

ICOs: real deal or token gesture?

Exploring Initial Coin Offerings

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About this report

This report explores Initial Coin Offerings (ICOs) including what they are and how they relate to professional accountants.

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Foreword



Over the past few years, there has been a significant increase in the level of activity in respect of blockchain and distributed ledger technologies.

We have seen an evolution from concept stage discussions, to proofs of concepts, leading to minimum viable products and the on-going work towards full-scale production mode solutions.

A big enabler of this has been the influx of funding for innovations and ideas in this area. These funds have certainly come from many traditional sources like banks and venture capital funds. However, there has also been a sudden upsurge in the use of alternative avenues like Initial Coin Offerings (ICOs) as a mechanism for funding. And this raises questions about existing safeguards and level of preparedness for these new funding sources.

As a result, the debate is now, rightly, about regulation and risks, as much as it is about scaling and value. In a world where technology innovations can occur at a pace that is frankly bewildering to many onlookers, the need to protect the market from unscrupulous actors has never been greater. While ICOs can provide a legitimate avenue to drive innovation in some instances, it is extremely important that the protection of the ordinary investor is carefully considered as we look ahead.

The accountancy profession is rightly expected to build ethics and public trust and ACCA remains firmly committed to helping our members provide objective, professional and informed inputs to drive sustainable economic growth.

This report shines a light on a new area, as it is unfolding in real-time, and is part of our commitment to preparing our members and the profession as a whole for the fast-emerging challenges and opportunities of the future.

Helen Brand OBE
Chief executive
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Executive summary

An Initial Coin Offering (ICO) is a new way for organisations to raise capital. In an ICO investors receive 'coins' (or tokens) in exchange for a payment, made in a cryptocurrency rather than a fiat, ie, government-backed currency. The coins or tokens represent the investment in the project.

In the last six months of 2017, Initial Coin Offerings (ICOs) gained increasing attention from investors, businesses, media and regulators. The volume of ICOs accelerated rapidly in this period: funds raised in 2017 (equivalent to \$4bn) were 40 times those raised in 2016. ICOs have become popular, because of the ease with which they can be used by businesses to obtain new, public funding, but with less complexity and greater speed than traditional methods.

An ICO investment is made using a cryptocurrency and investors get tokens (or 'coins') rather than 'shares'. As a result, many ICOs have so far fallen outside existing securities regulation. But, unsurprisingly, most regulators have started to take a close interest at this developing market. The majority of regulators have issued warnings to investors about the risks of these investments, and many have indicated that the unregulated status of ICOs is under scrutiny and may be short lived.

While their regulatory status is being considered, the rapid increase in underlying cryptocurrency values has further stoked investor interest. With the lure of high short-term gains, the ICO market is looking increasingly like a bubble. Bitcoin, the most established cryptocurrency, and the typical investment vehicle for ICOs, increased in value by 1,804% over the course of 2017.

Early ICOs were focussed on new, innovative developments in blockchain technologies (on which cryptocurrencies such as bitcoin are based). However, the rapid increase in interest in ICOs has led to a much broader scope of offering, and organisations have turned to ICOs to raise money, owing to the simplicity and speed with which this can be done, irrespective of the purpose. In future, it will be essential to ensure that misuse of the original ICO concept does not block investment for genuine technological innovation.

There are risks to ICOs, especially for investors, who can easily lose their investment or fall victim to a scam. There are also wider risks to consider, such as their being used as vehicles for money laundering. The increased attention from regulators means more scrutiny for organisations undertaking ICOs; the SEC in the US has been active in this area and has already identified some ICOs which are not acceptable to it, and has put a stop to their fundraising. In future, organisations will need to tread carefully when looking at this avenue for raising funds.

The landscape for ICOs provides an interesting environment for professional accountants, with opportunities for new and enhanced service offerings to guide organisations seeking funding. The changing landscape also means there are plenty of risks and a range of ethical issues to consider. ICOs are at the forefront of emerging technology in blockchain and distributed ledgers, and professional accountants need to maintain an awareness and understanding of the underlying issues.



1. Background

BASIC IDEA

An Initial Coin Offering (ICO) is a new way for organisations to raise capital. In an ICO, investors receive coins (or tokens) in exchange for a payment, made in a cryptocurrency rather than a fiat currency. The coins or tokens received represent the investment in the project.

Like an Initial Public Offering (IPO), an ICO can be used to raise funds, but unlike an IPO, it is less familiar to regulators. However, the association of ICOs with cryptocurrencies, in particular Bitcoin and its very rapid growth in value in the last quarter of 2017, has attracted increased scrutiny from regulators around the world.

In an ICO, sometimes called a 'token sale', instead of receiving shares, participants receive 'tokens' and instead of paying cash, participants pay in cryptocurrency, typically bitcoin or ether. ICOs are a form of Crowdfunding, but are distinct because of the 'token' offered and the cryptocurrency payment. In addition, a Crowdfunding initiative is often for businesses that are relatively advanced in development with tangible market potential.

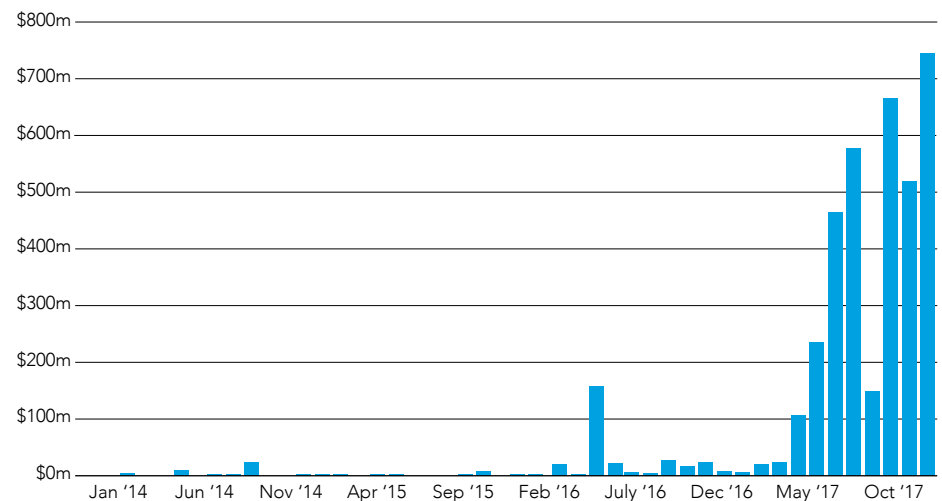
There was a dramatic increase in ICO activity in 2017, fuelled by the ease and simplicity with which businesses can use an ICO to obtain funding for new ideas, and buoyed by a community with the

expectation of rapid, large investment returns (Figure 1.1). Research from Mangrove shows that the total-return on ICOs has been 13 times the initial investments made (Mangrove Capital Partners 2017). An increasing number of ventures have been launched using ICOs, with a corresponding flood of individuals prepared to invest in these schemes.

This increased activity has caught the attention, not just of those directly involved, but also that of the

cryptocurrency and blockchain communities (see Appendix), and mainstream business media.¹ A *Financial Times* article in November 2017 summed the situation up: 'When celebrities known more for reality shows than financial prowess start endorsing a particular investment strategy, it is fair to assume a bubble exists'² (Binham, 2017). So while the Mangrove return figure of 13x looks impressive, much of this has been driven by increased value of the underlying cryptocurrencies such as Bitcoin.

FIGURE 1.1: Monthly new ICO funding



Source: www.coindesk.com

¹ For example, Forbes, Fortune, Ft.com, Huffington Post, Tech Crunch, Wired.

² <<https://www.ft.com/content/32315636-cb01-11e7-ab18-7a9fb7d6163e>>.

Regulator involvement stems from increased concern about the risks to investors. Increasingly, these concerns are that a significant bubble is forming, ie an over-valuation of cryptocurrencies.

As a result, ICOs have received considerable attention in 2017 as regulators have stepped in (see Chapter 3 on Regulation) to determine whether ICOs are, or are not, in reality, an offer of securities, and so whether securities regulations apply, such as the need for a prospectus. Regulator involvement stems from increased concern about the risks to investors (for more on this see Chapter 2 on Risks). Increasingly, these concerns are that a significant bubble is forming, ie an over-valuation of cryptocurrencies. Bitcoin's value fell by 36% in just a week in mid-December 2017, though it has since recovered to 70% of its all-time high (see Figure 1.2 below).

THE ORIGINS

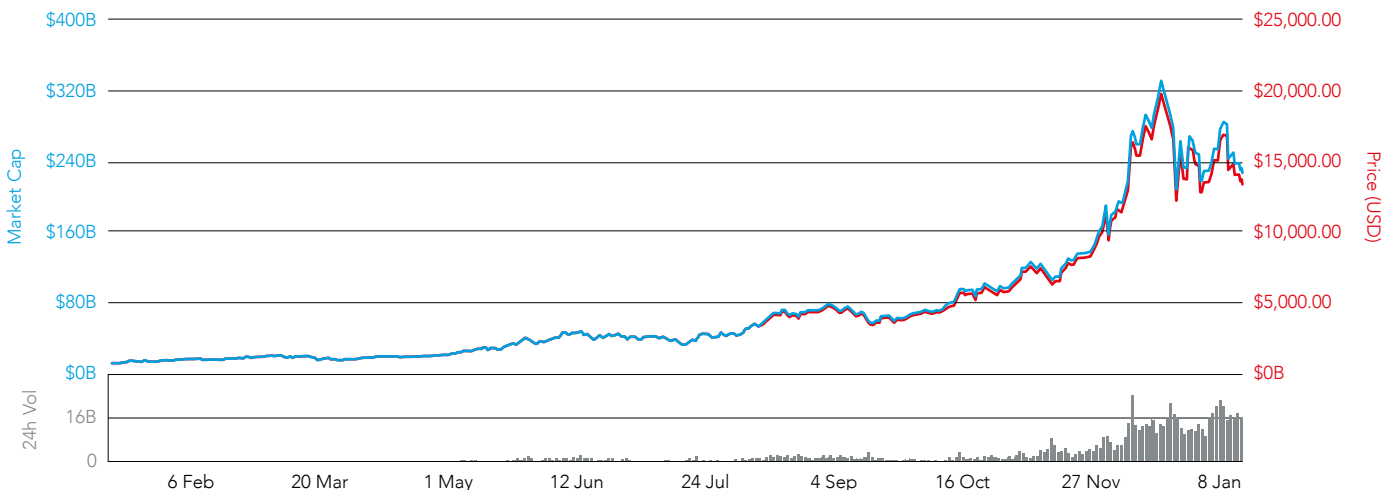
Most early ICOs were a mechanism for developing new functionality on top of the bitcoin blockchain or one of the other cryptocurrency platforms built on blockchain. Initially, this was a contained market: an idea for a new project was proposed and the person or group behind the idea put forward a proposal for developing the concept. They paid programmers for their work in writing the computer code to make the project a reality.

The people doing the work would be paid in cryptocurrency that contributors had handed over in the hope the project would be successful. All three groups – the innovators, the investors and the programmers – understood blockchain and cryptocurrency, so they could make

a decision easily about the viability of the idea, the likely success and the degree of effort to get it working. In this way, it is a specialised form of Crowdfunding, but with participants taking payments in cryptocurrencies.

As part of the ICO, the investors got tokens in exchange for an existing cryptocurrency: typically, either bitcoins or ether. The tokens were generally another, new, cryptocurrency based on the same controlling logic as bitcoins – the blockchain ledger; if the venture was successful these new 'coins' would become valuable and a market to trade them would develop. If the venture was unsuccessful, then the tokens would have no value. Ideas that had more potential would get more attention, and more readily secure investment.

FIGURE 1.2: The changing value of Bitcoin 2017–18



Bitcoin MarketCap 2017–18. Source: www.coinmarketcap.com

A key driver for the growing number of cryptocurrencies has been the increase in ICOs, and this has been driven partially by the rapidly increasing value of cryptocurrencies.

GOING MAINSTREAM

The frenzied investment in the latter half of 2017 is indicated by research from Bloomberg, which found that the best investment returns among the 30 biggest value ICOs in 2017 were from those that did not have a working product backing their scheme (Russo and Kharif 2017).

Bitcoin, the best known and largest overall value cryptocurrency (\$97bn³), was launched in 2009. The following years saw a trickle of cryptocurrency additions. Since 2014 there has been an enormous increase in new coins, and there are now over 1,200 active cryptocurrencies. A key driver for the growing number of cryptocurrencies has been the increase in ICOs, and this has been driven partially by the rapidly increasing value of cryptocurrencies.

Booming prices of cryptocurrencies have driven uncontrolled speculation. Even with the volatility shown in late 2017, since its peak in mid-December, bitcoin has increased in value in the year to 8 January 2018 by 1,804%.³ In December 2017 two US exchanges started trading bitcoin futures, in response to demand from professional investors.

The first ICO was in 2013 for Mastercoin, and was based on an idea for extending the capability of the bitcoin network

Bitcoin is a 'mined' cryptocurrency



Although the total number of bitcoins has a ceiling (21 million) they are created gradually over time, and at a slowly diminishing rate. Bitcoin miners race to create them by solving the next 'link in the chain', which is done by applying a series of computational algorithms. These computations involve an element of trial and error, so performing them is a slow, laborious and uncertain process. The algorithm process is used to regulate the rate at which blocks, and therefore coins, are created.

(Zynis 2013). The concept was to involve developers in helping write bitcoin extensions by offering them a share in the ownership of the new developments. Over a month in summer of 2013, just over 500 people sent bitcoins, worth around \$500k at the time, to a special bitcoin address (Coindesk 2013).⁴ They received 100-times the number of Mastercoin in exchange for the bitcoins they sent, plus some extra for early investors. In total 563k Mastercoin were issued, with an additional 10% retained to pay for future developments. These c.620k Mastercoin (now called

Omni) are tradable and currently have a market capitalisation of approximately \$48m (CoinMarketCap live feed).

Most ICO-created cryptocurrencies have a capped volume of 'tokens' or 'coins' from the outset, the expectation being that, if the project succeeds, the coins will become more valuable.

Mined cryptocurrencies have a tradeable value, and are used to invest in ICOs. ICO currencies are (generally) 'created' in one go, rather than being mined. Although Mastercoin was the first ICO, better known is Ethereum, which launched the ether cryptocurrency in 2014. The Ethereum ICO netted 31,591 bitcoins (then around \$18m) in exchange for 60m ether tokens.

Since 2014 there have been an increasing number of ICOs primarily seeking ether or bitcoin contributions in exchange for tokens in a new venture. In 2017 an estimated \$3.7bn was invested in 235 ICOs (CoinSchedule n.d.): very large amounts, but still small in comparison with the \$226bn raised from high-yield bonds in 2016 (Duncan 2017). Nonetheless, in June 2017 the bitcoin news website Coindesk calculated that ICOs had overtaken venture capital as the primary funding source for development in the blockchain sector (Sunnarborg 2017). ICOs had therefore become the major funding vehicle for their intended purpose.

³ Bitcoin price 12 January 2017 stood at \$775.18 while on 12 January 2018 it stood at \$13,980.60 <www.coinmarketcap.com>.

⁴ <<https://www.coindesk.com/mastercoin-foundation-virtual-currencies-bitcoin-protocol/>> and <<https://www.forbes.com/sites/jasperhamill/2013/11/30/fed-up-with-bitcoin-heres-how-to-start-your-own-currency/#2c4284c57909>>.

This report explores the risks associated with ICOs, explains how regulators have responded and the future prospects for ICOs. It also outlines the implications of ICOs for the professional accountant.

LAUNCHING AN ICO

The mechanism for an ICO is remarkably simple, and so provides a low barrier to entry. ICOs raise money by issuing a ‘white paper’ that provides details of the concept that the venture intends to build, and details of the tokens that will be issued in exchange for cryptocurrency. The white paper is available via the venture’s website, which also provides the mechanism for payment of cryptocurrency to the venture’s account (typically bitcoin or ether). It is now more common for payments to be made into an escrow account, to provide greater assurance of the venture’s validity. Most ICO sites include instructions for how investors should go about buying their bitcoins or ether – the assumption being that they don’t already own any cryptocurrency.

This is where the regulatory issues arise; because the ICO issues a currency, or token, rather than shares, they have not been considered (by proposers) to be a securities offering, so the associated regulation and controls have not been applied.

The increase in ICOs has expanded initiatives well beyond blockchain developments to encompass many different start-ups, and this expansion has increased the concerns about their status and risks. A browse through open ICOs at the time of writing (Smith & Crown 2016) shows the projects displayed in Table 1.1.

The perceived over-enthusiasm about ICOs and their broadening beyond blockchain-based initiatives has heightened the attention from regulators. It is easy to see why, when a ‘spoof’ ICO (Useless Ethereum Token) is claimed to have raised \$100k from a comical website (<https://uetoken.com/>). Some might argue that speculation has reached a level reminiscent of the dot.com bubble.

Notwithstanding the scrutiny of regulators, ICOs are seen as a simple, inexpensive way for start-ups to raise money; whether for blockchain or other

development. The core concept is that technologies based on a blockchain foundation have the potential to drive a completely new wave of technical change that will be even more significant than the changes the internet has brought to date. Blockchain is a distributed ledger, where transactions between counterparties are authenticated and recorded.

This report explores the risks associated with ICOs, explains how regulators have responded and the future prospects for ICOs. It also outlines the implications of ICOs for the professional accountant.

TABLE 1.1: Open ICOs at the time of writing

ICO	DESCRIPTION
https://aigang.network/	Blockchain protocol for digital insurance
https://bbiller.com/	Double-entry accounting and billing services on blockchain for supply chains
https://decentraland.org	A distributed platform for a public, interactive virtual world
https://locipro.com	A visual searching tool for patents
https://www.potential.io	A decentralised and incentivised collaborative music social network

(See Appendix for links to registers of open ICOs.)



2. Risks

Understanding the risks and issues, perceived and evidenced, around ICOs provides context for the increased regulatory involvement. This chapter looks at risks in relation to each party involved in the ICO chain.

RISKS FOR INVESTORS

Most statements from regulators have included alerts to prospective investors, warning them of the potential dangers of investing in ICOs; and the majority of regulators have now issued some alerts about ICOs.

Fraudulent investments

Fraud is the most consistently identified risk. Publicity about the rapidly increasing values of cryptocurrencies has contributed to the surge in activity, so it's not surprising that ICOs are a potentially easy way for fraudsters to make money. When large numbers of people see an opportunity to make a fast return and don't want to miss out on 'the next big thing' it attracts players with dishonest motives. This scenario is, understandably, heightened by the anonymous elements of the underlying blockchain distributed ledger.

Details of the location of many of the organisations behind the ICOs are often vague. The nature of ICOs is that they are often 'virtual' entities, with just a website, and no specific geographic location. Those investing outside their local country lack familiarity with the business

environment and its regulation in the country where the ICO's actors are based. This separation of investor and investee can make it hard to validate authenticity and also means that if a scheme does collapse, it can be difficult, if not impossible, to trace the scheme's operators.

Some ICOs, sensing this caution, are now using escrow accounts to give investors increased confidence that their money is secure. A few Ponzi schemes involving virtual currencies have been uncovered. OneCoin is an example that purported to sell educational material that it packaged with 'tokens'. It was halted in April this year after more than \$350m had been invested (Suberg 2017).⁵

By nature, ICOs tend to be launched by organisations that have no track record; these are typically young, small, inexperienced start-ups. The failure rate among start-ups always tends to be high, and when an ICO is issued without the rigour that goes with a security offering – such as an approved prospectus – failures are likely to be more common, and certainly more damaging to investors.

All the regulatory alerts aimed at consumers direct these potential investors to think carefully about what they are investing in and whether they understand the business model enough to judge its viability. This itself raises the question of investor knowledge, sophistication and appreciation of risk, especially given the additional complexity of cryptocurrency and distributed ledger technology.

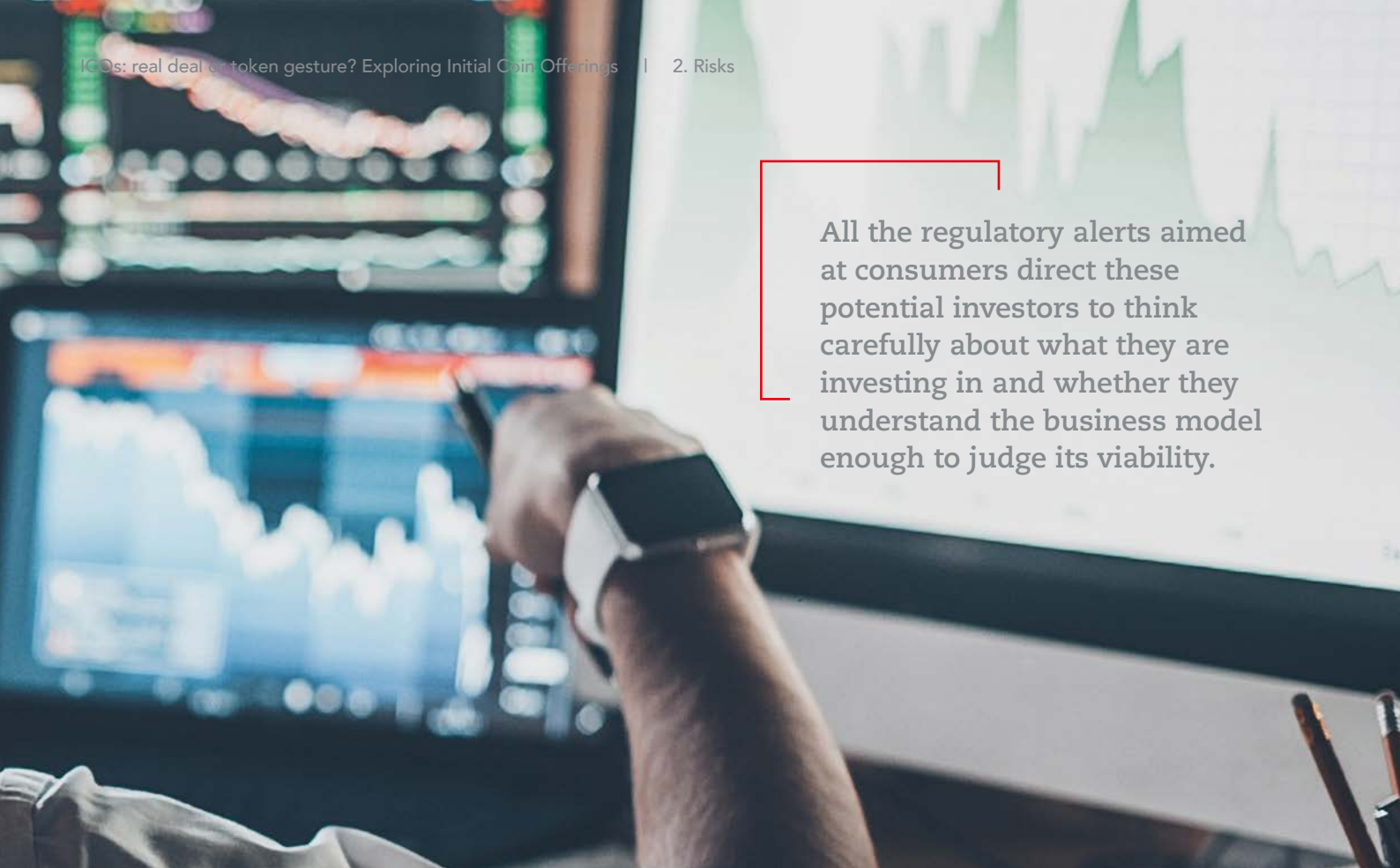
Liquidity risks

Even if a secondary market exists for digital tokens, there is often a lack of buyers and sellers, so there are likely to be wide bid-ask spreads. In extreme situations, digital tokens may not be saleable. Where a secondary market does exist, it may be unregulated. If the market is unregulated and there are limited buyers and sellers, the pricing is likely to be volatile and prone to speculative manipulation. All these factors are likely to be unknown by inexperienced investors.

Speculative risk

Arguably, the ICO 'boom' can be likened to the dotcom 'bubble'. Valuation of tokens certainly tends not to be transparent, and is highly speculative. The tokens often

⁵ <<https://www.coindesk.com/london-police-investigate-onecoin-cryptocurrency-scheme/>> and <<https://cointelegraph.com/news/onecoin-much-scam-18-seminar-organizers-arrested-3-mln-seized-in-onecoin-india-raids>>.



All the regulatory alerts aimed at consumers direct these potential investors to think carefully about what they are investing in and whether they understand the business model enough to judge its viability.

lack the ownership right of any underlying assets. As noted above, these entities are generally start-ups, with no trading records, and therefore no certainty of revenue or even profit forecasts. As the dotcom bubble highlighted, investing large amounts in unproven businesses often ends in disappointed investors and a re-basing of the market. Adding new, non-fiat, currencies into the mix heightens the risks.

Security risks

Tokens are based on new, rapidly evolving technology that has not been fully proven or tested. This, combined with the cryptocurrency foundation and large monetary values, makes token stores susceptible to attack from hackers. If a token repository is hacked and tokens stolen, investors typically have no recourse – especially if it is unregulated. This risk is outlined below in the SEC investigative report on The DAO (US SEC 2017b).

There have been many examples of cryptocurrency thefts since 2011; over 32 thefts have been reported as occurring between 2011 and November 2017 by BitcoinExchangeGuide (2017), including an \$8.5bn theft from Veritaseum in July 2017. An early significant theft victim was Mt Gox, from which 850,000 bitcoins (c. \$450m) were stolen in February 2014, resulting in its bankruptcy and closure (see Appendix). Among other weaknesses, the Mt Gox situation highlighted the inherent weaknesses in currency protected by a

private encryption key: the encryption may be very strong, but a lost or stolen key is an open door to the funds. Trusting a third-party (such as Mt Gox) with your keys has proved not to be more secure than letting investors retain them. More recently, in January 2018, another cryptocurrency exchange, CoinCheck, has admitted theft of over \$530m of funds.

RISKS FOR REGULATORS / ECONOMIES

Unregulated ICOs

As covered in Chapter 3, those regulators that have made public statements have consistently asserted that some ICOs fall within the scope of 'securities offers', and as a result need to meet the required legislation. For ICOs, the key concern with being unregulated is a lack of verification of the prospectus, or 'white paper' as it is commonly known. This lack of verification can lead to wild claims in the white papers, and increased potential for fraudulent offers or Ponzi schemes, especially given the over-enthusiasm among some investors.

Global regulators have developed specific guidelines on the format and content of, and the regulatory approval process for, a prospectus, to ensure that prospective investors have reliable information on which to make an informed decision. In Europe the guidelines are being given consistency

with an updated European regulation of securities prospectuses (issued July 2017, to be fully implemented by 2019) (Official Journal of the European Union 2017).

Unregulated ICOs have several consequences for market stability. If a series of unregulated, higher-risk investments collapse and investors lose money, there is an inevitable questioning of the regulator's adequacy. Investments arising from innovations and new technologies, such as ICOs, demonstrate the rearward-looking perspective of regulators, which fuels a perception that their approach means they are too slow and out of touch to respond to change.

Perhaps to avoid such a perception, as chapter 3 below shows, there has been a flurry of statements from regulators. However, it remains to be seen if over time, these statements result in substantive changes/additions to the regulation, or as is mainly the case at present, interpretation of existing approaches to a new product.

Risk of money laundering and terrorist financing (ML/TF)

The anonymity of transactions and an ability to raise large sums very quickly makes ICOs targets for ML/TF. Many of the regulators (including those in China, Hong Kong, Russia, Singapore, and Switzerland) have sought to bring ICOs within the boundaries of anti-money laundering (AML) controls.

Optimal uses of ICOs are identified as those where blockchain encompasses an entire value chain: where 'the product' is itself intrinsic within the environment.

Risks for those raising finance

Concerns over ICOs and the potential for increased scrutiny and additional regulation mean that it may be harder, and more expensive, for future start-ups to position an ICO and bring real innovation to market. ICOs are often seen as a route to projects that would not receive funding through traditional financing, but are possibly introducing viable, innovative ideas.

The Economist (2017) highlights work on developing new computer protocols as an example, citing Storj, which raised \$30m for a protocol that provides secure cloud storage. Storj does not have its own cryptocurrency, but instead uses bitcoin. Subscribers to the Storj service pay in bitcoins, and can also earn bitcoins by contributing storage to the network.

For many, the ICO concept extends the options available for raising finance and accessing a group of participants that appreciate the ideas emerging around blockchain technology. Certainly, many ICOs have enabled start-ups to raise much larger amounts than would have been possible through traditional financing and therefore their viability has been more quickly tested.

The direction so far from regulators is that some ICOs constitute securities offers, and therefore have an associated requirement to fulfil the related regulatory criteria. The possibility that an ICO may be a security will mean additional cost for the promoter and/or; a risk that they may wrongly consider that their ICO is not a security and face penalties (often severe) if the regulators judge that it is.

RISKS FOR TECHNOLOGY AND INNOVATION

ICOs have provided the launch potential for many new technology innovations; without this vehicle, or with stricter regulations that impose higher barriers to entry, many technology initiatives may never get started. As described above, this affects those looking for financing, but at a lower level it also potentially damages the roots of technology innovation.

Critics of the ICO 'boom' often indicate that the blockchain focus of initial ICOs has been lost as a diverse range of start-ups turn to ICOs for funding. Optimal uses of ICOs are identified as those where blockchain encompasses an entire value chain: where 'the product' is itself intrinsic within the environment. An example is the use of tokens that power distributed protocols, with the support of strong, involved communities.

In part, this reflects a shift in the economic models of development. The rise of open-source projects relied on donations and goodwill; they were generally unprofitable, the majority being initially undertaken for ethical reasons. The belief of many is that ICOs provide a commercial vehicle that maintains the community associated with open-source projects, with a potential for collaborative efforts to generate returns for the participants.

These considerations indicate a potential for a controlled ICO, where certain criteria need to be fulfilled to demonstrate that the venture is aligned with the original

blockchain concept. In the same way that regulators are considering whether ICOs are really securities, perhaps there is a mirror set of criteria to assess whether ICOs are genuine applications of the blockchain technology.

There is a tricky balance between regulating investment and avoiding the stifling of innovation and commercial opportunity. This is illustrated by Protostarr (Gibson et al. n.d, discussed in the Appendix), which abandoned its ICO after being contacted by the US SEC to discuss its status (Shin 2017).

RISKS FOR CRYPTOCURRENCIES, BLOCKCHAIN AND DISTRIBUTED LEDGERS

Cryptocurrencies have already had a volatile, although short, life, with controversy around their stability, security, legal status, and potential for use in criminal and terrorist financial activity. ICOs and the rapid increase in the basket of cryptocurrencies bring a mixed addition to these controversies, fuelling some but also bringing some economic legitimacy to the concept of cryptocurrencies.

Meanwhile, in parallel to ICO activity and cryptocurrency expansion, research, investment in and commercialisation of the underlying distributed ledger concepts continue to gather momentum. For those involved, distributed ledgers are distinct from cryptocurrencies and ICOs; but for many they are all part of a complex leading edge of new technology.

3. Regulation

In this chapter, pronouncements in the public domain on ICOs from regulators around the world are assessed. The countries covered include the US, Singapore, Canada, China, Russia, Hong Kong, the UK, Dubai, Australia, South Korea, Switzerland and France.

The Appendix contains details specific to individual regulators that have informed the summary below. For those interested, these may provide additional context to the comments below.

This chapter has been developed to provide a sense of the approach taken by regulators around the world, and some of the key considerations involved. It does not constitute regulatory advice, or seek to influence decision making for specific situations – tailored guidance should be sought for this. The section is based on information available in the public domain as of January 2018.

KEY MESSAGES ARISING ACROSS JURISDICTIONS

The flurry of activity from regulators, particularly since September 2017, has reflected the surge in ICO activity and specifically the widening public attention that ICOs and cryptocurrencies have received. This attention has broadened the spectrum of investors in ICOs to include many outside the field of blockchain and distributed ledger technology. As a result, and fuelled by speculation of rapid

returns, the risk of fraudulent offers has increased and with it concerns that ICOs are generally unregulated and creating a cryptocurrency bubble.

There are two headline features when describing the response of regulators:

1. A focus on consumer protection
2. The question of whether an ICO qualifies as a 'security'.

Focus on consumer protection

Chapter 2 (on risks) outlined how ICOs can present risks for all the actors involved. When looking at these actors, regulators have, for understandable reasons, particularly prioritised the risks to investors. This speaks directly to part of the core mission of regulators: to protect unsophisticated participants, particularly those at risk from new technologies.

Regulators have issued consistent warnings of the inherent risks in ICOs and reminders of the need to understand the underlying nature of individual investments. For ICOs, this also extends to understanding the additional complexity

of cryptocurrencies and blockchain technologies. The risks identified have been broadly consistent across regulators and are as covered in Chapter 2. There are also early, although limited, examples of direct regulatory action against fraudulent schemes (eg US SEC 2017f).

Whether an ICO qualifies as a security

An ICO can come to the notice of the regulator if it is deemed to be a 'security'. Broadly speaking, regulatory tests tend to have some common features in respect of this assessment – and the US provides an illustrative example. The SEC definition of a security offering is based on case law (SEC vs. W.J. Howey Co. 1946) to determine the existence of an investment contract (Justia 1946). The assessable elements drawn from this are:

1. a contract, transaction or scheme
2. the investment of real money in a common enterprise
3. with a reasonable expectation of profits
4. derived from the managerial efforts of others.

Where an ICO is classed as a security, it would need to satisfy registration and other regulatory requirements, as for any securities offer.

Regulators have taken the view that this needs to be assessed on a case-by-case basis, ie some ICOs may satisfy the securities test, and others may not. Where an ICO is classed as a security, it would need to satisfy registration and other regulatory requirements, as for any securities offer.

There is also the possibility of an in-between zone. For example, where the ICO satisfies the test of being a security, but because it is targeted at sophisticated investors only, it could be given an exemption from the regulatory requirements it would normally face.

So where might an ICO not satisfy the securities test? Let us look at the four requirements listed above.

The first and second are broadly applicable to ICOs (taking the assumption that cryptocurrencies are seen as 'real money', though there is still plenty of debate on this).

For many ICOs, it is the third element (reasonable expectation of profits) that will be the key determiner of their status. Many ICOs will fall outside the boundary: protocol development is an example, and fits the initial model of an ICO (for developing new functionality on top of the blockchain). Similarly, where the entities responsible for ICOs develop a service

offering and where investors receive tokens (or credit) to exchange for these future services, these ICOs currently tend to be outside the securities definition, and so for such entities ICOs provide a valid funding option. Storj is an example of this scenario (see Chapter 2 – risks for those raising finance). Participants do not expect profits or an income stream;

instead they receive credits for using a future service. On the other hand, ICOs that offer future income streams are likely to be judged to be securities.

There are other examples of ICOs that offer tokens that can also serve as a 'payment voucher' for the underlying service (Table 3.1).

TABLE 3.1: ICOs that offer tokens that can also serve as a 'payment voucher' for the underlying service

ICO	DESCRIPTION
https://filecoin.io/	Digital storage and retrieval
https://www.civic.com/	'An ecosystem that is designed to facilitate on-demand, secure and low-cost access to identity verification (IDV) services on the blockchain' (Aitken, 2017). The Civic Token or CVC will be used as payment and reward for transactions and to encourage contribution to the ecosystem. Civic intends to add additional services, such as 'blockchain notary services' and 'peer-to-peer identity services'.
https://utrust.io/	A payment platform that provides a purchase protection mechanism. Subscribers to the UTRUST ICO therefore receive tokens they can use to make protected payments.
https://www.peerplays.com/	A 'gaming' (betting) platform where users compete against each other, with no central authority. The Peerplay token is used for placing bets.
https://gladius.io/	A blockchain-based solution for Web security. The token is used as the payment method for services on the Gladius platform.

Regulators have also considered the status of cryptocurrencies themselves, and the approach taken on the regulation of cryptocurrency exchanges.

The final of the four elements mentioned earlier, was the subject of The DAO study by the SEC. The DAO (Decentralised Autonomous Organisation) was an unincorporated organisation created by Slock.it, a German corporation (Jentzsch 2016)⁶. The DAO was created *'with the objective of operating as a for-profit entity that would create and hold a corpus of assets through the sale of DAO Tokens to investors, which assets would then be used to fund "projects"'* (SEC Release No. 81207, 2017). Another example is OPPORTY,⁷ a 'service-focused, knowledge-sharing business platform with decentralized, crypto-enabled marketplace'. It aims to provide a platform for small businesses and 'individual providers' to request and offer services and conduct business. It will use 'industry experts' to establish the rules and standards for services that will make it self-governing; so it is clearly positioning itself as a DAO-like entity.

Ordinarily, an ICO is promoted as a venture led by a defined management team. The DAO was unusual, but its offering was nevertheless determined by the SEC to have fallen within the test criteria for securities.

The above examples provide some broad guidelines, but the bottom line is that there is a spectrum of regulatory treatment. Some regulators have stated that ICOs may fall within the scope of existing securities regulation, for example with US, Canada, the UK, Singapore, and Hong Kong. Others, such as the French, have decided that, from an initial analysis, most ICOs do not constitute securities offers and therefore fall outside existing regulations. France and Russia have both recognised that existing regulations are insufficient to encompass ICOs. For now, they have presented no additional guidance or rules, but more information may well emerge in due course. At the other end of the spectrum, both China and South Korea have banned ICOs outright.

Regulators have also considered the status of cryptocurrencies themselves, and the approach taken on the regulation of cryptocurrency exchanges. The US leaves cryptocurrency exchanges largely unregulated, while some countries (eg UK, Canada, Singapore, Hong Kong) require cryptocurrency exchanges to be registered and comply with existing exchange regulation. At the extreme end, China has banned all cryptocurrency trading.

In summary, the global nature of these offers, where a website is all that is required to initiate an ICO, troubles regulators as to what falls within their jurisdiction. With the increased numbers and greater diversity in ICOs, together with heightened awareness of risk and some specific examples of fraudulent ICOs, global regulators have been relatively quick in making statements and highlighting regulatory positions around ICOs. Time will tell as to whether within existing regulation or new distinct requirements, a new class of investment vehicle may emerge for ICOs, separate from securities but with its own lighter-touch regulation. Many regulators making positive statements about ICOs as potentially valuable capital-raising vehicles may support such a trajectory. It will be interesting to see which regulator moves first and furthest on this.

⁶ <https://blog.slock.it/@ChrJentzsch?source=post_header_lockup>

⁷ <<https://portunity.com/ico/>>



4. ICOs and the professional accountant

ICOs create wide-ranging implications for professional accountants, opening up a range of opportunities for new services, but also raising caution about potential risks and ethical issues.

A. KNOWLEDGE

Professional accountants need to keep their knowledge of blockchain, cryptocurrency and ICOs up to date, at least at a basic level. This is a dynamic situation but a good understanding of the basics is essential. The Appendix lists some useful resources for each of these topics, but the situation is highly dynamic and it is worth spending time exploring and reading about the latest news, regulatory announcements and market trends.

Accountants should keep track of announcements from the regulators in the jurisdictions in which they operate. If they are engaged in offering services to start-ups or in capital market transactions they will need a more thorough understanding of the regulations affecting those ICOs that are deemed to be securities. This understanding is crucial for helping clients to assess whether securities rules apply and the specific implications if they do.

The extent of awareness required depends on the specific job-role of a

given professional accountant, but broadly these regulations fall into the following four categories:

- securities offerings
- prospectus requirements
- securities trading, and
- anti-money laundering/terrorist financing.

i. Securities offerings

Each regulator has a defined set of rules for determining whether an offer constitutes a security. As described in Chapter 3 on regulation, where an ICO is deemed to be an offer of securities the issuer is required to comply with securities regulations, unless they fall within the authorised exceptions for these regulations (eg where offers are only made to 'qualified investors').

Accountants in business need a basic understanding of the regulations in countries where they operate (eg The FCA Handbook in the UK (FCA 2018), the Securities Act in the US (US Government 1933), the Securities and Futures Act in

Singapore (Singapore Statutes Online 2001)). More specialised accountants may need a deeper understanding of the practical application of these rules, and seek legal advice where necessary.

The regulations vary by country, and as indicated, the regulatory pattern is changing rapidly. Accountants need to ensure that they provide accurate advice (or know when to seek legal advice) to help clients position ICOs in a way that addresses the regulatory landscape. For example, this will include appropriate wording in a white paper to protect investors who are not sophisticated or eligible.

ii. Prospectus requirements

Initially, regulators will seek to ensure that any ICO that falls within their 'securities' definition satisfies the relevant regulation. A key element of this is having a formal, registered prospectus. Accountants in business should have basic familiarity with the requirements for a prospectus: its content, format, approval process, etc. – for example, see the European regulation on Securities Prospectus (European Union 2017).

The emergence and popularity of ICOs creates an evolution and expansion in the ways that businesses, especially start-ups, can raise capital.

iii. Securities trading

Most regulatory statements have also reinforced the need for any trading marketplace for securities to be authorised and registered. For traditional securities this is routine, but new considerations may arise for the new entrants, involved in ICOs and tokens as well as exchanges and market transactions. Accountants should be aware of the regulations affecting securities trading and the requirements for registration, or understand where exemptions may apply.

iv. Anti-money laundering (AML) / counter terrorist financing (CTF)

After fraud, one of the key risks arising from ICOs is the use of schemes for money laundering or funding criminal activities or terrorism. As a result, regulators are scrutinising ICOs and related transactions to ensure that they comply with relevant AML/CTF regulations. Accountants must stay current on these regulations, and case law, and advise clients accordingly.

B. INTERPRETING BUSINESS AND OPERATING MODELS

The emergence and popularity of ICOs creates an evolution and expansion in the ways that businesses, especially start-ups, can raise capital. The ICO mechanism creates additional choice. Regulators are keen to ensure that any ICOs that are, in reality, securities offers are classified as such – in which case the term ‘ICO’ should not be applied.

In addition to the knowledge mentioned above, professional accountants will need a sufficient understanding of the business model and operating models of these new styles of business. This will enable them to make the link between the organisation’s proposed fund-raising approach, and the applicable risks and regulatory considerations. As mentioned in preceding sections, the situation is evolving fast, and the regulator does not give simple check-box criteria for every scenario.

For example, from a business model perspective, there may be a need to interpret the true purpose of the ICO, and how it maps to the requirements. A reasonable expectation of profits may well subject it to securities regulation,

but having a view on profitability requires assessing the business model. Similarly, from an operating model perspective, a decentralised/DAO-like model (whether explicit or implied in the way it actually works, even if it is not identified as such) has implications for how the offer is treated.

C. SERVICES OFFERED

Accountants will always seek new services that evolving markets provide, and ICOs and blockchain are prime examples. Research into blockchain is now widespread; and because of the prevalence of these research activities (especially by banks, institutions and governments) it has become a rich area for advisory offerings, from technologists and consultancies.

This is an area where accountants may find opportunities for involvement in shaping the future of blockchain. Many of the initiatives focusing on distributed ledger are concerned with record keeping, reconciliation, synchronised transactions, reporting, etc. Even accountants not involved should maintain awareness. Blockchain and distributed ledger have the potential to be a significant disruptor of the finance function.

Where an enterprise appears to be fraudulent or possibly a front for money laundering or terrorist financing, the duty of the accountant to report the enterprise to the regulator will be clear.

Larger practices already offer transaction services that include advice on IPOs. These services include managing the IPO process, and providing tax, accounting and reporting advice. Accountants often have key roles in valuation, due diligence, forecasts, working capital and preparation of the prospectus. There are extended services providing advice on internal processes and reviewing systems and controls, corporate governance, risk management, financial reporting procedures, executive performance and compensation, etc.

ICOs provide another financing option for businesses, and an opportunity for accountancy practices to extend their services, not only by highlighting choices to clients and helping them make the right decisions, but also by extending services to the specific, evolving intricacies, best practices and pitfalls of an ICO. This is especially important given the rapidly evolving regulatory landscape. This all fits well with the wider 'Fintech' (financial technology) landscape that has attracted much attention and investment.

Firms are also offering specialist advice on digital currencies: providing accounting reporting and tax compliance services. Advisers must not just stay abreast of global regulatory and compliance developments but also be actively engaged with regulators, especially regarding accounting standards. Audit of digital currency companies is a niche but growing area.

D. ETHICS

Accountants need also to consider how ICO activities involve specific ethical considerations.

ICOs have arisen through the innovation of blockchain and cryptocurrencies; these are disruptive technologies and so the involvement of regulators in either banning or categorising ICOs is not going to be welcome by all parties. Specifically, there will be areas of disagreement as to whether a particular ICO constitutes a security offer, and therefore whether regulations apply. Accountants may face challenges where their advice is ignored or rebuffed.

Of greater significance will be where accountants encounter 'dubious' ICOs. Where an enterprise appears to be fraudulent or possibly a front for money laundering or terrorist financing, the duty of the accountant to report the enterprise to the regulator will be clear. More challenging will be the grey areas where an offer is dubious in quality, in particular where the accountant suspects that the white paper does not properly represent the nature of the proposition. This can encompass a wide range of situations from unrealistic forecasts to factual inaccuracies. The action taken by professional accountants will vary, but ethics will need to be kept uppermost in mind.



Conclusion

The statistics behind the growth of ICOs provide clear justification for the attention they are receiving, but add to this the risk of fraud, the rumblings of regulators, a foundation technology (distributed ledger) with potentially unprecedented impact on business and finance, together with opportunities for additional service offerings, and the mix provides a compelling landscape for accountants.

ICOs have evolved very quickly; from blockchain development to a vast range of entrepreneurial ventures. Now that ICOs have overtaken venture capital as the primary vehicle for blockchain development it raises the question of what venture capitalists will do to re-address the balance.

The intrinsic tie between ICOs and cryptocurrencies adds another twist. Cryptocurrencies have not been without controversy, but their booming and volatile values have caught attention and this has fuelled their production – as noted in Chapter 1, over 1,200 cryptocurrencies now exist. Is this too many? Will there be a consolidation or will many just become worthless relics?

And the anonymity of blockchain inevitably invites organised crime and associated AML/CTF concerns.

Whenever a market grows quickly there are concerns, in particular regulatory ones, and especially when the market is new and stretches boundaries. The most likely risks from ICOs are fraudulent schemes, capitalising on a greed for exponential growth. In addition, where ICOs lack the scrutiny that regulation provides there is also a risk that prospective investors will be misled by an incomplete or inaccurate white paper, and a risk that regulators will look out of touch if they do not respond quickly to the changing landscape.

Innovation in finance should not be stifled, but creativity often leaves regulation behind, and creates a gap between market expectations and regulatory impact. In reality, how many prospective ICO investors are scrutinising regulators' announcements before they follow the helpful step-by-step guides to buying bitcoins and then sending them to an anonymous ICO address?

Regulation has to catch up. The application of securities rules to ICOs that fall within their scope is the first obvious step, but many offers do not. So regulators face a choice: do they move the boundaries and redefine a securities offer, or perhaps recognise that ICOs need a separate, new investment category? Doing nothing seems an unlikely option.

While dramatic, the action of China in banning all ICOs at least brings the issues to the fore, and allows time for considering options – without investors losing money (Acheson 2017). Globally, the momentum behind ICOs and cryptocurrencies continues, so we can expect more changes during 2018.

These factors all point to change but also create opportunities for accountants: to be a part of the emerging distributed ledger landscape, to help innovation and drive technological ideas to commercial success, and to advise entrepreneurs on options for making this happen, in a landscape where regulation is expanding and ethical advice is essential.

Appendix

ICO regulatory pronouncements by country



The US was the first regulator to call entities launching ICOs to account and to highlight regulatory and investor issues. The US Securities and Exchange Commission (SEC) issued both a public statement (US SEC 2017a) and an investigative report (US SEC 2017b) at the end of July 2017. Both documents highlighted concerns about ICOs, but they also included positive statements, the investor bulletin opening with an acknowledgment that ICOs *'may provide fair and lawful investment opportunities'*.

The public statement, an 'Investor Bulletin' from the SEC Office of Investor Education and Advocacy, was squarely targeted at explaining the risks of ICOs to potential investors. As background it highlighted their ambiguity, explaining that *'Depending on the facts and circumstances of each individual ICO, the virtual coins or tokens that are offered or sold may be securities. If they are securities, the offer and sale of these virtual coins or tokens in an ICO are subject to the federal securities laws'*.

These laws emphasise the disclosure requirements for security offerings, designed to protect investors. These requirements stipulate that sales of securities be registered with the SEC, and the statement directs proposers to review the ICO's official registration documents. The SEC also highlights the registration 'exemption' rules that may be applied – which mean that the offering can be made only to accredited investors (with associated net worth or income requirements). This creates an 'escape-clause' for ICOs that would be regarded as 'security offerings', but where the entity concerned does not want to go through the rigour of a public offer.

As for any investment, the SEC's guidance for consumers is that they should ensure that they fully understand the ICO: what the money will be used for and what rights the virtual coins or tokens provide. The statement identifies that these details should be laid out in the ICO's 'white paper', or, if it is classified as a securities offer, its prospectus. Investors are encouraged to read this document carefully to understand the business plan. They should clearly understand how, when or if they can get their money back and any limitations to these processes.

The SEC's guidance also gives clear advice on understanding the underlying blockchain; investors should ask whether it *'is open and public, whether the code has been published, and whether there has been an independent cybersecurity audit'*. This latter point squarely alerts investors to the risk that a poorly designed environment is susceptible to a hack and the theft of their invested funds – a type of risk not found in a traditional IPO, but one that investors should keep in mind. Investigating this should be a test for determining whether they understand the underlying nature of the investment.

Much of the Investor Bulletin details the risks of ICOs for the individual investor.

Fraud. Innovative and new technologies are ripe for exploitation as vehicles for fraudulent investment schemes. The SEC alerts investors to warning signs of investment fraud: guaranteed high returns, offers that sound too good to be true, unsolicited offers, pressure to buy, unlicensed sellers, and a lack of net worth or income requirements.

Virtual currency risks are also identified, together with risks associated with virtual currency exchanges, the risk of coin theft from hackers, and the difficulty of recovering lost funds, especially from overseas entities that may themselves not be acting lawfully. The SEC identifies specific challenges when investigating ICOs following a theft, for example: the difficulty of tracing transaction flow, the international scope and limitations of cross-border information, the lack of a central authority and consequential fragmented information on ICOs and virtual currencies, and the inability to freeze virtual currencies.

The SEC simultaneously released an Investigative Report on a specific ICO: The DAO. The DAO was used as an illustration of the nature and risks of an ICO. The DAO (Decentralised Autonomous Organisation) was an unincorporated organisation created by Slock.it, a German corporation (Jentzsch 2016).⁸ The DAO was created *'with the objective of operating as a for-profit entity that would create and hold a corpus of assets through the sale of DAO Tokens to investors, which assets would then be used to fund "projects"'* (SEC Release No. 81207, 2017).

Between 30 April and 28 May 2016, The DAO offered and sold approximately 1.15bn DAO Tokens in exchange for 12 million ether (c. \$150 million in May 2016). Although Slock.it was a German company, the offer was made through the publicly available DAO website, including to individuals in the US, and this was why it attracted the attention of the US regulator.

The DAO ICO became notorious because on 17 June 2016 an attacker exploited a flaw in The DAO's code to steal around one-third of its ether. Slock.it was able to work with Ethereum to isolate the funds, and return them to The DAO but it was the end of the road for the venture.

The DAO had a high profile, even before its assets were stolen, in part owing to the record fundraising, but also the nature of the entity. As an 'autonomous organisation', it was created to use code to automate organisational governance and decision making. This therefore tested the defining boundaries of control and authority. Such definitions are new to the nature of securities, but a common proposition for a distributed ledger concept.

As with the Investor Bulletin, the Investigative Report (US SEC 2017b) determined that US federal securities laws could apply to

8 <https://blog.slock.it/@ChrJentzsch?source=post_header_lockup>

ICOs, depending on their nature. A security is defined (by what is known as The Howey test) as including ‘an investment contract: an investment of money in a common enterprise with a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others’ (SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946)). By nature, this definition is intended to be flexible so as to encompass ‘the countless and variable schemes devised by those who seek the use of the money of others on the promise of profits’.⁹ The report concludes that The DAO ICO fulfilled the SEC’s definition, and was a sale of securities, and should have been registered with the SEC. No action has been taken, or is proposed, for pursuing Slock.it or its directors; the report is aimed more at highlighting the issues and risks and preventing recurrence.

Where ICOs fall within the boundaries of a security, this requires registration, and with it ‘full and fair disclosure’. This includes ‘information about the issuer’s financial condition, the identity and background of management, and the price and amount of securities to be offered...The registration statement is designed to assure public access to material facts bearing on the value of publicly traded securities and is central to the Act’s comprehensive scheme for protecting public investors’ (US SEC 2017b).

The SEC report provides detailed analysis, supported by case law, to demonstrate exactly why The DAO ICO fell within the SEC’s definition of a security offering, with a detailed assessment of each element of the security definition. This is based on case law (SEC v. W.J. Howey Co. 1946) to determine the existence of an investment contract (Justia US Supreme Court 1946). The assessable elements drawn from this are: a contract, transaction or scheme; the investment of real money in a common enterprise; with a reasonable expectation of profits; derived from the managerial efforts of others.

It is reasonable to assume that the SEC intends future ICO promoters to review these criteria, with appropriate legal advice, and assess whether the offer constitutes a security and, if so, to ensure that the ICO complies with the registration requirements.

In the report, the SEC analyses the background to The DAO and the role of Slock.it, and its co-founders. ‘Through their conduct and marketing materials, Slock.it and its co-founders led investors to believe that they could be relied on to provide the significant managerial efforts required to make The DAO a success’ (US SEC 2017b). The participants in The DAO identified themselves as blockchain experts, they told investors they had selected ‘Curators’ (responsible for the process of deciding which projects would get investment) on the basis of their expertise and credentials, and Slock.it would put forward the first proposal. This was the most contentious of the Howey test criteria, given the nature of The DAO’s objectives, ie to be an ‘autonomous organisation’.

The report concludes by recognising that ‘Whether or not a particular transaction involves the offer and sale of a security – regardless of the terminology used – will depend on the facts and circumstances, including the economic realities of the transaction’ (US SEC 2017b).

Where the offer is deemed to be a sale of securities, then federal requirements must be adhered to, including registration. ‘The registration requirements are designed to provide investors with procedural protections and material information necessary to make informed investment decisions’ (US SEC 2017b). The SEC highlights that these requirements apply to anyone who offers and sells securities in the US ‘regardless whether the issuing entity is a traditional company or a decentralized autonomous organization, regardless whether those securities are purchased using U.S. dollars or virtual currencies, and regardless whether they are distributed in certificated form or through distributed ledger technology’ (US SEC 2017b).

This conclusion is clear and unambiguous: the SEC intends to enforce securities requirements by applying the Howey test, and to ensure adherence to registration and disclosure requirements. There was significant reaction to the two SEC documents (US SEC 2017a and 2017b): the value of digital currencies (such as ether) fell by 10–20% on the report’s release.

The report was a positive step, albeit a slightly late reaction to the surge in ICOs (bearing in mind the growth since 2014). Although highlighting the case of The DAO and the applicability of the securities definition, it does not expand on the criteria, which would help others assessing ICOs. Instead, it directs issuers to seek legal advice and ensure that they comply with SEC requirements, where applicable.

San Francisco venture capital firm Blockchain Capital¹⁰ is a textbook example. They raised \$10m in April 2017 under an ICO, clear from the outset that the token would be a security. The firm sought an exception, restricting its ICO to accredited investors, but still raised the funds within six hours (Kastelein 2017a).

On the same day that The DAO report (US SEC 2017b) was issued, the SEC Divisions of Corporate Finance and Enforcement also issued a statement. It took a positive tone about distributed ledger technologies and their potential for influencing and improving capital markets and the wider financial services industry. The statement asserted that the Divisions were: ‘hopeful that innovation in this area will facilitate fair and efficient capital raisings for small businesses’. But the SEC Divisions also recognised their ‘obligation to protect investors and recognize that new technologies can offer opportunities for misconduct and abuse’.

Since these documents were published in June 2017, the SEC appears to be contacting ICO promoters where there may be a

⁹ <<https://www.cuttingedgecapital.com/what-is-a-security-and-why-does-it-matter/>>

¹⁰ <<http://blockchain.capital/>>

registration requirement. One example is Protostarr, which abandoned its ICO, with this statement in September 2017: *'We were recently contacted by the SEC, and under advisement from legal counsel, we're ceasing all operations'* (Shin 2017).

Later that month, the SEC went further, bringing charges against two companies (REcoin and Diamond Reserve Club) and the person behind them for *'defrauding investors in a pair of so-called initial coin offerings (ICOs) purportedly backed by investments in real estate and diamonds'* (US SEC 2017c). As a result, the SEC obtained an emergency court order to freeze assets; the charges filed by the SEC relate to *'violations of the anti-fraud and registration provisions of the federal securities laws'* (US SEC 2017c). Both ventures were taking money from investors with no evidence or intention of undertaking the asset-related activities; they were a fraud.

Also in September 2017, the SEC announced the creation of a 'Cyber Unit' that will focus on cyber-related misconduct, with focus areas that include: *'Violations involving distributed ledger technology and initial coin offerings'* (US SEC 2017e).

In December 2017 the SEC issued a statement on Munchee and its proposed ICO (US SEC 2017d). As a result of investigation by the SEC, and an issuance of a cease-and-desist order, Munchee abandoned its plans for an ICO (US SEC 2017f). Munchee was intending to use the ICO to raise capital for its blockchain-based food-review service; the SEC statement determined that the nature of the offer meant that the tokens constituted securities under the SEC rules.

Also in December 2017, the SEC issued a press release detailing the emergency asset freeze of PlexCorps, which had raised \$15m from thousands of investors by *'falsely promising a 13-fold profit in less than a month'* (US SEC 2017g).

The statements and actions from the SEC have more direct impact on ICO promoters than on investors. Investors are advised to be cautious, to understand what they are investing in, and to be aware of the risks. They are also advised that many ICOs constitute securities sales, and that they should inspect the documents that promoters are required to file. This puts the requirement on promoters to identify whether their ICO falls under the criteria of a securities offer. If it does, then they have to comply with the securities regulations. Whether it does or not, is likely to require legal advice, and therefore additional cost to the promoter. This will mean that some ICOs are not viable. It also adds a risk to a planned ICO – the late discovery that it should be registered with the SEC. We can expect to see more legal cases from the SEC, and more intervention pre-ICO. This all affects ICOs that fall within the scope of the rules on securities offers. For the rest, there is currently no change, but equally no guarantee that the SEC will not add additional requirements for ICOs.

SINGAPORE

Singapore has become a favoured location for launching ICOs. The country has a history of attracting start-ups owing to its favourable taxation regime, progressive regulation and state support for innovation. The Singapore Central Bank, the Monetary Authority of Singapore (MAS), has been active in the support of FinTech initiatives, including the creation of a Regulatory Sandbox for experimenting with Fintech initiatives (MAS 2016). In support of blockchain research, MAS launched the Project Ubin initiative, a collaborative project on the potential for distributed ledger technology for settlement and clearing (MAS 2018). Phase one, concluded in November 2016, focused on inter-bank payments and the use of a tokenised Singapore dollar on a distributed ledger. A second phase and spin-off projects are under way.

Recognising the emerging trends, as well as the anonymity issues, MAS issued a statement in March 2014¹¹ that, although digital currencies were not regulated per se by MAS, intermediaries of virtual currencies would be regulated for money laundering and terrorist financing risks. This required virtual currency intermediaries (entities that buy, sell or facilitate the exchange of virtual currencies for real currencies) to verify the identities of their customers and report suspicious transactions to the Suspicious Transaction Reporting Office. The requirements are equivalent to those imposed on businesses that undertake cash transactions (eg money changers). In its statement, MAS emphasised that virtual currencies are not considered securities or legal tender. MAS drew a distinction, while highlighting the risks, by stating that its regulation *'does not extend to the safety and soundness of virtual currency intermediaries nor the proper functioning of virtual currency transactions. Investors in virtual currencies will not have the safeguards that investors in securities enjoy under the Securities and Futures Act and the Financial Advisers Act'*.

In 2017, with the increase in number of Singapore-centred ICOs, MAS intensified its focus, recognising that digital tokens no longer solely function as virtual currencies. In early August 2017 MAS updated its regulatory position around 'the offer of digital tokens', by stating that the offer or issue of digital tokens in Singapore will be regulated by MAS if the digital tokens constitute products regulated under the Securities and Futures Act (SFA), as opposed to mere virtual currency (MAS 2017a). It illustrated this by stating that *'digital tokens may represent ownership or a security interest over an issuer's assets or property. Such tokens may therefore be considered an offer of shares or units in a collective investment scheme under the SFA. Digital tokens may also represent a debt owed by an issuer and be considered a debenture under the SFA'* (MAS 2017a). The SFA's scope encompasses shares, debentures, futures contracts, collective investment schemes, business trusts, and real estate investment trusts.

11 <<http://www.mas.gov.sg/news-and-publications/media-releases/2014/mas-to-regulate-virtual-currency-intermediaries-for-money-laundering-and-terrorist-financing-risks.aspx>>

Consistent with the US SEC's approach, the Singapore regulator now requires that where digital tokens fall within the definition of securities, issuers are required to lodge and register a prospectus with MAS. Additionally, secondary trading platforms of tokens must be recognised or authorised by MAS; this effectively requires registration of cryptocurrency exchanges. These changes reflect recognition that an ICO is generally a fund-raising mechanism that issues digital tokens in exchange for investment received. Subscribing investors should be entitled to protection that is no different from the protection extended to those engaging in equity or loan-based crowdfunding.

At present, securities dealers in Singapore need a Capital Markets Services (CMS) licence from MAS, together with sizeable contingency deposits. For example, crowdfunding platforms require base capital and minimum operational risk requirements of SGD50,000, even if they target only institutional investors and do not handle or hold customer monies, assets or positions.

The note again stressed the risks of money laundering and terrorist financing, highlighting that *'large sums of monies may be raised in a short period of time'* (MAS 2017a). MAS emphasised that the types of digital token offered via ICOs vary widely and it recognised that some would be subject to the SFA, but others would not, highlighting the need for legal guidance. This again is consistent with the US position, drawing attention to existing definitions of securities, though without additional guidance or rules.

MAS followed up this clarification note with a joint Advisory Note in conjunction with the Commercial Affairs Department CAD (the Singapore Police Financial Crime Division) (MAS 2017b). This note alerts consumers to the potential risks of digital token and virtual-currency-related investment schemes. In the last two years, over 100 complaints have been filed with CAD relating to ICOs (Tan 2017). The advisory note highlights the need for consumers to understand the investment product, by understanding fully the underlying project, business and assets, as well as the associated risks of the ICO. The note highlighted specific examples of risks including foreign and online operators, sellers without a proven track record, insufficient secondary market liquidity, highly speculative investments, investments promising high returns, and money laundering and terrorist financing.

The note highlights that some, but not all products require regulation, urging investors not only to check the MAS directory of regulated Financial Institutions, but also to check if the entity is identified as one with a record of claiming to be regulated when in fact it is not.

The note ends by urging investors to pause before rushing into an investment decision and to:

1. *Make sure they fully understand the benefits and risks of the product or service before committing.*
2. *Assess whether the features of the product or service offered meet their needs.*
3. *Before committing to an investment, consumers should ASK, CHECK and CONFIRM*
 - a. *ASK the seller as many questions as they need to fully understand the investment opportunity*
 - b. *CHECK if the information provided by the seller on itself or its scheme is true*
 - c. *CONFIRM before investing, the seller or its representative's credentials. (MAS 2017b)*

Commentators on the Singapore regulator statements have pointed out that this recognition that not all ICOs fit the traditional structure of securities may mean that a new class of investment product classification is needed, recognised as being distinct, but still requiring regulation and investor protection (Taylor Vinters LLP 2017).

MAS made a further statement in December 2017 to warn investors of the risk of investment in cryptocurrencies; citing a concern that *'members of the public may be attracted to invest in cryptocurrencies, such as Bitcoin, due to the recent escalation in their prices'*.¹²

MAS has also included 'virtual-currencies' as a topic for consideration in its consultation paper on the Proposed Payment Services Bill, issued in November 2017 (MAS 2017c). The bill is intended to streamline payments legislation, while recognising changes to the payments landscape and the associated change in risks.

CANADA

Recognising the investor risks from ICOs, the Canadian Securities Administrators (CSA) issued a Staff Notice on 24 August 2017 on 'Cryptocurrency Offerings', to help promoters *'understand what obligations may apply under securities laws'* (CSA 2017).

The position of the CSA is consistent with that of other regulators – focusing primarily on the definition of securities and passing responsibility back to the ICO promoter to ensure that they fulfil the regulatory requirement if the ICO constitutes an offer of securities. There has been the creation of the four-pronged criteria¹³ by which a security offer can be identified; consistent with the US 'Howey test'. Where an offer constitutes securities, the CSA requires a prospectus and registration, unless certain exceptions apply.

¹² <<http://www.mas.gov.sg/News-and-Publications/Media-Releases/2017/MAS-cautions-against-investments-in-cryptocurrencies.aspx>>

¹³ <http://www.osc.gov.on.ca/en/SecuritiesLaw_csa_20170824_cryptocurrency-offerings.htm>

The notice outlined the requirements for cryptocurrency trading, and the requirement for a securities marketplace to adhere to the CSA's rules and be registered (CSA 2017a). The notice also recognised that currently there are no marketplaces registered.

Then in December, following the US launch of bitcoin-based futures contracts, the CSA issued a specific warning to dealers and investors of *'the inherent risks associated with products linked to cryptocurrencies, including futures contracts'* (OSC 2017). The note highlighted the price volatility and unrelated nature of the investments, even if traded on regulated exchanges.

CHINA

The US and Singapore regulators were consistent in their approaches, but these were followed by a more dramatic statement from China. On 4 September 2017, China's central bank banned all ICOs (People's Bank of China 2017) in a statement that criticised ICOs for *'disrupting the country's financial order'* (Vincent 2017). The Chinese regulator identified ICOs as being *'a form of unapproved illegal public financing'* that creates speculative investments, often with false assets, and a suspicion of illegal financial activities – such as financial fraud and pyramid schemes.

The Chinese central bank also reinforced its position that cryptocurrencies do not have legal status. While not banning cryptocurrencies themselves, the state has banned cryptocurrency exchanges, including pricing and information services, and violators are having their websites taken down.

The ban on ICOs brought a dramatic halt to an accelerating market in China. There were 43 ICO platforms in China as of 18 July 2017, according to a report by the National Committee of Experts on the Internet Financial Security Technology (Rapoza 2017). This report identified that 65 ICO projects had been completed in China, raising 2.6bn yuan (\$398m) (Vincent 2017). Then in July and August alone, ICOs raised another \$766 million worth of cryptocurrencies. It is thought that this acceleration in activity may have precipitated the announcement by the regulator.

China's president identified *'financial security'* as a top priority in 2017, the year of the 19th National Congress (the once-in-five-years leadership transition: October 2017), so perhaps it is not surprising that action was taken so swiftly and decisively.

In January 2018 it was reported that Chinese regulators had persuaded Renren to abandon its plans for an ICO, with a suggestion that the regulator was focusing on overseas-listed Chinese companies (Bloomberg Technology 2018).

China's approach to blockchain and related cryptocurrencies has been mixed. In 2013 China banned banks from handling bitcoin

transactions (BBC 2013). At the time, China accounted for around one-third of global bitcoin transactions (Rabonovitch 2013). It stopped short of an outright ban on bitcoin (Thailand did this in July 2013 (Trotman 2013)) allowing investors to buy and sell at their own risk. The Chinese regulator highlighted specific risks for bitcoin trading:

- price volatility in (relatively) small-volume markets and the risk that market influence by speculators will heighten investment risk
- the anonymous nature of bitcoin, creating susceptibility for money laundering and terrorism financing through its potential use for criminal activity – eg weapons and drugs trading.

The Chinese central bank is not averse to blockchain development. In June 2017 it announced an active push on blockchain research as part of a five-year plan to advance technology in the finance sector (Tian 2017). This strategy has included testing a blockchain-based digital currency. This distinction is important; blockchain is consistently seen globally as a capability with huge future potential.

It is unlikely that the ICO ban in China will be permanent, with a temporary halt allowing the market to settle and the regulators an opportunity to put consumer protection in place (Acheson 2017; Boxmining 2017; Houser 2017). China's experience in securitisation followed a similar pattern with a ban in 2007–8 during the global financial crisis and a resumption in 2012 (Shen and Ruwitsch 2017).

RUSSIA

Also on 4 September the Bank of Russia, the central bank, issued a statement on cryptocurrencies¹⁴ that reaffirmed a statement in 2014¹⁵. The statement highlights that cryptocurrencies are neither regulated nor supported by the Bank of Russia. It identifies the risks in cryptocurrencies arising from their anonymous nature – referencing illegal activities, money laundering and funding terrorism. The statement specifically highlights the volatile nature of cryptocurrencies and the risks of investments in ICOs.

Later in September, Moscow hosted Russia's first ICO conference,¹⁶ which attracted over 300 attendees. Then in October Vladimir Putin signed five decrees¹⁷ for the government *'to come up with legal definitions for cryptocurrencies, create a tax on mining them, and a legal procedure for initial coin offerings based on Russian IPO regulation by July next year'* (Seddon 2017). In December 2017 the Russian Association of Blockchain and Cryptocurrency (RACIB) announced its intention of developing, with a consortium of about 30 global bodies, a uniform ratings standard for ICOs.¹⁸ No further information has yet been published on the proposed standards.

14 <https://www.cbr.ru/press/PR/?file=04092017_183512if2017-09-04T18_31_05.htm> 4/9/17.

15 <https://www.cbr.ru/press/PR/?file=27012014_1825052.htm> 27/1/14>

16 The conference website is on: <<https://icoevent.ru/en>> accessed 25 January 2018.

17 <<https://www.ft.com/content/556d773f-cfe9-3337-bb0f-ad06ce389189>> 24/10/17

18 <<https://news.bitcoin.com/russia-global-ico-ratings-standard-30-countries/>>

In December 2017 the Chairman of the State Duma Financial Market Committee indicated¹⁹ that the Russian government was considering a limit on how much individual investors could invest in ICOs – with an amount per project (c.\$1,000) and a limit per year (c. \$10,000).

In January 2018 the Russian minister of finance announced that a bill was in the process of being drafted to legalise the trading of cryptocurrencies on approved exchanges.²⁰ It is expected to be put before Russia's Parliament in February 2018.

HONG KONG

The Securities and Futures Commission (SFC), Hong Kong's regulator, issued a statement on 5 September 2017 (SFC 2017). This identified that ICOs may constitute the offer of securities (shares, debentures or collective investment schemes). The definition and regulation of securities is contained within the SFC's Securities and Futures Ordinance (SFO) (SFC 2002).

The statement highlighted the need for securities offerings to comply with Hong Kong securities laws, and that dealing or advising in securities is a regulated activity that requires licensing or registration with the SFC.

The statement also contains cautionary notes for investors, and a warning on the risks of and regulations affecting money laundering and terrorist financing.

UK

The UK's financial regulator, the Financial Conduct Authority (FCA), issued a statement on ICOs on 12 September 2017 (FCA 2017a). This warns consumers that ICOs are 'very high-risk, speculative investments'. The brief statement provides an unambiguous warning:

'You should be conscious of the risks involved (highlighted below) and fully research the specific project if you are thinking about buying digital tokens. You should only invest in an ICO project if you are an experienced investor, confident in the quality of the ICO project itself (e.g. business plan, technology, people involved) and prepared to lose your entire stake' (FCA 2017a).

The FCA outlines the stark risks in ICOs:

- **unregulated space:** most ICOs are not regulated by the FCA and many are based overseas
- **no investor protection:** you are extremely unlikely to have access to UK regulatory protections such as the Financial Services Compensation Scheme or the Financial Ombudsman Service

- **price volatility:** like that of cryptocurrencies in general, the value of a token may be extremely volatile and vulnerable to dramatic changes
- **potential for fraud:** some issuers might not intend to use the funds raised in the way set out when the project was marketed
- **inadequate documentation:** instead of a regulated prospectus, ICOs usually only provide a 'white paper'; an ICO white paper might be unbalanced, incomplete or misleading; a sophisticated technical understanding is needed for full understanding of the tokens' characteristics and risks
- **early stage projects:** typically, ICO projects are in a very early stage of development and their business models are experimental. There is a good chance that an investor will lose their whole stake.

The FCA also highlighted the ambiguity of ICOs, with some falling within existing investment regulations, but many not. The FCA also pointed out that firms involved in an ICO may already be conducting regulated activities, but the precise impact of this distinction is to be clarified.

The FCA's guidance is that where an ICO structure has parallels with Initial Public Offerings (IPOs), private placements of securities or similar investment structures, the businesses involved may be carrying out regulated activities or may need to be authorised by the FCA. Such activities could include digital currency exchanges, if they facilitate the exchange of tokens as part of an ICO. Although aimed at consumers, the FCA statement also addresses businesses involved in an ICO, emphasising that they should *'carefully consider if their activities could mean they are arranging, dealing or advising on regulated financial investments'* (FCA 2017a).

The FCA recognises that certain ICOs may fall within the UK's Prospectus Rules (FCA 2018). These require a formal prospectus to be published for any offer of transferable securities to the public (some exemptions apply). The FCA also notes that the European Prospectus Regulation, published in June 2017, and with rolling implementation that will be fully implemented in 2019, may have an impact (European Commission 2017).

The Regulation applies to situations where 'securities' are offered to the public, using the definition of 'transferable securities from MiFID' (the Markets in Financial Instruments Directive).

Transferable securities are those classes of securities which are negotiable on the capital market, with the exception of instruments of payment, such as:

¹⁹ <<https://rns.online/finance/V-Gosdume-predlagayut-vesti-limit-na-pokupku-tokenov-v-hode-ICO-v-razmere-100-tis-rub---2017-11-15/>>

²⁰ <<https://rns.online/finance/TSB-podtverdil-obsuzhdenie-c-Minfinom-legalizatsii-torgovli-kriptovalyutami-cherez-birzhi--2018-01-11/>>

1. *Shares in companies and other securities equivalent to shares in companies, partnerships or other entities, and depositary receipts in respect of shares*
2. *Bonds or other forms of securitized debt, including depositary receipts in respect of such securities*
3. *Any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures.*

This is very broad, and the three examples are just that – the list is not exhaustive.

The onus is therefore on ICO issuers to demonstrate (with appropriate legal advice) that their offering does not fall within these definitions.

The FCA issued a discussion paper on distributed ledger technology (DLT) in April 2017 (FCA 2017b) and issued a feedback statement in December 2017 (FCA 2017c). In the discussion paper, the FCA noted the emergence of ICOs, recognising the potential regulatory issues around the ‘classification of proprietary tokens’, stating that: *‘Initial coin offerings, therefore, have various parallels with Initial Public Offerings, private placement of securities, or crowd sales. Depending on how they are structured, they may, therefore, fall into the regulatory perimeter’*. The paper elicited responses to the question *‘What legal and regulatory challenges do firms find in fitting initial coin offerings into our regulatory framework?’* (FCA 2017b).

In the summary paper, the FCA noted that *‘the nature of each token, project, service, company and so on, can vary greatly, making overall classification of ICOs from a legal perspective more difficult’* and added *‘Having already issued an alert warning consumers of the speculative nature and high risks of ICOs, we will gather further evidence on the ICO market and conduct a deeper examination of the fast-paced developments. Our findings will help to determine whether or not there is need for further regulatory action in this area’* (FCA 2017b).

The FCA did not elaborate on the parallels between ICOs and IPOs but activities in 2016 and 2017 aimed at reforming IPO processes provide a guide. The FCA issued a policy statement on ‘the availability of information in the UK equity IPO process (FCA 2017d)’ in October 2017, which followed a discussion paper (FCA 2016). These focus on ensuring that the prospectus plays a more central role in IPOs, after criticism over the timing, sequencing and quality of information provided.

DUBAI

The Dubai Financial Services Authority (DFSA) issued an Investor Statement on 13 September 2017 that highlighted the risks of ICOs, described as ‘*certain new and evolving online offerings*’ stating that *‘These offerings should be regarded as high-risk investments’* (DFSA 2017).

The note emphasises that the DFSA neither regulates these product offerings nor licenses firms undertaking ICOs. The brief note concludes by directing consumers to advice on ‘How to avoid being scammed’.

AUSTRALIA

The Australian Securities and Investments Commission (ASIC) issued an Information Sheet on Initial Coin Offerings on 28 September 2017 (ASIC 2017). The statement recognised that many other regulators had already issued guidance and its content was consistent with the majority.

It recognised the potential importance of ICOs, but emphasised the need for investor *‘trust and confidence’*. It highlighted that the legal status of an ICO is dependent on circumstances: specifically, its structure and rights; and that an ICO could constitute an offer of shares or derivatives, or it could be a managed investment scheme. The statement highlighted the protection provided to investors for investments covered by the regulations and the risk to investors on ICOs that are not so covered. Australian ICO activity has continued, for example FinTech start-up HCash raised AUS \$53m (£30m) in an ICO that completed in December 2017 (Kastelein 2017b). HCash provides connectivity between blockchain systems, allowing the transfer of information and value.

SOUTH KOREA

South Korea is the third-largest market for bitcoin trading (after Japan and the US) (Kim 2017). The regulator in South Korea, the Financial Services Commission (FSC) announced on 29 September 2017 (White, Harris 2017; O’Leary 2017)²¹ a proposal to ban all ICOs, owing to increased risk of financial scams, and that *‘stern penalties’* will be issued to financial institutions and any parties involved in issuing ICOs. The FSC argued that the action was necessary as part of the need for tight control and monitoring of virtual currencies – \$89m was raised in ICOs in September 2017 alone. Since then there have been no legislative changes but there has been much speculation, including on the potential for taxing bitcoin trades.

In January 2018 the FSC issued a press release detailing inspections at six commercial banks to validate adherence to AML obligations, in relation to transactions with cryptocurrency exchanges (FSC 2018).

21 Reported in: <<https://www.ft.com/content/eb981cd8-9923-37c3-9ec3-e5276b65ee8e?mhq5j=e7>> and <<https://www.coindesk.com/south-korean-regulator-issues-ico-ban/>>.

SWITZERLAND

Switzerland has been an active hot-spot for cryptocurrency start-ups, owing to its favourable tax regime. Forbes reported in September 2017 that Switzerland was accountable for \$600m of the \$2bn raised ICOs in 2017 (Torpey 2017). In December 2017, Swiss-based SingularityNET raised \$36m via an ICO – in less than 60 seconds.²² The overwhelming take-up (the ICO was 10x oversubscribed) is indicative of the combined interest in AI, blockchain and cryptocurrencies. SingularityNET is building a blockchain-based marketplace for AI algorithms.

On 29 September 2017, the Swiss Financial Market Supervisory Authority (FINMA) issued a guidance note on 'The Regulatory Treatment of Initial Coin Offerings' and stated that a number of ICOs were being investigated 'to determine whether regulatory provisions have been breached' (FINMA 2017a).

The note identified ICOs as being 'a digital form of the initial public offerings that businesses carry out but which, by contrast, exclusively takes place using blockchain technology'. Like previous regulators, FINMA recognised the 'innovative potential' of blockchain and emphasised its support for associated research (FINMA 2017a).

FINMA noted, but without being specific, that 'depending on how an ICO is structured' some elements of existing regulations may apply, calling out AML/TF, banking law, securities trading and collective investment scheme legislation. The note closed with an identification of the investor risks associated with ICOs, and the action being taken to address fake cryptocurrencies. It referenced a previous press release on its action in closing down 'E-Coin', which took at least €4m when no actual blockchain currency existed (FINMA 2017b).

FRANCE

The French regulator, Autorité des Marchés Financiers (AMF), was one of the last to make an initial statement on ICOs, but in doing so it has taken a distinctive position. The statement (26 October 2017), highlights the investor risks with ICOs but also provides the clearest definition of their unique elements:

'ICO transactions are intended to finance technological projects at an early stage of their development. Purchasing tokens requires a good understanding of the nature of these projects, the underlying technology and the related risks. This type of fundraising is by nature intended for a technologically oriented and informed audience. The tokens issued during these transactions have different characteristics specific to each transaction, and it is essential to be informed about the nature of the token issued, what it represents for the enterprise that issues it, and the related risks and benefits' (AMF 2017a).

The AMF has undertaken an in-depth study of ICOs (though it has not divulged details of what this involved) and determined that while some would fall under existing regulations 'most of these issues would fall, in the current state of the law, outside of any regulation for which the AMF ensures compliance'. Recognising that most ICOs do not fall within existing regulation, such as securities, the AMF initiated a consultation (AMF 2017b; closed on 22 December 2017) to consider three options for ICOs:

- to create a guide to good practice for ICOs (ie unregulated guidance), or
- to extend existing regulation around securities offers to encompass ICOs, or
- to propose new, distinct legislation specific to ICOs.

A date for communicating the findings of the consultation has not been set.












The AMF also announced the UNICORN programme²³ (Universal Node to ICOs Research and Network) that will provide a framework for guidance on ICOs, designed to protect both investors and issuers. Supported by academic research, the AMF intends to publish an initial impact analysis of ICOs in a year's time.

²² <<http://www.finsmes.com/2017/12/singularitynet-raises-36m-in-public-token-sale.html>>

²³ <http://www.amf-france.org/en_US/Actualites/Communiqués-de-presse/AMF/annee-2017?docId=workspace%3A%2F%2FSpacesStore%2F5097c770-e3f7-40bb-81ce-db2c95e7bdae>.

Summary of regulators' statements

COUNTRY	DATE	ENTITY	POSITION	STATEMENT LINK
 Russia	January 2014	Bank of Russia	Risks of crypto currencies	https://www.cbr.ru/press/PR/?file=27012014_1825052.htm
 Singapore	March 2014	Monetary Authority of Singapore (MAS)	MAS to Regulate Virtual Currency Intermediaries for Money Laundering and Terrorist Financing Risks	http://www.mas.gov.sg/news-and-publications/media-releases/2014/mas-to-regulate-virtual-currency-intermediaries-for-money-laundering-and-terrorist-financing-risks.aspx
 US	July 2014	SEC Office of Investor Education and Advocacy	Investor Alert: risks of investments involving bitcoin and other virtual currencies	https://investor.gov/additional-resources/news-alerts/alerts-bulletins/investor-alert-bitcoin-other-virtual-currency
 US	25 July 2017	SEC Office of Investor Education and Advocacy	Investor Bulletin: ICOs that constitute securities need to follow SEC regulations	https://www.sec.gov/oiea/investor-alerts-and-bulletins/ib_coinofferings
 US	25 July 2017	SEC (Distributed Ledger Technology Working Group)	Investigative Report: The Dao an example of an ICO that constitutes a security offer	https://www.sec.gov/litigation/investreport/34-81207.pdf
 US	25 July 2017	SEC Divisions of Corporate Finance and Enforcement	Reinforcement of need for securities offers to comply with regulations	https://www.sec.gov/news/public-statement/corpfen-enforcement-statement-report-investigation-dao
 Singapore	May 2017	Monetary Authority of Singapore (MAS)	Conclusion of phase one of Project Ubin: Central Bank Digital Money using Distributed Ledger Technology	http://www.mas.gov.sg/Singapore-Financial-Centre/Smart-Financial-Centre/Project-Ubin.aspx
 Singapore	1 August 2017	Monetary Authority of Singapore (MAS)	ICOs that constitute securities need to follow MAS regulations	http://www.mas.gov.sg/News-and-Publications/Media-Releases/2017/MAS-clarifies-regulatory-position-on-the-offer-of-digital-tokens-in-Singapore.aspx
 Singapore	10 August 2017	Monetary Authority of Singapore (MAS)	Commercial Affairs Department CAD (the Singapore Police Financial Crime Division).	http://www.mas.gov.sg/News-and-Publications/Media-Releases/2017/Consumer-Advisory-on-Investment-Schemes-Involving-Digital-Tokens.aspx
 Canada	24 August 2017	Canadian Securities Administrators (CSA)	Responsibility of ICO promoter to fulfil regulatory requirements	http://www.osc.gov.on.ca/documents/en/Securities-Category4/csa_20170824_cryptocurrency-offerings.pdf
 China	4 Sept 2017	People's Bank of China	All ICOs banned for 'disrupting the country's financial order'	http://www.pbc.gov.cn/english/130721/3377816/index.html
 Russia	4 Sept 2017	Bank of Russia	Reaffirmation of the risks in cryptocurrencies	https://www.cbr.ru/press/PR/?file=04092017_183512if2017-09-04T18_31_05.htm
 Hong Kong	5 Sept 2017	Securities and Futures Commission (SFC)	Digital tokens may be 'securities' and subject to securities regulation	http://www.sfc.hk/edistributionWeb/gateway/EN/news-and-announcements/news/doc?refNo=17PR117
 UK	12 Sept 2017	Financial Conduct Authority (FCA)	Warning about ICOs as high-risk, speculative investments	https://www.fca.org.uk/news/statements/initial-coin-offerings
 UK	April 2017	Financial Conduct Authority (FCA)	Discussion Paper on distributed ledger technology	https://www.fca.org.uk/publication/discussion/dp17-03.pdf

COUNTRY	DATE	ENTITY	POSITION	STATEMENT LINK
 Dubai	13 Sept 2017	Dubai Financial Services Authority (DFSA)	ICOs should be regarded as high-risk investments	https://www.dfsa.ae/MediaRelease/News/DFSA-Issues-General-Investor-Statement
 US	25 Sept 2017	Securities and Exchange Commission	SEC announces enforcement initiatives	https://www.sec.gov/news/press-release/2017-176
 Australia	28 Sept 2017	Australian Securities and Investments Commission	ICOs may fall within existing legislation	http://asic.gov.au/regulatory-resources/digital-transformation/initial-coin-offerings/
 Switzerland	29 Sept 2017	Financial Market Supervisory Authority (FINMA)	ICOs may fall within existing regulations	https://www.finma.ch/en/news/2017/09/20170929-mm-ico/
 US	29 Sept 2017	Securities and Exchange Commission	SEC exposes two ICOs	https://www.sec.gov/news/press-release/2017-185-0
 France	26 October 2017	Autorité des Marchés Financiers (AMF)	AMF launches consultation and initiates UNICORN	http://www.amf-france.org/Actualites/Communiqués-de-presse/AMF/annee-2017?docId=workspace%3A%2F%2FspacesStore%2F5097c770-e3f7-40bb-81ce-db2c95e7bdae
 Singapore	19 December 2017	Monetary Authority of Singapore (MAS)	Consultation Paper on Proposed Payment Services Bill	http://www.mas.gov.sg/News-and-Publications/Consultation-Paper/2017/Consultation-Paper-on-Proposed-Payment-Services-Bill.aspx
 US	11 December 2017	Securities and Exchange Commission	Company halts ICO after SEC concerns	https://www.sec.gov/news/press-release/2017-227 https://www.sec.gov/litigation/admin/2017/33-10445.pdf
 Singapore	19 December 2017	Monetary Authority of Singapore (MAS)	MAS cautions against investments in cryptocurrencies	http://www.mas.gov.sg/News-and-Publications/Media-Releases/2017/MAS-cautions-against-investments-in-cryptocurrencies.aspx
 UK	December 2017	FCA	Feedback on DLT discussion paper	https://www.fca.org.uk/publication/feedback/fs17-04.pdf
 South Korea	8 January 2018	Financial Services Commission	Inspections of commercial banks	http://www.fsc.go.kr/downManager?bbsid=BBS0048&no=122667

Resources

ICOS

- **ICO Alert:** active and current and upcoming token sales and ICOs: <https://www.smithandcrown.com/icos/>
- **TokenMarket:** includes token and cryptocurrency database: <https://tokenmarket.net>
- **CoinSchedule:** <https://www.coinschedule.com/>

BLOCKCHAIN

- **Blockchain News:** <http://www.the-blockchain.com/>
- **Blockchain Research Institute:** <https://www.blockchainresearchinstitute.org/>
- **Blockchain Research at TUM (Technische Universität München):** <http://www.blockchain.tum.de>
- **Massachusetts Institute of Technology:** <http://blockchain.mit.edu>

CRYPTOCURRENCIES

- **Coindesk** – digital media, events and information services company for the digital asset and blockchain technology community: <https://www.coindesk.com/>
- **Cointelegraph** – news and analyses on the future of money: Fintech, Blockchain and Bitcoin: <https://cointelegraph.com/>
- **Bitcoin Magazine:** <https://bitcoinmagazine.com/>
- **Bitcon Forum** – bitcoin discussion forum: <https://bitcointalk.org/index.php>

CONCEPTS AND REFERENCE

- **Bitcoin Wiki:** https://en.bitcoin.it/wiki/Main_Page

CRYPTOCURRENCIES – THE BASICS

ICOs typically accept payments in either bitcoin or ether, both cryptocurrencies. Cryptocurrencies are digital assets that use cryptography to secure the transactions using what is known as ‘public key encryption’. This uses two keys: a public key for authentication and a private key, known only by the owner and used to decrypt the message.

With blockchain-based currencies the control of transactions is managed by a distributed ledger (the blockchain). The ledger is publicly shared (distributed) and creates a permanent, immutable record of each confirmed transaction. By nature, a distributed ledger has no central authority. Instead, block chain relies on a peer-to-peer network that creates consensus about transactions and records. It does this by periodically (roughly

every 10 minutes) creating a new ‘block’. Participants in the network (bitcoin miners) compete to create a new block, combining new transactions and a difficult proof-of-work problem. The problem is challenging, takes computing effort and trial and error, but once a solution is found it can be easily validated as correct, the block and transactions confirmed and added to the ledger. Successful ‘miners’ are rewarded with bitcoins for their work. This encourages participation and reinforces the peer-to-peer network and distributed foundation.

It also means that the ledger, which records the transactions, is accurate. The security issues around cryptocurrencies have arisen through the challenges of public key encryption and the risks that if keys are lost or stolen, coins can then be misappropriated.

Case Study: Mt Gox



Mt Gox was a bitcoin exchange that ultimately went bankrupt in 2014 after a breach disclosed in 2011, which resulted in the theft of 850m bitcoins with a value at the time of over \$460m; Adelstein and Stucky 2016; Hornyak and Kirk 2014; Nilsson 2017). At the same time, \$27m in company funds was stolen. Mt Gox was the largest bitcoin exchange.

Bitcoins had been hacked previously and the loss of bitcoins announced in 2011 appears to have taken place over a period of time, probably since before 2011. The uncertainty underlies the lack of controls and transparency at Mt Gox, and these were probably the underlying cause. Mt Gox was an unregulated private company that went from being an online marketplace for trading cards in a fantasy game to handling 70% of all global bitcoin transactions. A combination of poor controls over the handling of customer accounts and their reconciliation is one factor. In addition, control of the development of the trading exchange software was poor, with inadequate version control and a failure to address known security issues quickly.

The blockchain record is immutable, so the transaction log provides a consistent, permanent record of transactions. The result is that after a hack such as that of Mt Gox it is, in theory, possible to trace transactions through the blockchain record. After the Mt Gox breach investigators were able to trace the destination of the stolen coins. The anonymous nature of blockchain, however, makes identification of those responsible challenging. Nonetheless, in July 2017 a Russian was arrested in Greece, and may be extradited to the US, accused of laundering more than \$4bn in bitcoin, including funds stolen from Mt Gox (Gibbs et al. 2017).

Case Study: Bitfinex



Bitfinex (<https://www.bitfinex.com>) is a Hong-Kong based bitcoin exchange that came to prominence in August 2016 when a security breach resulted in the theft of 119,756 bitcoins from customer accounts, with a value of \$72m (Baldwin 2016). The price of bitcoin fell by 20%. This was the second time that bitfinex had been hacked – the first time was in May 2015 when 1,500 coins were stolen – and it raised concerns about the risks and stability of bitcoin and blockchain. These are two separate areas and the hack at Bitfinex was not related to blockchain itself but to the storage of bitcoins (Kaminska 2016).

Bitcoin accounts, as hacked at Bitfinex, are only as secure as the private encryption keys that secure them. These are complex strings of characters, and can easily be lost or forgotten. So to counter this, exchanges such as Bitfinex provide a service managing keys on users' behalf. This is where the mechanics of the hack become unclear; as would be expected there is much speculation of the method of breaching these encryption keys, but no hard facts. It has led to widespread concerns over the ability of a central exchange to hold customer funds securely.

The breach at Bitfinex also highlighted a lack of transparency. Bitfinex is not publicly traded, so there is limited information on the company's financials, for example it publishes no revenue figures. In May 2017 Bitfinex announced that it had appointed Friedman LLP to perform 'a comprehensive balance sheet audit'. Bitfinex recognised that 'finding a reputable audit that is crypto-savvy has not been easy' (Bitfinex 2017a). The announcement also stated: 'The comprehensive balance sheet audit, which will be dated June 30th, 2017, will require considerable time and resources on both sides'. Bitfinex has made no further statement on the audit, or indicated whether it will be made public, although in May the company also stated that, 'In connection with our engagement of Friedman and their expertise in the digital currency industry, we will be undertaking a process to optimize our financial operations and streamline internal accounting procedures as we push toward the goal of having fully audited financials (both balance sheet and operating results) in 2018' (Bitfinex 2017a).

Bitfinex applied a 36% reduction to all account balances after the hack, exchanging this reduction for its tokens. In April 2017 Bitfinex (2017b) announced it had bought back all the BFX tokens, and so had paid back all the stolen bitcoins. This put customers' bitcoin holdings back to where they had been in August 2016. In that time, the value of bitcoin had increased by 183%.

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