Assessing the future prospects for cryptocurrencies

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ABSTRACT

Cryptocurrencies are attracting considerable attention around the world because of the various advantages that they offer. On the other hand, they also carry some inherent risks. Although monetary authorities broadly agree that cryptocurrencies do not engender an immediate threat to national and global financial systems, the future is full of unknowns. In this regard, drawing a framework based on the current drivers of demand for cryptocurrencies would help visualize the prospects for these assets and create a roadmap to avoid or manage any disruptive risks. This discussion paper aims to contribute to the literature by examining the key factors that will determine the future performance of cryptocurrencies. The main conclusion derived from the discussion is that national regulations will potentially affect the direction of cryptocurrencies, as well as the need for any special efforts in the domain of monetary policy.

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Introduction

In an era of growing interest in digitalization and cryptocurrencies, the future of monetary systems has been discussed extensively by scholars and policymakers around the world. The discussion has many aspects. Both the risks and opportunities brought by the rise of cryptocurrencies must be assessed to evaluate the need for regulations, as well as for particular efforts at innovation. This kind of an assessment is also required in order to analyze how potential new designs can be shaped in the financial system.

In this respect, understanding the dynamics of demand for cryptocurrencies is essential. As is widely agreed in the literature (Yermack (2013); Lo&Wang (2014); Wolla (2018), cryptocurrencies do not fulfill the functions of money. There do exist some cryptocurrencies serving as a “medium of exchange,” but the majority of them fail to do so. What is equally critical here is that these assets do not fulfill the other two functions of money, which are “store of value” and “unit of account.” Their unstable nature, which results from volatile demand and inflexible supply, currently makes it unlikely for cryptocurrencies to satisfy these two features. In fact, from a long-range perspective, the lack of these functions would eventually prevent the relatively adapted use of cryptocurrencies as a medium of exchange. In this context, Ammous (2016), in a paper analyzing the five cryptocurrencies that have the largest market capitalization, concludes that cryptocurrencies have a long way to go before being considered capable of fulfilling the three traditional functions of money.

Yet cryptocurrencies have proven attractive in recent years to a variety of groups around the world. Despite their failure to act as proper money, why are cryptocurrencies in demand? This is the fundamental question to begin with, to imagine future prospects.

The answer includes the many possibilities to do with blockchain technology, on which most cryptocurrencies are built. In this sense, the *anonymity* provided by these systems is considered a prominent feature that attracts users who care about keeping their identities

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private in transactions. In addition, appetite for *speculative gains* appears to be another driving force behind the current demand for cryptocurrencies. Other appealing attributes are the *relatively low transaction fees* and *speedy transactions* (Hacioglu et al., 2021).

Furthermore, *loss of trust* in monetary authorities is considered another major reason for certain users. The fact that the emergence of cryptocurrencies dates back to the times of the global financial crisis in 2008 lends weight to this argument. In Greece, for example, due to the capital controls imposed in 2015, many individuals turned to bitcoin technology for their everyday transactions with businesses and individuals residing abroad, or simply out of fear of an imminent haircut on deposits (Zamani and Babatsikos, 2017). The boost in demand for Bitcoin in Zimbabwe during the hyperinflation episode that was experienced in the country has been another conspicuous example of the case for distrust. What is more, *(geo)political uncertainties* are known to have the potential to affect demand for cryptocurrencies. Demir et al. (2018) analyze the predictive power of the economic policy uncertainty index on daily Bitcoin returns and show that Bitcoin can serve as a hedging tool against uncertainty. Similarly, Aysan et al. (2019) report that the global geopolitical risks (GPR) index is predictive for both returns and the volatility of Bitcoin.

In this regard, assessing the likely trends in the above-mentioned demand factors would be helpful in discussing the future of cryptocurrencies. What do current cryptocurrency users really care about and to what extent will they benefit from these features in the future? This paper goes beyond understanding the current developments in cryptocurrency markets and attempts to shed light on future prospects. For this purpose, Section 2 discusses the main dynamics behind the demand for cryptocurrencies, along with their sustainability. Section 3 emphasizes the critical role of regulations in shaping the cryptocurrency markets. Finally, Section 4 evaluates the importance of stability for the survival and widespread use of these currencies. Concluding remarks follow in the last section of the paper.

Dynamics and Prospects

To begin with, anonymity, which is regarded as a prominent pull factor in cryptocurrency markets, is up for discussion. On the one hand, there are legitimate economic agents who appreciate the anonymity of their transactions for security reasons and/or personal sensitivities. On the other hand, there exist groups that exploit the underlying blockchain technology for the illegal activities that they engage in. Which one of these profiles creates mass demand for cryptocurrencies based on the so-called need for anonymity? That is certainly a question. It is globally recognized that cryptocurrencies serve as a significant tool for the digital black market, the size of which is not the least bit trivial. In a seminal paper, Foley et al (2018) discovered that illegal activity accounts for a substantial share of the users and the trading activity in Bitcoin. The study found that approximately 25% of all users and 44% of transactions were associated with illegal activity, which amounted to \$72 billion. Considering that Bitcoin stands as the cryptocurrency with the highest market capitalization, these findings reveal the dark side of the market, which cannot be neglected. In this respect, according to CipherTrace Cryptocurrency Intelligence (2018), a quantitative analysis of all the transactions on the 20 top global cryptocurrency exchanges showed that 97% of direct Bitcoin payments from identifiable criminal sources were received by unregulated cryptocurrency exchanges.

In addition, cryptocurrencies pose a danger to governments in terms of tax evasion. As Marian (2013) points out, cryptocurrencies serve as “super tax havens” for tax evaders. In light of these realities, and despite the seemingly limited actions so far, will governments manage to take effective and coordinated measures against these threats? This remains to be seen, but growing regulation aimed at anti-money laundering (AML), combating the financing of terrorism (CFT) and enforcing taxation would discourage to some extent the use of cryptocurrencies over the long term.

On the other hand, the user segment that prefers the anonymity of cryptocurrencies for legal privacy purposes would keep generating demand, as long as the assumed anonymity proves to be real. At this point however, it is worth mentioning that both experience and research so far suggest that it is possible to determine the identity of cryptocurrency users. Meiklejohn et al. (2013) and Koshy et al. (2014) are among the studies that address the issue of semi-anonymity. In addition, even though the associated technology is commonly recognized as safe for users due to its encryption features, it in fact poses risks, including of fraud and theft. As Fernandez-Villaverde (2018) emphasizes, cryptocurrencies are not free from criminal activities since the relevant problems cannot be totally eliminated by cryptography. Hacking attacks and thefts diminish the store-of-value function of cryptocurrencies (Yermack, 2013). Therefore, an increase in awareness with regard to security issues would diminish the demand for cryptocurrencies, unless further technological improvements reduce the pertinent risks.

It is realistic, however, to predict that the tendency to buy cryptocurrencies as an investment can be expected to continue. However, the speculative and unstable nature of these assets would to some extent limit their proliferation for investment purposes. Nevertheless, there is no doubt that the lack of trust in sovereign currencies and national banking systems, particularly in cases of hyperinflation and economic crises, would continue to support the use of cryptocurrencies. In addition to the hedging motives that would play out against uncertainty, anarcho-capitalist ideology would also play a role in this course.

In this framework, low fees, another so-called attraction of cryptocurrencies, also need to be assessed in terms of the future. Although transaction verifiers in blockchain systems are currently willing to accept low fees, this feature does not seem sustainable for the long run (Hacioglu, 2019). In other words, the cost of verifying transactions will likely increase in the future. The first reason for this relates to the increase in the use of digital currencies as a medium of exchange, while the second is due to an incentive for miners to overinvest in computer hardware (Bank of England, 2014). This expectation mainly arises from the fixed nature of cryptocurrencies’

supply paths. Moreover, governments are likely to institute regulations to guard against any unfair competitive advantages that cryptocurrencies might offer.

Importance of Regulations

In fact, the key issue in shaping the further evolution of cryptocurrencies will be the regulatory approaches of governments towards these assets. It would not be unrealistic to expect increasing regulation worldwide for cryptocurrencies, particularly in advanced economies. However, the impact of those regulations would vary in each country with regard to both magnitude and direction, depending on the severity and focus of legislation. During the first decade of the existence of cryptocurrencies, countries appeared to exhibit quite different attitudes, ranging from strict bans to warm welcomes, and from ambiguous silence to complete inaction. It is clear that the level of international coherence will play a most crucial role here in achieving common goals, such as preventing illicit activities. Other primary dimensions of regulations are consumer protection, prevention of tax evasion and financial stability, as indicated in the discussion above.

Since governments are likely to prioritize different aspects of the regulation issue for an unpredictably long time, various scenarios exist. First, for illegal activities, it is predicted that the use of virtual currency will accelerate due to its unique features and the ongoing efforts to improve anonymity (U.S. Treasury, 2018). In this regard, monitoring the exchangers is a critical matter in preventing misuse, as criminals eventually exchange their cryptocurrencies for fiat currency. At present, several countries have been observed putting relevant measures into practice, but unless a uniform international regulation framework is adopted, cryptocurrencies will keep serving as an avenue for replacing cash in certain parts of the world. But in a world where a number of weak economies exist and with certain countries subject to sanctions, a desired global consensus would admittedly be hard to achieve. Therefore, economies that do little or nothing to regulate cryptocurrency markets will potentially be the destinations for such illicit activities because of the loopholes in their laws.

Second, a similar consequence could be expected with the issue of tax evasion. Countries ignoring the risks that cryptocurrencies pose for tax evasion will potentially encourage or—at least—turn a blind eye to their use, whereas those with a focused regulatory framework will limit the harmful practice.

Third, efforts to protect consumers, another policy issue that is partly associated with financial stability, could lead to a wide range of results. In this regard, intermediaries, namely crypto-exchanges and crypto-wallet providers, must be monitored and regulated to prevent potentially fraudulent activities. Governments that do not take any responsibility for cryptocurrencies could pose risks to their markets, although the degree of damage would depend on the leverage level in the economy. Nevertheless, there is a distinction here: Countries with cautious but friendly regulations might support the use of cryptocurrencies, thanks to the enhanced security and protective measures they are able to provide. This group can be expected to consist of those economies in which the use of cash will increasingly be abolished in the future. Auer and Claessens (2018) found that regulation does not need to be bad news for the markets, with corresponding price responses notably signaling a clear preference for a defined legal status, albeit a light regulatory regime. Their analysis shows that news regarding regulatory actions that indicate legal frameworks tailored to cryptocurrencies and initial coin offerings coincides with strong market gains.

As noted above, the majority of countries have so far preferred not to focus wholly on the issue or take any concrete steps. Indeed, it is possible that not all national governments are persuaded that cryptocurrencies will mature into full-fledged competitors for existing legal tender and payment systems, or that they will survive future price volatility (Hughes and Middlebrook, 2015). Although an expansion of national regulations would actually create a wider impact, despite the borderless nature of cryptocurrencies, the base case scenario of a diverse regulatory environment implies that the challenges caused by cryptocurrencies today would not in the end lead to a total collapse of these assets in the global system, but would instead trigger a shift of risks and opportunities across the world. In the final analysis, the existence of segmentation in markets would help certain cryptocurrencies survive in a global context.

Another controversial issue relevant to the future of cryptocurrencies is the financial stability of economies. If cryptocurrencies survive, will they create a threat to the financial system? It is broadly accepted in the literature that cryptocurrencies do not pose an immediate significant risk to the financial system (Bank of England, 2014). Therefore, due to the limited use of these currencies, price collapses seem to affect only users, but not the financial systems. Yet developments must be closely watched to assess any future risks. To be specific, further risks would depend on how extensively cryptocurrencies are used, as well as the strength of the regulatory frameworks. Thus, it is beneficial to discuss whether widespread use of cryptocurrencies is possible at all.

The Potential for Widespread Use

Discussing the potential for widespread use of any currency requires a prior focus on scalability. Can the currency of interest deal with large amounts of transactions at once? Data and experience show that cryptocurrencies currently exhibit a scalability problem. Apart from the huge consumption of energy and environmental damage that some of them cause, cryptocurrencies have hard limits on the throughput of transactions because of the decentralized systems that they operate in. To be able to process the number of digital retail transactions that are currently handled by national payment systems, the size of the ledger would swell well beyond current storage capacities. Moreover, the issue also extends to processing capabilities (Bank of International Settlements, 2018). In

other words, cryptocurrencies are not yet able to compete with the traditional, well-adapted payment systems, including credit cards and certain online payment platforms.

It should be noted here that scalability performance varies among cryptocurrencies. As stated by Gurguc and Knottenbelt (2018), it is their protocols that feature restrictions on block size or transaction complexity, and that deliberately regulate the rate at which blocks are published. This shortcoming is increasingly recognized by the cryptocurrency community as a barrier for widespread use. Accordingly, potential solutions are being investigated. While a number of innovative proposals have been raised in this regard, it is also clear that they need to be carefully evaluated, considering the security concerns, which cannot be underestimated (Extance, 2015). All in all, the scalability problem appears to be a major obstacle faced by cryptocurrencies and it must be eliminated to achieve extensive usage based on the medium-of-exchange function.

Moreover, it is a fact that widespread adoption and use of a currency hinges upon its price stability as well. For this reason, assessing the future use of cryptocurrencies requires considering their prospective performance in terms of their value. In the first decade of their existence, cryptocurrencies fluctuated, which marked them as unstable and speculative assets. This kind of volatile pricing makes cryptocurrencies less secure assets, in terms of store of value. For a cryptocurrency to be accepted as a store of value like a fiat currency, it must present a stable price performance. Alternatively, it has been claimed that a longer presence in the market potentially plays a role in improving confidence and increasing adoption. However, this is a two-way street: creating confidence through stable performance will be critical for the wider adoption of a cryptocurrency.

Here we should note that the main issue exposing cryptocurrencies to fluctuations is the structure of their supply and demand. While the supply path for a majority of cryptocurrencies is predictable, the demand for them is volatile. This constitutes a fundamental problem for stability. Thus, it is clear that the fluctuations faced in cryptocurrency markets rest on two issues: the unpredictable dynamics of demand and the inelastic nature of supply.

As monetary theories suggest, the price of a fiat currency with no intrinsic value can end up at various levels, including zero. What keeps that currency's value above zero is the belief of currency holders in its future value. It is well known that, just like fiat currencies, cryptocurrencies have no intrinsic value. Therefore, those who believe in the future of cryptocurrencies, if any, will continue to use them by backing the value of these assets. Moreover, as mentioned above, factors including illegal activities, failed economies, economic crises, speculative opportunities and anarcho-capitalist behavior can be expected to keep the value of cryptocurrencies above zero. In addition, one other determinant that will shape the value of cryptocurrencies in this process will be the attitude of vendors. Within the first decade of their initiation, cryptocurrencies have not been perceived as a medium of exchange because of the limited number of sellers accepting them as a method of payment. However, if the use of cryptocurrencies becomes more common, this would contribute to their value and stability. This, of course, requires a regulatory environment, where payments and transactions in cryptocurrencies are allowed and/or not restricted.

Based on these factors, it is not easy to foresee the future status of cryptocurrencies with regard to demand. Nevertheless, it would not be unrealistic to state that the better-known currencies that create more confidence, exhibit more stability and find more accepted use will be the ones to survive with relatively higher values. In fact, from the perspective of demand, all these aspects are interrelated. On the other hand, the supply side of the problem also deserves a thought. Currently, the lack of elasticity of the supply curve limits the ability of cryptocurrencies to react to moves in demand, which is an important shortcoming. Considering that changes in the demand for cryptocurrencies are inevitable, making the supply flexible would be an effective way to avoid significant fluctuations. In this respect, the main issue is whether supply protocols of cryptocurrencies can be successfully modified. As improving supply protocols would reduce volatility in the cryptocurrency markets, it appears that so-called "stable coins" will be able to take on the role of eliminating the problem of rigid money supply paths. For example, as mentioned by Claeys et al. (2018), the creators of a currency called Basis aim to provide a currency for which the supply can expand and contract with demand to maintain a stable value relative to an official currency. In the final analysis, elastic money supply is a necessary condition for the price stability of cryptocurrencies. Yet, it is not certain to what extent this can be achieved.

In brief, the potential for widespread use varies for each cryptocurrency, based on the combination of specific factors, including confidence, innovations and regulations. To be able to replace fiat money, cryptocurrencies have to overcome certain limitations that they currently exhibit. It is also clear that cryptocurrencies need to proceed intelligently, step by step to become safe, widely-adopted assets. If this can be achieved even by one cryptocurrency, potential challenges for central banks would then be more pronounced. In this regard, it is also important to discuss how monetary authorities can cope with the challenges that cryptocurrencies could cause in the future.

Conclusions

This paper explores the risks and opportunities that are created by cryptocurrencies, in an attempt to foresee if cryptocurrencies will survive and have widespread use. Current observable dynamics imply that prominent cryptocurrencies that can build stronger confidence, exhibit more stability and find more accepted usage will be the ones that will survive with relatively higher values. This study emphasizes that improving supply paths is a key issue for the future sustainability of these currencies. Yet, if even one cryptocurrency achieves the status of a universal medium of exchange, then consequences for the traditional monetary system will be unavoidable. In order for this to happen, however, problems of price stability and scalability have to be overcome.

The main conclusion in this paper is that national regulations are of critical importance, as these will dictate the direction of cryptocurrencies and frame any efforts in terms of monetary policy. Although increasing national regulations would create an impact despite the borderless nature of cryptocurrencies, the base case scenario, which includes a diverse regulatory environment, indicates that the challenges caused today by cryptocurrencies will not lead to an eventual total collapse of those assets in the global system, but will instead shift risks and opportunities across the world. For one thing, segmentation in markets would help certain cryptocurrencies survive in a global context. Therefore, focusing on necessary regulations and considering innovative financial mechanisms are equally critical for national governments and multinational organizations.

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