



**BRIEFING PAPER**

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# Cryptocurrencies: Bitcoin and other exchange tokens

By Steve Browning

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## Summary

'Cryptocurrencies' have entered the public imagination as a new and potentially 'disruptive' phenomenon. But the concept is poorly understood: in 2019, 73% of the UK population agreed that they had no real idea what a cryptocurrency was.

### What are cryptocurrencies?

'Cryptocurrencies' are a digital means of financial exchange. They are intended to overcome limitations of existing currencies and financial transactions. There is some variation in how they work. This briefing focuses on 'decentralised' cryptocurrencies such as Bitcoin. These rely on trust in algorithms and technology to replace the faith that people put in the traditional 'fiat currencies' that are guaranteed by governments and central banks.

This 'decentralised' approach also means that there is no central authority to oversee the 'currency' or its failures.

Many observers question the use of the term 'cryptocurrency'. They argue that they are more like (speculative) investments than traditional currencies. Their value is in most cases extremely volatile, so they are impractical for most financial transactions. It may be more accurate to call them 'crypto-assets', 'exchange tokens' or 'unregulated tokens'.

The cryptocurrency market is comparatively small. There were 208,000 Bitcoin transactions a day in 2018, compared with 300 million Visa transactions a day in 2017.

### How do they work?

Users of cryptocurrencies typically set up an electronic 'wallet' to hold funds. They receive public and private cryptographic keys and a 'public address'. These enable them to make and accept transfers and to withdraw funds. In general, the identities of account-holders are anonymised.

All cryptocurrencies use **distributed ledger technology** (DLT) to verify transactions. In traditional currency transfer, there is limited recording of individual transactions in senders' and receivers' accounts. In DLT, transactions are confirmed by a wide range of participants before being added to a permanent record. The most familiar version of that record is the **blockchain**, as used by Bitcoin. The number of confirmations and the public record in the blockchain should, in theory, make fraud virtually impossible.

### Benefits and challenges

- Cryptocurrencies are a new phenomenon. The way they operate can challenge existing systems for good or bad. The technology may have been over-hyped and presented as a solution for vague or unidentified problems. That said, regulators in the UK and elsewhere are keen to experiment with potential applications of the technology.
- There has been little evidence that cryptocurrencies threaten traditional currencies, although they have been more popular in countries in economic chaos or subject to international sanctions. Most are extremely volatile. This makes them unattractive as

a medium of storing value or exchange. More regulation and uptake may help to reduce this volatility.

- The vision for cryptocurrencies involved empowering the unbanked and dramatically reducing currency transfer costs. But transactions can take some time to complete. As well as rendering the approach useless for most payments, this can give rise to higher charges for faster approval.
- Some cryptocurrencies consume vast amounts of electricity and computer processing power. This is unlikely to be sustainable for continued expansion. By January 2020, Bitcoin processing was using as much electricity as Austria.
- The anonymous and stateless nature of most cryptocurrencies has made them attractive to organised crime and tax evasion. Bitcoin was strongly associated with the 'dark web'. But the public ledger can enable audit and tracing of criminal transactions.
- Cryptocurrencies can present major risks to consumers. There is little or no guarantee for protecting investment. Volatility is a major risk to investment. Cryptocurrency exchanges can be hacked. Customers who lose their cryptographic keys lose all access to their funds. There is a wide range of scams that take advantage of the mystique of the cryptocurrency.

### Political and regulatory responses

As in much of the world, the Bank of England and other authorities have strongly highlighted the consumer risks of cryptocurrencies. They have tended to play down their threat to established systems. But they have cautiously welcomed the innovation that the new technology offers.

The Financial Conduct Authority (FCA) regulates types of crypto-assets that function like shares or investments. They now refer to cryptocurrencies as "exchange tokens" or "unregulated tokens". Cryptocurrency exchanges must register with the FCA and follow anti money laundering regulations. The FCA can offer little further consumer protection.

### Facebook and the Libra

In June 2019, Facebook announced the proposed launch of a new cryptocurrency, the Libra. This would be overseen by a wide partnership of agencies, the Libra Association. The vision is to overcome many of the drawbacks of existing cryptocurrencies, such as by stabilising the Libra's value.

But the political and regulatory response has been very critical. Many partners have since withdrawn from the project.

# 1. Why this matters

Cryptocurrencies – and particularly Bitcoin – have gradually entered public consciousness over the last decade.

There are stories about the huge profits to be made from investment in Bitcoin or new currencies, many arising from reports of the dramatic rise in the value of Bitcoin. At the beginning of 2013, for instance, a Bitcoin was worth just over £8, while in September 2017 it briefly reached £15,315. But by September 2019 it was worth only £2,606, highlighting the extreme volatility of the cryptocurrency.<sup>1</sup>

Advertising of the potential profits from investing in existing or new cryptocurrencies has fuelled both public interest and condemnation, with increasing calls for regulation.

More recently, in 2019 Facebook revealed that it was planning to launch its own cryptocurrency, the Libra. It contended that Libra could give access to banking services for the first time to the 1.7 billion adults around the world who don't have bank accounts, but generally do have mobile phones or internet access.<sup>2</sup> This sparked off new public and political interest in the topic.

Cryptocurrencies build on the new and 'disruptive' technology of the blockchain, which combines the power of networked individual computers and complex algorithms. The technology is complex but adds to the mystique of the cryptocurrency. While the blockchain is said to challenge the power and privileges of banks – if not indeed national governments – the rise of cryptocurrencies has also been widely associated with organised crime and money laundering.

Reports of the potential windfalls from investing in cryptocurrency have also led to concerns about consumer safety. Research published by the Financial Conduct Authority in 2019 found that 73% of the UK population did not know what a cryptocurrency was. Although comparatively few respondents had invested in them, some of those who had had done so without undertaking prior research. Many consumers believed cryptocurrencies to be an easy way to 'get rich quick' and had built their knowledge from social media and friends.<sup>3</sup>

This briefing paper sets out to present information about what is a new and often confusing phenomenon. It explains the basics of how cryptocurrencies – or indeed 'crypto-assets' or exchange tokens – work, the challenges and potential benefits they offer, and wider political and regulatory responses to them.

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<sup>1</sup> Coinbase.com, [Bitcoin price](#) (accessed 8 January 2020)

<sup>2</sup> Libra, [Libra White Paper](#), p1 (accessed 8 January 2020)

<sup>3</sup> Financial Conduct Authority, [Consumer attitudes and awareness of cryptoassets: research summary](#), 7 March 2019 (accessed 9 January 2020)



## 2. What are cryptocurrencies?

'Cryptocurrencies' are a digital means of financial exchange. They are intended to overcome some of the perceived limitations of existing currencies and approaches to financial transactions. The 'crypto' in their name arises from the use of cryptographic encryption methods – that is, electronic methods to encode information and to ensure security.

While many central banks are experimenting with cryptographic approaches to develop digital currencies, this briefing paper focuses primarily on the phenomenon of 'decentralised' cryptocurrencies that emerge and operate entirely independently of national authorities. The most famous and important of these is Bitcoin, which is the model discussed in most detail here.

Traditional currencies either have an **intrinsic** value (that is, being made from precious metals or being exchangeable with such metals, usually gold) or, more usually, operate as **fiat** currencies, whose value relies on trust arising from being backed by authorities – governments and reserve banks.

Like fiat currencies, cryptocurrencies rely entirely on trust. But they differ in that trust arises from the involvement of a wide network of users ('miners' in the case of Bitcoin) and complex technological approaches. These work together to guarantee the veracity of transactions carried out, while an underlying published algorithm governs the release of new 'currency' to miners, at least in the case of Bitcoin. There is no central authority to maintain the reputation and value of the cryptocurrency (nor indeed to be blamed for currency failure).

Despite some of the terms used, there are no coins or banknotes issued in cryptocurrencies – they are an entirely electronic concept. They essentially give a value to a specified financial transaction between two users at a specific point in time.

The term 'cryptocurrency' itself is open to dispute. This is because it tends to exaggerate their similarity to traditional currencies. In most cases, cryptocurrencies:

- are rarely used as a medium of exchange (other than in online transfers)
- are extremely volatile in value<sup>4</sup>
- cannot be used as a store of value, and
- must express their own value in other currencies.

For these reasons, many observers argue that cryptocurrencies are more akin to assets (such as shares or investments) than to currencies and so prefer to call them 'crypto-assets'.<sup>5</sup> But there are also other types of crypto-asset (see box), so financial regulators in the UK increasingly refer

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<sup>4</sup> The main exception to this is 'stablecoins'. In early 2020, though, the biggest of these, Tether, accounted for less than 2% of the total market.

<sup>5</sup> See, for instance, Treasury Committee, [Crypto-assets](#), 19 September 2018, HC 910 2017-19, para 5.

to them as 'exchange tokens' or 'unregulated tokens'. This briefing uses all of those terms but tends to use 'cryptocurrency' as it is more familiar to more people.

### Three types of crypto-assets

UK regulatory authorities have defined crypto-assets as 'a cryptographically secured digital representation of value or contractual rights that uses some type of DLT and can be transferred, stored or traded electronically'. They identify three types:

- Exchange tokens: The cryptocurrencies that are the main focus of this briefing, such as Bitcoin, Litecoin or Ethereum. They are used for exchange or investment. (The FCA now prefers the term "unregulated token".)
- Security tokens: 'Specified investments' that give some rights of ownership or rights to payment and may be transferable. Because of this they are regulated by the Financial Conduct Authority, unlike other types of crypto-asset.
- Utility tokens: Give rights of current or future redemption of a product or service.<sup>6</sup>

**Please note, though, that these definitions continue to evolve.**

## 2.1 How big is the cryptocurrency market?

On 9 January 2020, [CoinMarketCap.com](https://CoinMarketCap.com), a market tracking site, listed values for 2,385 cryptocurrencies, with a total market capitalisation (or value) of almost US\$210 billion (£161 billion). But it's important to note that the vast majority of those cryptocurrencies are very small.<sup>7</sup>

Bitcoin is by far the largest cryptocurrency, accounting for 68.7% of total market capitalisation in January 2020. The next largest is Ethereum, whose total value is about a tenth of that of Bitcoin. Between them, the biggest ten cryptocurrencies accounted for just under 90% of the total value, and the biggest 100 for over 98%.<sup>8</sup>

The total market capitalisation itself varies dramatically over time. It reached almost US\$800 billion (£628 billion) early in January 2018 – that is, about three-and-a-half times its total value two years later.<sup>9</sup>

Considerable as those figures may be, it's important to note that cryptocurrency accounts for a very small fraction of financial transactions overall. In 2018, the Congressional Research Service noted:

Two industry data sources indicate that the number of Bitcoin transactions averaged about 208,000 per day globally in 2018 through August. In comparison, the Automated Clearing House—an electronic payments network operated by the Federal Reserve Bank and the private company Electronic Payments Network—processed almost 59 million transactions per day on average in 2017. Visa's payments systems processed on average more than 300 million transactions per day globally in 2017.<sup>10</sup>

<sup>6</sup> HM Treasury, Financial Conduct Authority and the Bank of England, [Cryptoassets Taskforce: final report](#), October 2018, p9-11; Financial Conduct Authority, [Guidance on Cryptoassets: Feedback and Final Guidance to CP 19/3](#), PS19/22, July 2019, p4.

<sup>7</sup> CoinMarketCap.com, [Top 100 Cryptocurrencies by Market Capitalization](#) (Accessed 9 January 2020). Please note that specific values and totals fluctuate quickly.

<sup>8</sup> [Ibid.](#)

<sup>9</sup> [Ibid.](#)

<sup>10</sup> Congressional Research Service, [Cryptocurrency: The Economics of Money and Selected Policy Issues](#), 7 December 2018, p10

### 3. How do cryptocurrencies work?

At its most basic<sup>11</sup>, individuals hold accounts and transfer cryptocurrency funds in much the same way as they would transfer fiat currencies (such as pounds or euros) between bank accounts – which, after all, involve no physical transfer of cash.

Individuals who want to use cryptocurrencies set up an account with cryptocurrency exchanges via one of many websites, apps, peer-to-peer services, or from automated teller machines (ATMs). While UK regulations require exchanges to register with the Financial Conduct Authority and to comply with wider “know your customer” and anti money laundering rules, cryptocurrency accounts and the transactions within them tend to be anonymous. The account provides subscribers with a ‘wallet’ and a ‘public address’ for the account. It also gives them a public and a private cryptographic key, which are the basis of individual account-holders’ security and access to their funds. Users can share their public key with others in order to receive payment. They send their private key to make payments. The use of such keys is widespread in the digital world.

#### 3.1 The distributed ledger and blockchain

The real difference between conventional currencies and cryptocurrencies is how transactions are recorded and accepted. In traditional currency transfers, the sender’s and receiver’s bank (or similar intermediary) will each record and store named transactions. There are relatively few records of the transaction.

Although individual cryptocurrencies may vary in the details of their approach, all use a form of **distributed ledger technology** (DLT), and most often a version of this known as **blockchain**.<sup>12</sup> The most familiar is that used by Bitcoin. This system distributes information about recent transactions to a vast network of computer users (‘miners’) as part of a wider cryptographic puzzle. Solving that puzzle requires checking and confirming the veracity of reported transactions. Miners compete to be first to solve the puzzle and be rewarded by payment in new Bitcoins.<sup>13</sup>

The complexity of the task requires computer processing power (and energy) to an extent that will discourage fraudsters. So too does the vast number of users confirming reported transactions as part of the competition to solve the puzzle. This means that the ledger of anonymous transactions is distributed and verified across a vast network of users.

More strictly, the term ‘blockchain’ refers to blocks of data about transactions that are confirmed and recorded. Those records cannot be

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<sup>11</sup> Please note that there are some reasonably minor variations in the way that different cryptocurrencies work. In general this briefing paper refers to the dominant model associated with Bitcoin.

<sup>12</sup> See, for instance, Parliamentary Office of Science and Technology, [Distributed Ledger Technology](#).

<sup>13</sup> This process is known as ‘proof-of-work’ validation. There are other approaches, such as ‘proof-of-stake’.



changed, and new blocks are added on the assumption that preceding data is correct. Again, traditional accounting is based on similar assumptions, but limited verification means that fraud is much easier to perform and hide – but perhaps easier to address if uncovered.

#### Features of information stored in blockchain

- Traceable (as it records where the asset has been)
- Transparent (as all transactions are recorded and distributed)
- Auditable (as earlier blocks can't be changed and the information provides an audit trail)
- Secure (as it's validated across a network and recorded using complex cryptography)
- Efficient (as the process itself has no specific intermediaries).

In the case of Bitcoin, at least, the entire process is controlled by an algorithm developed by Satoshi Nakamoto (which may be a pseudonym). This public algorithm governs the way the blockchain works and the release (and eventual limits of) new Bitcoin to miners.<sup>14</sup>

Altogether, this means that **the distributed ledger and blockchain perform the functions of banks and governments in verifying and managing currency transfer and supply. So faith in the integrity of the independent algorithm is the equivalent of faith in the governments and reserve banks that sustains traditional fiat currencies.**

### Permissionless and permissioned distributed ledgers

The distributed ledger approach as used by Bitcoin is increasingly referred to as 'permissionless' or 'public'. This is because there is no overall control of the process. Anyone – in theory – can take part in Bitcoin mining, and the vast numbers of people and organisations that do strengthens the reliability of transactions recorded in the blockchain.

But blockchain technology is now being used across a number of fields. In many cases, while distributing checking of transactions is a valuable process, the extent of such distribution can reasonably be limited to a number of trusted organisations, such as a group of financial institutions. This approach is known as a 'permissioned' distributed ledger.<sup>15</sup>

This distinction has become much more relevant since Facebook announced the proposed launch of a new cryptocurrency – the Libra. That initiative is discussed in more detail in section 6 of this briefing, but for now it is important to note that verifying Libra transactions is intended to be undertaken (at least in the beginning) by a limited number of members of the Libra Association.<sup>16</sup>

<sup>14</sup> See, for instance, toptotal.com, [Cryptocurrency for Dummies: Bitcoin and Beyond](#) (accessed 5 July 2019).

<sup>15</sup> See Parliamentary Office of Science and Technology, [Distributed Ledger Technology](#), for details of the wider applications of this technology.

<sup>16</sup> Libra, [Libra White Paper](#).

## 4. Benefits and challenges

### 4.1 A solution looking for a problem?

Cryptocurrencies and associated distributed ledger technologies are a recent phenomenon. Although some of the concepts had been described in earlier decades, Bitcoin itself emerged after Satoshi Nakamoto published [Bitcoin: A Peer-to-Peer Electronic Cash System](#) in 2008 and shortly thereafter mined the first Bitcoin.<sup>17</sup>

Proponents and critics alike tend to describe the new technology as ‘disruptive’, whether for good or bad. It certainly challenges many of the conventional approaches to financial systems and regulation. To date – and as is evident below – the risks and challenges have been better analysed than the potential benefits, which might best be viewed as a work in progress.

The Financial Times, for instance, is sceptical about many of the claims made for blockchain and cryptocurrencies:

Blockchain was going to make banks irrelevant and allow the world to “be [its] own bank”. Then, it was going to help those very same banks save tens of billions of dollars a year in infrastructure costs, transform the way they process transactions, and create new revenue streams. Some even claimed it would be bigger than the internet.

But despite a great deal of excitement — and an even greater number of press releases — the technology has not lived up to its promise and there are signs the hype is fading...

At various points since its inception more than a decade ago, enthusiasts have claimed that blockchain could replace central banks, wipe out post-trade intermediaries like clearing houses, and become the backbone of cross-border payments. (And that is just in banking — outside the financial sector the claims become even more grandiose, with the technology purportedly having potential to cure cancer and bring about world peace.)<sup>18</sup>

Critical as that article may be, it places some of the blame for the “hype” on the application of blockchain-based “solutions” to problems that hadn’t been clearly defined:

One of blockchain’s biggest problems is that it was approached badly. Rather than beginning with the challenges banks were trying to solve and then seeing whether blockchain could be applied to them, too many projects started with the technology, tried to discern how to make money from it, and worked from there.<sup>19</sup>

Other commentators, while fully acknowledging the wider challenges, note the potential possibilities that the new technology might offer. In the introduction to its 2018 report, the [Cryptoassets Taskforce](#) – which

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<sup>17</sup> Ledger.com, [A brief history on Bitcoin & Cryptocurrencies](#).

<sup>18</sup> Jemima Kelly, Financial Times, “[Blockchain: disillusionment descends on financial services](#)”, 24 September 2019.

<sup>19</sup> [Ibid.](#)

brought together the Treasury, the Financial Conduct Authority and the Bank of England – highlighted this tension:

DLT has the potential to deliver substantial benefits, both in financial services and other sectors. Cryptoassets are one application of DLT, and whilst the UK market has grown, it remains small compared to some other jurisdictions, with many cryptoasset firms based outside the UK. Mainstream financial services firms are taking first steps into the market, and a small derivatives market is developing. At the same time, there is growing evidence of harm to consumers and markets...<sup>20</sup>

The report went on to link the UK's "ambition...to be the world's most innovative economy" with a commitment to remain "a safe and transparent place to do business" and to an openness to the type of innovation offered by the new technology.<sup>21</sup>

Given this situation, the remainder of this section sets out the main issues thematically and considers – as far as possible – benefits and challenges together rather than separately.

## 4.2 A substitute for fiat currencies?

Proponents of cryptocurrencies have highlighted their potential role in **economies with unreliable national financial systems**. For instance, *The Atlantic* reported in 2017 on the take-off in Bitcoin mining and trading in Venezuela at a time when that country was facing an annual inflation rate of 1,600%. By 2019, the state-run oil company and the government itself appeared to be turning to cryptocurrencies as one way of avoiding US-backed sanctions.<sup>22</sup>

In another case, Forbes reported that investors were turning from Chinese yuan to Bitcoin as the US-China trade war developed in 2019:

The U.S./China trade war means the yuan is bad money and BTC [Bitcoin] is good money. As such bitcoin is rocketing up in value because there are big buyers of bitcoin in Asia, who want out of yuan and into dollars or for that matter anything not correlated to the falling yuan. A bitcoin is a dollar surrogate and one you can buy then ship anywhere in moments. What is more, being "good money" it is going to appreciate in dollars as an extra benefit as demand for bitcoin escalates.<sup>23</sup>

While that case may demonstrate some perceived flexibility for the cryptocurrency, the focus on relative value equally reflects the observation that cryptocurrencies tend to function more as investment vehicles rather than as forms of exchange.

To date, cryptocurrencies have shown little promise as a replacement for fiat currencies. Relatively few traders accept them – and they are not legal tender.<sup>24</sup> In mid-January 2020 there were [up to 350,000 Bitcoin transactions a day](#) out of the many billions of financial transactions worldwide. A 2017 [cross-sectoral review sponsored by the US Treasury](#)

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<sup>20</sup> HM Treasury, [Cryptoassets Taskforce: final report](#), October 2018, p2.

<sup>21</sup> [Ibid.](#)

<sup>22</sup> The Atlantic, "[Big in Venezuela: Bitcoin Mining](#)", September 2017.

<sup>23</sup> Forbes, "[Crypto Is Replacing Fiat Currency In Troubled Countries](#)", 5 August 2019.

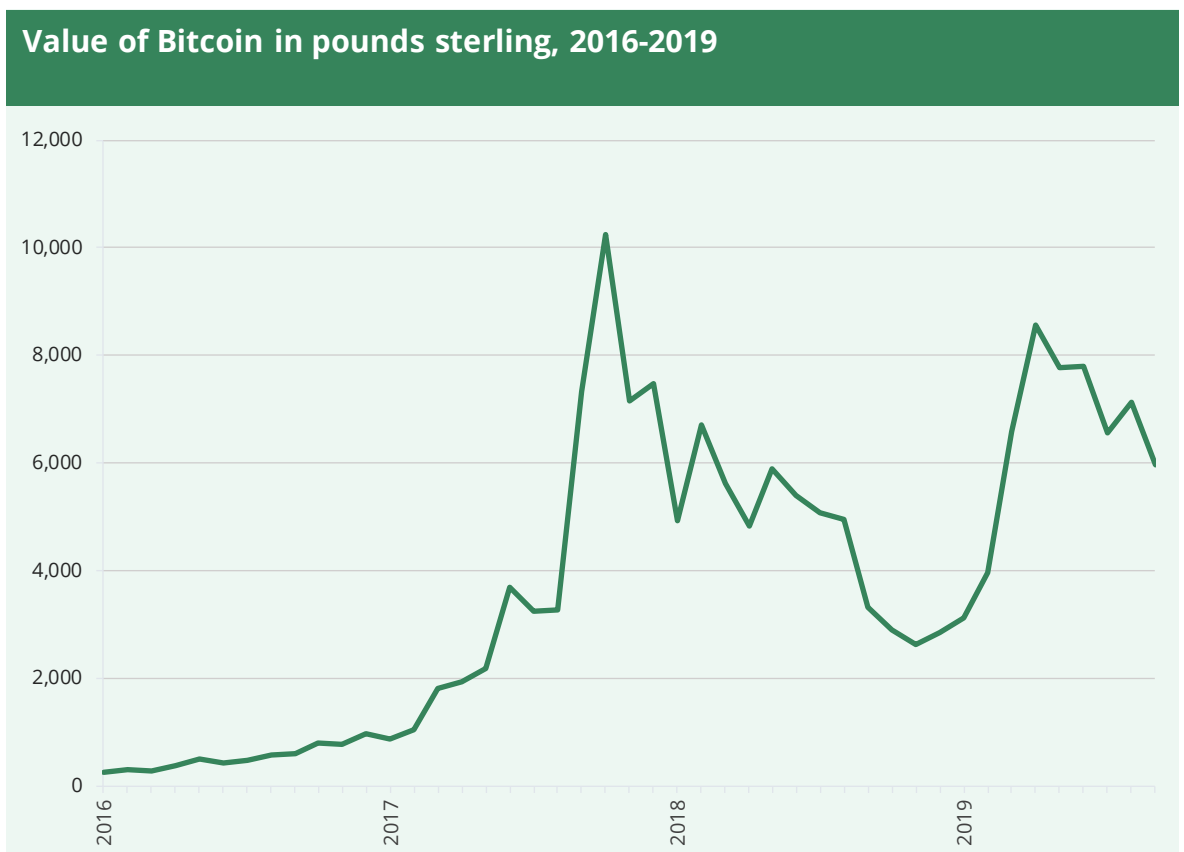
<sup>24</sup> Treasury Committee, [Crypto-assets](#), 19 September 2018, HC 910 2017-19, para 5-13.

found [little evidence](#) that traders reject government-backed currencies in favour of decentralised authority.

## Volatility

The most important impediment to the use of cryptocurrencies as an effective means of exchange is that most of them are extremely volatile in their value. The chart below shows the variation in the value of Bitcoin between 2016 and the end of 2019. The Congressional Research Service (CRS) noted:

The rapid appreciation in cryptocurrencies' value in 2017 likely contributed to the recent increase in public interest in these currencies. At the beginning of 2017, the price of a Bitcoin on an exchange was about \$993.43. The price surged during the year, peaking at about \$19,650 in December 2017, an almost 1,880% increase from prices in January 2017. However, the price then dramatically declined by 65% to \$6,905 in less than two months. From February through August 2018, the price of a Bitcoin remained volatile. Other major cryptocurrencies such as Ether and Litecoin have had similar price movements.<sup>25</sup>



**Note:** End of month closing prices

**Sources:** [Statista](#); [Bank of England exchange rates](#)

The 53% overall fall in value of Bitcoin in the first half of 2018 was equivalent to an annual inflation rate of 346%, thereby undermining its

<sup>25</sup> Congressional Research Service, [Cryptocurrency: The Economics of Money and Selected Policy Issues](#), 7 December 2018, p8-9.

attractiveness both as a store of value and as a means of exchange and pricing.<sup>26</sup>

Analysis undertaken for the Treasury Committee in 2018 found that despite being “considerably” more volatile as both gold and the Standard & Poor’s 500 Index of the US Stock Exchange, Bitcoin was the least volatile of a range of cryptocurrencies.<sup>27</sup>

The Financial Conduct Authority explained that this extreme volatility resulted at least in part from the comparative absence of balancing factors and applications:

As most crypto-assets do not have any inherent worth in and of themselves [...] and they are not actively used in commerce or secured by a central bank of a nation state, their price is reliant on market sentiment and speculative use cases [rather] than real world applications. This results in greater price instability—especially over a short time horizon.<sup>28</sup>

Obi Nwosu, Chief Executive Officer of Coinfloor (a cryptocurrency exchange) supported this view, arguing that increased liquidity and indeed regulation might help resolve this situation:

Price volatility has been reducing all the time, and one thing that has caused that is the increase in volume and liquidity entering the market. There are a number of institutional players that would like to get into the market, but they can only deal with other regulated institutions. If they enter the market, they will bring the disciplines that relate to that, but they will also massively increase the liquidity, stabilise the price and make it a safer place for consumers.<sup>29</sup>

## 4.3 Efficiency of blockchain

### Cheaper financial transactions and remittances?

As cryptocurrencies are essentially globalised – by existing electronically and without links to specific national or corporate institutions – they have the potential to reduce or avoid a range of transaction and exchange rate charges. The comparative absence of financial intermediaries (such as banks or credit card companies) allows this: in theory, individuals holding cryptocurrency can transfer it to one another quite freely around the world at no or limited cost. That said, converting fiat to cryptocurrencies and vice versa is likely to involve cryptocurrency exchanges, who will presumably profit from such transactions.

Nevertheless, avoiding costs associated with traditional financial institutions – and indeed the need to have a bank account – have contributed to powerful visions of the ‘revolutionary’ possibilities of cryptocurrencies. Plans for the proposed Libra, led by Facebook (and discussed in section 6) have drawn strongly on this potential:

All over the world, people with less money pay more for financial services. Hard-earned income is eroded by fees, from remittances and wire costs to overdraft and ATM charges. Payday loans can

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<sup>26</sup> Congressional Research Service, [Cryptocurrency: The Economics of Money and Selected Policy Issues](#), 7 December 2018, p13.

<sup>27</sup> Treasury Committee, [Crypto-assets](#), 19 September 2018, HC 910 2017-19, para 60.

<sup>28</sup> [Ibid.](#), para 61.

<sup>29</sup> [Ibid.](#), para 62.

charge annualized interest rates of 400 percent or more, and finance charges can be as high as \$30 just to borrow \$100. When people are asked why they remain on the fringe of the existing financial system, those who remain “unbanked” point to not having sufficient funds, high and unpredictable fees, banks being too far away, and lacking the necessary documentation.<sup>30</sup>

The CRS review, however, noted that while traditional financial transaction costs may often become a matter of public and regulatory concern, their level varies and is hard to quantify.<sup>31</sup> The following section presents further practical challenges to the idea of ‘free’ and efficient currency transfer.

### Blockchain capacity and environmental costs

While the expansion of cryptocurrencies and associated mining over the last decade has been dramatic, the industry still accounts for a small fraction of financial transactions overall. The current dominant model of the permissionless distributed ledger depends upon the involvement of vast networks of miners motivated by the possibility of earning a share of new cryptocurrency. It is not certain that this approach could cope with the massive processing expansion required to verify increases in cryptocurrency transactions if visions for the potential extent of the industry are to be realised.

The **processing power and energy consumption** required to support distributed ledgers are already a matter of concern. Digiconomist, “a platform that is dedicated to exposing the unintended consequences of digital trends, typically from an economic perspective”, publishes the [Bitcoin Energy Consumption Index](#) (as one of a number of related indices). This reported that by January 2020, Bitcoin mining alone consumed as much electricity as Austria and had a carbon footprint the size of Denmark’s. Ethereum, the second biggest cryptocurrency, was using as much energy as Kosovo.

While the Bitcoin model thus appears to spread (and multiply) the cost of verifying transactions many times over, **this is not reflected in speedy confirmation of transactions**. These are only confirmed once a new block is created – a process that is commonly said to take ten minutes or so. Anonymity and the absence of traditional records of transfer (through receipts or immediate electronic records of single payments) mean that customers need to rely on this wider blockchain delay. This makes cryptocurrency payment impractical for a wide range of everyday transactions. Bitcoin traders sometimes use escrow services to delay payment until goods have been received, or in some cases charge higher fees for faster confirmation.<sup>32</sup> But, as CRS note:

If cryptocurrencies ultimately require their own system of intermediaries to function as money, questions may arise about whether this requirement defeats their original purpose.<sup>33</sup>

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<sup>30</sup> Libra, [Libra White Paper](#).

<sup>31</sup> Congressional Research Service, [Cryptocurrency: The Economics of Money and Selected Policy Issues](#), 7 December 2018, p11-12.

<sup>32</sup> See, for instance, Bitcoin.org, [Bitcoin for Individuals](#) (accessed 15 January 2020)

<sup>33</sup> Congressional Research Service, [Cryptocurrency: The Economics of Money and Selected Policy Issues](#), 7 December 2018, p15.



## 4.4 Anonymity, crime and consumer risk

Another central feature of the type of decentralised blockchain used by Bitcoin is its anonymised nature. While traditional financial transactions of any significance tend to generate a set of traceable records, once funds have been converted into cryptocurrencies (through exchanges or similar services), the public blockchain records transfers but does not link them to **identified** users.

There are various consequences of this apparent anonymity. Perhaps the best known is the attractiveness of cryptocurrency transactions for money laundering and supporting criminal transactions. While funds are identified and recorded when they **enter and leave** the market (and so are transferred to or from fiat currencies), there is no ready trail of what has happened **within** the market. The global nature of the market means that funds may also enter and leave in different jurisdictions, further complicating efforts to follow the money. This also makes storing funds in cryptocurrencies attractive for tax evasion, both in relation to undeclared trading and capital gains.

Cryptocurrency – and more specifically Bitcoin – was central to the operation of Silk Road, the online black market that brought the ‘dark net’ to public attention:

In February of 2011, Ross William Ulbricht, who went by the nom de guerre of “Dread Pirate Roberts,” founded the site “Silk Road.” Ulbricht, a former Penn State graduate student and amateur programmer with a strong libertarian and anarchist bent, dreamt of an online marketplace where people would be able to buy and sell narcotics and other illicit items, without governmental interference. While the users of a Darknet site can use Tor and Virtual Private Networks to obscure and hide their identities, they had no way of exchanging anonymous payments among themselves, short of sending envelopes full of cash via the postal service, an obviously impractical solution. Ulbricht got around this conundrum by using bitcoin as a payment method. Bitcoin addresses do not require a bank account, ID, social security number or name, and are free to open and maintain. Bitcoin’s decentralized ledger – the blockchain – provided a way to verify that payments had been received or sent. By using bitcoin, the only identifying information for a narcotics transaction would be the address of the receiver, a problem solved by using an anonymous P.O. box. Ulbricht would act as an escrow service between buyer and seller, and would profit from commissions taken from every transaction.<sup>34</sup>

In 2015, Europol reported that “Bitcoin is beginning to feature heavily in many EU law enforcement investigations, accounting for over 40% of all identified criminal-to-criminal payments” (although PayPal accounted for almost a quarter).<sup>35</sup>

Views about the scale of the threat posed by criminal use of cryptocurrencies have indeed tended to be mixed, as the Treasury Committee reported in 2018:

92. When asked about crypto-assets’ role in facilitating money laundering, David Raw, Deputy Director of Banking and Credit at HM Treasury, stated that “the latest risk assessment from the National

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<sup>34</sup> David Adler, [Silk Road: The Dark Side of Cryptocurrency](#), *Fordham Journal of Corporate & Financial Law*, 21 February 2018.

<sup>35</sup> Europol, [Internet Organised Crime Threat Assessment \(IOCTA\) 2015](#), p46.

Crime Agency is that [crypto-assets'] use for money laundering and terrorist financing is currently low. They are seeing cases of it, but it is not widespread."

93. In evidence to the Committee's Economic Crime inquiry, Donald Toon, Prosperity Command at the National Crime Agency, explained that even though there is a growing risk that crypto-assets are facilitating money laundering and terrorist financing, "it is important that we place virtual currencies in the context of the whole money laundering problem." There are "other large-scale areas of the problem." Nevertheless, he stated that "we are not relaxed about this. We see it as a problem."

94. Mr Raw, HM Treasury, explained that, although they provide a degree of anonymity, some characteristics of crypto-assets disincentivise criminals and terrorists from using them to launder money:

[While crypto-assets are] an anonymous way of paying for illicit activity, there is the fact that you are potentially creating a more transparent record of the transaction, which is potentially auditable. There is a question over whether terrorists would want to use this method. There are other methods available to them, many of which are easier, such as cash couriers.

95. However, the FCA stated that the role of crypto-assets in money laundering could be more significant than previously assessed<sup>36</sup>

As noted in that account, the transparent nature of the blockchain record might well offer possibilities for audit and investigation, even if users' identities are not directly recorded. The 2018 CRS review noted:

Recall that cryptocurrency platforms generally function as an immutable, *public* ledger of accounts and transactions. Thus, every transaction ever made by a member of the network is relatively easy to observe, and this characteristic can be helpful to law enforcement in tracking criminal finances. Although the accounts may be identified with a pseudonym on the cryptocurrency platform, law enforcement can exercise methods involving analysis of transaction patterns to link those pseudonyms to real-life identities. For example, it may be possible to link a cryptocurrency public key with a cryptocurrency exchange customer. Certain cryptocurrencies may provide users with greater anonymity than others, but use of these technologies currently is comparatively rare.<sup>37</sup>

Indeed, there are increasing reports of investigators using public blockchain records to track patterns of suspicious cryptocurrency transactions and so to identify and apprehend suspects, if only at the point of withdrawal of funds in fiat currencies.<sup>38</sup>

### Consumer risk

The rise of cryptocurrencies has also raised concerns about risks to individual users and investors. As discussed in section 5, regulation of cryptocurrencies has lagged behind the growth of the market, potentially leaving consumers open to scams and with little opportunity of recourse.

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<sup>36</sup> Treasury Committee, [Crypto-assets](#), 19 September 2018, HC 910 2017-19.

<sup>37</sup> Congressional Research Service, [Cryptocurrency: The Economics of Money and Selected Policy Issues](#), 7 December 2018, p16.

<sup>38</sup> John Bohannon, "[Why criminals can't hide behind Bitcoin](#)", *Science*, 9 March 2016.

One aspect of this is limited consumer understanding of the concepts involved. In 2019 the Financial Conduct Authority published findings from a research study that highlighted limited public understanding, including among the minority who had invested in the market:

**Many consumers see cryptoassets as a fast-track to easy wealth**

Consumers purchasing cryptoassets are often looking for ways to 'get rich quick'. Many of those interviewed by the Revealing Reality researchers perceived cryptoassets as a shortcut to easy money and wealth. They often cited influence from others, including social media, as motivation for investing.

**Many consumers may not fully understand what they are purchasing**

Revealing Reality found many consumers overestimated their knowledge of cryptoassets. Several of those interviewed talked of wanting to buy a 'whole' coin, not realising that they could buy just part of one.

Many consumers seemed to have a sense that they were investing in tangible assets, due to the language and imagery associated with cryptoassets, such as 'mining' and 'coin'.

**There are signs that cryptoassets are accompanied by risky behaviours**

Consumers' initial engagement with cryptoassets is often prompted by the advice of a few, influential recommendations. However, many told the qualitative researchers that they were distrustful of mainstream media or official sources of information.

Often consumers don't complete due diligence prior to purchasing. Several consumers interviewed told Revealing Reality that they hadn't completed much, or any, research on cryptoassets. Similarly, the Kantar TNS survey found (amongst a much smaller sub-sample) that 1 in 6 consumers don't complete any research prior to purchasing cryptoassets.

Some consumers are aware of risks, including price volatility. But some even say that risk is part of the attraction. Many don't appear to have any strategy to sell their assets or a sense of what would motivate them to do so.<sup>39</sup>

That said, comparatively few consumers seemed interested in investing:

**Anecdotal evidence may overstate harm**

Only a small minority of UK consumers have bought cryptoassets and many do not understand what they are. We estimate that only 3% of those surveyed had ever bought cryptoassets, and 73% of UK consumers don't know what a 'cryptocurrency' is or are unable to define it. The term is most recognised by men aged 20- 44 years old and in the AB social grade (i.e. middle class and upper middle class).

Consumers generally don't spend much on cryptoassets and they tend to use their own money. Our survey indicated that, amongst a small sub-sample, around half of those who buy cryptoassets spend under £200. Most use their own disposable income - none

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<sup>39</sup> Financial Conduct Authority, [Consumer attitudes and awareness of cryptoassets: research summary](#), 7 March 2019 (Accessed 9 January 2020)

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of those we surveyed within the sub-sample, said that they borrowed money.

Most consumers who haven't bought cryptoassets to-date aren't likely to do so. Of those who had never bought cryptoassets, only one in 100 people told us that they would definitely buy in the future.<sup>40</sup>

In line with the characteristics of the cryptocurrency market described in this briefing – notably the anonymity of records and the absence of regulation of and 'responsibility' for decentralised systems – the 2018 Treasury Committee report summarised

...a number of ways in which consumers may experience economic detriment and not be entitled to redress or compensation:

- Being mis-sold a crypto-asset that subsequently loses much or all of its initial investment given the pricevolatility;
- Having your crypto-assets stolen through a hack on a crypto-asset exchange;
- Losing access to your crypto-assets when you forget the password to your account with exchanges or crypto-asset platforms; and
- Investing in an ICO that is later found to have been a fraudulent or mis-sold investment opportunity.<sup>41</sup>

The biggest hack of a cryptocurrency exchange to date led to the loss of £480 million in Bitcoin by Mt. Gox (and so its customers) in 2014. The attack led to the collapse of Mt. Gox, which had been the biggest cryptocurrency exchange in the world; the funds could not be traced.<sup>42</sup>

There are numerous websites that publish details of cryptocurrency fraud and scams.<sup>43</sup>

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<sup>40</sup> Financial Conduct Authority, [Consumer attitudes and awareness of cryptoassets: research summary](#), 7 March 2019 (Accessed 9 January 2020)

<sup>41</sup> Treasury Committee, [Crypto-assets](#), 19 September 2018, HC 910 2017-19, para 122.

<sup>42</sup> Bloomberg, "[Mt. Gox Meltdown Spells Doom for Bitcoin](#)", 25 February 2014.

<sup>43</sup> See, for instance, thenextweb.com, "[Confidence trick](#)".

## 5. Policy and regulatory responses

### 5.1 The UK's 'watch and learn' approach

UK policy and regulatory responses to cryptocurrencies have developed over time, with many of the more concrete initiatives only emerging from 2018.<sup>44</sup> This is due at least in part to an assessment of the limited importance of the phenomenon to the UK financial system as a whole, as well as a focus on building information and understanding.<sup>45</sup>

The Bank of England's webpage on crypto-assets states the following, which effectively summarises current UK regulatory policy:

Our Financial Policy Committee has assessed cryptoassets and concluded that they do not currently pose a risk to monetary or financial stability in the UK. However, cryptoassets do pose risks to investors and anyone buying cryptoassets should be prepared to lose all their money.<sup>46</sup>

Mark Carney, Governor of the Bank of England, set out broad lines of regulatory thinking in his speech *The Future of Money*<sup>47</sup> in March 2018. He described cryptocurrencies as "failing" as an effective alternative to sterling and other fiat currencies, citing many of the weaknesses set out in section 4. While he emphasised the "limited risks to financial security" that crypto-assets presented at the time, he noted both the potential for that to change and the possibilities that innovation might bring:

On the upside, as I will come onto in a moment, some of the underlying technologies are exciting. Whatever the merits of cryptocurrencies as money, authorities should be careful not to stifle innovations which could in the future improve financial stability; support more innovative, efficient and reliable payment services as well as have wider applications.

On the downside, at present, crypto-assets raise a host of issues around consumer and investor protection, market integrity, money laundering, terrorism financing, tax evasion, and the circumvention of capital controls and international sanctions...

At present, in my view, crypto-assets do not appear to pose material risks to financial stability.

This is in part because they are small relative to the financial system. Even at their recent peak, their combined global market capitalisation was less than 1% of global GDP. In comparison, at the height of the dotcom mania, the valuations of technology stocks were closer to about a third of global GDP. And just prior to the global financial crisis, the notional value of credit derivative swaps was 100%.

In addition, major UK financial institutions have minimal exposures to the crypto-asset ecosystem. Looking ahead, financial stability risks could rise if retail participation significantly increased or

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<sup>44</sup> Notable exceptions to this were the HMRC's [guidance on the tax treatment of cryptocurrencies](#) issued in 2014, and [consumer warnings issued by the FCA](#) in 2017.

<sup>45</sup> See, for instance, HM Treasury, Financial Conduct Authority and the Bank of England, [Cryptoassets Taskforce: final report](#), October 2018, p4

<sup>46</sup> Bank of England, "[Digital currencies](#)" (accessed 20 January 2020)

<sup>47</sup> Bank of England, "[The Future of Money](#)", 2 March 2018.

linkages with the formal financial sector grew without material improvements in market integrity, anti-money laundering standards and cyber defences. (p9)

As to how to respond, he summarised what would in effect become the basis of the UK's approach – to bring crypto-assets into the regulatory system:

Authorities need to decide whether to isolate, regulate or integrate crypto-assets and their associated activities...

If widely adopted, however, isolation risks foregoing potentially major opportunities from the development of the underlying payments technologies.

A better path would be to regulate elements of the crypto-asset ecosystem to combat illicit activities, promote market integrity, and protect the safety and soundness of the financial system.

The time has come to hold the crypto-asset ecosystem to the same standards as the rest of the financial system. Being part of the financial system brings enormous privileges, but with them great responsibilities.

In this spirit, the EU and the US are requiring crypto exchanges to meet the same anti-money laundering and counter the financing of terrorism standards as other financial institutions.

Conduct and market regulators are considering how to classify crypto-assets, in order to secure market integrity and determine the appropriate type and level of investor protections. In my view, holding cryptoasset exchanges to the same rigorous standards as those that trade securities would address a major underlap in the regulatory approach.

And as the SEC and FCA have argued forcefully, so-called initial coin offerings will not be allowed to use semantics to avoid securities laws designed to protect retail investors in particular.

Prudential regulators, like the Bank's PRC, are in the process of clarifying how the existing regulatory requirements – including for capital – which institutions at the core of the financial system must meet, apply to any future crypto-asset activity undertaken and exposures acquired. (p11)

## 5.2 Treasury Committee Inquiry

In 2018 the Treasury Committee undertook an Inquiry into Digital Currencies. It considered:

- The role of digital currencies in the UK, including the opportunities and risks digital currencies may bring to consumers, businesses and the Government (and associated bodies).
- The potential impact of distributed ledger technology on financial institutions, including the central bank, and financial infrastructure.
- The regulatory response to digital currencies from the Government, the FCA and the Bank of England in relation to Anti-Money Laundering legislation and how regulation



could be balanced to provide adequate protection for consumers and businesses without stifling innovation.<sup>48</sup>

The Inquiry – which, in line with wider analysis saw its title changed from “Digital Currencies” to “Crypto-assets” – remains the fullest parliamentary consideration of the UK’s policy responses in the area. It published its report in September 2018. As well as offering analysis of the wider phenomenon of crypto-assets, and its challenges and potential benefits, the Committee’s recommendations included the following:

- Regulation needed for “Wild West” crypto-asset market
- The ambiguity of the UK Government and regulators’ position is clearly not sustainable
- Regulation could improve customer outcomes, enable sustainable growth, and reduce certain risks
- In deciding the regulatory approach, Government should decide if growth should be encouraged
- Proportionate regulation could see UK as well placed to become global centre for crypto-assets.<sup>49</sup>

John Glen MP formally replied on behalf of the Government and the Financial Conduct Authority in December 2018. The Government “shared the Committee’s concerns about the substantial risks to consumers and market integrity associated with cryptoassets, as well as their potential use for illicit activity”, but again also noted the potential for innovation.<sup>50</sup> Most importantly, he was able to refer to the actions and proposals of the Cryptoassets Taskforce, as outlined below.

### 5.3 The Cryptoassets Taskforce

Established in 2018 as a joint initiative between HM Treasury, the Bank of England and the Financial Conduct Authority, the Cryptoassets Taskforce provided an overall review of the background to and emerging issues in the field of what by now was being termed ‘crypto-assets’ rather than ‘cryptocurrencies’. While reiterating the general points made by Mark Carney in *The Future of Money*, the Taskforce’s final report<sup>51</sup> asserted that “the most immediate priorities for the authorities are to mitigate the risks to consumers and market integrity, and prevent the use of cryptoassets for illicit activity” (p3). To that end, it set out a table of actions to be undertaken by authorities, with lead responsibilities and timings. That table is reproduced overleaf. (Please note that the Taskforce also set out approaches to exploring wider possibilities presented by distributed ledger technology.)

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<sup>48</sup> Parliament.uk, [Treasury Committee: Digital Currencies inquiry](#) (accessed 20 January 2020)

<sup>49</sup> Parliament.uk, [Commons Select Committee: “Wild West” crypto-assets should be regulated](#) (accessed 20 January 2020)

<sup>50</sup> House of Commons Treasury Committee, [Government and Financial Conduct Authority Responses to the Committee’s Twenty-Second Report: Crypto-assets: Eighth Special Report of Session 2017–19](#), p1

<sup>51</sup> HM Treasury, Financial Conduct Authority and the Bank of England, [Cryptoassets Taskforce: final report](#), October 2018, p3

### Cryptoassets Taskforce: actions to be undertaken by the authorities

Action	Owner	Timing
<b>Developing and implementing the UK's policy and regulatory approach</b>		
Consult on guidance for cryptoasset activities currently within the regulatory perimeter	FCA	By end 2018
Consult on a potential prohibition of the sale to retail consumers of derivatives referencing certain types of cryptoassets (for example, exchange tokens), including CFDs, options, futures and transferable securities	FCA	By end 2018
Transpose the EU Fifth Anti-Money Laundering Directive and broaden the scope of AML/CTF regulation further	HM Treasury	Consultation...with legislation in 2019
Continue to assess the adequacy of the prudential regulatory framework, in conjunction with international counterparts	Prudential Regulation Authority	Ongoing
Issue revised guidance on the tax treatment of cryptoassets	HMRC	By early 2019
<b>Monitoring market developments</b>		
Continue to monitor market developments and regularly review the UK's approach	HM Treasury, FCA and Bank of England	The Taskforce will convene every six months
Continue to monitor financial stability risks	Bank of England	Ongoing
<b>Promoting a coordinated international response</b>		
Continue to engage internationally through the G20, G7, FATF, FSB, IOSCO, BCBS, EU, OECD and bilaterally	HM Treasury, FCA and Bank of England	Ongoing

**Source:** Adapted from [Cryptoassets Taskforce](#): final report, p48-49.

## 5.4 Regulation by the Financial Conduct Authority

The Financial Conduct Authority (FCA) has overall responsibility for regulating financial services in the UK. The following sections set out some of the actions that the FCA has undertaken, notably in response to the recommendations of the Cryptoassets Taskforce.

It's important to note, though, that the FCA has limited power over cryptocurrencies (or "exchange tokens" or "unregulated tokens") themselves. **With the exception of the application of [money laundering regulations](#), they cannot regulate the sale or transfer of exchange tokens or intervene on behalf of consumers who**

### **lose their investments, whether as a result of volatility, loss of cryptographic keys, or hacking of exchanges.**

The FCA website does however offer the following advice to consumers about the riskiness of crypto-assets:

Cryptoassets are considered very high risk, speculative purchases. If you buy cryptoassets, you should be prepared to lose all your money. There are a number of factors you should take into account before making a decision to buy cryptoassets:

- the crypto marketplace is a target for fraud and scams and therefore extra caution from consumers is needed. If a business offers guaranteed or high returns, if an opportunity sounds too good to be true, or if you are pressured to act quickly, please exercise extreme caution and be aware your money may be lost. The FCA [ScamSmart](#) website provides some tips as to how to avoid and spot investment scams.
- you should be very careful if you're considering buying cryptoassets. We would urge consumers to ensure that they check and carefully consider the cryptoasset business – you should know who you are dealing with - and whether a cryptoasset is suitable, taking into account the risk profile of such products. For example, when entering into a business relationship with a cryptoasset business, you may wish to consider whether it is located in the UK or if it is a business that is registered with us.
- there is no guarantee that cryptoassets can be easily converted back into cash. Converting a cryptoasset back to cash depends on the demand and supply in the market.
- the performance of cryptoassets is volatile, with the value of an investment dropping as quickly as it can rise.
- [we] are proposing a ban on the sale of crypto-derivatives to retail customers, due to our concerns surrounding the volatility and valuation of the underlying cryptoassets.

If you would like more information about cryptoassets, you may wish to seek financial advice before making a decision to invest.<sup>52</sup>

### **The regulatory perimeter**

The FCA has [broad regulatory oversight](#) of crypto-assets. In line with their wider responsibilities, their approach and authority is determined by the wider "[regulatory perimeter](#)". In the case of crypto-assets, this meant that the first step was to determine which activities and tokens fell within that perimeter, as set out in the table of actions above. The FCA ran its consultation on the matter between January and April 2019.<sup>53</sup>

The FCA used the typology set out in section 2 as the basis of its consultation. The consultation received 92 responses "from across the financial services sector and beyond", with most respondents agreeing with the FCA's draft proposals.<sup>54</sup> The final guidance sought to clarify

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<sup>52</sup> Financial Conduct Authority, "[Cryptoassets](#)" (accessed 22 January 2020)

<sup>53</sup> Financial Conduct Authority, [Guidance on Cryptoassets: Consultation Paper CP19/3](#), p8

<sup>54</sup> Financial Conduct Authority, [Guidance on Cryptoassets: Feedback and Final Guidance to CP 19/3: Policy Statement CP19/22](#), p6

where tokens are likely to be covered by other aspects of FCA regulation (or not) and to

... help market participants to understand whether the cryptoassets they use are within the regulatory perimeter. This will alert market participants to pertinent issues and should help them better understand whether they need to be authorised and what rules or regulations apply to their business.<sup>55</sup>

With regard to the question of the broader regulation of exchange tokens (the type of cryptocurrencies that are the focus of this briefing), the response to the consultation noted that they would remain outside the perimeter, although further initiatives would be relevant:

Some respondents raised issues with exchange tokens sitting outside our remit. Most concerns were about consumer harm, but a small number of respondents also raised potential market integrity issues.

The draft Guidance focuses on cryptoassets and the existing perimeter, and views on a potential new perimeter are out of scope of this Guidance. However, responses will help inform the Treasury's work on unregulated cryptoassets. Ultimately, we cannot change the perimeter, but feedback can help inform whether legislative change is required.

The 5AMLD [[Fifth Anti Money Laundering Directive](#)] will bring in an AML regime for cryptoassets including exchange tokens. The Government has announced that the FCA will be the supervisor for this regime, and the FCA will consult later this year on our approach.

The AML regime is separate to an extension of the regulatory perimeter, and exchange tokens will remain outside the perimeter.<sup>56</sup>

The FCA also updated its typology: exchange tokens would henceforth be referred to as "unregulated tokens".<sup>57</sup>

The guidance went on to note, however, that other principles that apply to firms authorised by the FCA, such as the Senior Managers and Certification Regime (SMCR) and the Principles for Business (PRIN), **may** apply to authorised firms that deal with unregulated crypto-assets.<sup>58</sup> Similarly, the guidance noted that the use of unregulated crypto-assets in regulated payment services (such as international remittances) would be subject to the wider [Payment Services Regulations](#).<sup>59</sup>

### Retail sale of derivatives referencing crypto-assets

In July 2019, the FCA announced a consultation<sup>60</sup> on "banning the sale, marketing and distribution of derivatives and exchange traded notes referencing certain unregulated cryptoassets to all retail consumers". (Derivatives are a type of financial instrument whose value depends

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<sup>55</sup> Financial Conduct Authority, [PS19/22: Guidance on Cryptoassets](#) (accessed 20 January 2020)

<sup>56</sup> Financial Conduct Authority, [Guidance on Cryptoassets: Feedback and Final Guidance to CP 19/3: Policy Statement CP19/22](#), p10

<sup>57</sup> Financial Conduct Authority, [ibid.](#), p5

<sup>58</sup> Financial Conduct Authority, [ibid.](#), p10-11

<sup>59</sup> Financial Conduct Authority, [ibid.](#), p11-12

<sup>60</sup> Financial Conduct Authority, [CP19/22: Restricting the sale to retail clients of investment products that reference cryptoassets](#) (accessed 20 January 2020).

entirely on that of an underlying asset. In wider financial trading they include contracts that, for instance, refer to the value of shares or fiat currencies.) The FCA notes:

We believe that retail consumers can't reliably assess the value and risks of derivatives (contracts for difference, futures and options) and exchange traded notes (ETNs) that reference certain cryptoassets. This is due to the:

- inherent nature of the underlying assets, which have no reliable basis for valuation
- prevalence of market abuse and financial crime (including cyberthefts from cryptoasset platforms) in the secondary market for cryptoassets
- extreme volatility in cryptoasset prices movements
- inadequate understanding by retail consumers of cryptoassets and the lack of a clear investment need for investment products referencing them

We think these issues will cause retail consumers harm from sudden and unexpected losses if they invest in these products. We estimate a ban could reduce harm by £75m to £234.3m a year for retail investors.

The consultation closed in October 2019 and a full response and guidance is expected to be published in the first quarter of 2020.

## Anti money laundering and counter terrorist financing

Governments and international agencies have increasingly cooperated to combat economic crime, notably money laundering and financial support for terrorism.<sup>61</sup> Members of the European Union have transposed successive Money Laundering Directives into national law. As part of this process, the UK transposed the Fifth Money Laundering Directive into UK law through [The Money Laundering and Terrorist Financing \(Amendment\) Regulations 2019](#). These came into effect on 10 January 2020.

As part of this process, the FCA became responsible for applying the money laundering regulations to a new range of financial service businesses, including cryptocurrency exchanges and wallet providers.<sup>62</sup> All such businesses are required to register and to apply the wider money laundering regulations (MLRs). These place a range of requirements on registered businesses, including customer due diligence checks and the identification and consideration of "politically exposed persons". Specific requirements depend on a risk-based approach.<sup>63</sup>

The FCA is careful to note, though, that:

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<sup>61</sup> See, for instance, House of Commons Library, [Money laundering law](#) (SN02592).

<sup>62</sup> Financial Conduct Authority, [Cryptoassets: AML / CTF regime](#) (accessed 20 January 2020)

<sup>63</sup> For further detail about the MLRs, see HM Revenue and Customs, [Money laundering regulations](#).

Registration under the MLRs does not mean that customers will benefit from the protections of the Financial Ombudsman Service or the Financial Services Compensation Scheme (FSCS). As most cryptoassets are not specified investments under the Financial Services and Markets Act 2000 (FSMA), it is unlikely that customers will have access to the Financial Ombudsman Service or FSCS.<sup>64</sup>

## 5.5 Tax arrangements

[HMRC first issued guidance on cryptocurrencies in 2014](#). That considered tax arrangements for what was still seen as an emerging area (and, typically, referred to Bitcoin “and other cryptocurrencies”).

It provided updated [guidance for businesses](#)<sup>65</sup> and for individuals<sup>66</sup> in December 2019. This focused on ‘exchange tokens’ (instead of ‘cryptocurrencies’). The guidance noted that the HMRC does not regard exchange tokens as money, but rather primarily as a type of (personal) investment. For both businesses and individuals, profits from transactions are subject to tax and must be declared.

For businesses, taxable activities include:

- buying and selling exchange tokens
- exchanging tokens for other assets (including other types of cryptoassets)
- ‘mining’
- providing goods or services in return for exchange tokens

The type of tax will depend on who is involved in the business and the activities it carries out (including whether these count as a trade).

It is likely they will be liable to pay one or more of the following:

- Capital Gains Tax
- Corporation Tax
- Income Tax
- National Insurance contributions
- Stamp Taxes
- VAT.

Meanwhile:

Individuals will be liable to pay Income Tax and National Insurance contributions on cryptoassets which they receive from:

- their employer as a form of non-cash payment
- mining, transaction confirmation or airdrops [most often a type of marketing gift]...

[T]here may be cases where the individual is running a business which is carrying on a financial trade in cryptoassets and will therefore have taxable trading profits. This is likely to be unusual,

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<sup>64</sup> Financial Conduct Authority, [Cryptoassets: AML / CTF regime](#) (accessed 20 January 2020)

<sup>65</sup> HMRC, [Cryptoassets: tax for businesses](#), 20 December 2019

<sup>66</sup> HMRC, [Cryptoassets: tax for individuals](#), 20 December 2019



but in such cases Income Tax would take priority over the Capital Gains Tax rules.

HMRC does not consider the buying and selling of cryptoassets to be the same as gambling.

Overall, HMRC expects relevant figures to be provided in pounds sterling, “using the appropriate rate at the time of each transaction”. Taxpayers are expected to adopt (and keep a record of) a consistent valuation methodology.

The [guidance for individuals](#) provides some further advice that is particularly relevant to the specifics of exchange tokens:

- Given the ‘stateless’ nature of cryptocurrency trading, the HMRC considers the residence of the beneficial owner of the exchange token. So “a person who holds exchanges tokens is liable to pay UK tax if they are a UK resident and carry out a transaction with their tokens which is subject to UK tax”.
- The HMRC will consider [negligible value claims](#) to offset tax liabilities in cases where the exchange token has lost its value, or where taxpayers have lost their cryptographic key (and so all access to the asset) or have been defrauded.

More generally, the application of the [Anti Money Laundering regulations](#) will help the HMRC and other authorities to identify customers and funds flowing into and out of the cryptocurrency market.

## 5.6 International approaches

The statelessness of most of the cryptocurrency industry brings new challenges to national and international regulators.

### The Financial Action Task Force

[The Financial Action Task Force](#)<sup>67</sup>, the leading “independent inter-governmental body that develops and promotes policies to protect the global financial system against money laundering, terrorist financing and the financing of proliferation of weapons of mass destruction”, maintains an oversight of the development of the industry. In 2014 the FATF published [Virtual Currencies: Key Definitions and Potential AML/CFT Risks](#), which emphasised the need for action.

[Guidance for a Risk-Based Approach to Virtual Currencies](#), published in 2015, set out recommendations that would help coordinate international regulation of the industry. Those recommendations informed the development of the EU’s [Fifth Money Laundering Directive](#) and so the UK’s domestic framework. The FATF issued further guidance in 2019.<sup>68</sup>

### National responses

National governments around the world have responded to the emergence of crypto-assets in different ways and at different times,

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<sup>67</sup> The FATF is “an independent inter-governmental body that develops and promotes policies to protect the global financial system against money laundering, terrorist financing and the financing of proliferation of weapons of mass destruction. ”

<sup>68</sup> FATF, [Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers](#), June 2019

although the efforts of the FATF are leading over time to wider coordination.

The Library of Congress maintains a webpage, [Regulation of Cryptocurrency Around the World](#), that brings together a range of reports and documents about national regulatory and political responses.

The webpage notes the expansion of regulation around the world, as well as the following points:

- One of the most common responses is issuing warnings about the risks of investing in cryptocurrencies for consumers. They highlight volatility, as well as the lack of regulation and consumer recourse.
- Many countries emphasise the links between cryptocurrencies and crime and are enacting regulation to combat money-laundering.
- Some countries prohibit all engagement with cryptocurrencies; others ban financial institutions from working with them, but allow citizens to use them.
- Some are engaging positively with the potential offered by crypto-assets and blockchain technologies.<sup>69</sup>

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<sup>69</sup> Library of Congress, [Regulation of Cryptocurrency Around the World: Comparative Summary](#) (accessed 28 January 2020)

## 6. Facebook and the Libra

In June 2019 Facebook [announced](#) the proposed launch of a new cryptocurrency, the Libra. While the Libra is intended to share many of the features of cryptocurrencies like Bitcoin (the main model discussed in this briefing), **the plans for the Libra differ significantly from that general model.**

According to the [Libra White Paper](#), which sets out the vision for the initiative, the main differences between Libra and approaches described earlier are as follows:

- Libra will use a “permissioned blockchain”, unlike the “permissionless blockchain”. This means that the process of validating transactions will be limited to authorised “validator nodes” – in effect IT systems run by business members of the Libra Association.
- It will seek to address the problem of volatility by being “fully backed by a reserve of real assets. A basket of bank deposits and short-term government securities will be held in the Libra Reserve for every Libra that is created, building trust in its intrinsic *[sic]* value. The Libra Reserve will be administered with the objective of preserving the value of Libra over time.”
- Unlike the entirely decentralised authority associated with Bitcoin, for instance, the Libra Association will oversee the policy and operation of the currency.

This vision presents the Libra token as a stablecoin.

[Facebook also announced a new app, Calibra](#), that will act as a wallet for Libra. Significantly, Calibra will also integrate with its existing services: Facebook itself, Facebook Messenger, Instagram and WhatsApp.

### Oversight

While other cryptocurrencies are entirely decentralised, **the Libra will be overseen by a partnership of members** – the Libra Association, which describes itself as “an independent, Swiss not-for-profit organization with the mission to empower billions of people through the creation of a simple global currency and financial infrastructure to create a simple global currency and financial infrastructure that empowers billions of people, stimulating the global economy”. It is “headquartered in Geneva, Switzerland, and also has offices in California's Bay Area”.<sup>70</sup>

There are three proposed types of founding membership of the Association: business members, social impact partners and academic institutions. While social impact members should share “[m]ission alignment with Libra to reach the unbanked and under-banked, including a willingness to use innovative methods, such as blockchain”, business members should generally have “[m]ore than \$1 billion USD in

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<sup>70</sup> Libra.org, [How to Become a Founding Member](#) (accessed 30 January 2020)

market value or greater than \$500 million USD customer balances” and be “[r]ecognized as a top-100 industry leader by a third-party sector-specific association or media company”.<sup>71</sup>

With regard to Facebook’s involvement, the Libra Association notes:

We hope to have approximately 100 members of the Libra Association by the target launch in the first half of 2020.

Facebook teams played a key role in the creation of the Libra Association and the Libra Blockchain, working with the other Founding Members. While final decision-making authority rests with the association, Facebook is expected to maintain a leadership role through 2019. Facebook created Calibra, a regulated subsidiary, to ensure separation between social and financial data and to build and operate services on its behalf on top of the Libra network.

Once the Libra network launches, Facebook, and its affiliates, will have the same commitments, privileges, and financial obligations as any other Founding Member. As one member among many, Facebook’s role in governance of the association will be equal to that of its peers.<sup>72</sup>

The Libra Association originally included a number of high-profile companies, but many of these withdrew in the latter half of 2019 after the wider reaction discussed below.

## 6.1 Reactions: caution and criticism

Mark Carney, Governor of the Bank of England, [cautiously welcomed the Libra announcement](#) on 20 June, but noted the importance of regulatory involvement:

The Bank of England approaches Libra with an open mind but not an open door. Unlike social media for which standards and regulations are being debated well after they have been adopted by billions of users, the terms of engagement for innovations such as Libra must be adopted in advance of any launch. Libra, if it achieves its ambitions, would be systemically important. As such it would have to meet the highest standards of prudential regulation and consumer protection. It must address issues ranging from anti-money laundering to data protection to operational resilience...

Whatever the fate of Libra, its creation underscores the imperative of transforming payments. The Bank’s strategy to open access to a wide range of payment solutions combined with appropriate regulatory oversight of them maximises the likelihood that the payments revolution will meet the demands of the new economy and the needs of all our citizens. (p.6)

More widely, reactions tended to highlight the potential systemic threats that the initiative might present, given Facebook’s existing reach, as well as doubts about Facebook’s ability to run and stabilise a currency. In addition, many commentators expressed doubt about Facebook’s wider motivations. [The Block](#) gathered wider (and overwhelmingly critical) initial reactions from politicians and regulators:

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<sup>71</sup> Libra.org, [How to Become a Founding Member](#) (accessed 30 January 2020)

<sup>72</sup> [Ibid.](#)

**France's finance minister Bruno Le Maire** [said](#) that Libra "can't and...must not happen" and that "it is out of question" for the cryptocurrency to "become a sovereign currency." He has reportedly called on the Group of Seven (G7) central bank governors and guardians of the global monetary system to review the social media giant's upcoming cryptocurrency and submit a report next month.

**Markus Ferber, a German member of the European Parliament**, warned that Facebook could become a "shadow bank" and said regulators should be vigilant.

**U.S. Rep. Patrick McHenry, senior Republican on the House Financial Services Committee**, first [asked](#) for a hearing on Project Libra in a letter to committee **Chairwoman, U.S. Rep. Maxine Waters**. Later, Waters, a Democrat, called for a halt to Facebook's development of its cryptocurrency.

"Regulators should see this as a wake-up call to get serious about the privacy and national security concerns, cybersecurity risks, and trading risks that are posed by cryptocurrencies," Waters said, adding, "Given the company's troubled past, I am requesting that Facebook agree to a moratorium on any movement forward on developing a cryptocurrency until Congress and regulators have the opportunity to examine these issues and take action."

**Ohio U.S. Senator Sherrod Brown, the top Democrat on the Senate Banking Committee**, reportedly [said](#): "Facebook is already too big and too powerful, and it has used that power to exploit users' data without protecting their privacy. We cannot allow Facebook to run a risky new cryptocurrency out of a Swiss bank account without oversight."

Meanwhile, pending congressional review of the proposals in the US, [some Democrats urged Facebook to suspend all development of the Libra](#).

Facebook have responded to some of the questions and criticisms in [a post on 3 July](#), largely reiterating the wider vision. On 12 July, though, President Trump joined the criticism, echoing concerns about regulatory issues:

"I am not a fan of Bitcoin and other Cryptocurrencies, which are not money, and whose value is highly volatile and based on thin air," Trump wrote on Twitter.

"If Facebook and other companies want to become a bank, they must seek a new Banking Charter and become subject to all Banking Regulations, just like other Banks, both National and International," he added.

Mark Zuckerberg, Facebook's CEO, faced further scrutiny from the US House Financial Services Committee in October. Noting that he represented Facebook rather than the Libra Association, Mr Zuckerberg contended that Facebook would leave the Association if it moved ahead with necessary regulatory approval.<sup>73</sup>

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<sup>73</sup> CNBC, "[Zuckerberg: Facebook 'would be forced to leave' the Libra Association if it moves forward before regulators approve](#)", 23 October 2019.

By that point, though, doubts and criticism had led many of the founder members – including Visa, Mastercard, PayPal and eBay – to leave the Libra Association.<sup>74</sup>

Between that point and the end of January 2020, no significant progress with the initiative has been announced.

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<sup>74</sup> Financial Times, "[Mastercard, Visa, eBay and Stripe quit Facebook's Libra](#)", 11 October 2019.

## 7. Further reading

- Treasury Committee, [Crypto-assets](#), 19 September 2018, HC 910 2017-19. (A thorough consideration of a range of concepts, issues and evidence, with a very useful set of conclusions and recommendations.)
- HM Treasury, Financial Conduct Authority and the Bank of England, [Cryptoasset Taskforce: final report](#), October 2018. (The framework for the UK's regulatory response.)
- Bank of England, [Digital currencies](#). (A general introduction with useful links, notably to policy developments.)
- Congressional Research Service, [Cryptocurrency: The Economics of Money and Selected Policy Issues](#), 7 December 2018. (A very thorough and well-referenced briefing by our US equivalent.)
- Parliamentary Office of Science and Technology, [Distributed Ledger Technology](#). PB-0028
- Coincenter, [Blockchain 101](#). (A useful, simple overview, with links to more detailed information.)
- Libra, [Libra White Paper](#). (A useful summary of plans and the basis of the June 2019 launch.)



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