

Blockchain: threat or opportunity?

Recent times have seen the world in the grip of **bitcoin** mania. As retail investors joined the gold rush en masse its value soared. This is rightly prompting banks to consider how the rise of this name brand crypto currency, and its numerous derivatives, will impact upon them.

Before understanding this, it's important to define crypto currencies and blockchain, the back-end technology that makes the trade of this new digital money possible.

Like any other currency before them, crypto currencies are a unit of exchange. However, these digital currencies are decentralised and enable instant payments between any parties, anywhere in the world, without the need for central banks or any other central authority. They are not legal tender and require no financial intermediaries or public institutions to verify the validity of transactions, therefore cutting banks out of the equation.

Blockchain, meanwhile, is a decentralised digital ledger shared across a peer-to-peer network of millions of computers. This broad distribution means that transaction records in the ledger cannot be modified without the collusion of the entire network and affecting subsequent blocks (or records) in the chain. This makes the ledger system inherently secure as, in theory, and in practice to date, it is not possible to tamper with records. Without blockchain ledger technology, which already has non-currency applications (e.g. for encrypted, accessible record-keeping) and holds significant unrealised potential, it would not be possible to exchange bitcoin and other cryptocurrencies.

Crypto mania

At the beginning of 2018 there were more than 1,380 different cryptocurrencies or 'cryptos', the 100 largest of which have a combined market capitalisation of around \$0.5trillion, equivalent to one-fifth of the UK's economy, with around one-third of this value in bitcoin. Since they require no banks to mediate transactions, bitcoin and other cryptocurrencies could, in theory, replace national currencies and make banks obsolete.

While this should certainly be considered a long-term possibility, developments to date suggest that this reality is a long way off and unlikely.

For one, the huge drops in cryptocurrency values have largely been linked to government crackdowns.

Notably, China has banned crypto trading on domestic exchanges, putting a stop to the yuan-bitcoin exchange market. There are further plans to block domestic access to offshore trading platforms and target those who attempt large transactions. Other governments that have clamped down include Bangladesh, Bolivia, Ecuador, Kyrgyzstan, Morocco and Nepal

The effectiveness of such measures in eradicating trading is debatable. Since cryptocurrencies are decentralised, people will find ways of circumventing firewalls and accessing online trading platforms if they wish to. Since they are not recognised by any authority and are entirely digital, cryptos are almost impossible to regulate.

The bigger point is the lack of consumer demand for cryptocurrencies as units of exchange. Criminals use bitcoin for anonymously selling contraband on the darknet (as well as money laundering, one of the reasons governments have sought to ban trading). And there are examples of companies accepting it, such as online retailer Overstock.com and even Microsoft and Expedia.com.

But the volatility of bitcoin and other cryptos is such that, at least for now, it is not a stable store of value, a requirement for common currencies to be of practical use. The long processing times for bitcoin transactions in particular (Litecoin transacts more quickly as the blocks in the blockchain that supports it can hold more information) increases this value risk. Even as alternative cryptocurrencies that reduce transaction times are introduced, major cryptos to date (bitcoin, Ethereum, Litecoin and Bitcoin Cash) are strongly correlated, i.e. none of them are yet stable stores of value.

Perhaps most importantly, for the everyday consumer, there is no inherent benefit to the use of cryptocurrencies over established, stable currencies.

Instead, bitcoin and other cryptos are better understood as assets than currencies, and it will take widespread regulation and a much higher capitalisation before they become an established component of the monetary system. Indeed, while the Bank of England has acknowledged that bitcoin's rapid price gains are significant, it has been categorised as a speculative, equity-type risk and one that do not pose currently pose a threat to the stability of the global financial system. Until there is genuine consumer demand to use bitcoin and other cryptos as conventional currencies, they are likely to remain an investment asset, and a highly speculative one.

Blockchain

Turning to blockchain, the Bank for International Settlements has **published an insightful study** on the system, also known as distributed ledger technology (DLT), that bears reading. In essence, the report finds that while DLT is still in its infancy, it holds the potential to reduce the intermediary role played by banks, clearing houses and central banks.

At the same time, there is an opportunity for banks to harness DLT to reduce costs and expedite transaction processes. Banks currently house proprietary ledgers on disparate servers that must communicate for every transaction made. Using blockchain, a single, common ledger, would reduce the number of steps in the process, potentially saving time and costs.

To that end, in 2015 nine major financial institutions (Barclays, BBVA, Commonwealth Bank of Australia, Credit Suisse, Goldman Sachs, JP Morgan, Royal Bank of Scotland, State Street and UBS) spearheaded a distributed ledger system known as Corda, developed by the company R3, to be used for international settlements. This consortium has since grown to more than 80 members and Corda was in the early testing stage at the beginning of 2018.

Further, there are examples of banks adopting the blockchain offering of Ripple, which is both a DLT system and cryptocurrency that speeds up global transactions of any size and benefits from removing chargeback risks, or "friendly fraud", associated with conventional credit card payments. UniCredit, UBS and Santander among other banks and payment networks have adopted Ripple's settlement infrastructure technology to save time and costs. Notably, the company's CEO has said that rather than working against governments and banks, Ripple aims to collaborate with them to remove the friction from the movement of money.

There is still no regulation or legal framework overseeing the obligations of financial institutions adopting such technologies or any user protections, but what is clear is that in a short timeframe DLTs have become a key area of focus for the financial services industry's future.

Banks are not the only organisations that are exploring the applications of DLTs. A [report from CB Insights](#) lists 36 industries that blockchain could transform. In any instance where databases and records are kept on proprietary servers, there is the potential for blockchain to be adopted. For example, insurers are exploring the benefits of securely sharing data for cross-referencing policyholders' past claims, which could help to reduce fraud. In the same way that a secure shared history of transactions could benefit the banking industry, lawyers are considering the efficiencies of using these accessible, yet highly encrypted logs, with a [report from PwC](#) finding that 41% of law firms intend to adopt blockchain solutions for transactional legal services, where strings of confidential documents must be shared between parties.

Risk perspective

From a risk perspective, banks must be aware of the potential for cryptocurrencies to become increasingly mainstream. As the regulatory outlook becomes clearer, and assuming, for the sake of example, it becomes permissive rather than more restrictive, cryptos may find greater price stability and therefore widespread adoption.

The back-end DLT technology, however, is where banks and other organisations are directing their focus. This is currently viewed by incumbent financial institutions as an opportunity to be seized upon rather than a threat. Although, of course, if DLTs do represent a significant opportunity to reduce costs and increase margins, following years of stockpiling regulatory capital buffers in the wake of the financial crisis, those institutions which are slow to adopt DLTs will be at risk of losing market share.

For internal audit in the financial services sector, and in banking in particular, the risks associated with cryptos and DLTs should fall into the broader category of strategic threats to the business, whether that comes from new technologies, emerging fintech start-ups or established competitors that are quick to innovate.

It is worth bearing in mind that, according to a [World Economic Forum report](#), fintech start-ups have so far failed to disrupt the sector to the extent that many existing banks had feared. Fintechs have struggled to develop new infrastructure and establish new financial services ecosystems, while there appears to be an unwillingness among customers to switch from known, established brands to start-ups.

However, huge and highly visible technology companies such as Apple and Google have already dipped into the sector with Apple Pay and Google Wallet, and there is genuine scope for them to use their brand power and vast data insights to make further inroads. These companies are well capitalised and possess some of the most advanced technology skills available. If the adoption of DLTs and other emerging technologies have the potential to separate winners from losers in the financial services sector, these technology giants will be in a strong position to exploit them.

Of course, it is not internal audit's job to assess whether management has the correct strategy in place to exploit emerging technologies and systems, and around investment into innovation that will secure the organisation's future growth. However, there is certainly scope for internal audit to assess the extent to which these considerations are being made and determine whether such thinking is based on sound, comprehensive assumptions. Internal audit should, therefore, be asking – is the organisation thinking about

blockchain? If not, why? If so, what is it doing about it?

To effectively exploit the potential of blockchain, organisations should be engaging in pilot projects to assess how the technology can be used to their advantage and how competitors might seek to harness it for their own benefit. These should be experimental and exploratory. As companies increasingly look to such technologies, internal audit can add value by providing assurance that pilot projects and R&D programmes are being effectively and efficiently managed and delivered, and source evidence that they are providing insights and results, if not a measurable return on investment (RoI). As advances are made in employing blockchain operationally, it will be incumbent upon internal audit to understand how the technology works and the risks associated with both adopting it and using it. Indeed, as a means for record-keeping, it may become necessary for audits to be performed on records stored in blockchains.

The financial services sector is one of the industries most exposed to the disruptive potential of blockchain and boards and audit committees will no doubt require assurance that necessary steps are being taken to ensure the organisation is ahead of the curve and poised for future success.