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Tema:Cryptocurrencies: market analysis and perspectives

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Fichamento

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| 2 | Much recent public discussions of cryptocurrencies have been triggered by the substantial changes in their prices, claims that the market for cryptocurrencies is a bubble without any fundamental value, and also concerns about evasion of regulatory and legal oversight. These concerns have led to calls for increased regulation or even a total ban. Further debates concern inter alia: the classifcation of cryptocurrencies as commodities, money or something else; the potential development of cryptocurrency derivatives and of credit contracts in cryptocurrency; the use of initial coin oferings (ICO) employing cryptocurrency technology to fnance start-up initiatives; and the issue of digital currencies by central banks employing cryptocurrency Technologies  There is as yet little clearly established scientifc knowledge about the markets for cryptocurrencies and their impact on economies, businesses and people.  Cryptocurrencies are digital fnancial assets, for which records and transfers of ownership are guaranteed by a cryptographic technology rather than a bank or other trusted third party. They can be viewed as fnancial assets because they bear some value (discussed below) for cryptocurrency holders, even though they represent no matching liability of any other party and are not backed by any physical asset of value (such as gold, for example, or the equipment stock of an enterprise).  in the original whitepaper proposing the supporting technology for Bitcoin (Nakamoto 2008) all suggest, the original developers consciously attempted to develop a digital transfer mechanism that corresponded to direct transfer of physical cash used for payments or other fnancial assets—such as a precious metals and ‘bearer bonds’—that like cash also change hands through physical transfer.  What about the arrangements used for fnancial assets recorded in digital form (such as bank deposits, equities or bonds but not bearer bonds or bank notes)? Ownership arrangements for these assets depend on the information system maintained by a fnancial institution (commercial bank, custodian bank, fund manager) determining who is entitled to any income or other rights it ofers and has the right of sale or transfer. Originally these systems were paper based, but since the 1960s they have utilised first mainframe and more recently computer systems.2 If there is a shortcoming in their information system, for example a breach of security that leads to theft or loss or failure to carry out an instruction for transfer, then the fnancial institution is legally responsible for compensating the owner of the asset |  |
| 3 | In the case of cryptocurrencies, it is the supporting software that both verifes ownership and executes transfers.3 There is no requirement for a ‘trusted third party’. This approach though requires a complete historical record of previous cryptocurrency transfers, tracing back each holding of cryptocurrency to its initial creation. This historical record is based on a “blockchain”, a linking of records (“blocks”) to each other in such a way that each new block contains information about the previous blocks in the growing list (“chain”) of digital records. So that every participant in the cryptocurrency network sees the same transaction history, a new block is accepted by agreement across the entire network  The applications of this technology are not necessarily finance-related; it  can be applied to any form of record-keeping; however if the block refers to a financial transaction then each transaction in the blockchain, by defnition, includes information about previous transactions, and thus verifes the ownership of the fnancial asset being transferred. Falsifying ownership, i.e. counterfeiting (which, one could imagine, is easy, as digital objects can be easily duplicated by copying), is impossible because one would have to alter preceding records in the whole chain. Since records are kept in the network of many users’ computers, a “distributed ledger”, this is rather unthinkable  There is a substantial computer science literature on the supporting cryptocurrency technologies, including on the security of public key cryptography, efficient search tools for finding transactions on the blockchain, and the ‘consensus’ mechanisms used to establish agreement on ledger contents across the network. |  |
| 4 | our defnition of cryptocurrencies (as an asset and some technology which verifes ownership of the asset), which is independent of any particular technological implementation.  Cryptocurrencies can be seen as part of a broader class of fnancial assets, “cryptoassets” with similar peer-to-peer digital transfers of value, without involving third party institutions for transaction certifcation purposes. What distinguishes cryptocurrencies from other cryptoassets? This depends on their purpose, i.e. whether they are issued only for transfer or whether they also fulfl other functions. Within the overall category of cryptoassets, we can follow the distinctions drawn in recent regulatory reports, distinguishing two further sub-categories of cryptoassets   1. Cryptocurrencies: an asset on a blockchain that can be exchanged or transferred between network participants and hence used as a means of payment—but ofers no other benefts   Within cryptocurrencies it is then possible to distinguish those whose quantity is fxed and price market determined (foating cryptocurrencies) and those where a supporting arrangement, software or institutional, alters the supply in order to maintain a fxed price against other assets (stable coins, for example Tether or the planned Facebook Libra)   1. Crypto securities: an asset on a blockchain that, in addition, ofers the prospect of future payments, for example a share of profts. 2. Crypto utility assets: an asset on a blockchain that, in addition, can be redeemed for or give access to some pre-specifed products or services   A further distinguishing feature of crypto securities and crypto utility assets is that they are issued through a public sale (in so called initial coin oferings or ICOs). ICOs have been a substantial source of funding for technology orientated start-up companies using blockchain based business models. These classifcations of cryptoassets are critical for global regulators, since they need to determine whether a particular cryptoasset should be regulated as an e-money, as a security or as some other form of financial instrument, especially in relation to potential concerns about investor protection in ICOs.9 |  |
| 5 | cryptocurrencies should be able to ease fnancial transactions through elimination of the intermediaries, reduction of transaction costs, accessibility to everyone connected to the Internet, greater privacy and security (see, e.g., discussions in Böhme et  al. 2015; Richter et al., 2015).10 On the other hand, the real economic value transferred in the transactions of freely foating cryptocurrencies such as Bitcoin’s BTC and Ethereum’s Ether remains unclear. Despite the exhaustive and unfalsifable record of all previous transactions held cryptographically, as in the Bitcoin blockchain, the information only refers to nominal numbers, i.e. the amount of cryptocurrency units transferred. |  |
| 6 | A possible answer may lie in the features that distinguish cryptocurrencies from other assets and payment systems. Privacy, or rather anonymity, is a prominent distinctive feature popping up in most discussions of cryptocurrencies. The value of a cryptocurrency is then efectively a measure of how much users value anonymity of their transactions. While anonymity may be attractive for illegal activities (and some research reviewed below suggests cryptocurrencies are often used for these purposes), one cannot rule out users may simply wish more privacy, trying to avoid the “Big Brother” efect of traditional transactions. Of course, there may be other factors, for example, fashion (users want to use the technology others are talking about), hi-tech appeal (the desire to use the most modern technology) or curiosity (the desire to try something new), among others, but these phenomena appear shorter-lived than the allure of anonymity  A key development in the rise of cryptocurrencies and other cryptoassets has been the emergence of cryptoexchanges where anyone can open accounts and trade cryptoassets both against each other and against fat currencies. In a survey by Hileman and Rauchs (2017), the US dollar, the Euro and the British Pound are currently most widely traded against cryptocurrencies, while the importance of the Chinese Renminbi (CNY) signifcantly diminished after the tightening of the regulation by the People’s Bank of China; about three-quarters of large exchanges provide trading support for two or more cryptocurrencies. Above, we highlighted that cryptoexchanges provide extensive cryptocurrency pricing and trading information in the public domain. The emergence of these exchanges has created an entire ‘ecosystem’ of services and participants, seeking to provide liquidity, exploit price discrepancies for proft and to support investment by both retail and professional investors |  |
| 7 | Academic interest in cryptocurrencies started to soar in 2014 (see Fig.  1): the Scopus database lists 127 publications containing the word ‘Bitcoin’ in the title or abstract or keywords and 24 containing ‘cryptocurrency’ or ‘cryptocurrencies’ in 2014. In 2017 and especially in 2018 the number of publications grew fast, and in 2019 the trend is continuing. |  |
| 8 | Cryptocurrencies can be used both as a means of payment and as a fnancial asset. Glaser et  al. (2014) provide evidence that, at least for the Bitcoin, the main reason to purchase a cryptocurrency is speculative investment. Financial securities, such as ETNs (exchange traded notes) and CFDs (derivative products) that replicate Bitcoin’s price performance are made available by brokers, expanding the speculative investment opportunities to an even larger set of investors. With this in mind, it makes sense to evaluate cryptocurrencies as fnancial assets  The relative isolation of cryptocurrencies from more traditional fnancial assets suggests cryptocurrencies may ofer diversifcation benefts for investors with short investment horizons. Bouri et al. (2017) as well as Baur et al. (2018) find that Bitcoin is suitable for diversifcation purposes as its returns are uncorrelated with those of most major assets. |  |
| 9 | Cryptocurrency prices may drop dramatically because of a revealed scam or suspected hack, or other hidden problems. For example, on June 26th, 2019, the Bitcoin price lost more than 10  % of the value in a few minutes because of the crashes and outages of the Coinbase digital exchange. As a consequence, a cryptocoin may beco |  |
| 10 | In the case of cryptocurrencies, this type of uncertainty may arise for two reasons: (1) the technology is rather complicated and opaque to unsophisticated traders, and (2) the fundamental value of cryptocurrencies is unclear. As we highlighted above, even if it is strictly positive, it is likely to derive from intangible factors and as such is rather uncertain. Dow and da Costa Werlang (1992) demonstrate that under pessimism (ambiguity aversion) uncertainty about fundamentals leads to zero trading in fnancial markets, yet this does not seem to apply to cryptocurrencies. In Vinogradov (2012) not only does the no-trade outcome depend on the degrees of optimism and pessimism, which may vary, but it also manifests only under high risk (in the standard sense).  Obtaining information is crucial to reduce uncertainty. Figà-Talamanca (2020) focus on a rather general definition of the demand for information, as manifested in the google search index. According to them, the intensity of the internet search for cryptocurrency-related keywords signifcantly afects cryptocurrency volatility (but not return); this impact vanishes once one controls for “relevant events”. These relevant events are efectively announcements of either restrictions (and even bans) on cryptocurrency usage, or of the widening of the cryptocurrency market. While we remain largely agnostic regarding what people fnd when they search for cryptocurrency related terms on the Internet, the events give us an indication of the type of information that actually matters for cryptocurrency investment decisions, and hence for pricing. In uncertainty, when finding relevant information is uneasy,  Uncertainty and attitudes to it are not the only reasons why neoclassical predictions may fail. Shiller (2003) notes  that market participants are humans and can make irrational systematic errors contrary to the assumption of rationality. Such errors afect prices and returns of assets, creating market inefciencies. Studies in behavioral economics highlight inefciencies, such as under- or overreactions to information, as causes of market trends and, in extreme cases, of bubbles and crashes. Such reactions have been attributed to limited investor attention, overconfdence  The loss-aversion led Shefrin and Statman (1985) to formulate the ‘disposition efect’ in investment decisions: investors in traditional assets tend to keep assets that lose value too long and sell those that gain in value too early |  |
| 11-12 | Three features distinguish cryptocurrency markets: investors are non-institutional, risk (volatility of returns) is high, and the fundamental value is unclear.  Critiques emphasize cryptocurrencies are not exempt from frauds and scandals. For example, several millions in Bitcoin from the Japanese platform Mt. Gox in 2014 and $50 million in Ether during the Decentralized Autonomous Organization (DAO) attack in 2016 were stolen. Moreover, cryptocurrency payments, being largely unregulated, do not restrict any purchases, including those illegal. Böhme et  al. (2015) provide summary data showing that, at least in the beginning of the Bitcoin era, most transactions were used for drug purchases. Foley et  al. (2019) estimate that about 46 % of Bitcoin transactions are associated with illicit activities, but that the illegal share of Bitcoin activity declined over time with the emergence of more opaque cryptocurrencies. On top of that, users appear unprotected as payments are often irreversible, and an erroneous transfer cannot be cancelled, unlike credit card payments (Böhme et al. 2015).  On the positive side, the development of the cryptocurrency market contributes to the dynamics of access to finance (Adhami et al. 2018). The advent of the blockchain technology allowed entrepreneurial teams to raise capital in cryptocurrencies and fiat money (which has to be exchanged into a cryptocurrency) through the issuance of digital tokens (Initial Coin Oferings, ICOs) and the development of ‘smart contracts’ (Giudici and Adhami 2019). Tokens give their buyers a right to use certain services or products of the issuer, or to share profts, in which case they resemble equity |  |
| 12 | An important distinction between tokens and cryptocurrencies is though that there is a liability or some sort of commitment behind the token, and this liability determines its value  Cryptocurrencies, which underlie the ICO procedure, are claimed to provide much more equitable and democratic access to capital as well as greater eficiency, compared to fiat money, allowing peer-to-peer transactions and avoiding the intermediation of banks (Nakamoto 2008; Karlstrøm 2014). This is normally done via an ICO, and could be a relevant opportunity for small business, which often experience a gap in funding and miss competences to relate with professional investors (Giudici and Paleari 2000). OECD (2019) also reports ICOs are a potential route for low cost finance for SMEs.  The World Economic Forum White Paper (WEF 2018), claims that cryptocurrencies and blockchain technologies could increase the worldwide trading volume, moving to better levels of service and lower transaction fees. To this extent, the contribution by Ricci (2020) in this special issue considers the geographical network of Bitcoin transactions in order to discover potential relationships between Bitcoin exchange activity among countries and national levels of economic freedom. The study shows that high levels of freedom to trade internationally, that guarantee low tarifs and facilitate international trade, are strongly connected to the Bitcoin difusion. On the one hand, the freedom to trade internationally could increase the foreign trade through the use of alternative payment instruments capable of reducing transaction costs (like cryptocurrencies), on the other, low capital controls could encourage the use of cryptocurrencies for illegal conduct, such as money laundering  The reward system for cryptocurrency ‘miners’ creates an incentive to leverage on computing power, increasing the consumption of energy. For example, Böhme et al. (2015) note that computational eforts of miners are costly, mainly because the proof-of-work calculations are “power-intensive, consuming more than 173 megawatts of electricity continuously. For perspective, that amount is … approximately $178 million per year at average US residential electricity prices.” The sustainability topic is raised in this special issue by Vaz and Brown (2020). They posit that there are signifcant sustainability issues in the cryptocurrency development exceeding potential benefts, that are captured typically by a few people. Therefore, they call for diferent institutional models with government and public engagement, as to avoid that the market is driven mostly by private money and proft motivations. |  |
| 13 | Growing attention has been paid to cryptocurrencies in the academic literature, discussing whether they are supposed to disrupt the economy or are a speculative bubble which could crash and burn or favor money laundering and criminals. In support of the frst view, it is often argued they meet a market need for a faster and more secure payment and transaction system, disintermediating monopolies, banks and credit cards. Critics, on the other hand, point out that the unstable value of cryptocurrencies make them more a purely speculative asset than a new type of money. The reality is somewhere in between these two positions, with cryptocurrencies performing some useful functions and hence adding economic value, and yet being potentially highly unstable. The trend is towards a regulation of cryptocurrencies, and more generally of all crypto-assets, and to their increased trading on organized and regulated exchanges. This would go against the original libertarian rationale that originated the Bitcoin but is a necessary step to provide protection for market participants and reduce moral hazard and information asymmetries.  Gandal et al. (2018) investigate price manipulations at the Mt. Gox Bitcoin exchange; a notable by-product of their research is the fnding that suspicious trading on one exchange led to equal price changes on other exchanges, suggesting traders can efectively engage in arbitrage activities across exchanges. Similarly, signs of efciency are detected in Akyildirim et al. (2019) who investigate pricing of Bitcoin futures on traditional exchanges—Chicago Mercantile Exchange (CME) and the Chicago Board Options Exchange (CBOE). Importantly, in their study information fows and price discovery go from futures to spot markets, in contrast to previous results for traditional assets; a likely explanation is the difference in the type of traders at cryptoexchanges (that determine the spot price) and both CME and CBOE.13 Yet more has to be learnt about cryptoexchanges. Their open nature distinguishes them from conventional stock exchanges and dealer markets with transactors directly accessing the market rather than relying on brokers as intermediaries | conclusão |
| 14 | Schilling and Uhlig (2019) ofer a model where cryptocurrencies are a reliable medium of exchange and compete against fat money: this role implies the current price of cryptocurrencies is the expectation of their future value (a martingale), yet interestingly, competition and substitutability between the two imply in their analysis cryptocurrencies should disappear in the long run equilibrium. The authors admit that their analysis abstracts away such distinctive features of cryptocurrencies as “censorship resistance, transparency, and speed of trading”. Above we have provided a simplifed argument explaining that cryptocurrencies may have a value by ofering features, such as anonymity of transactions, not covered by traditional currencies. Many fndings, also those included in this special issue, point towards the intangible nature of the cryptocurrency value.  The third issue is the societal role of cryptocurrencies and their regulation. While many discussions of cryptocurrencies stress that they are free of regulation, and the desire to be unregulated was one of drivers behind their creation, there is considerable controversy both about the application of existing regulation to cryptocurrencies and other cryptoassets and also what if any new regulations may be needed to protect investors, prevent fnancial crime and ensure fnancial stability  Globally, regulators are shifting towards a tougher stance. Some exchanges are seeking to engage with regulators and be fully compliant. Others prefer to operate outside of regulation. A simple argument is that one has to protect investors and users from fnancial and technological risks they face. However, as papers presented in this special issue demonstrate, cryptocurrencies difer from traditional assets, hence the validity of traditional arguments, such as systemic stability, consumer protection and promotion of competition, is not clear. As our literature review and papers in this special issue underscore, cryptocurrencies do not comove with other assets; they help diversifcation and do not pose an immediate danger for systemic stability. There appears to be a signifcant and growing degree of competition between diferent cryptocurrencies and cryptoexchanges, and yet we have to understand whether and why such a competition is desirable for the society.  another major issue is how cryptocurrency technologies may afect conventional fat currency issued by central banks.15 Emerging literature on the competition between cryptocurrencies and fat money raises concerns that the emergence of privately issued cryptocurrencies could weaken the monetary policy tools employed by the central bank and result in welfare losses (Zhu and Hendry 2018; Schilling and Uhlig 2019). Fernández-Villaverde and Sanches (2019) fnd that when private currency competes with a central bank issued e-money the former should vanish in equilibrium, yet it remains unclear what happens if cryptocurrencies are not a perfect substitute to fat money.16 Cukierman (2019), building on the analysis by Roubini (2018), brings the discussion to a further level by discussing the potential also for cryptocurrency issue by the central bank being used to implement fully reserved or narrow banking and thus to promote fnancial stability. |  |