

Industry Self-Regulation of Cryptocurrency Exchanges

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Abstract

Volatility of crypto currency values, and fears of illegal use, have led to calls for government regulation of the industry. However, it is not clear that third-party governments, more used to regulating fiat currencies, are best-placed to undertake this activity. Drawing from the literature on early self-regulation of share markets in the 18th century and the management of bank-issued currencies in the 19th and 20th centuries, a case exists for self-regulation of crypto currency exchanges. Self-governance tools include internal rules applied by the market operators and the disciplines exerted by those choosing (voluntarily) to trade on them. This draws on the Ostrom legacy the economics of club goods for governing the commons. In this case, the club goods are the rights to use a shared platform and set of rules to transfer value between different crypto currencies, and between fiat and crypto currencies.

We examine the rules associated with embryonic self-regulated clubs of crypto currency exchanges such as the Virtual Commodity Association (VCA) and compare them with the effectiveness of regulatory rules established by governments seeking to use their formal powers of regulation to govern crypto exchanges. We ask whether self-regulatory clubs will be more effective at finding innovative new ways to constrain opportunistic behaviour than third-party rivals.

Keywords

Blockchain, distributed ledger, smart contracts, polycentric governance, club governance, distributed consensus

1 Introduction

Since the launch of the first blockchain-based crypto currency Bitcoin in 2008 (Nakamoto 2008), the number of similar crypto currencies in circulation has burgeoned. At 10.36 GMT on June 7 2019, Coinmarketcap¹ reported 2224 crypto currencies with a market capitalisation of US\$255,597,020,410. Bitcoin alone accounted for 55.5%. Trades to the value of US\$72,494,091,287 (28% of market capitalisation) had taken place in the preceding 24 hours, albeit dominated by Bitcoin (US\$7979.54). Coinmarketcap tracks the activities of 258 unique exchanges over 18,826 markets (coin-coin or coin-fiat currency pairings), although it is reported in some media that over 500 exchanges exist.²

While the market capitalisation of crypto currencies remains small relative to fiat currencies, the controversy they have caused over recent years is substantial. This is in large part a consequence of their considerable price volatility, especially in the period December 2017 to May 2018 when the price of bitcoin rose to around \$20,000 before falling back to around \$7500

¹<https://coinmarketcap.com/>

²<https://news.bitcoin.com/the-number-of-crypto-currency-exchanges-has-exploded/>

where it remained for the rest of the year (a further fall in November 2018 took the price to around \$3500, where it sat until March 2019, from whence the value has risen steadily to the June 7 price observed here).³

Furthermore, confusion about their status as securities and the degree of anonymity available to holders of the coins which has led to concerns that they are being used to pay for illegal trades and to conceal asset holdings and transaction values from governments and, especially, tax authorities (Richet 2013). Although various governments have pursued potential-money launderers (e.g. US, Spanish and Costa Rican authorities pursued launderers using the Liberty Reserve exchange <https://www.forbes.com/sites/jonmatonis/2013/05/28/u-s-authorities-close-another-digital-currency-exchange/> <https://venturebeat.com/2013/05/26/liberty-reserve-shut-down/>) and have endeavoured to clarify the position of crypto currencies as securities (e.g. the United States Securities and Exchange Commission (SEC) issued regulatory guidelines for coin issuers and holders on 3 April 2019 <https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets>, and is currently suing Kik Interactive Inc in the New York court for alleged breaches of the Securities Act 1933 in what is claimed to be a precedent-defining case <https://www.sec.gov/litigation/complaints/2019/comp-pr2019-87.pdf>), and asserted that coin holders are required to abide by the tax and other laws to which they are subject in the physical world, the widespread perception that crypto currencies operate in an unregulated ‘wild west’ prevails, chilling incentives for using them to transact trades or hold stores of value.

In this paper, we discuss the development and evolution of self-governance for crypto currency exchanges. Drawing on the early examples of share trading (part 3), we postulate how such a regime could develop for crypto currency exchanges and why it is likely to be superior to government regulation (part 4) and then illustrate how such mechanisms are already emerging, using the Virtual Currency Exchange (VCA) as an example (part 5). Part 6 discusses the implications for regulatory policy.

2 Background

Concerns about using crypto currencies for trading have been fuelled by several high-profile collapses of crypto currency exchanges. For example, in February 2014, following a large theft of bitcoin from its hot wallet Mt. Gox (the largest crypto currency exchange at the time) suspended trading, closed its website and exchange service, and filed for bankruptcy protection from creditors.⁴ A similar fate befell lower-profile Cryptopia with a theft of coins in January 2019 leading to bankruptcy in May.⁵ The theft of coins from crypto currency exchanges appears to be a recurring theme (e.g. Coincheck in 2018⁶ and Binance - the largest cryptocurrency exchange by trade volume - in 2019⁷ although not all have led to the exchanges ceasing trading. Coincheck was restructured and sold, and Binance appears to have recovered some of its lost reputation by assuring customers that the lost funds would be “covered in full”.

Unsurprisingly, the controversies associated with crypto currencies and crypto currency exchanges have led to calls for governments to introduce strong regulatory constraints similar to those imposed on central banks, trading banks and securities exchanges. These calls were heeded in Japan in April 2017, when laws were passed requiring crypto currency exchanges to register with the Financial Services Agency (FSA). However, few other countries have followed suit. When the Coincheck theft occurred the FSA was unable to do more (following a hearing) than request the firm improve its security processes because it did not have any rules in place allowing it to deal with the type of attack used by the thieves to steal the coins (the coins were stolen from a “hot wallet” linked to the internet - “cold wallets” stored offline are more secure).⁸ These measures seem to have had little effect on the propensity for thefts of Japanese-registered exchanges to occur, as observed with the recent Binance theft.

The comparative impotence of state regulators in constraining malfeasance is not surprising to scholars of industrial organisation and regulation. When an industry is new, it is very difficult to know what ‘normal’ behaviour is and what risks will arise as the markets for the new products and/or services emerge and evolve over time, even for those who are engaged in trading in them. It is harder still for third parties, such as state agencies, to learn what these behaviours are let alone to know what should or should not be allowed, how to incentivise participants to act appropriately or how to protect parties from harm. The parties best-placed to acquire this information are those engaged in trading - that is, in the case of crypto currency

³<https://coinmarketcap.com/currencies/bitcoin/>

⁴<https://www.theverge.com/2014/4/16/5619636/mt-gox-asks-for-permission-to-liquidate>

⁵<https://www.coindesk.com/collapsed-crypto-exchange-cryptopia-owes-creditors-2-7-million-say-liquidators>

⁶<https://en.wikipedia.org/wiki/Coincheck>

⁷<https://www.cnbc.com/2019/05/08/binance-bitcoin-hack-over-40-million-of-crypto-currency-stolen.html>

⁸<https://www.reuters.com/article/us-japan-crypto-currency/japan-raps-coincheck-orders-broader-checks-after-530-million-crypto-currency-theft-idUSKBN1FI06S>

exchanges the exchange operators themselves and those trading the coins. For this reason, a substantial body of theory has emerged which suggests, in the first instance, those engaged in trading are best-placed to develop rules to govern trading (ref).

This is not to say that there is no regulatory role for states to play - rather, it may be best for states to first support the development of self-governance regimes overseen by market participants. Then, over time as more is learned, decisions can be made about which regulatory aspects are best managed by the state and which are best left to the industry itself to oversee. This approach emerged in the earliest days of trading in shares of limited liability companies, and has evolved today into the sophisticated mix of state and industry-governed arrangements observed in most countries today. Similarly, banking regulations have evolved over time as currency markets have evolved from trading in bank-issued to government-issued currencies.

3 History of securities exchange self-governance

This section draws extensively from McMillan (2002) and Michie (1999). An exchange is a marketplace where securities, commodities, derivatives and other financial instruments are traded. The core function of an exchange is to ensure fair and orderly trading and the efficient dissemination of price information for any securities trading on that exchange. Exchanges give companies, governments, and other groups a platform from which to sell securities to the investing public. fundamental requirement

Since the very origins of trade, institutional mechanisms have facilitated the exchange of commodities or the different currencies used in exchange for them. The profession was surely well-established by the time the synoptic gospels recorded Jesus “overthrew the tables of the money changers, and the seats of them that sold doves” and expelled them from the temple in Jerusalem (Matthew 21: 12). While bilateral exchanges could be conducted between any two parties, the benefits of competition were reinforced by having common and well-known places for buyers and sellers to come together to trade. Hence, in twelfth century Paris the bancs (benches) on the Grand Bridge became the location where the first recorded brokerage of the debts of agricultural communities occurred, providing the origins for modern banks as currency exchanges.

In thirteenth century Bruges, Belgium the inn owned by the Van der Beurze family known as “Huis ter Beurze” became the place where traders and foreign merchants from across Europe, especially the Italian Republics of Genoa, Florence and Venice, came to conduct business with northern European agents. Its managers became famous for offering judicious financial advice to the traders and merchants who frequented the building. Their services came to be known as the “Beurze Purse” (organized place of exchange) and gave rise to modern-day bourses (stock exchanges). While the Lombard bankers were the first to share state claims in Pisa, Genoa, and Florence, in 1409 the phenomenon was institutionalised by the creation of the Exchange Bruges, which was quickly followed by others in Flanders and neighboring countries (Ghent and Amsterdam).

3.1 English origins

In London, the Royal Exchange was founded in the 1560s by merchant Sir Thomas Gresham on the advice of his factor Richard Clough. Officially opened on 23 January 1571 by Queen Elizabeth I who awarded the building its royal title and a licence to sell alcohol and valuable goods, it rapidly became the place in London for the exchange of commodities. The original building was destroyed in the Great Fire of London in 1666, and when rebuilt in 1669 provided a venue for building the modern model of an exchange. While initially housing merchants and merchandise as well as brokers, the rebuilt exchange became the site of the first regulated market when in 1697 Parliament passed an Act that levied heavy penalties, both financial and physical, on those brokering at the Exchange without a licence. It also set a fixed number of brokers (at 100). This limit led to several problems, one of which was that traders began leaving the Royal Exchange, either by their own decision or through expulsion, and started dealing in the streets of London. Further government regulation proved futile in constraining their trading behaviour and a burgeoning competitive market for both trades themselves and governance arrangements for enforcing performance of agreements.

With the growth of European-centred international shipping trade and the creation of the first common stock companies in the seventeenth century (the Dutch East India Company and the British East India Company) came the development of shipping underwriting (insuring cargoes) and the need for a marketplace for the exchange of both shares and shipping insurance contracts. Lloyd’s Coffee House, opened on Tower Street in London in 1686 and relocated to Lombard Street in 1691, popular with sailors, merchants and ship-owners, became a centre for the exchange of shipping news, along with maritime insurance, shipbroking and foreign trade exchanges. Proprietor Edward Lloyd prepared “ships’ lists” for the guidance of the frequenters

of the coffee house, and broadcast maritime auction prices and shipping news from a pulpit especially constructed in the Lombard Street premises.

This was followed by printed newsletters containing the same information. He also took an apartment at the Royal Exchange, where a separate coffee house operated, providing a venue for traders to meet and share information. In 1760 Lloyd's shipping list activities were formalised by its customers into the Registry of Shipping, which ultimately became Lloyd's Register. In 1771, some 79 merchants, underwriters and brokers who had left Lloyd's coffee house to form a new establishment (New Lloyds) decided that their rooms were not really large enough for comfort and agreed to each subscribe £100 to build a new establishment. However, the project came to nothing, and in 1774 they moved into quarters at the Royal Exchange and began to transact business solely as underwriters.

Contemporaneously, Jonathan's Coffee House opened around 1680 in Exchange Alley. In 1698, proprietor Jonathan Miles allowed John Castaing to post the prices of stocks and commodities. Defectors and evicted traders from the Royal Exchange, and new traders soon converged on Jonathan's and it became the location of the first recorded systematic exchange of securities in London. Public auctions during this period were conducted for the duration that a length of tallow candle could burn and became known as "by inch of candle" auctions. Trade volumes grew quickly as commercial activity increased.

However, with regard to contracts settled in the future, a system of control was required to guarantee that sales and purchases would be honoured as they fell due. As Barnard's Act in 1734 had made time bargains illegal (they were interpreted as a form of gambling), market participants were required to formulate and enforce codes of conduct in order to trade. This led to considerable innovation. Speed and trust in settlement were highly valued, and those traders with a good reputation became easier to identify as more trades were undertaken (noting that two different sorts of trader participated: brokers selling and buying on behalf of others (particularly banks) who required quick and reliable settlements to balance their books, and those trading on their own behalf, who could bide their time and trade when the price best suited them).

3.2 The first stock exchange

In 1773 a club of 150 brokers and jobbers was formed to trade stocks in a new and more formalised manner in premises in Sweeting's Alley, initially dubbed the New Jonathan's, but subsequently renamed the Stock Exchange. The Stock Exchange set an entrance fee (6d per day), the payment of which enabled any trader to enter the club's stock room and trade securities. However, trading was not exclusive: competition emerged between different exchanges (including the Royal Exchange and the Rotunda of the Bank of England). Fraud was also rife during these times and market crashes occurred frequently, spurring the competing exchanges to experiment with different rules in order build confidence and attract traders.

International trade flourished and the fledgling stock exchanges also competed with similar institutions on the continent. A reduction in competition and an influx of displaced traders from Europe occurred following the French Revolution in 1789, the occupation of Amsterdam by French troops in 1795, and the disruption of German markets as military activity and turmoil increased. At the same time, an increase in government debt in order to finance military activity and the burgeoning of new common stock companies funding ventures such as canals occurred. New traders, new stocks backed by unknown technologies and general political uncertainty led to significant price volatility, creating new arbitrage opportunities. As stockbroker Bernard Cole observed at the time "inevitably this left the market professionals very exposed as it was difficult to know what trust to place in the new people with whom they were doing business" (cited in Michie 1999).

The committee running the day to day activities of the Stock Exchange was required to take more and more decisions on disputes between members, which diverted them from their own income-earning activities as brokers and jobbers. The solution was to appoint a permanent secretary, paid from higher fees and ultimately an annual subscription. The London Stock Exchange was formally constituted on 3 March 1801, completing the transition from a quasi-open to a closed market trading securities and specifying the rules by which business was to be conducted by both traders and the firms whose stocks were to be traded on it. The annual membership fee was ten guineas, and by February 1802 363 members had been recruited. A committee of members oversaw decision-making but day-to-day operations were carried out by hired staff.

A notable feature of the early exchanges was their origin as loose networks of traders with gradual formalisation into clubs governed by user-determined rules (i.e. self-governance). The rules increasingly reinforced the responsibility of members to each other to guard the reputation of the exchange so as to attract more customers and build up business capitalising upon network effects. As more trading took place, more business could be attracted, but this relied upon both brokers and their clients having trust that agreements would be honoured cost-effectively.

For example, from its outset the Stock Exchange sought to control admission of members, not on the basis of numbers but on

matters of type and character - excluding those deemed untrustworthy due to past actions and evicting rule-breakers. This constrained the exposure of the exchange (and by extension, its membership) to reputational risks, and increased its appeal for new traders and their clients. While initially membership policy was quite liberal, gradually rules developed to manage matters such as conflicts arising amongst members who acted as both securities traders and in other occupations, so as to ensure brokers were not exposed to risks of non-payment due to failures in the members non-broking activities, effectively leading to specialisation in securities, as currency traders could no longer participate.

However, this did not stop merchant bankers such as Nathan Rothschild from engaging an associate to undertake securities trading on his behalf. From 1821, new members were required to be nominated by an existing member, who was required to bear any losses up to 250 pounds incurred by the nominee. In 1832, this was increased to a liability for losses up to 300 pounds, and three members were required to nominate. The Exchange also set rules regarding the behaviour of members towards clients and other members, notably to discourage the poaching of clients. However, considerable pressure to set regulate brokers' charges to clients was resisted by the committee. This ensured brokers were able to use pricing as a means of competing for clients.

Other exchanges - the Royal Exchange, the Rotunda at the Bank of England and various coffee house brokerages - likewise also experimented with different rules, with competition between the institutions being an important means of ascertaining the most effective rules. Over time, the share of the market served by these other exchanges decreased, leaving the London Stock Exchange with a near-monopoly. Endeavours (eventually unsuccessful) were made in 1810 by a group of rivals to capitalise on dissatisfaction with the closed nature of the Exchange by asking Parliament to give its backing to a rival venture.

By and large, the members recognised that in order to gain the confidence of the public in the market, they had to implement rules that led to prices reflecting the forces of supply and demand. To make the exchange attractive to customers, they had to assume responsibility for managing member behavior to build sufficient confidence. As the members themselves were best-situated to assess member behaviour and assess the various risks affecting their collective interests, they were incentivised to act for the collective good, at the same time as recognising they were rivals in attracting clients.

3.3 Governments regulate companies not brokers

To a large degree, due to their stringent standards of self-governance, exchanges such as the London Stock Exchange and its followers such as the New York Stock Exchange (formed just nineteen years later) have avoided explicit government regulation of their activities. The same cannot be said for the companies whose shares they trade.

In England, the early successes of the East India company in part due to its government monopoly over trade to the region led to the creation of other companies such as the South Seas Company (SSC), which raised considerable funds without having carried out any meaningful trade in the area of its government-mandated monopoly region - the Spanish South American colonies (although it had build and equipped lavish offices). The speculative bubble created after the SSC assumed the government's debt in 1717 led to raft of new companies issuing shares, many of which were based on the flimsiest and incredible business cases. In 1720, new company creation was halted by the Bubble Act, which precluded company operation without a Royal Charter. Facing reduced competition, the SSC price rose even further and inevitably, later in 1720, it collapsed when it became obvious that the company was not generating sufficient revenues. Confidence in all share-financed companies plummeted. The London Stock Exchange continued to trade in other securities, but in the United States where no such bans existed, exchanges traded both debt and equity instruments.

The English share trading ban effectively imposed by the Bubble Act remained in force until 1824, when the need for capital to finance companies taking advantage of Industrial Revolution technologies became imperative. Gradual loosening of restrictions allowed individuals to incorporate, and in 1844 the Joint Stock Companies Act introduced a simple registration process and the concept of the company as a separate legal person - a unified entity under which the rights and duties of all investors and managers could be channeled. The Limited Liability Act 1855 allowed investors to limit their liability to the sum invested in the event of corporate failure. These measures were consolidated in the Joint Stock Companies Act 1856, which became the basis for subsequent all Companies Acts. These Acts have successively over time specified matters regarding the financial structure of firms and the responsibilities and of directors to the firm and shareholders, mostly as a consequence of successive financial crises revealing weaknesses in the prevailing regulations. The entry of the UK into the European Union further strengthened controls and standardised rules in the quest to move towards a common market.

In the United States, each state formulated its own laws regarding the creation and trading of securities, with federal law mandating minimum standards for trade in company shares and governance rights. These too have developed over time, in response to new knowledge emerging as different challenges led to new crises emerging. Fuelled initially by English

experience with the SSC, corporations were distrusted, and were tied into debate about interstate exercise of sovereign power. Corporations were only thought to be legitimate in specific industries (such as insurance or banking) that could not be managed efficiently through partnerships. In 1811, New York became the first state to have a simple public registration procedure to start corporations (as distinct from specific permission from the legislature) for manufacturing business. These rules included limited liability for shareholders, and recognition of the status of corporations as legal persons.

Over the 19th century, more and more states allowed free incorporation of businesses with a simple registration procedure. While many firms were small, the dominant trend was towards immense corporate groups where the standard rule was one-share, one-vote. At the end of the 19th century, “trust” systems, where formal ownership had to be used for another person’s benefit, were used to concentrate control into the hands of a few people, leading to the Sherman Antitrust Act of 1890 to break up big business conglomerates, and the Clayton Act of 1914 giving the government power to halt mergers and acquisitions that could damage the public interest. The focus of these measures was on the structure of corporations, in contrast to the UK approach concentrating on the behavior of office-bearers.

In the aftermath of the Wall Street crash in 1929 and the subsequent Great Depression, concerns about the lack of transparency and director accountability led to the Securities Act of 1933 and Securities and Exchange Act of 1934. A new Securities and Exchange Commission (SEC) was empowered to require corporations disclose all material information about their business to the investing public. Following World War 2, as more and more people’s retirement savings were being invested into the stock market, through pension funds, life insurance and mutual funds, vast growth in the asset management industry ensued, with these firms tending to take control of voting rights. The Enron scandal of 2001 led to the Sarbanes-Oxley Act separating auditors from consultancy work in order to address conflicts of interest. The global financial crisis of 2007 led to the Dodd-Frank Act with soft regulation of managerial remuneration and more controls of the derivative markets). However, the basic shape of corporate law in the United States has remained the same since the 1980s.

Thus, in contrast to the proactive governance of share trading markets to manage reputation and increase confidence in trading by active measures to protect shareholders’ and brokers’ interests, government regulation of companies has tended to be reactive.

3.4 Foreign Exchange markets

Building on the base created by traders on the Paris banques and well-connected international traders such as the Medici and Rothschild families, over time a global decentralised or over-the-counter (OTC) market for the trading of currencies has emerged to determine foreign exchange rates. The modern foreign exchange market began forming during the 1970s, following three decades of government restrictions on foreign exchange transactions under the Bretton Woods system of monetary management, which set out the rules for commercial and financial relations among the world’s major industrial states after World War II. Countries gradually switched to floating exchange rates from the previous exchange rate regime, which remained fixed per the Bretton Woods system.

The foreign exchange market includes all aspects of buying, selling and exchanging currencies at current or determined prices. The main participants are the larger international banks. Financial centers around the world function as anchors of trading between a wide range of multiple types of buyers and sellers around the clock, with the exception of weekends. Since currencies are always traded in pairs, the foreign exchange market does not set a currency’s absolute value but rather determines its relative value by setting the market price of one currency if paid for with another. It also supports direct speculation and evaluation relative to the value of currencies and the carry trade speculation, based on the differential interest rate between two currencies.

The foreign exchange market works through financial institutions known as “dealers” who are involved in large quantities of foreign exchange trading. Most foreign exchange dealers are banks, so this behind-the-scenes market is sometimes called the “interbank market” (although a few insurance companies and other kinds of financial firms are involved). Because of sovereignty issues when involving two currencies, foreign exchange has little (if any) supervisory entity regulating its actions. To the extent that rules or conventions have emerged, these are of the nature of the early English securities exchanges, based on reputation and trust between trades, built up over time and repeated interaction.

4 Self-regulation of crypto currency exchanges

Crypto currencies have emerged as a potentially revolutionary new medium of exchange made possible by development of blockchain information technology. Blockchains are the first, and most well-known example of a distributed ledger technology (DLT). The first known commercial use of a blockchain was for the crypto currency Bitcoin, established by a pseudonymous identity within the open-source computer programming community, from which the code underlying distributed ledger (DL) systems was developed and continues to be made available for common use (Nakamoto 2008). A fundamental objective of Bitcoin was to provide a decentralised, de-nationalised and apolitical currency competing with its very antithesis: centralised and politically-influenced national fiat currencies overseen by central banks and intricately interwoven with national political agendas considered by many to be captured by elite interests (Varoufakis and Moe 2018). A further defining feature of Bitcoin was its ability to enable individuals to transact anonymously on the platform, and thereby outside of other centralised, government-controlled regulatory regimes. The anonymity of those creating it served to reinforce the perception that the Bitcoin system was “owned and controlled by no-one” and operated solely to support the interests of those using it.

4.1 Blockchains as corporates; tokens as shares

A particular feature of crypto currencies is their ability to disintermediate trading activities that previously relied upon trust-based central market-making functions that ensured payment promises would be honoured. This is achieved using cryptography and software that ensures crypto currency tokens are very hard to ‘double-spend’, enabling parties to trade directly rather than having to rely on market-makers managing exchange risks by acting as buyers to all sellers and sellers to all buyers. For example, using a crypto currency and the associated technology of smart contracts supported by the blockchain, trades can be made across international borders without the purchaser and vendor having to utilise the services of foreign exchange brokers and banks to guarantee that funds in the purchaser’s currency can be converted to the vendor’s currency to complete the payment terms. Rather, the purchaser effectively lodges the sum (in crypto currency) in an escrow account from which it is paid to the vendor when specific criteria (such as acknowledgement of receipt of the goods) have been met (Gans 2019).

However, in order to transact in a crypto currency, both the purchaser and the vendor must operate ‘wallets’ (accounts) to which links to the record on the blockchain recording the transfer of ownership of the relevant crypto currency tokens can be lodged (Howell and Potgieter 2019). Furthermore, the vendor must have acquired ownership rights to some tokens in the first place. This necessarily requires their purchase at some stage using another currency (e.g. a fiat currency). Likewise, the vendor may wish to convert the crypto currency tokens into another currency. Inevitably, these trades must be undertaken using a centralised market-making exchange performing the role of a foreign exchange broker.

Two separate but related questions to be addressed by the traders are: which (crypto) currency should be used to conduct the trade; and which brokers (crypto currency exchanges) to use to acquire or convert tokens? While the issues are distinct, in the uncertainties abounding as a consequence of new technological development the two matters have become commingled into a single general concern about the trustworthiness of crypto currencies generally which threatens the potential for them to be used in ways that lead to more efficient trading.

In a simple case, crypto currency blockchains can be considered analogous to corporations, with their tokens being the equivalent of shares. In this conception, tokens are stores of value. The price traders are prepared to pay for them reflects the confidence of the market in their ability to increase or decrease in value relative to independent benchmarks. Value is influenced by the business (‘industry’) in which the blockchain is utilised and the effectiveness of its governance arrangements (Howell and Potgieter 2019).

Some blockchains (e.g Bitcoin) have been created specifically for the purpose of facilitating trade in unrelated goods and services. Others support other commercial activities. For example, Ethereum (token Ether) supports a complex computing environment enabling smart contracts to be created and executed and Sovrin’s business case is based on the provision of identity information. We emphasise here this is only an analogy - the extent to which tokens are considered to be securities, and their issuing to be equivalent to the issuing shares to raise funds for corporate activity is currently under judicial consideration in the case between the SEC and Kik.

All blockchains utilise a token with some form of value associated (some have limited trading rights) which is relied upon using an array of incentive-based instruments intended to align token-holding stakeholders’ interests. Unlike corporations, most blockchains operate as non-owned (common-pool or club) entities. While individuals can own the rights to tokens, they typically exercise no formal control rights over the blockchain itself (limits to which this can be relied upon are discussed in

Howell and Potgieter (2019)). Rules embedded in blockchain software and encoded before any activity actually takes place enforce the incentive-based instruments during normal operating activities, thereby (apparently) dispensing with the need for human enforcement of governance instruments typically associated with corporate entities. This is claimed to also dispense with the need to trust office-bearers to operate the firm in a manner consistent with stakeholder interests. The ability to put a price on and trade tokens is therefore a defining feature of blockchain systems, even when the primary purpose is not the operation of a crypto currency facilitating independent trading.

If blockchains function in the manner of corporations, with tokens representing shares, then it might be expected that they are considered to constitute securities. Most countries have issued guidelines regarding their treatment for investment and taxation purposes. The US SEC guidelines are an example⁹ They are provided to assist those establishing blockchains in determining whether the initial sale of tokens (initial coin offerings or ICOs) and subsequent token generation can be considered to constitute the raising of capital in the manner of a share float and thereby bound by the same offer registration and disclosure requirements as corporations seeking to raise funds from the public. It is observed: “The innovative technology behind these virtual transactions does not exempt securities offerings and trading platforms from the regulatory framework designed to protect investors and the integrity of the markets.”¹⁰ A cautious approach is observed, with the guidelines providing links to all relevant inquiries undertaken in response to specific failures of blockchain-linked enterprises, such as The DAO.

The US, as with most other jurisdictions has not responded to calls for explicit regulation of blockchain entities as a consequence of uncertainties and price volatility. Rather, the response appears to have been to use existing company law regulations. While their international reach may pose some jurisdictional issues given their openness to transactors worldwide, their development is not seen to be more than just another iteration in the development of new institutional forms of capital-raising. Innovation in this regard has been occurring for hundreds of years, with ex-post regulatory responses emerging generally only when systemic factors lead to falls in confidence in securities markets as a whole, rather than individual firm failures. It appears unlikely that this will change in the near future, as the SEC-Kik case seeks to provide clarity on the applicability of existing laws.

4.2 Tokens as currencies; crypto currency exchanges as forex traders

While the regulation of blockchains and the trading of token ownership within one system appears to sit within the ambit of existing company law provisions, the matter of trading between crypto currencies – including tokens designed to support other activities, such as Ether (Ethereum) and pinakion (Kleros) – and between them and fiat currencies, has driven the development of an entirely new industry: crypto currency exchanges.

In essence, crypto currency exchanges provide the facilities by which individuals can exchange value between various cryptocurrencies and fiat currencies. Extending the analogy from the preceding sections, each crypto currency is its own currency and the exchanges function as the equivalent of both foreign exchange dealers, buying and selling coins and thereby contributing to the establishment of a market price for each currency pair, and traders selling and buying coins from end-users. The novel, software-based nature of crypto currencies necessitates special software and algorithmic knowledge, so the early traders tended to come from the same communities as those developing and promulgating blockchains in the first place. In many cases, their initial coin stocks may have come from participation in ICOs or as ‘miners’ (operating the distributed ledger hardware and software via which transactions are added to the chain) rewarded with the coins of specific blockchains. This is analogous to the early brokers who relied upon their special knowledge of different markets when agreeing prices with other traders and end-users.

The software-based nature of crypto currencies, and the ability this provides for end-users to avail themselves of the services of brokers anywhere in the world has facilitated the development of vigorous between-dealer competition, at least for trades between different crypto currencies. Because of the competitive threat posed to fiat currencies, it has proved difficult for crypto currency exchange operators to develop commercial relationships with banks or other foreign exchange entities. This has led to some local geographic exchange specialisation with regard to trades in less well-known fiat currencies (for example, the New Zealand dollar or the South African rand).

However, exchanges with the requisite commercial relationships are able to choose their physical location to suit their own purposes. Using publicly-available blockchain and other data, Algos for Cryptos¹¹ has mapped the location of the top 50 exchanges by trade volume. While seven are in the UK and four in the USA, most appear to be constituted in jurisdictions

⁹<https://www.sec.gov/news/public-statement/statement-framework-investment-contract-analysis-digital-assets>

¹⁰<https://www.sec.gov/news/press-release/2017-131>

¹¹<https://algosforcryptos.com/top-crypto-exchange-locations/>

with less-developed company law and foreign exchange controls (e.g. thirteen in Japan, fourteen in China and others in locations such as Singapore, the Seychelles and the Cayman Islands - only four outside the UK are located in the European Union, two in Malta one in Estonia and one in the Ukraine).

In many ways, the development of crypto currency exchanges appears to be following the early development of securities exchanges, albeit based around networks of individuals meeting in forums frequented by like-minded software developers (noting the use of open-source code for blockchain software development) rather than cafes or hostels. However, despite the apparently ‘trustless’ nature of interactions on each blockchain, a considerable degree of trust is still required by clients in the brokers selling and buying coins from them. Until coins are actually deposited in clients’ wallets, or fiat currency received in a bank account, the potential exists for transactions to fail to be completed as anticipated, leaving clients disadvantaged. This has already been evidenced in the cases of thefts from exchanges. As funds are involved, the potential for fraudulent activity also exists, especially in relation to activity that occurs off the blockchain and so is not necessarily disclosed in the public arena.

As noted with the physical securities dealers, although the potential exists for clients to be harmed by transactions not being completed, the larger risks pertain to the traders themselves, who must rely upon the integrity of their counterparties in closing agreements. While initially individual reputations based on past trades may be sufficient when the number of traders is small, as the number of traders and the sums at risk increase, more formal instruments can be expected to be developed. That is, crypto currency dealers will face the same incentives that early securities traders faced to affiliate in clubs whereby they can agree upon membership criteria (closing out dealers deemed untrustworthy or compromised by other activities that may lead to transactions not being completed), codes of conduct that minimise risks and enforcement mechanisms to ensure adherence to the rules. The benefits of such trader associations will spill over onto their clients lacking the specialist software knowledge, who can have greater confidence that traders belonging to such a club where behaviours are monitored by other traders linked by both conduct codes and financial liabilities to each other (and even clients) in the event of breach will transact with integrity.

The public benefits accruing from the emergence of such ‘clubs’ also include the reduced need for calls for government regulation to address failures of individual exchanges. To the extent that crypto currency exchanges, as with foreign exchange markets, operate across state borders, such internal self-governance arrangements may in fact be the only option available in the short term.

5 Case: Virtual Currency Exchange

Unsurprisingly, in September 2018 four crypto currency exchanges - Bittrex Inc.; bitFlyer USA Inc., a unit of Japan’s bitFlyer Inc.; Bitstamp Inc.; and Gemini - announced their intention to form what appears to be the industry’s first self-regulatory organization — the Virtual Commodity Association (VCA). The initiative was promulgated by Cameron and Tyler Winklevoss of Gemini Trust Co.¹²

The VCA meets all the salient criteria to be an effective self-governance club. Its mission is to “work toward the goal of establishing an industry-sponsored, self-regulatory organization for the U.S. virtual currency industry, specifically virtual commodity marketplaces”. While not exclusively tied to trades in crypto currencies, these will be its earliest priorities. It will be a non-profit entity capitalised by its members and governed by a board structure with both member-appointed and independent directors. As with the original London Stock Exchange, it will not itself trade in any markets. Its sole purpose is to govern the trading activities of its members. It will not be a trade association, and will not provide any regulatory programs for security tokens or security token platforms. Its focus will be to help set and adopt global standards and best practices for traders in virtual commodities.

While the VCA website does not provide a rule book comparable to the London Stock Exchange, it indicates that a code of conduct will expect members to:

- establish custody protections and security measures appropriate for virtual commodities;
- adhere to customer communication and disclosure standards that are clear, accurate, fair, and timely, and members must not make promissory, false, or exaggerated statements or claims;
- provide appropriate transparency regarding bids, offers, executions, and other relevant data to the public, and adopt policies to avoid conflicts of interest;

¹²<https://vcommodities.wpengine.com/>

- maintain and enforce a system of marketplace conduct rules, and implement policies and procedures to respond to and address customer concerns and complaints;
- implement and maintain current best practices with respect to cybersecurity, information security, and record-keeping;
- monitor and surveil markets to detect and deter manipulative and fraudulent acts and practices;
- agree to enter into reasonable information sharing agreements for the purposes of marketplace surveillance with other members and with regulated exchanges and trading platforms that list products based on virtual commodities; and
- among other things, agree to report instances of manipulative and fraudulent conduct to the CFTC and other regulators as appropriate.

Although no mention is made of the magnitude of membership fees or penalties to be imposed in the event of breach or other failure, if it follows the trend for other such entities, the membership fee will be large and stands as a bond to be forfeited if the member is detected engaging in the undesired activities. Membership should not automatic simply because the fee is paid - the current members can decide whether to admit a new member based on how likely they think it is that the new member can be trusted to uphold the rules (as future potential members are asked first to engage with the existing members, it appears a screening process will be undertaken). And those who fail to abide by the rules can be expected to be expelled in a suitably public manner that damages the malfeasant member's reputation considerably.

6 Conclusion: policy implications

The establishment of the VCA provides a signal of the maturing of the crypto currency exchange market, in the same manner as observed in the maturing of embryonic securities exchange markets in the eighteenth century. It provides a credible alternative to government regulation, as those trading in the markets are best-placed to observe risky behaviour and act to close it down for the benefit of the entire club and by extension, industry. While the VCA has initially expressed a focus on protecting the interests of US holders of crypto currencies, there appears to be no special reason why it should confine itself to a single jurisdiction.

The emergence of one such exchange will likely stimulate the emergence of others. As with the original competition between the London exchanges this will be positive for both consumers and the ongoing development of codes of conduct. As no one exchange is necessarily going to identify and settle on the ideal standards, the incentives of competition from rivals to develop better rules will benefit consumers sooner than relying on a single government-developed and mandated code. As illustrated by the repeated instances of theft from Japanese exchanges, despite the existence of (weak and ineffective) government regulations, governments do not face the same incentives as traders to either identify the relevant weaknesses or act on them in a timely manner. Exchange clubs such as the VCA are likely to act both sooner and more effectively at plugging gaps in their codes of practice that affect the trading prospects of members (and by extension the interests of the members' clients) than government action.

So is there a role for governments to play in the crypto space? While governments are not best placed to make rules for exchanges, they do have a role to play in ensuring that the rules they already impose - notably the elements of company law that can be utilised to protect consumers from deceitful or dishonest practices by those developing and promoting blockchains with tokens that squarely fulfil the role of shares in traditional corporations. While the case between the SEC and Kik is yet to be heard, it is a positive sign that the US government is willing to investigate possible breaches of its existing laws rather than rushing to impose new laws.

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