

THE EFFECTS OF DIGITAL CURRENCY ON CONVENTIONAL TRADE

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ABSTRACT

This report discusses "digital currencies" and their influence on conventional forms of commerce. Globalization and the "Information Technology" revolution have radically changed the way modern-day businesses conduct transactions. The emergence of digital currencies may provide an alternative form of globally accepted currency allowing for a more unified market economy across the planet (Jegatheesan et al., 2015).

The concept of a globally accepted currency is not new. With the advent of community currencies, digital wallets, e-currencies, and more recently, internet virtual currencies, efforts have been made to create currencies with universal acceptance. However, there has been no comprehensive study on the feasibility of these currencies and their current role in enhancing e-commerce and online transactions. This "Virtual Currency" study seeks to provide insight into the existing barriers and limitations that such currencies currently possess, as well as the benefits they may bring to commerce on the internet.

Keywords: Digital currencies, crypto currencies, bitcoin, virtual currencies, e-commerce, commerce, banks.

1. Introduction

Digital currencies are a new form of payment that is beginning to be accepted by businesses and retailers and used by consumers. They are currently attracting attention and interest from media, business and financial sectors,

government regulatory bodies and law enforcement agencies across the world. Some see digital currencies as a threat to traditional financial systems, while others regard them as a fad that will die out. However, the evidence suggests that these currencies have the capacity to disrupt current commercial practices and payment systems. The rise of digital currencies is a continuation of an on-going process of technological change and innovation shaping commerce and everyday life (Ally et al., 2016).

Digital currencies come to market in different types. One of the most known of recent times is Bitcoin, which emerged in 2009. It is a 'cryptocurrency' - a peer-to-peer, decentralized digital currency that generates units of money and verifies fund transfers using cryptography. Notable features of Bitcoin are that it is not backed by any commodity or currency, it is not regulated or controlled by any government or central bank, and it is generated through a process termed 'mining'. Despite some high profile bankruptcies, frauds and concerns regarding its potential use for money laundering and criminal activities, Bitcoin's price has risen dramatically over the last few years leading to increased media attention, commercial interest, and public awareness (W. Peters et al., 2015).

1.1. Definition of Digital Currencies and Their Types

A digital store of value, a unit of account, and a means of exchange are some definitions of digital currencies. Therefore, although digital currencies are not real, they serve the same basic purposes as money. The two primary categories of digital currencies are fiat digital currencies as well as digital and crypto currencies. Digital currencies issued by banks or governments are known as fiat currencies. E-money is now the only fiat digital currency that is generally accepted (Ally et al., 2016). Using cryptography to encrypt and validate Crypto-digital currencies are decentralized digital currencies that are not produced by a central authority; they control transactions and the generation of new units. Crypto-digital currencies are also known as cryptocurrencies. A programmer or group of programmers using the pseudonym Satoshi Nakamoto first proposed Bitcoin, the most successful crypto-digital money to date, in a research paper in 2008. In January 2009, it became available as open-source software.

1.2. Key Features and Advantages

Digital currencies have emerged as the third generation of financial systems, following the establishment of traditional currency financial systems and the development of online financial systems in the internet era. Digital currencies are based on "internet protocols" and cryptography, existing purely in digital form without any physical embodiment. They can be classified into two main categories: crypto-currencies that are decentralised and designed to be anonymous, such as Bitcoin, and centralised digital currencies that are controlled and regulated by central issuing authorities, similar to traditional currencies but in a digital format. Crypto-currencies are characterised by the absence of a trusted central authority, anonymous peer-to-peer transactions, and virtual value guaranteed by computational hardness. Digital fiat currencies, Digital representations of conventional fiat currencies are frequently referred to as central bank digital currencies (CBDCs) with the same fundamental characteristics. In contrast to cryptocurrencies, CBDC is centralized, allows for both online and offline transactions, and preserves anonymity while being traceable.

Demand for the usage of virtual currencies as a medium of exchange is created by online virtual economies that involve the trading of virtual products and services (Ally et al., 2016). Both centralised and decentralised virtual currencies are utilized in virtual economies. The issuing central authorities have complete control over centralized virtual currencies. The development of crypto-currency is facilitated by the rise of decentralized virtual currencies. Cryptocurrencies and pure digital systems have special advantages over both online and traditional banking systems. The benefits of digital currencies have the potential to have a big influence on contemporary trade.

2. Historical Evolution of Digital Currencies

The concept of digital currencies is not novel, and prior to Bitcoin, attempts had been made to build electronic currencies. More specifically, in 1990, DigiCash was developed, which involved cryptographic protocols to

ensure anonymity in transactions. However, this currency did not achieve commercial viability and failed during the dotcom bust. Other conventional online payment systems emerged at the time, the most notable being PayPal. This was an entirely fiat currency system with a centralised design.

In 1998, computer scientist Wei Dai published the b-money protocol, which encouraged anonymous peer-to-peer (P2P) cash transfer. In the same vein, Nick Szabo proposed “bit gold,” a mechanism to create a digital currency with scarcity and an incentive structure for miners to validate transactions (W. Peters et al., 2015). However, a significant barrier to the construction of a digital currency before Bitcoin was a mechanism to prevent Sybil attacks, which would allow one user to create multiple identities and easily disrupt the network. Bitcoin’s ingenuity was to suggest the proof-of-work (PoW) mechanism as a means to mitigate Sybil attacks and form a consensus in the network. In this way, nodes must expend computational power to create new blocks and verify transactions, which is costly in terms of resources and time. As a result, it becomes prohibitively expensive for one agent to control the network and create multiple identities. Bitcoin is a decentralised currency that relies on mathematical proof and a consensus mechanism to validate transactions without a central authority.

Bitcoin was initially mentioned in a white paper titled "Bitcoin: A Peer-to-Peer Electronic Cash System" published in 2008 under the pseudonym Satoshi Nakamoto. Shortly after, the first version of the Bitcoin client was published in January 2009, signaling the network's birth with the mining of the genesis block. Initially, Bitcoin had no economic value, and the first recorded transaction occurred in May 2010, when a programmer paid 10,000 BTC for two pizzas. The first notable price rally occurred in February 2011 when Bitcoin reached a dollar parity. By July 2011, Bitcoin was worth \$31, but this price correction was followed by an equivalent crash of 94% to \$2, and subsequent fluctuations followed. The dramatic price corrections of Bitcoin are comparable to the dotcom bust. However, since 2012, Bitcoin has moved to a more stable trajectory.

3. Current Landscape of Digital Currencies

At the moment, more than 12,000 cryptocurrencies are listed on public exchanges, and their combined market value exceeds \$727 billion. The first and Bitcoin, the most well-known cryptocurrency, was created in 2008. in reaction to the financial crisis of 2007–2008. Its foundation is blockchain technology, which makes it possible to create an immutable, decentralized public ledger of every transaction. secured through cryptography and energy-intensive computing. Other cryptocurrencies, or altcoins, have attempted to innovate upon Bitcoin's design, adding new features or changing underlying assumptions to create new economic, social, or political incentives. Some of these have gained popularity and significant market capitalization, while others have failed or been exposed as scams or poorly designed experiments. In parallel, central banks have explored the idea of digital representations of fiat currencies, or central bank digital currencies (CBDCs). CBDCs can replace cash or bank reserves in digital form, facilitating payment, settlement, and safe storage of currency through accounts or wallets accessible on the internet or mobile devices. High-profile experiments with CBDCs have been conducted by the central banks of China, the European Union, the U.K., Sweden, and the Bahamas (Ally et al., 2016). Interest in CBDCs has surged due to the COVID-19 pandemic, technological changes in finance, the rise of big tech banks and privately-issued digital currencies, and concerns over the dollar's dominance in cross-border payments.

3.1. Popular Digital Currencies

Convertible or non-convertible digital currencies are both possible. Non-convertible digital currency is meant to be exclusive to a certain virtual domain and cannot be traded for physical money. Every digital currency

that isn't convertible is centralized. Digital currencies that are not convertible include Frequent Flyer Points and Linden Dollars. There are two types of convertible digital currencies: decentralized and centralized. Centralised convertible digital currencies are digital currencies backed by a central authority. These currencies are similar to online banking systems, where users open accounts and maintain a credit balance with the central authority. Examples of centralised digital currencies include Paypal and Digicash. Decentralized digital currencies, sometimes referred to as cryptocurrencies, are peer-to-peer, distributed, open-source, and decentralized. Cryptographic algorithms are used to verify transactions and regulate the money supply. Cryptocurrencies include, for example, Ripple, Litecoin, and Bitcoin. The first decentralized convertible digital currency was Bitcoin, which was introduced in 2009 (Ally et al., 2016). In order to facilitate direct transactions between two parties without the necessity for a trustworthy middleman, Bitcoin was created. A distributed ledger is used to address the issue of double-spending, in which each transaction is publicly recorded and validated. A copy of the public ledger is kept by every participant, ensuring that one party cannot spend the same coin elsewhere. Mining is the process by which users with powerful computers solve intricate mathematical puzzles that validate transactions in order to create Bitcoins. This effort results in the creation of new coins. Bitcoin is a deflationary digital money because there is a cap on the total amount of bitcoins that may ever be produced, at 21 million. There are currently an estimated 192 companies in Australia that take Bitcoin, including professional services, restaurants, retail chains, and internet merchants (Boskov, 2018). Although these figures pale in comparison to traditional banking, the adoption rate is increasing. With over 60,000 transactions every day, Bitcoin's market capitalization is currently \$6 billion USD.

4. Challenges and Opportunities in Adopting Digital Currencies in Traditional Commerce

The increasing proliferation of digital currencies globally presents both challenges and opportunities for their wider adoption in traditional commerce. Digital currencies have been described as a disruptive technology with the potential to significantly impact traditional modes of commerce. A digital currency is money that exists online in digital form and has the same characteristics as traditional currencies used daily in buying and selling goods and services. As a commodity-based currency system, the most widely known digital currency is Bitcoin. As of May 2016, there were 724 alternative digital currencies, also known as cryptocurrencies or altcoins (Ally et al., 2016).

The emergence of Bitcoin as the pioneer digital currency began in 2009 with its use as open-source software. Since then, digital currencies have rapidly evolved, both in terms of their fundamental features and ecosystem development. Some of the alternative digital currencies that have emerged after Bitcoin include Litecoin, Peercoin, Dogecoin, and Namecoin. Digital currencies can be categorized as either currency-based systems or commodity-based systems. Currency-based systems are purely based on currencies pegged to fiat currencies issued by a central bank. In contrast, commodity-based systems are currencies that are commodity-based and cannot be artificially created, such as Bitcoins and other alternative digital currencies. Bitcoin and its altcoins have emerged as the most well-known commodity-based digital currencies globally (Boskov, 2018).

4.1. Regulatory Concerns

With the rise of Bitcoin and various other crypto-currencies, the monetary system is moving into an unknown realm, ready to be trialled by millions (W. Peters et al., 2015). By definition, these currencies lie outside of central bank control, which is troubling as so many countries are currently engaged in loose monetary policy, resulting in large efforts to protect the integrity of the monetary system. The implications on the traditional banking system further add to the uncertainties surrounding demand deposits in the face of decentralised

crypto-currencies. It is important that policy makers and regulators thoroughly understand the role of crypto-currencies growth within and as a challenge to the monetary system before it is too late.

Prior to the emergence of cryptocurrency, there were worries over the effects that centralised virtual currencies could have on a nation's monetary system and banking integrity. pointing to an expansion of the money supply that is beyond its control, the Chinese central bank acted quickly to limit the issuance of these currencies. Similar concerns regarding inflationary pressures were voiced in countries like the Philippines, where attempts to limit the acceptance of off-shore currencies were made. Since the advent of Bitcoin, attention has turned to the regulation of cryptocurrency. It has been decided that Bitcoin does not fit the criteria or parameters of a European currency. Sweden has required virtual currency exchanges to register, while Germany and France have declared that some Bitcoin-related activities are subject to authorization. The EU does not currently have a well-thought-out plan in place to regulate virtual currencies as payment systems. In the UK a scoping exercise has been undertaken by HM Treasury to assess virtual currencies, following which a consultation entitled "The Risks Associated with Bitcoins" was published. The consultation attracted over 120 responses from a diverse array of participants.

4.2. Security and Fraud Risks

Digital currencies are still vulnerable to several risks that need to be assessed. Security holes must be fixed and transaction regulations must be in place globally to prevent fraud and embezzlement. Security must be enhanced in commodities trading to ensure deep liquidity, best execution, and chained order matching. A digital currency presents both challenges and opportunities for fraudsters. The anonymity and distance that make digital currencies appealing to legitimate users also attract criminals. Tech-savvy cybercriminals can exploit any vulnerabilities in the payment system brink of collapse. Nevertheless, recent high-profile scandals involving digital currencies reveal that fraud can also occur without technological vulnerabilities. Regulatory arbitrage is attractive to fraudsters.

Digital currencies may also attract new types of frauds. Scams by fraudulent investment brokerages and phishing-style frauds using fake websites appeared almost simultaneously with the advent of encrypted digital currencies (Arda Akartuna et al., 2022). The experimental use of digital currencies in online gambling sites with loose regulations resulted in frauds that ripped off both the users and the digital currency liquidity service providers. In contrast, traditional transactional payment scams currently target digital currencies on top of the usual fraud risk patterns. Security considerations are particularly acute because several high-profile frauds have stripped off a significant fraction of the currently available digital currency supply.

5. Examples of Effective Digital Currency Integration in Conventional Commerce

This section presents case studies illustrating the successful integration of digital currencies in traditional commerce, focusing on three businesses: Tanglewood and its acceptance of Bitcoin payments, the Salty Dog Restaurant & Bar with its implementation of cryptocurrency POS system, and Circle K convenience store's integration of Bitcoin payments.

Tanglewood, a bike shop in Watertown, Massachusetts, began accepting Bitcoin payments in April 2013. The shop's owner was intrigued by cryptocurrency and wanted to adopt it early for potential business growth. The integration process was straightforward, requiring a few minutes to set up payment buttons on the website. Customers can pay using a QR code or a text address, with the payment being handled in USD to Tanglewood's bank account. By accepting Bitcoin, Tanglewood attracted new customers and generated additional publicity

through press coverage. Challenges included addressing customer confusion about Bitcoin and considering the future of Bitcoin (Ally et al., 2016).

The Salty Dog Restaurant & Bar in Nantucket, Massachusetts, integrated a cryptocurrency POS system in June 2018. They wanted to attract young customers due to Nantucket's transient demographic, and many hardworking professionals employed in the tech industry who use cryptocurrency for transactions. Being the first restaurant on the Island to use a complete cryptocurrency POS system, Salty Dog aimed to appeal to this clientele. The integration of the POS system took a day, involving the installation of the app on a tablet and reviewing the menu items. Employees underwent training to learn how to conduct cryptocurrency transactions, similar to accepting credit card payments. The payment processor handles transactions by adding a fee to the total bill, which is deducted from the restaurant's revenue. Technical challenges during busy nights resulted in lost sales until the employees fully adapted to the new process (Jegatheesan et al., 2015).

Circle K convenience stores in Sweden began selling Bitcoin through ATMs in May 2017. Bitcoin popularity surged due to hype and a rapid price increase, leading many to seek ways to purchase the currency. With internet-based banks unwilling to sell to new customers amidst a Bitcoin price spike, Circle K's ATMs-within-the-store model facilitated purchasing Bitcoin. Users install a mobile wallet, enter their phone number into the ATM, scan the wallet QR code, and deposit cash. One ATM in Stockholm is being tested, with plans for expansion. The Circle K test case exemplifies traditional companies integrating new currency systems.

Conclusion

By improving transaction efficiency, cutting costs, and expanding financial accessibility, digital currency has had a big impact on traditional trade. By doing away with middlemen, it makes cross-border transactions quicker and safer. Businesses gain from lower processing costs and more openness, which promotes trade trust. Its broad acceptance, however, may be threatened by issues including market volatility, cybersecurity concerns, and regulatory uncertainty. Notwithstanding these reservations, digital currency is nevertheless changing conventional trade methods and promoting financial inclusion and innovation. Its integration into mainstream business is expected to increase as regulatory frameworks change, presenting new opportunities and necessitating calculated steps to reduce related risks.

References

- Jegatheesan, S., Ahmed, S., Chamney, A., & El-kadri, N. (2015). Is a global virtual currency with universal acceptance feasible ?.
- Ally, M., Gardiner, M., & Lane, M. (2016). The Potential Impact of Digital Currencies on the Australian Economy.
- W. Peters, G., Panayi, E., & Chapelle, A. (2015). Trends in crypto-currencies and blockchain technologies: A monetary theory and regulation perspective.
- Boskov, T. (2018). Blockchain and Digital Currency in the World of Finance.
- Arda Akartuna, E., D. Johnson, S., & E. Thornton, A. (2022). The money laundering and terrorist financing risks of new and disruptive technologies: a futures-oriented scoping review. ncbi.nlm.nih.gov