A Study of Central Banks Perception about the Bitcoin & Impacts of Bitcoin in Financial and Banking Sector

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Abstract

Alice need not provide currency to Bob in-person. She may instead transfer this value by first entrusting her currency to a bank who promises to store and protect Alice's currency notes. The bank gives Alice a written promise (called a "bank statement") that entitles her to withdraw the same number of currency bills that she deposited. Since the money is still Alice's, she is entitled to do with it whatever she pleases and the bank (like most banks), for a small fee, will do Alice the service of passing on the currency bills to Bob on her behalf. This is done by Alice's bank by giving the dollar bills to Bob's bank and informing them that the money is for Bob, who will then see the amount the next time he checks his balance or receives his bank statement. Since have many customers, and bank employees require money for doing the job of talking to people and signing documents, banks in recent times have been using machines such as ATMs and web servers that do the job of interacting with customers instead of paid bank employees. The task of these machines is to learn what each customer wants to do with their money and, to the extent that it is possible, act on what the customer wants (for example, ATMs can hand out cash). Customers can always know how much money they have in their accounts, and they are confident that the numbers they see in their bank statements and on their computer screens accurately reflect the number of dollars that they can get from the bank on demand. They can be so sure of this that they can accept those numbers in the same way they accept paper banknotes (this is similar to the way people started accepting paper dollars when they had been accepting gold or silver). Bitcoin is a system of owning and voluntarily transferring amounts of so-called bitcoins, in a manner similar to an on-line banking, but pseudonymously and without reliance on a central authority to maintain account balances. If bit coins are valuable, it is because they are useful and limited in supply.

Key words:

POW - proof-of-work, IOT - Internet of Things, CBDC - central bank digital currency

Introduction

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Bitcoin Basics: The creation of coins must be limited for the currency to have any value.

New coins are slowly mined into existence by following a mutually agreed-upon set of rules. A user mining bitcoins is running a software program that searches for a solution to a very difficult math problem the difficulty of which is precisely known. This difficulty is automatically adjusted on a predictable schedule so that the number of solutions found globally for a given unit of time is constant: the global system aims for 6 per hour. When a solution is found, the user may tell everyone of the existence of this newly found solution along with other information packaged together in what is called a "block". The solution itself is a proof-of-work or POW. It is hard to find, but easy to verify.

Blocks create 12.5 new bit coins at present [October 2016]. This amount, known as the block reward, is an incentive for people to perform the computation work required for generating blocks. Roughly every 4 years, the number of bit coins that can be "mined" in a block reduces by 50%. Originally the block reward was 50 bit coins; it halved in November 2012; it then halved again in July 2016. Any block that is created by a malicious user that does not follow this rule (or any other rules) will be rejected by everyone else. In the end, no more than 21 million bit coins will ever exist.

Because the block reward will decrease over the long term, miners will someday instead pay for their hardware and electricity costs by collecting transaction fees. The sender of money may voluntarily pay a small transaction fee which will be kept by whoever finds the next block. Paying this fee will encourage miners to include the transaction in a block more quickly.

Sending payments To guarantee that a third-party, let's call her Eve, cannot spend other people's bitcoins by creating transactions in their names, Bitcoin uses public key cryptography to make and verify digital signatures. In this system, each person, such as Alice or Bob, has one or more addresses each with an associated pair of public and private keys that they may hold in a wallet. Only the user with the private key can sign a transaction to give some of their bitcoins to somebody else, but anyone can validate the signature using that user's public key.

Suppose Alice wants to send a bitcoin to Bob.

• Bob sends his address to Alic • Alice adds Bob's address and the amount of bitcoins to transfer to a message: a 'transaction' message.

• Alice signs the transaction with her private key, and announces her public key for signature verification.

• Alice broadcasts the transaction on the Bitcoin network for all to see.

(Only the first two steps require human action. The rest is done by the Bitcoin client software.)

Looking at this transaction from the outside, anyone who knows that these addresses belong to Alice and Bob can see that Alice has agreed to transfer the amount to Bob, because nobody else has Alice's private key. Alice would be foolish to give her private key to other people, as this would allow them to sign transactions in her name, removing funds from her control.

Objectives of the study:

- To understand the concepts of Bitcoin
- To study the central banks perception about the Bitcoin
- To identify the Impacts of Bitcoin in world economy
- To learn the central banks view about the Bitcoin in current scenario.

The Central Banks Perception about Bitcoin: (Country Wise)

Hong Kong: Eight years since the birth of bitcoin, central banks around the world are increasingly recognizing the potential upsides and downsides of digital currencies. The guardians of the global economy have two sets of issues to address. First is what to do, if anything, about emergence and growth of the private crypto currencies that are grabbing more and more attention — with bitcoin now surging toward $10,000. The second question is whether to issue official versions. Following is an overview of how the world's largest central banks (and some smaller ones) are approaching the subject:

US: privacy worry: The Federal Reserve's investigation into crypto currencies is in its early days, and it hasn't been overly enthusiastic about the idea of a central-bank issued answer to bitcoin. Jerome Powell, a board member and the chairman nominee, said earlier this year that technical issues remain with the technology and "governance and risk management will be

critical." Powell said there are "meaningful" challenges to a central bank crypto currency, that privacy issues could be a problem, and private-sector alternatives may do the job.

Euro area: tulip-like: The European Central Bank has repeatedly warned about the dangers of investing in digital currencies. Vice president Vitor Constancio said in September that bitcoin isn't a currency, but a "tulip" — alluding to the 17th-century bubble in the Netherlands. Colleague Benoit Coeure has warned bitcoin's unstable value and links to tax evasion and crime create major risks. President Mario Draghi said this month the impact of digital currencies on the euro-area economy was limited and they posed no threat to central banks' monopoly on money.

China: conditions 'ripe': China has made it clear: the central bank has full control over crypto currencies. With a research team set up in 2014 to develop digital fiat money, the People's Bank of China believes "conditions are ripe" for it to embrace the technology. But it has cracked down on private digital issuers, banning exchange trading of bitcoin and others. While there's no formal start date for introducing digital currencies, authorities say going digital could help improve payment efficiency and allow more accurate control of currencies.

Japan: study mode: Bank of Japan governor Haruhiko Kuroda said in an October speech that the BOJ has no imminent plan to issue digital currencies, though it's important to deepen knowledge about them. "Issuing CBDC (central bank digital currency) to the general public is as if a central bank extends the access to its accounts to anyone," Kuroda said. "As such, discussion about CBDC revisits fundamental issues of central banking."

Germany: 'speculative plaything': In a country where lot of citizens still prefer to pay in cash, the Bundesbank has been particularly wary of the emergence of bitcoin and other virtual currencies. Board member Carl-Ludwig Thiele said in September bitcoin was "more of a speculative plaything than a form of payment." A shift of deposits into blockchain would disrupt banks' business models and could upend monetary policy, Thiele said. At the same time, the Bundesbank has been actively studying the application of the technology in payment systems.

UK: potential 'revolution': Bank of England governor Mark Carney has cited crypto currencies as part of a potential "revolution" in finance. The central bank started a financial technology accelerator last year, a Silicon Valley practice to incubate young companies. Carney says technology based on block chain, the distributed accounting database, shows "great promise" in enabling central banks to strengthen their defenses against cyber attack and overhaul the way payments are made between institutions and consumers. He has nevertheless cautioned the BOE is still a long way from creating a digital version of sterling.

France: 'great caution': Bank of France governor Francois Villeroy de Galhau said in June that French officials "advise great caution with respect to bitcoin because there is no public institution behind it to provide confidence. In history all examples of private currencies ended badly. Bitcoin even has a dark side — there were this data attacks." He said "those who use Bitcoin today do so at their own risk."

India: not allowed: India's central bank is opposed to crypto currencies given that they can be a channel for money laundering and terrorist financing. Nevertheless, the Reserve Bank of India (RBI) has a group studying whether digital currencies backed by global central banks can be used as legal tender. Currently, the use of crypto currencies is a violation of foreign-exchange rules.

Brazil: support innovation: The Banco Central do Brasil sees "no immediate risk for the Brazilian financial system" but remains alert to the developments of the usage of those currencies, it said in a statement this month. The bank pledged "to support financial innovation, including new technologies that make the financial system safer and more efficient."

Canada: asset-like: The Bank of Canada's senior deputy governor, Carolyn Wilkins, who is leading research on crypto currencies, said in an interview this month that crypto currencies

aren't true forms of money. "This is really an asset, or a security, and so it should be treated that way," Wilkins said. As others, she viewed distributed ledger technology as promising for making the financial system more efficient.

South Korea: crime watch: The Bank of Korea's focus has been protecting consumers and preventing crypto currencies from being used as a tool of crime. Deputy Governor Shin Ho-soon said this month that more research and monitoring were needed.

Russia: 'pyramid schemes': Russia's central bank has expressed concerns about potential risks from digital currencies, with Governor Elvira Nabiullina saying "we don't legalize pyramid schemes" and "we are totally opposed to private money, no matter if it is in physical or virtual form." For the moment, the Bank of Russia prefers to delay a decision on regulating the financial instruments unless President Vladimir Putin pushes for action sooner. The central bank will work with prosecutors to block websites that allow retail investors access to bitcoin exchanges, according to Sergey Shvetsov, a deputy governor.

Australia: monitoring closely: The Reserve Bank is closely monitoring the rise of digital currencies and recognizes the technology underpinning bitcoin has the "potential for widespread use in the financial sector and many other parts of the economy," head of payments policy Tony Richards said last month.

Turkey: important element: Digital currencies may contribute to financial stability if designed well, Turkish Central Bank governor Murat Cetinkaya said in Istanbul earlier this month. Digital currencies pose new risks to central banks, including their control of money supply and price stability, and the transmission of monetary policy, Cetinkaya said. Even so, the Turkish central banker said that digital currencies may be an important element for a cashless economy, and the technologies used can help speed up and make payment systems more efficient.

Netherlands: most daring: The Dutch have been among the most daring when it comes to experimenting with digital currencies. Two years ago the central bank created its own crypto currency called DNB coin — for internal circulation only — to better understand how it works. Presenting the results last year, Ron Berndsen, who was in charge of the project, said blockchain may be "naturally applicable" in the settlement of complex financial transactions.

Scandinavia: exploring options: Like the Dutch, some Nordic authorities have been at the forefront of exploring the idea of digital cash. Sweden's Riks bank, the world's oldest central bank, is probing options including a digital register-based e-krona, with balances in central-database accounts or with values stored in an app or on a card. The bank says the introduction of an e-krona poses "no major obstacles" to monetary policy.

New Zealand: considering future: The Reserve Bank of New Zealand, once a pioneer on the global stage with its early introduction of an inflation target, said Wednesday it's considering its future plans for currency issuance, and how digital units may fit into those strategies. "Work is currently underway to assess the future demand for New Zealand fiat currency and to consider whether it would be feasible for the reserve bank to replace the physical currency that currently circulates with a digital alternative," the RBNZ said in what it termed an analytical note.

Morocco: violating law: Representing one of the more stringent reactions, the country has deemed that all transactions involving virtual currencies as violating exchange regulations and punishable by law. Crypto currencies amount to a hidden payment system, not backed by any institution and involving significant risks for their users, authorities said in a statement this month.

Bank for International Settlements: can't ignore: The central bank for central banks has said that policy makers can't ignore the growth of crypto currencies and will likely have to consider whether it makes sense for them to issue their own digital currencies at some point. "Bitcoin has gone from being an obscure curiosity to a household name," the BIS said in September. One option is a currency available to the public, with only the central bank able to

issue units that would be directly convertible to cash and reserves. There might be a greater risk of bank runs, however, and commercial lenders might face a shortage of deposits. Privacy could also be a concern.

BitCoin is Impacting Banking, Finance and the Economies:

1. Power to the Dark Web: Dark web is the section of the web that is not accessible through the search engine. What we are given access to is the surface web which is not even half of the existing internet. Dark web is accessible only through special software like Tor Browser which enables anonymous searching of the internet. Dark web is the place where you can find assassins, weapons and a lot more illegal stuff. By using crypto currencies like Bitcoins people can make illegal transactions without giving any information about them. Crypto currencies like Bitcoins are a way to empower such transactions across the globe which will ultimately result in increased cyber crime.

2. Speculations: As on 14th January 2015, Bitcoin was valued at $170 and as on 24th July 2017, it values at $2772. There have been many ups and downs in the value of Bitcoins and this scenario is likely to continue. Due to the extreme highs and lows BitCoins present a massive possibility for speculation. Just like trading in shares, trading in Bitcoins is massive and seeing the rise in traction around crypto currencies it is likely to grow further.

3. Politicization of Money: Earlier all the monetary transactions were enabled through central banks (directly or indirectly). Now, with the evolution of Bitcoins, the scenario has changed. The power that was vested in the governments and central banks is shifting to the masses. This revolutionary change in transaction handling has the power to change the economic structure. To bring security and enable scrutiny, central banks and financial institutions maintain a record of all the transactions undertaken by the people. Now with digital currencies, this economic power can be challenged by people. This has led to the creation of a new autonomous body which can facilitate transactions. Ultimately if adopted on a large scale, Bitcoins can lead to the politicization of money.

4. Apprehension among the Central Banks:

There have been implications that Bitcoins can be used to secretly launder money outside the country. Central banks across the world have been wary of Bitcoins as an uncontrollable and unpredictable form of currency. Crypto currencies are leading to loopholes in the current bank's data about the money transactions leading to inability to track economic activities. Crypto and Cyberspace has emerged as a power in itself thus bringing a check on the activities of the so powerful governments.

5. The Emergence of New Markets:

Crypto currencies have led to the emergence of new markets. Currencies like Bitcoin and Ethereum have opened gates for a new kind of market which unlike present money market is controlled by no one. Cyberspace will rise up as the managing body that will handle and maintain such disruptive markets. The near zero transaction cost (along with other characteristics) has made these currencies even superior to the traditional money we are accustomed to using. What can be surely stated is that it is just the beginning and the number of possibilities is endless.

Conclusion

The introduction of crypto currencies may also lead to increased levels of transparency and few incidents of fraud. Under current systems, the correct identification of fraud is very manual-labor intensive and prone to error. However, crypto currencies are designed to be explicitly transparent and automatically detect fraud, greatly alleviating the costs associated with managing associated systems. The crypto currencies require only an Internet connection, and are not dependent on established institutions such as banks; they are ideally suited for societies without a well-developed financial infrastructure. As with how many individuals emerging markets skipped over landlines and went straight for mobile

phones, the same individuals may skip the overhead of the traditional banking system and engage directly in mobile banking. Financial Market Disruption Within the crypto currency community, one of the most popularized goals is the total replacement of banks and other centralized financial intermediaries. Although crypto currencies have the possibility to replace functions of the existing financial infrastructure, their greatest potential may be in incorporating with other technologies to facilitate a true revolution. The block chain model is ideally suited for Internet of Things (IOT) transactions, which require both efficient simplicity and robust security. For example, imagine if every time you needed to fill up a car with gas, your car could pay the gas station automatically.

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