School of
Computing and
Information Systems

"Can cryptocurrencies become a global currency?"

ISFS624 NFT and CBDC Technology

Project Report

Group 9

Aishwarya Sanjay Maloo

Heng Thian Yong Jermyn

Koh Shi Qi

Yang Haoyu

15 August 2022

0. Abstract

Our existing global currency system has evolved over centuries, yet it remains riddled with flaws like hyperinflation and increasing costs of intermediaries, suggesting that current central authorities may not be the best candidates to control the currency system. With the introduction of decentralized finance and the rise in popularity of cryptocurrencies like Bitcoin and Ether, there have been speculations if such currencies have the potential to address these existing flaws and improve the system.

To assess the potential of cryptocurrencies to become a global currency, we observe that though money has taken on many forms over the years as different currencies or commodities like gold, and its function has been consistent as a 1) store of value, 2) unit of account and 3) medium of exchange (The Economic Lowdown, n.d.). Based on this theory, cryptocurrencies could become global currencies if they fulfil these three functions. In the following sections, we explore problems with the existing currency system and how cryptocurrencies could address them, along with challenges that such cryptocurrencies face, and if they ultimately can be adopted across the world.

1. Introduction

In the current international financial system, a global currency is a currency that can be traded internationally without national borders. After World War II in 1945, the USA became the most dominant economy in the world, most international transactions continue to be conducted using the US dollar, which remains as the most prominent global currency.

The most popular cryptocurrency in circulation currently is Bitcoin, which was launched in 2009. It differs from fiat currency in that Bitcoins are created, distributed, traded, and stored using a decentralized ledger system of blockchain technology that does not require a third party to be involved in financial transactions. The emergence of Bitcoin as a proof of the blockchain technology has also contributed to the development of other cryptocurrencies like Ether, Litecoin and Monero, which have since gained popularity, though Bitcoin remains as the highest valued cryptocurrency to date.

As the most established cryptocurrency with the longest history, Bitcoin has been in development for over 10 years. Hence, Bitcoin will be the main topic of discussion in this paper, with references to other blockchains and cryptocurrencies like stablecoins as solutions to the existing challenges of Bitcoin.

2. Problems with the existing global currency system

Money as a medium of exchange and store of value has existed for millennia, from bullion coins to paper notes, backed by gold, and to fiat currency backed by central banks (MAS, 2021). Presently, money is kept in two forms, physical cash and digital money, in form of deposits with commercial banks. With the rise of the Internet in the past decades, people have sought innovative ways to push the boundaries of establishing protocols over the Internet like Voice over Internet Protocol (VoIP) and Simple Mail Transfer Protocol (SMTP). Similarly, with the existing problems of the fiat currency system, we have also seen the rise in ‘Money’ over internet protocol in recent years, and specifically in a Peer-to-Peer network like Bitcoin and other cryptocurrencies with value proposition to tackle the problems mentioned below.

2.1 Inflation – higher cost of living, lower quality of life

Inflation refers to the loss of purchasing power of fiat currency, which is inherently built into the fiat currency system. With the supply of fiat controlled by central banks as part of their monetary policies, when

central banks increase the money supply, the value of fiat consequently depreciates over time. The problem of inflation becomes noteworthy and a cause for concern when Governments lose control of their nation's currency, evident in several cases in history. For example, the nation of Zimbabwe in 1980s, where Government spending and money printing blew out of proportion and compounded with military coup, leading to hyperinflation of its currency and hardship for its people (Sanibel, 2021). In today's context, inflation is becoming increasingly concerning, with US inflation rising to a 40-year high of 9.1% (Rockeman, 2022). Such cases where the rate of inflation outpaces the rise in wages is detrimental to the masses who cannot afford to invest in other assets to hedge inflation, and the increase in cost of living and erosion of the value of people's savings could negatively impact the quality of life.

2.2 Cost of intermediaries

While intermediation provides a mechanism for the economy to coordinate on common use of an efficient means of exchange, it results in a higher relative cost for small transactions. Traditional financial institutions face challenges to reduce costs due to settlement processes and administration of transactions. In order to transact to an overseas payee, one requires to incur handling commission, cable charges and agent bank charges. Handling commission is a surcharge the bank or remittance service provider levies, and it is the administrative cost for handling the transaction. Cable charge is related to the time and effort by the bank to establish contact with the receiving bank. Agent bank charge is the time and effort that the receiving bank (agent bank), takes to liaise with the bank or money transfer service provider to complete the transaction (DBS, 2022). The layers of charges due to intermediation may offset a large portion of the original overseas transaction amount, which will eventually render the transaction to be cost-inefficient to the payer, especially for smaller and lower value transactions.

3. Bitcoin as a Cryptocurrency

3.1 Idea of Electronic-Cash Protocol

3.1.1 Previous attempts of electronic cash protocols

The idea of an electronic-cash protocol existed before the emergence of one of the most popular cryptocurrencies, Bitcoin. DigiCash was one of the first attempts to push for an independent electronic system by introducing a payment system with new cryptographic protocols that allowed transactions to be sent electronically without divulging any personal information. One of the main security features was the use of private keys to store information confidentially. Chaum's company DigiCash was a digital currency which was not directly controlled by a central authority or bank. However, DigiCash eventually filed for bankruptcy in 1998 (Hussey, 2019).

Following DigiCash, the increase in digital privacy concerns in an upcoming digital age during the 1990s led Nick Szabo to propose computer protocols that could digitally facilitate, verify, and enforce the negotiation or outcome of a contract, independently of third parties. This is also known as "Smart Contracts" today. Nick Szabo also realized that the risk of Chaum's solution being under a centralized company required users to trust it for the value of their monies and balances. He believed that numerous hyperinflationary episodes during twentieth century have demonstrated that it is not ideal. Hence, he looked to create a new form of money that did not trust in any third party. However, the ideal money needed to be secured from accidental loss and theft and it should have unforgeable cost and value. Nick Szabo drew parallels to precious metals like gold, which are scarce, whose scarcity is independent of third parties' trust.

With these considerations in mind, Nick Szabo came up with BitGold's proposed form in 1998, with Proof of Work (PoW) being one of its notable properties. PoW represented unforgeable costliness, as real-world resources such as computing power are required. BitGold also used a digital ownership registry, where the hashes in the BitGold protocol were linked to the public keys of respective creators or owners. This digital ownership registry allows the transfer of ownership from a seller to a buyer as the owner will sign off with a cryptographic signature (Saylor Academy, 2021).

3.1.2 Introduction of Bitcoin

Many believe that BitGold served as a key inspiration to Bitcoin. Bitcoin had some improvements over BitGold's design, particularly the PoW system serving as both an award system and consensus mechanism, removing the dependency of trust in no collusion between BitGold servers and timestamp services. The hash chain with the most PoW will be the legitimate version of history for Bitcoin. In 2009, the Bitcoin white paper, A Peer-to-Peer Electronic Cash System, was published and the Bitcoin network was launched to the public and the blockchain was secured. Bitcoins were mined, and the first monetary value assigned to Bitcoin started with the first commercial transaction using Bitcoin occurred in 2010, when early Bitcoin enthusiast Laszlo Hanyecz purchased two pizzas for 10,000 Bitcoin (Marr, 2017).

The key difference between Bitcoin and previous attempts is Bitcoin's ability to gain worldwide attention and its popularity grew immensely among the masses. Despite the crash in the price of Bitcoin from $1,000 to $300 in 2013, the value of Bitcoin has continued to grow to around $23,000 today, with speculations of its value soaring further in coming years.

3.2 Benefits of Cryptocurrency as a Global Currency

3.2.1 Limited supply – Inflation hedge

Over the years, people compared Bitcoin, gold and fiat. One of the glaring comparisons is the inflation, which is deemed as a problem for the fiat system. The US Dollar has lost 98.2% of its purchasing power since 1900. On the other hand, gold has managed to retain approximately 97% of its purchasing power, and it is often since as a hedge against inflation (Igor, 2019). This is due to the finite supply of gold, with the pre-determined scarcity ensuring that the value of gold does not get inflated, in contrast with fiat where printing of fiat over time leads to an increase in supply and consequently a fall in value. In the context of Bitcoin, its finite supply of 21 million coins allows parallels to be drawn between itself and gold, such as its potential as a hedge against inflation.

3.2.2 Decentralization – No single point of failure

The idea of the decentralized system becomes attractive when evaluating the negative consequences of the existing centralized fiat currency system. In the 2008 financial crisis, Federal Reserve used quantitative easing to slow the recession and bailed out the banks responsible for the crisis. Some argue that Federal Reserve, who has the autonomy of the US money supply, should not have used taxpayers' money to bail the banks out of their failed investments. With decentralized system like Bitcoin, there is no single point of failure and a successful attack on the system requires 51% of the participating parties or nodes. Decentralization largely depends on the hash rate or PoW level and the number of entities the hash rate is distributed among. Till date, Bitcoin's hash rate is 230 exahashes per second and a total of 15,075 node count (Conway, 2022), and the magnitude of energy needed to overtake the entire chain removes the power from a central authority to control the money supply.

3.2.3 Implications on the fiat currency system

Global reserve currencies have changed over the course of centuries, lasting in cycles of roughly 100 years, with no one fiat currency able to maintain its dominant status (MonetaryGold, n.d.). The USD has been the world's dominant reserve currency for over 90 years. Given USA's escalating debts and unfunded liabilities over the years, there is great potential for the USD to be replaced as the dominant currency over the next couple of decades, especially with countries like China and Russia finding it increasingly tougher to accept the current US dollar as the reserve currency. While it may be challenging to foresee for Bitcoin as the replacement of the global reserve currency in the very long run, one likely implication of Bitcoin as a global currency is that it could replace gold, as the world's reserve asset eventually, if the price of Bitcoin stabilizes and the value increases over time.

In terms of adoption and usage in P2P transactions, it is likely that there will be an increase in demand for Bitcoin as it can be used to transact digitally across international boundaries at a lower cost. With the increase in demand for Bitcoin, the value of fiat will also diminish more rapidly over time, like how gold has retained 97% of its purchasing power compared to the US dollar losing 98.2% of its purchasing power over time. As the demand for fiat decreases relative to Bitcoin over time, the lower circulation of fiat currency would limit the ability of central banks to set monetary policy through control of the money supply. Hence, when central banks implement monetary policy tools such as increasing the money supply to spur economic growth, while interest rates and the cost of borrowing may be low, the economy may not grow due to lower demand for fiat and its stagnant circulation in the economy.

Governments may find it challenging to relinquish control over the money supply and its monetary policy tools. To maintain people's confidence in the fiat system in the long run, Governments can continuously find ways to reduce their long-term debt issues, manage their fiat currency properly through fiscal spending discipline and well-controlled monetary policies. On the other hand, Governments across the world are aspiring to create Central Bank Digital Currencies (CBDCs) with the hope of competing with other digital currencies as well as maintaining their regulation over the economy. CBDCs are essentially the digital form of the fiat currency with the liability of CBDCs being with the central banks, that is they would directly issue the digital currency to the citizens. CBDCs have legal tender status, so it wouldn't be the commercial banks' liability and therefore the citizens don't have to rely on the bank's solvency, ensuring the safety of their money. Additionally, the central bank would have more direct control over the money supply and might be more successful in maintaining financial stability for the economy. Countries like China, Bahamas, Nigeria are making great strides in implementing CBDCs.

4. Challenges of Bitcoin as a Global Currency

Global currency for the purpose of this discussion refers to a currency that is accepted as a legal tender all over the world, in addition to the current fiat currency system. Bitcoin is the only cryptocurrency belonging to the list of top 30 currencies by market capitalization (CoinMarketCap, 2022), making it the best contender among cryptocurrencies to garner global currency status. However, there are a few impediments that need to be resolved for Bitcoin to become a global currency.

4.1 Deflationary nature of Bitcoin can encourage hoarding

Deflation occurs when there is a limited supply of money and therefore each dollar spent increases the value of money. When this trend is noticed by the general public, they prefer to save money instead of spending,

reducing the money velocity in the economy with consequences such as lower demand, less production, lower wages and unemployment. Under the fiat system, the central bank has two ways to curb deflation – increase the money supply and reduce the interest rates to stimulate spending and demand in the economy. In this system, savings are discouraged as money loses value over time, hence the public is generally encouraged to invest money in assets that are likely to appreciate in the future to render better returns.

In the case of Bitcoin, the supply has been capped at 21 million coins. The limited supply makes it a rare commodity. If the demand remains consistent, then the value of Bitcoin has the potential to outpace the value of other investments. Therefore, if this currency were to operate on a global scale, people would hoard Bitcoin as that would give them a better return than investments. Thus, the deflationary nature of Bitcoin would discourage spending, which could have adverse effects on the economy.

4.2 Unequal distribution of Bitcoin has the potential to widen power and income disparity

Of the 21 million Bitcoins, 90% have already been mined. Of the 19 million in circulation, approximately 4 million Bitcoins are estimated to have been lost either due to lost public key, lost passwords, death of an owner, etc. (Royal, J, 2022). From the remaining Bitcoins, it is estimated that nearly a third of the supply is controlled by 0.01% of the Bitcoin holders, a situation not unlike the fiat system where the top 1% hold 30% of the world wealth (Quiroz-Gutierrez, 2021). Therefore, there exists a considerable power disparity for the Bitcoins in existence. This disparity is likely to persist considering Bitcoins either must be mined or purchased. Bitcoin can be a volatile investment; however, the general trend represents an uptick in prices. Currently, one Bitcoin is worth approximately USD 23,800. Mining Bitcoins can also be considered as an investment in technology to garner computing power, electricity consumption as well as technical skills needed to validate the transactions. The two options available are arguably more affordable for the wealthy compared to the general public and thus Bitcoin as a global currency can push the power and inequality gap even further.

4.3 Governance of Bitcoin is uncertain

An Optimum Currency Area (OCA) is where countries are grouped under a geopolitical area with the same currency wherein there is a blanket monetary policy such that all countries benefit from it. However, this threatens the autonomy of an individual country to influence the interest rates and money supply to curb their inflation/deflation rates. The Economic and Monetary Union of the Euro zone is one of the biggest examples of a geopolitical area attempting to accomplish this. It includes countries such as Italy, Portugal and Greece that are not as economically advanced as Germany and France, placing the former countries at a political and economic disadvantage in the EMU. The attempt was largely unsuccessful because there was a lack of political cohesion amongst the member nations.

The proposed idea is that Bitcoin should be accepted as a legal tender on a global scale and not be the only currency in circulation. For this, there needs to be political unity and acceptance at a global scale for Bitcoin. Contextually, the notion that a group of approximately thirty similar countries (endowment, resources) in the EMU are unable to agree on the regulations around a currency, makes it unlikely for any currency to be accepted by all nations on a global scale. Additionally, Bitcoins are a threat to regulation by the authorities owing to their decentralized mechanism and privacy rules. For instance, China has banned cryptocurrencies because of the fear that they are used for fraud and money laundering (Quiroz-Gutierrez, 2022). The Reserve Bank of India has concerns that cryptocurrencies have the potential to destabilize the economy and that its privacy feature disables any oversight by the authorities as well as taxation becomes difficult

(Rodrigues et al., 2022. In addition to China and India, 14 other countries have banned cryptocurrencies for reasons like India and China (Orji, 2022).

4.4 Operational issues of Bitcoin

Bitcoin has several operational issues that pose a hurdle from gaining global acceptance:

1. Transactions per day: Bitcoin network has a capacity to validate at max 400,000 (de Best, 2022) transactions per day, which is incomparable to the 150 million transactions per day done by Visa. However, recent technological advances such as Lightning Network (LN) can help to speed up transaction processing times. LN is another layer on top of Bitcoin network which enables transactions off the blockchain and on LN, to process micropayments between parties, and ultimately reduce the clogging of Bitcoin network.
2. Proof of Work: Unlike other cryptocurrencies' blockchains which use Proof of Stake, Bitcoin uses Proof of Work and each transaction consumes approximately 700 kilowatts of energy. In comparison, approximately 450,000 visa transactions can be completed using the same amount of energy (Browne, 2021). With imminent climate change, ethical consumption of energy is critical. If Bitcoin attains global status, there must be other ways to improve its long-term sustainability either through improved computing power or technological innovations to the blockchain.
3. Transaction fee incentive: Currently, Bitcoin miners get 6.25 Bitcoin and the transaction fee as an incentive to validate a transaction. Once all the Bitcoins are mined, the reward would be restricted to the transaction fee. This might not be enough incentive for the miners to continue validating transactions, even though there have been hikes in the transaction fees from the historical trends. If the miners are not incentivized enough, then there would be fewer people to mine the transactions, leading to a lower number of transactions per day and ultimately the system may not work as effectively as conceptualized.

5. Adoption and Usage of Cryptocurrency

Besides the challenges mentioned above, there are other steps to be taken before cryptocurrency can be widely adopted by both consumers and businesses in various types of transactions. These steps can be largely summed up with 1) maintaining low volatility in the value of currency and 2) ensuring a smooth user experience for the exchange of cryptocurrency.

5.1 Low Volatility in Value of Currency

One of the largest concerns of using cryptocurrency for transactions is its volatility. Since it was first introduced in 2009, the price of Bitcoin has spiked and dipped multiple times, including the most recent fall to $23,000 from its peak at $60,000 (Gailey, 2022).

Like making foreign transactions, to carry out a transaction in Bitcoin, the buyer would have to first buy Bitcoin before using it for payment. Following this, the seller would likely exchange the Bitcoins received back to his local currency. However, this transaction is carried out with the volatile exchange rate risk of Bitcoin, meaning that both the buyer or seller may pay or receive different values in their local currencies based on the time of purchase. For this reason, the frequent price fluctuations of volatile cryptocurrencies like Bitcoin make them poor mediums of exchange and stores of value, and consequently units of account.

5.1.1 Stablecoins

A promising solution to the volatile nature of traditional cryptocurrencies is stablecoin, cryptocurrencies whose currencies are tied to that of a fiat currency, a commodity, or another financial instrument (Cryptopedia, 2022). As a result, price stability is built into stablecoins, intended to maintain relatively stable values compared to other cryptocurrencies.

With low price volatility, stablecoins have concrete utility as mediums of exchange as it addresses the problems of volatility mentioned in the previous section. Instead of being an investment asset like Bitcoin is today, stablecoins are more suited to be used as a form of money.

5.2 Smooth User Experience

Existing tools built to enhance user experience in exchanging fiat currency include traditional and digital banks, contactless payment methods and more. Complicated and tedious processes of converting between different cryptocurrencies and fiat currencies may deter consumers from adopting cryptocurrencies for transactions. To prevent this problem, similar tools must be built and education to the masses will be required to support the adoption and usage for consumers and businesses around the world.

5.2.1 Cryptocurrency Cards

Existing cryptocurrency debit cards allow users to make online and in-person purchases or withdraw cash from ATMs using cryptocurrencies, even if the merchant does not accept cryptocurrency. To use the card, cardholders deposit a certain amount of cryptocurrencies into their account, which is then converted at the point of transaction. Examples of these cards include Wirex, Crypto.com, BitPay, and many more. These card providers are supported by major players in the financial technology industry like VISA and Mastercard, giving customers a peace of mind to make transactions with these cards.

5.2.2 Cryptocurrency Banks

Like traditional financial institutions which manage financial instruments and cash for their customers, more financial services in cryptocurrencies must be provided for businesses and consumers to perceive cryptocurrencies having similar or increased usability as compared to fiat currency. Such services include managing interest and checking accounts, offering loans, investing, saving and more. Several banks like Vast Bank, JPMorgan, and Goldman Sachs have already taken steps to address the demand for such services.

5.3 Interoperability

The upward trends of digital currencies including traditional cryptocurrencies, stablecoins and CBDCs suggest the high potential of coexistence of these digital currencies. Since these currencies are built with different technologies, and in the case of cryptocurrencies, different blockchain networks without built-in capabilities to communicate with other networks, it introduces the need for further development to facilitate the interoperability between all systems for convenient usage and exchange between different digital currencies.

5.3.1 Visa’s Universal Payment Channel (UPC)

Visa’s UPC aims to be a marketplace for digital currencies to connect regulated CBDCs, stablecoins, or even other traditional cryptocurrencies, with the goal of expanding the utility of digital currencies in

transactions between “businesses, consumers and developers – whether C2B, B2B or P2P” (Christodorescu et al, 2021).

A single cross-border wholesale transaction using existing technologies requires several banks to be involved. The International Monetary Fund (IMF) states that “A correspondent banking arrangement involves one bank (the correspondent) providing a deposit account or other liability accounts, and related services, to another bank (the respondent), often including its affiliates. The arrangement requires the exchange of messages to settle transactions by crediting and debiting those accounts” (Erbenová et al, 2016). This complicated process involving multiple entities causes cross-border wholesale transactions to be slow and pricey due to multiple transaction fees. With the UPC serving as a central hub, business can transfer funds more quickly and efficiently by removing the need for other entities to be involved in the transaction, promoting the use of digital currencies in wholesale transactions.

For retail transactions, UPC claims to “support high throughput between different digital currencies”. This technology enhances the user experience of a P2P transaction, allowing consumers to make small transactions with different digital currencies like Bitcoin or USDT, making cryptocurrencies more likely to be adopted in day-to-day transactions.

6. Conclusion

While cryptocurrencies show great potential in solving problems in the existing global currency system, there would be challenges on their journey towards adoption as a global currency in the context of its governance, operations, and impact on the global economy.

The future of cryptocurrency as a global currency depends on governments and the public’s perception of it as a store of value and medium of exchange, its adoption, security, and technological innovations as well as Governments’ attitude towards cryptocurrency over time. To secure its future as a global currency, cryptocurrencies should ultimately fulfil all functions of money, provide a better experience for all-age users as a medium of exchange, and sustain the confidence of the public over time, achieving its status as the “Money” over internet protocol in our digital age.

References

Browne, R. (2021, February). *Bitcoin's wild ride renews worries about its massive carbon footprint*. CNBC. Retrieved August 14, 2022, from https://www.cnbc.com/2021/02/05/bitcoin-btc-surge-renews-worries-about-its-massive-carbon-footprint.html

Christodorescu M. et al. (2021, September). *Universal payment channels: an interoperability platform for digital currencies.* Retrieved Aug 14, 2022, from https://doi.org/10.48550/arXiv.2109.12194

CoinMarketCap. (n.d.) *Bitcoin Compared to The Largest Fiat Currencies in The World by Market Cap.* Retrieved Aug 14, 2022, from https://coinmarketcap.com/fiat-currencies/

Conway, L. (2022, March). Measuring Decentralization: Is Your Crypto Decentralized? Retrieved August 10, 2022, from https://blockworks.co/measuring-decentralization-is-your-crypto-decentralized/#:~:text=What%20is%20decentralization%3F,majority%20of%20its%20network%20participants.

Cryptopedia. (2022, June). *What are stablecoins?* Retrieved August 13, 2022, from https://www.gemini.com/cryptopedia/what-are-stablecoins-how-do-they-work

De Best, R. (2022, July). *Bitcoin (BTC) daily transaction history worldwide as of July 6, 2021*. Statista. Retrieved August 14, 2022 from https://www.statista.com/statistics/730806/daily-number-of-bitcoin-transactions/#:~:text=Bitcoin%20around%20330%2C000%20daily%20transactions,400%2C000%20in%20early%20January%202021

Erbenová, M. et al. (2016). *The Withdrawal of Correspondent Banking Relationships: A Case for Policy Action.* IMF Staff Discussion Note

Frankenfield, J. (2022, July). *Bitcoin (BTC)*. Investopedia. Retrieved August 13, 2022, from https://www.investopedia.com/terms/b/bitcoin.asp

Gailey, A. (2022, August). Bitcoin's price drops nearly 5% to $23,000 with no clear direction here's how investors should react. *Next advisor*. Retrieved from https://time.com/nextadvisor/investing/cryptocurrency/bitcoin-crash-continues/

Greyerz, E. (2019, March). *Only Gold Stands Against the Final Catastrophe*. Investment Watch. Retrieved August 13, 2022, from https://www.investmentwatchblog.com/only-gold-stands-against-the-final-catastrophe/

Hussey, M. (2019, July). What was DigiCash? Decrypt. Retrieved August 13, 2022, from https://decrypt.co/resources/digicash-what-is-cryptocurrency-explainer

Igor. (2020, August). *Fiat V. Gold v. bitcoin*. Medium. Retrieved August 13, 2022, from https://medium.com/coinmonks/fiat-v-gold-v-bitcoin-706a03332f2b

Marr, B (2017, December). *A Short History of Bitcoin and Crypto Currency*. Retrieved August 10, 2022, from https://www.forbes.com/sites/bernardmarr/2017/12/06/a-short-history-of-bitcoin-and-crypto-currency-everyone-should-read/?sh=657671be3f27

Monetary Authority of Singapore (MAS) (2021). "The Future of Money, Finance and the Internet" Retrieved August 10 2022, from https://www.mas.gov.sg/news/speeches/2021/the-future-of-money-finance-and-the-internet

MonetaryGold. (n.d.). *global reserve fiat currencies.* Monetary Gold. Retrieved August 15, 2022, from https://monetarygold.com/global-reserve-fiat-currencies/

Orji, C. (2022, April). *Bitcoin ban: These are the countries where crypto is restricted or illegal*. Euronews. Retrieved August 14, 2022, from https://www.euronews.com/next/2022/04/27/bitcoin-ban-these-are-the-countries-where-crypto-is-restricted-or-illegal2

Quiroz-Gutierrez, M. (2021, December). *A minuscule .01% of Bitcoin holders control nearly a third of the supply*. Fortune. Retrieved August 14, 2022, from https://fortune.com/2021/12/20/001-percent-bitcoin-holders-control-nearly-one-third-supply/

Quiroz-Gutierrez, M. (2022, January). *Crypto is fully banned in China and 8 other countries.* Fortune. Retrieved August 14, 2022, from https://fortune.com/2022/01/04/crypto-banned-china-other-countries/

Rockeman, O. (2022, July). *US inflation quickens to 9.1%, amping up feds pressure to go big.* Bloomberg. Retrieved August 15, 2022, from https://www.bloomberg.com/news/articles/2022-07-13/us-inflation-accelerates-to-9-1-once-again-exceeding-forecasts#:~:text=US%20CPI%20June%202022%3A%20Inflation,Once%20Again%20Exceeding%20Forecasts%20%2D%20Bloomberg

Rodrigues, J. et al. (2022, February). *Now that India has pulled back from banning crypto, here's how it plans to develop digital currency on its own terms*. Fortune. Retrieved August 14, 2022, from https://fortune.com/2022/02/02/india-crypto-ban-plans-develop-digital-currency-taxes-regulation-bitcoin/

Royal, J (2022, February). A*re your lost bitcoins gone forever? Here's how you might be able to recover them. Retrieved August 15 from https://www.bankrate.com/investing/how-to-recover-lost-bitcoins-and-other-crypto/#:~:text=One%20major%20reason%3A%20they've,million%20bitcoins%20have%20been%20lost*

Sanibel, M. (2021, April). *5 failed currencies and why they crashed*. Forbes. Retrieved August 13, 2022, from https://www.forbes.com/sites/greatspeculations/2010/12/10/5-failed-currencies-and-why-they-crashed/?sh=2631ed8c632c

Saylor Academy (Ed.). (2021). *Bitcoin and the Genesis files: With bit gold, Szabo was inches away from inventing bitcoin*. Saylor Academy. Retrieved August 13, 2022, from https://learn.saylor.org/mod/book/view.php?id=30735&chapterid=6704

The Economic Lowdown. (n.d.). *Functions of money – the economic lowdown podcast series.* Retrieved from https://www.stlouisfed.org/education/economic-lowdown-podcast-series/episode-9-functions-of-money#:~:text=To%20summarize%2C%20money%20has%20taken,account%2C%20and%20medium%20of%20exchange

Wikimedia Foundation. (2022). *World currency*. Wikipedia. Retrieved August 9, 2022, from https://en.wikipedia.org/wiki/World_currency