in the traditional markets the promotion of self-regulation subject to regulatory oversight has been effective.<sup>128</sup>

A few jurisdictions have been exploring how to extend oversight while at the same time making use of the existing legal and regulatory infrastructure. In January 2019 Malaysia took the approach of simply defining all digital assets as securities to bring them under regulatory oversight.<sup>129</sup> It is not yet known how the SC<sup>130</sup> will approach the regulatory building blocks problem - it was only after the NYDFC introduced the BitLicence that it was realised certain requirements regarding financial statements and audit reports could not be met, leading to a relaxation of requirements in favour of a direction to try and get a SOC report. Japan's FSA has been considering to treat cryptocurrencies as a financial product, which would bring it under the Financial Instruments and Exchange Act and provide stronger protections to investors. The SFC has proposed a sandbox approach, which is discussed next.

#### A novel approach

A somewhat unique solution to the problem was proposed in the SFC November Statement. The SFC could within the scope of its statutory powers license cryptoexchanges if, among the digital assets traded by the cryptoexchange, there is at least one that is regarded as a security - this proviso is necessary for the SFC to establish jurisdiction.<sup>131</sup> The SFC would exercise its power to impose conditions on licences as a means of imposing on the cryptoexchange operational requirements that would cover all digital assets traded, not only securities. The relevance of the shift from ICOs to STOs should not go unnoticed in this regard.

Under this approach, the SFC has invited cryptoexchanges to voluntarily apply to enter a sandbox in which extensive oversight of its operations is given to the SFC. This is essentially an exploratory information sharing that recognizes the difficulty of applying the existing body of regulations developed in a pre-CCTech to the activities of cryptoexchanges.

While there is some lack of clarity as to how the necessary regulatory building blocks might be established, if successful, it would serve the twin purposes of facilitating the development of meaningful exchange standards and bring licensed cryptoexchanges within the scope of regulatory oversight.

The SFC's proposal is highly laudable in an admittedly difficult legal environment. It recognizes (1) the risk of continuing to leave cryptoexchanges in a zero-oversight regime, (2) that the form of CENEX are similar to traditional exchanges and give rise to a broadly similar set of problems solvable by familiar methods, and (3) that the pathway to establishing oversight requires detailed cooperation with the industry.

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<sup>128</sup> For example, broker-dealers in the United States must be a member of FINRA. In the United States and Hong Kong, the stock exchanges are largely self-regulated subject to the oversight of the SEC and SFC respectively.

<sup>129</sup> Per the Capital Markets and Services (Prescription of Securities) (Digital Currency and Digital Token) Order 2019. See also the press release of the Securities Commission Malaysia, "SC to regulate offering and trading of digital assets", 14 January, 2019, available at <https://www.sc.com.my/news/media-releases-and-announcements/sc-to-regulate-offering-and-trading-of-digital-assets>

<sup>130</sup> Securities Commission Malaysia.

<sup>131</sup> SFC November Statement, Appendix 2.

The proposed approach is thus essentially a partnership between industry participants and the industry regulator based on a shared goal of addressing risk and efficiency via agreed standards and practices.

In the end result, the intention is that cryptoexchanges licensed by the SFC will benefit from the status gained by regulatory oversight, providing a level of assurance to investors that the exchange is adhering to higher standards and practices, and is subject to oversight that is backed by the enforcement powers of the SFC.

There are a number of difficult issues that remain outstanding for that approach to work. Commercially, the problem is finding a way to allow cryptoexchanges to conduct business as usual while also satisfying core regulatory needs. Structurally, while it facilitates the potential regulation of CENEX it is less clear whether a DEX with elements of centralization could be admitted to the sandbox. A consequence of this is commercial advantage to the former over the latter because an equally valid DEX would not be able to obtain the stamp of regulatory approval. This is despite, as discussed in Section 4.2 above, the similarity of functions and risks in CENEX and DEX. At the present point in time this is defensible on the basis that DEX are smaller and do not present the same counterparty risk issues as CENEX. However, that position may need to be reviewed as DEX are further developed.

Ideally, the SFC's sandbox should not be regarded as a proxy for selectively advancing one cryptoexchange model over another but as a starting point, potentially acting as a pioneer for regulating a variety of cryptotexchange models, including DEX, on the basis of functions and risks common to any cryptoexchange model.

The proposed approach appears to work legally.<sup>132</sup> However, the substance of the SFC's proposal is not primarily to regulate securities activities but to regulate cryptoexchange activities in manner similar to ATS in the securities context. Accordingly, the use of licensing conditions attached to a securities license that in reality serves as a thinly veiled device to expand the jurisdictional reach of the SFC to activities that are not themselves regulated by the SFO may be open to question. While this gives rise to sustainability issues, it is an example of a regulatory agency dealing with the hand they've been dealt as best they can, and it could be an early step that facilitates later legislative development. In some markets, practical stopgap solutions implemented by regulatory agencies with the implicit consent of the industry have in the past led to successful legislative development.

## **6.2 The Goalie's Anxiety at the Penalty Kick**

Should he dive to one side, and if he does will the kicker aim for the other?<sup>133</sup>

Regulatory agencies frequently face difficult choices. No regulatory agency wants to have a cryptoexchange failure happen in its jurisdiction. The argument that the cryptoexchange may fall outside its statutorily defined jurisdiction is becoming socially less tenable. Digital assets and cryptoexchanges continue to penetrate the marketplace despite concerns about cryptoexchange standards and practices.

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<sup>132</sup> Power has been given to the SFC to license activities deemed by statute as falling within its regulatory ambit and in that regard the SFC can impose "such reasonable conditions" as it considers fit (s. 116(6) SFO).

<sup>133</sup> Peter Handke, "The Goalie's Anxiety at the Penalty Kick", translated by Michael Roloff, Farrar Straus & Giroux, 1972, ISBN 0-374-16376-6.

After another cryptoexchange failure one hears the question: what was the regulator doing? Equally, many jurisdictions do not want to miss out on the possibility of becoming a hub for an industry that could become significant in size and influence.

In the absence of installing effective oversight, there is a risk that an exchange failure may damage the reputation of that jurisdiction as a well-regulated venue for industry development. Alternatively, regulating cryptoexchanges can lead to industry validation that propels more investment in digital assets despite the conceptual uncertainties about the asset class, their valuation, and their relationship with a digital ecosystem that is yet to be properly formed. However, regulation could also cause the industry to go where they can't be supervised – the latter is a particular concern as regards cryptoexchanges being used to service the needs of criminal activity. This is a concern of FATF.<sup>134</sup>

How regulatory oversight is established in practice will have direct consequences on the development of different exchange models and the decision of investors choosing to participate in one model as compared to another.

It is important that public regulation is not prematurely imposed on innovative new ways of developing commercial activity in a manner that may inhibit the ability of private market regulation to develop effective outcomes that align with public policy.

While there is a powerful argument for bringing oversight to the cryptoexchange industry, there is an equally powerful argument that at this stage of industry development it should remain minimal and focussed on risks essential to address. To do otherwise may create barriers to innovation that do not serve the overarching social and economic objective of facilitating the development of commercial and financial possibilities.

It should be focussed on functions and establishing accountability for wrongdoing. The development of functionally focussed regulation will need to countenance how different acts undertaken by the same person can be best managed. For example, how the operator of a Trading Mechanism that also acts as an intermediary and a promoter can adequately manage the inherent conflicts.<sup>135</sup>

Accordingly, regulation should be model-neutral and form-independent – as discussed above, tags such as centralized and decentralized provide less information value than a consideration of function, although form may guide what regulation can in practice be easily attached to.

If oversight extends beyond minimally necessary regulation, or is applied in a model-specific manner, this may lead to counterproductive consequences. Development of overall integrity of the market in this asset class could be delayed as cryptoexchange developers and investors may engage in model arbitrage and regulatory arbitrage – only falling within the regulatory net where it suits their purpose. This might not lead to the development of the most optimal and forward looking models of commercial and financial activity but could cause industry development to cycle back toward extant models (i.e. pre-CCTech era) in

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<sup>134</sup> Financial Action Task Force. See “regulation of virtual assets”, FATF, 19 October 2018. Available at <https://www.fatf-gafi.org/publications/fatfrecommendations/documents/regulation-virtual-assets.html>

<sup>135</sup> In principle this seems not dissimilar to the issues surrounding multi-service investment banks that may provide ATS and custodial services while also undertaking proprietary trading activities.

regulated jurisdictions or, in unregulated jurisdictions, to continue pursuing self-interested profit making motives via standards and practices that would be regarded as abusive in a well regulated marketplace.

### Sustainability

An important litmus test for any regulatory development is the degree to which it is sustainable and flexible as the industry develops. Models of commercial activity in digital assets are changing rapidly. These encompass the features of the design of digital assets, how they access the primary capital market, the investment products that they might give rise to, and the services that might evolve in relation to them.

An important issue in this regard is the extent to which traditional industry structures continue to be reflected in the market for digital assets, which are largely centralized, or whether the opportunities for decentralization presented by CCTech begin to form new commercial solutions to old commercial problems.

Consequently, the implementation of legislation too early in the cycle of industry development may be heading down the wrong path and/or later result in partial obsolescence. Simply applying the existing legal framework is fraught with the risk of not encouraging industry development along desirable pathways. The approach taken in Hong Kong demonstrates that, at the present point in time, there is no need for dramatic and wholesale changes to legal systems. While it is flexible in the face of a changing industry landscape, and encourages industry-regulator dialogue to find workable solutions, it is unlikely to be the best long-term solution.

Regulatory agencies are yet to fully respond to the nature of CCTech as a borderless technology that presents a fundamental oversight problem – persons wishing to avoid oversight can. The development of appropriate regulatory oversight will drive industry development but it must be made desirable if it is to capture the largest slice of activity – any expectation that it will capture all activity is misguided.<sup>136</sup>

### **6.3 Are we looking at the whole picture?**

The unique property of digital assets as a designed asset embodied in computer code offers a different way of thinking about how regulatory oversight of the market might be implemented.

It is suggested that to fully utilize the potential advantages of CCTech it is necessary to cease looking at the regulation of exchange systems and intermediary conduct in isolation from the digital asset being transacted - some of the present hurdles to enabling the development of a regulated secondary market may need to be resolved through the technology itself. There is a clear prospect for a more fundamental interaction between the secondary market and the asset design process that could better service regulatory objectives on a sustainable basis. For example, by embedding within the digital asset functionalities that could facilitate the asset interacting directly with the regulatory requirements applying to the cryptoexchange or intermediary handling it.

Such interactivity could enable a variety of issues to be better effectuated, from manipulative practices to conduct regulation – if one needs an analogy, a digital

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<sup>136</sup> Johnstone, op. cit. (footnote 17), Section 5.3. Available at SSRN <https://ssrn.com/abstract=3264556>

asset sought to be transacted in breach of some requirement or abusively might behave similarly to the self-driving car that refuses to move forward if an object lies in its path.

The prospect of far more complex regulatory requirements being built into not only cryptoexchanges and the services that surround them but also the digital assets themselves is a real possibility, albeit difficult and in its nascent stages. While technologists recognize such possibilities, commercial realities make it not worthwhile – why embed such assurances when one’s competitors are not? And why do so when regulators might not provide any competitive advantage for doing so?

An opportunity for stimulating development of the relevant functionalities would be created if regulatory benefits were extended to compliant digital assets traded on licensed cryptoexchanges. Clear guidelines based on regulatory objectives that have been well established in the traditional markets would need to be set. The extension of benefits would make sense because the presence of secure regulatory building blocks would serve to de-risk the activity.

While regulation is too often perceived as burdensome, in significant ways the prospect of regulatory validation can operate as a competitive advantage. This could serve to commercially motivate technologists to find better ways of facilitating digital technologies to meet the relevant requirements. Driving the industry to develop the relevant regulatory building blocks would be transformative as regards the prospect for regulatory oversight and would be an example of attraction regulation.<sup>137</sup>

This is not going to happen anytime soon because, amongst other things, it requires massive interconnectivity between the functions sought to be applied to the digital asset and market infrastructure. The FCA has been actively exploring the use of technology to improve regulatory reporting requirements, including the development of machine-readable regulations. This has been shown to be technologically feasible.<sup>138</sup> While the FCA’s initiative is largely in response to the difficulty of keeping up with the growing body of regulations,<sup>139</sup> it presents a significant learning opportunity for the deeper kind of asset-intermediary interaction proposed above.

*Syren Johnstone  
Hong Kong, 26 April 2019*

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<sup>137</sup> Johnstone, op. cit. (footnote 17), Section 5.3. Available at SSRN <https://ssrn.com/abstract=3264556>

<sup>138</sup> See: “Call for input: using technology to achieve smarter regulatory reporting”, FCA, February 2018; “Digital regulatory reporting pilot terms of reference”, FCA, June 2018.

<sup>139</sup> For example, MiFID II comprises around 1.5 million paragraphs spread over 30,000 pages of regulation.