

The bits of Bitcoin

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Abstract- Today crypto currencies have become a global trend known to most people. While still it is not understood by most people, banks, governments and only few companies are aware of its importance. A cryptocurrency is a digital or virtual currency that uses cryptography for security and are digital asset designed to work as a medium of exchange using cryptography to secure the transactions and to control the creation of additional units of the currency. A cryptocurrency is difficult to counterfeit because of this security feature. Blockchain is a decentralized transaction and data management technology developed first for Bitcoin cryptocurrency. Bitcoin and blockchain technology have gained a lot of international attention over past years especially after 2009. The technology is very new and supports cryptocurrency. This article provides an insight to bitcoins and its underlying of blockchain, and also analyse the benefits and concerned associated with bitcoins. This article is based on secondary data collected from books, magazines, research articles and newspapers. The future and further success of cryptocurrencies depends upon the way regulatory frameworks are devised.

Index Terms- Bitcoins, Blockchains, Cryptocurrency.

INTRODUCTION

Bitcoins were in news recently after a massive global ransom ware attack 'WannaCry' hit systems in over 100 countries. The cyber criminals demanded a fee of about \$300 in crypto-currencies like bitcoin for unlocking affected devices.

In October this year, billionaire Warren Buffet had described Bitcoin as a "real bubble", and said that one couldn't value it considering it was not a value-producing asset.

WHAT IS BITCOIN

Bitcoin is the world's most popular virtual currency, allows people to buy goods and services and

exchange money without involving with banks or government. Bitcoin falls under the scope of cryptocurrency and was the first and most valuable among them. It is commonly called a decentralised digital currency. Transactions can be made anonymously, making the currency popular among libertarians, tech enthusiasts, speculators and criminals. In addition, international payments are easy and cheap because bitcoins are not tied to any country or subject to regulation. Small businesses may like them because there are no credit card fees. Some people just buy bitcoins as an investment, hoping that they'll go up in value.

Hitesh Malviya, Bitcoin Expert, itsblockchain.com explains, Bitcoins are completely virtual coins designed to be 'self-contained' for their value, with no need for banks to move and store the money.

The origin of Bitcoin is not yet clear, as is who founded it. A person, or a group of people, that went by the identity of Satoshi Nakamoto are said to be the one/s who conceptualized an accounting system in the aftermath of the 2008 financial crisis. Nakamoto published a paper about a peer-to-peer electronic cash system, which would "allow online payments to be sent directly from one party to another without going through a financial institution". Bitcoin's emergence was organically linked to the implosion of the global financial system in 2007-08, which led some to lose faith in government-controlled currencies. Ideologically, Bitcoin appealed to a spectrum of libertarians and anarchists, who saw in it a kind of new gold — a commodity whose value would be determined purely by demand and supply, not by the actions of central banks. Like all cryptocurrencies, Bitcoin functions in the same way as cash or gold, and also can be served as a certificate or bond, a clearing house, a settlement layer. To its proponents, the principles underlying Bitcoin make it a

democratic alternative to the commercial banking network, and even central banks.

OBJECTIVES OF THE STUDY

1. To study the concept of bitcoin and blockchain.
2. To evaluate the pros and cons of bitcoin digital currency in regard of Indian economy.
3. To analyze the scope of Bitcoin in India.

Bitcoin saw its value trading at above \$10,000 (about ₹6.43 lakh) per bitcoin, up by about 900% from its value on January 1, 2017. At a time when the Indian government is in the process of determining the legality of crypto currencies, it is important to understand what exactly a virtual currency means for the layman.

Bitcoin is a type of cryptocurrencies that have gained a lot of popularity all over the world.

- A cryptocurrency is a basically a digital asset that has been created to function as a medium of exchange, like cash.
- It uses cryptography to ensure the security of transactions — authentication and prevention of duplicate transactions — and to control the creation of new units of currency.
- This is different from cash in that cryptocurrencies have no physical form. These blur the boundaries between fiat and non-fiat currencies. They are simply numbers on a screen and there is no central bank that issues new currency. However, bitcoin has emerged as the popular face of cryptocurrencies.

HOW DOES A BITCOIN WORK?

A blockchain is a ledger that keeps records of digital transactions. Instead of having a central administrator, like a bank or the government, blockchain organizes data in batches (What is a blockchain, and why is it growing in popularity?) called blocks. These data batches use cryptographic validation to link themselves together. In other words, each block identifies and references the previous block by a hash value (Hash function - Wikipedia), forming an unbroken chain.

Blockchain solves two of the most challenging problems of digital transactions (There is a 'game changer' technology on Wall Street and people keep confusing it with bitcoin): controlling the information and avoiding duplication. When a purchase is carried out, the ledger records it and sends it out to the entire network. Computers all over the world then compete to confirm the operation by solving complex math equations. The first to figure out the answer and validate the block receives a reward in Bitcoins (this process is called mining.) The validated block is timestamped and added to a chain in chronological order.

What is Bitcoin..?
Bitcoin is a digital currency. Its market value is estimated at \$8 billion.
First invented in 2008, Bitcoin has risen in value by 13,000%.

Its key selling features are: low transaction fees, High levels of anonymity keeping transactions private, No chargebacks unlike credit cards or disputes like PayPal.

Our Bitcoin ATM
State Of The Art
Energy Efficient
Just 0.25sqm

Countries With Live ATMs

Five Need To Know Facts

1. Bitcoins are created by "miners", the miners are rewarded with bitcoins when they validate transactions. This keeps transaction fees extremely low, while introducing new coins.
2. Bitcoins get their price like gold. Online exchanges are used to buy and sell them, setting the global price.
3. Bitcoins are stored in digital wallets, the wallets can be saved to your computer or phone. Coinbase was the first ever approved iPhone wallet.
4. Police prefer Bitcoin. All transactions are archived in an online ledger which Police have successfully used to arrest many high profile criminals.
5. No country, government or central agency is in charge of Bitcoin. Bitcoin is open source, every coin is viewable & can't be counterfeited. **FACT:** Only 1% of normal cash actually exists.

240 ATMs Have Been Sold
Bitcoin ATMs are spreading fast. However manufacturers cannot meet demand until Summer 2014

Bitcoin is the Next Big Thing. People Laughed At Credit Cards, And Nobody Could Imagine A World With PayPal.
This Is Your Chance To Be A Visionary And Help A New Currency To Succeed!

How a Bitcoin transaction works

Bob, an online merchant, decides to begin accepting bitcoins as payment. Alice, a buyer, has bitcoins and wants to purchase merchandise from Bob.

WALLETS AND ADDRESSES
Bob and Alice both have Bitcoin "wallets" on their computers. A Bitcoin wallet is a collection of private and public keys. Each address has a unique Bitcoin address, such as 1A1zP1eP5QGDFiK7NS2UyRkx86UEGNiWZ.

CREATING A NEW ADDRESS
Bob generates a new Bitcoin address. He sends it to Alice. Alice adds the Bitcoin address to her wallet.

SUBMITTING A PAYMENT
Alice sends Bob a Bitcoin payment. Bob's wallet software creates a transaction. The transaction includes the amount of Bitcoin to be sent and the recipient's Bitcoin address. Bob's wallet software signs the transaction with his private key.

VERIFYING THE TRANSACTION
The transaction is broadcast to the Bitcoin network. Other computers in the network verify the transaction. They check that the sender has the private key and that the transaction is valid.

TRANSACTION VERIFIED
The transaction is added to the Bitcoin ledger. The ledger is a public record of all Bitcoin transactions. The ledger is maintained by a network of computers called miners.

CRYPTOGRAPHIC HASHES
Cryptographic hash functions transform data into a fixed-length, random-looking string of numbers and letters. The hash value is unique to the data it represents. Changing the data even slightly will result in a completely different hash value.

THE BLOCK CHAIN
The Bitcoin network uses a public ledger to record all transactions. Each transaction is hashed and combined with the previous block's hash to form a new block. The blocks are linked together in a chain, forming a permanent record of all transactions.

HOW TO ACQUIRE BITCOINS ?

There are two ways. The first is to buy it from someone and the second is to mine new bitcoins. “Buying of bitcoins can happen either via exchanges or you can mine it on your own, provided you have that kind of mining capacity. You can also do over-the-counter transactions, where you send the money to someone and they transfer a bitcoin to you. There are various websites, like LocalBitcoins, which also allow peer-to-peer transactions,” said Sumanth Neppalli, cryptocurrency and blockchain analyst at Zebpay. A Bitcoin exchange functions like a bank where a person buys and sells Bitcoins with traditional currency. Depending on the demand and supply, the price of Bitcoin keeps fluctuating. Miners are the people who validate a bitcoin transaction and secure the network with their hardware. In return, they are rewarded for their services with new Bitcoins. The Bitcoin protocol is designed in such a way that new bitcoins are created at a fixed rate. No developer has the power to manipulate the system to increase his profits. One unique aspect of Bitcoin is that only 21 million units will ever be created. However, transactions can be denominated in sub-units of a Bitcoin. A Satoshi is the smallest fraction of a Bitcoin.

WHAT IS BLOCKCHAIN?

The transactions and the value of money would be recorded digitally on a publicly available and open ledger that contains all the transactions ever made, albeit in an anonymous and an encrypted form. This ledger is called blockchain. Considering the public and open nature of the ledger, proponents of this currency system believe, it could help weed out corruption and inefficiencies in the system.

Blockchains are a new data structure that is secure, cryptography-based, and distributed across a network. The technology supports cryptocurrencies such as Bitcoin, and the transfer of any data or digital asset. Spearheaded by Bitcoin, blockchains achieve consensus among distributed nodes, allowing the transfer of digital goods without the need for centralized authorisation of transactions. The present blockchain ecosystem is like the early Internet, a permissionless innovation environment in which email, the World Wide Web, Napster, Skype, and Uber were built.

APPLICATIONS OF THIS TECHNOLOGY:



FIAT AND NON-FIAT CURRENCY

A fiat currency is any currency that has no intrinsic physical value, but whose value is established by government decree. For example, most national currencies around the world, including the Rupee and the Dollar, are fiat currencies as their values are dictated by the government.

Non-fiat currencies such as the Gold Standard have more or less been effectively phased out, as they require adequate physical stockpiles to maintain their value.0

However, the new breed of digital cryptocurrencies such as Bitcoin blurs the boundaries between fiat and non-fiat – they don’t have any physical value as such, but are also not government-controlled. This has created uncertainties about their role in the modern financial system.

WHAT ARE THE REGULATIONS FOR BITCOINS?

While some of the countries such as Nepal, Bangladesh, Kyrgyzstan have declared Bitcoins as a means of payment illegal and in violation of the state law, a majority are yet to take a stand on it. In December 2013, RBI issued a warning with caution to users, holders and traders of virtual currencies, including Bitcoins, about the potential financial,

operational, and legal, customer protection and security related risks that they are exposing themselves to.

Bitcoins are currently unregulated in India. There are no specific legal frameworks for Bitcoins and cryptocurrencies in India yet.

BITCOIN AS A CURRENCY

At the moment, the Reserve Bank of India has banned transactions in India using cryptocurrencies. In other words, while you can buy and sell cryptocurrencies on online exchanges, you can't use them to pay for goods and services within the country.

In April, the government had constituted an inter-disciplinary panel to look into the legality of cryptocurrencies and suggest a way forward, which included a having a regulator if they are legalized. The panel, which included officials from the Department of Economic Affairs, Department of Financial Services, Department of Revenue, Ministries of Home Affairs and Electronics and Information Technology, the Reserve Bank of India, NITI Aayog, and the State Bank of India, submitted its report in August and it is being examined.

WHAT'S ENCOURAGING BITCOINS

Bitcoin uses cryptography to securely conduct a transaction between a sender and a recipient. It is almost impossible to make duplicate copies of Bitcoin, or use it for more than one transaction at a time. It is possible to send and receive any amount of money almost instantly anywhere in the world at any time. Bitcoin's attraction is that it frees the money from the actions of government. In countries where inflation is high as a consequence of government policies, Bitcoin allows individuals to insulate themselves. Start-ups can raise funds through Bitcoins as it is not control by a government or other any kind of central authority. Bitcoin makes payments fast and inexpensive. Other cryptocurrencies that are in play apart from Bitcoins are Ethereum, Litecoin, Dash and Ripple.

PROS AND CONS OF BITCOINS

It is possible to send and receive bitcoins from any part of the world irrespective of traditional hurdles like national borders and banking regulations.

1. Such currency are digital , hence promotes cashless economy.

2. Bitcoin does away with the need for a regulator. And by making everything public, bitcoin negates the need for a middleman.

3. It promotes the idea of 3D - Digital , Decentralized and Distributed - hence the would be able to fight with problem of fake currency as crypto currency are difficult to copy and if copied then it would impact the distributed ,by which everyone would know about such fake currency and will discard from the system.

4. It promotes peer to peer transaction hence more safety over transaction. According to bitcoin.org, no individual or organization can manipulate Bitcoins because it is cryptographically secure and do not contain customers' personal information.

5. Bitcoins are considered as future of global currency hence investment over it could really boost participation of financial services.

However, not being backed by any government entity is Bitcoin's biggest disadvantage and affects its adoption by people.

- With less Bitcoins in circulation and the number of businesses using Bitcoin still very small, relatively small events, can significantly affect the price.
- One of the biggest problems that cryptocurrencies face is acceptance.

However, many businesses have started accepting Bitcoins. One of the largest PC companies in the US, Dell, started accepting Bitcoin in 2014. Travel website Expedia allows to pay with Bitcoins. Tech giant Microsoft also embraced bitcoins in December 2014. In India too, the adoption has started. Bengaluru-based exchange Unocoin has a growing list of merchants on its website that includes e-commerce firms, web-hosting companies and even schools.

BITCOIN SCOPE IN INDIA

Launched in 2013, Unocoin lets customers buy, sell, store, use and accept bitcoins. The startup has nearly 3.7 lakh unique customer logins and sees 2,000 daily transactions. Unocoin also offers a systematic buying plan that allows users to hedge risks and invest over a period of time. But in India Bitcoin is still viewed with suspicion because it doesn't fall under the purview of any government-mandated monetary policy, and fluctuates in value. Earlier this year,

India's central banking institution Reserve Bank of India issued a note of caution to users and traders of virtual currencies about the risks of using Bitcoin. Indians appear to be following the global cryptocurrency boom because of the profits, loss of faith in cash, as well as the flat lining of property and gold prices. Niti Ayog has been asked to study the possibility of issuing government-backed and regulated cryptocurrency. High demand for bitcoin in India has driven its price far higher than global rates. In India crypto-currency is gaining popularity, primarily as a financial asset. India has retained its position as a top receiver of bitcoin-related remittances worldwide, as per a World Bank report.

EXPERTS OPINION ABOUT BITCOIN

Experts and central banks across the world are slowly arriving at the conclusion — written about in various research papers but not yet implemented in policy — that cryptocurrencies are here to stay.

The only way to regulate their value and quantity is for central banks to issue their own digital currencies. While the value of digital currencies such as bitcoin are market-determined, depending on what somebody is willing to pay, a central bank-backed digital currency will have its value controlled to an extent by the central bank itself, much like any other major currency in the world. RBI's research arm Institute for Development and Research in Banking Technology put out a paper in favour of the blockchain technology. However there is still a lot of analysis to be done regarding the effect of such a central bank-backed digital currency on factors such as inflation and price levels.

CONCLUSION

A financial infrastructure based on Bitcoin and its underlying technology Blockchain will herald a revolution just like internet. Very similar to Internet, Bitcoin is a free to join, open source, decentralized network. In many western countries, Bitcoins are treated as property and capital gains tax is imposed on it. India should also treat it as property and impose capital gains tax. There is a need to engage with authorities and regulators to generate awareness about Bitcoins. Implementation of strict KYC norms and eliminating secrecy of transactions is another way to transparency. Reserve Bank of India should

also encourage the development of a supervision ecosystem. Their trading should be brought under the oversight of SEBI. Investors must spend time educating themselves about bitcoin and the technology behind it. A more realistic scenario in future could be both Bitcoins and fiat money are used side by side, with Bitcoins used mainly to pay people or businesses who can accept Bitcoins, and fiat money used to pay for basic goods and services. The shortcomings of the system need to be thoroughly investigated by the central authorities before Bitcoin finds widespread application. The banking sector has all reasons to be alarmed by the growth of the above two concepts as both clearly intend to bypass the role of bank for settlement of transactions. Although it may be taken as positive on the fact that banks and therefore government's burden will reduce, but it should also be kept in mind that these are recent technologies with no proven success. So trading cautiously will be the right choice, however, for India being an emerging global leader in software technologies, India should capitalize on leveraging these technologies given their potential in augmenting economic growth digitally.

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