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- 3) It is also observed that State Bank of India has given loans without proper verification of documents and lack of securitization at the time of sanctioning loans.

Conclusion

This paper was aimed to check the Non-performing assets of State Bank of India for the period from 2013-14 to 2017-18 with its different types, factors of Non-performing assets, etc. NPAs were studied in details in terms of Indian Rupees and Percentage. This paper has got some findings mentioned above. While studying the NPA of State Bank of India for this particular period, it clearly shows that there is constant increase in the NPA which is really a serious concern to the bank. SBI being the largest financial institution in India should take rigorous steps to reduce the NPA, Proper credit review is must and steps should be taken for recovery of loan outstanding.

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6. Crypto currencies: A Study on Rise of Unregulated Digital Currency

Parth S. Joshi

Abstract

In recent years crypto currencies such as Bitcoin have been subject to global discussions and may have risen up as formidable competition to existing payment mechanism. The blockchain technology has also been a subject of keen interest of researchers, IT experts and even to some extent of laymen too. In this backdrop the initial soaring prices of bitcoin generated speculative interest and in India also many people started blindly investing in these pseudo currencies. Various central banks of world democracies including RBI have been issuing cautions on such sudden surge in the investments of highly volatile digital currencies. Recently the great fall in the market prices of Bitcoin caused a panic in Indian as well as other financial markets all over the world. But at the same time world has seen rise of other cryptocurrencies such as Ripple, Ethereum, Litecoin, Zcash, Dash etc. The revolutionary blockchain technology has paved a way for a currency system which doesn't require intermediation to manage the exchange rates and enables decentralization and the transactions carried out in this way are highly secured. In these contexts this research paper aims to study the cryptocurrencies so as to enable a simpler understanding of the gradual rise of cryptocurrencies, blockchain technology, market volatility and capitalisation of some cryptocurrencies, central bank's role, and the future of this unconventional phenomenon.

Keywords: Cryptocurrency, Bitcoin, Blockchain Technology, Market Capitalization, Peer-to-Peer Network

Introduction

Cryptocurrency is a common name which refers to decentralized digital currencies which are normally encrypted. The cryptography technique is used to secure transactions through which digital coins are generated. There is a rising trend in the cryptocurrency trading through cryptocurrency exchanges and despite the volatile prices, the market capitalization of these currencies is increasing. In many countries of the world the cryptocurrencies are not recognized as legal tender but profits through their trading attracts tax liability. The very first cryptocurrency

introduced to the world was Bitcoin and to date it is one of the most famous of all digital currencies. The inventor of bitcoin is claimed to be a programmer or group of programmers known by the name of Santoshi Nakamoto. Bitcoin was introduced in the year 2008 and was released to public use in 2009. Around the year 2013-14 bitcoin gained huge media attention due to its soaring prices, a peak price of 1000 USD per bitcoin was registered during this period, after which it generated high speculative interest all over the world. This was followed by sudden crash in the prices and loss of huge money for investors, which prompted the interference of central banks of many countries. Today there are hundreds of different cryptocurrencies being traded and some thousands other existed at some point or other. The main difference that exists between these cryptocurrency systems is the public ledger shared between network participants and the incentives granted for running the network in absence of central authority [1]. Cryptocurrency is the latest topic of discussion in the financial world, with Bitcoin growing over 200% and reaching a high of 3000 USD, Ethereum growing around 500% with high of 420 USD, the crypto currency markets can be ignored no longer.

Objectives of Study

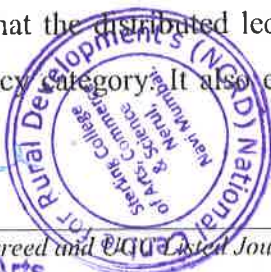
- 1) To develop simpler understanding of blockchain technology
- 2) To study different crypto currencies
- 3) To study market capitalization of some cryptocurrencies
- 4) To understand central bank's role for & opinions about unregulated cryptocurrency market

Research Methodology

The nature of the study is descriptive analysis. It is based on secondary data collected from various books, prominent sites, research journals and other publications. Also for study of factors impacting the market movements, prices etc. websites dedicated exclusively to cryptocurrencies such as coindesk.com, bitmagazine.com etc. are sourced.

Literature Review

- 1) "Digital Currencies" Author: Bank of International Settlements, Committee on Payments and Market Infrastructures- In this report, Bank of International Settlements committee said that the distributed ledger technology of bitcoin is very innovative in the digital currency category. It also emphasized that such ledgers system may prove



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cost effective for end users as compared to traditional centralized system and it can solve the problems associated with traditional payment system.

- 2) "Bitcoins, Its Advantages and Security Threats" Author: Archana M. Naware- In this report the author discusses how the bitcoins can be brought into the day to day transactions and type of bitcoin wallets. This report makes detailed study of security threats to both bitcoins and bitcoin wallets.

Blockchain Technology

A blockchain is chain of blocks that contains information. This technology was originally described in 1991 by a group of researchers and was originally intended to timestamp digital documents so that it's not possible to backdate them or to tamper with them [2], almost like a notary. But it went almost unused until it was adopted by Santoshi Nakamoto in 2009 to create digital cryptocurrency bitcoin. Blockchain is a distributed ledger that is completely open to anyone. Once data has been recorded inside a blockchain, it becomes very difficult to change it. Each block contains three elements: data, hash of the block and hash of the previous block. The information stored can be in the form of sender, receiver and amounts of coins, whereas the hash can be compared to fingerprint which identifies a block and all its contents and it is always unique. So if any information in the block is changed it will cause the hash to change, therefore hashes can be used to detect any alterations in the block. The hash of the previous block is connecting link thereby a chain of blocks is created called as blockchain. Therefore block no 3 points to block no 2 and block no 2 points to block no 1 but block no 1 is called as genesis block as it is the first and does not point to any other block. Any change made in the block will make all subsequent blocks invalid as they do not store valid hash of previous block. To protect it further the blockchains have 'Proof-of-Work' which is a mechanism to slow down the creation of new blocks. So in case of bitcoin it takes 10 minutes to calculate the required proof-of-work and add a new block to the chain. Due to this mechanism it becomes very hard to tamper with the blocks, because if someone tampers with 1 block he will need to recalculate proof-of-work for all the following blocks. One more feature of blockchain is that it uses peer-to-peer network instead of any central agency to manage the chain. The peer-to-peer network is open to anyone to join, and when someone joins, he gets full copy of blockchain. Such member's computer is called as node [3]. So when someone crates a new block each node verifies it to ensure that it hasn't been tampered with and if everything is ok

then each node adds this block to their own blockchain, thereby the validity of blocks is decided by consensus. This three tier security structure of hashes, proof-of-work and peer-to-peer network makes tampering of blocks almost impossible. The process of adding transactions to the existing blockchain ledger is called as mining, and the miners are rewarded for their efforts by way of bitcoins. Therefore mining is a method to earn bitcoins[4]. Nowadays blockchains also contains programmes called as smart contracts which automatically exchange coins based on certain conditions. This revolutionary blockchain technology can be used to store medical records, creating e-notary or collect taxes. Blockchain technology's applications are dynamic and new avenues are being explored for financial as well as non-financial sectors.

Various Crypto currencies

- a) **Bitcoin:** The pioneer of crypto currency, Bitcoin was first described by Satoshi Nakamoto in his white paper released in April 2009 as "A purely peer-to-peer version of electronic cash which would allow online payments to be sent directly from one party to another without going through a financial institution" [5]. The Bitcoin was invented as a solution to the third party institutions involved in financial transactions. Bitcoin being the pioneer of cryptocurrencies, is the most popular cryptocurrency and even today enjoys the highest market share. It was first traded as a Cryptocurrency in April 2010 on the now defunct bitcoinmarket.com for 1 BTC= \$0.003 and within a year, it achieved parity with the USD. After its successful long run from 1BTC = \$627 in 2016 to seeing a high of 1 BTC= \$3000 on 11 June 2017, Bitcoin has grown 378% in just about a year. This growth is phenomenal and beyond imagination for most. Two major corrections seen in Bitcoin were China decided to cut down trading of Bitcoins & US government rejected a plea to start a Bitcoin ETF. These impacts were large in nature due to the large Chinese and USD trading volumes. Besides these, WannaCry ransomware attackers demanding Bitcoin contributed majorly to bring attention to Bitcoin and soaring the prices, but recently the prices of bitcoin are on decline.
- b) **Ethereum:** Ethereum platform is another blockchain based platform proposed by a programmer, Vitalik Buterin in late 2013. In his whitepaper he proposed that Bitcoin needed a simplified code for application purposes. His proposal was rejected which lead to development of the Ethereum platform. The platform also features smart contracts which facilitate online contractual agreements which are computer programs

that run on the blockchain platform attached to transactions. The codes being written on the blockchain make these contracts tamperproof. The currency of this platform is called Ether [6].

- c) **Ripple:** Ripple is another form of cryptocurrency. It is the third most popular cryptocurrency after Bitcoin and Ether. Ripple is currency of the platform ripple which has one unique feature about it. It provides a blockchain platform to financial institutes to considerably reduce transaction time and costs. Thus in case of ripple one of the transacting parties is a regularized governed financial institute. Thus the platform is perceived to have higher security and safety. It provides a faster alternative to RTGS, Currency exchange and remittance [7].
- d) **Litecoin:** Litecoin is a peer-to-peer crypto currency and open source software project released under the MIT/X11 license. Creation and transfer of coins is based on an open source cryptographic protocol and is not managed by any central authority. Even though it is identical to Bitcoin (BTC), Litecoin has some minor technical differences compared to Bitcoin and other major cryptocurrencies [8].
- e) **Dash:** Dash is peer-to-peer, open-sourced, decentralized electronic cash. It has additional features of privacy and quick transactions as compared to bitcoin. It was created by Evan Duffield on 18th January 2014. To gain the advantage of anonymity over the bitcoin system, Evan used bitcoin's core code and built his own cryptocurrency by adding privacy element. The initial name of it was Xcoin which was changed to Darkcoin, which later became Dash in 2015. Currently the supply of Dash is 7.4 million which will reach 18 million in the year 2300. Dash was the seventh most valuable cryptocurrency by market capitalization in the year 2017 [9].

Market Capitalization of Crypto currencies: as per Reference [10]-

The below table shows that bitcoin has market capitalization twice as much of Ethereum and six times as much of Ripple. But due to rise in various other cryptocurrencies the market share of the bitcoin is declining. As of 31st December 2017, there were nearly 1400 cryptocurrencies and the number is still rising.

Currency	Market Capitalization (Billion \$)	Price (\$)	Circulating Supply
Bitcoin	115.02	6723.39	17,106,787
Ethereum	53.25	531.41	100,213,804
Ripple	20.98	0.53	39,245,304,677



Bitcoin Cash	15.05	875.48	17,195,488
EOS	9.33	10.41	896,149,492
Litecoin	5.52	96.78	57,075,303
Stellar	4.28	0.23	18,609,290,261
Cardano	4.11	0.16	25,927,070,538
IOTA	3.19	1.15	2,779,530,283
TRON	3.14	0.05	65,748,111,645

Reserve Bank of India's Role & Views about Crypto currency Market

Even as Virtual Currencies (VCs) including Bitcoins are recording all-new highs leading to a rush among investors wanting to capitalise on the sudden surge in their values over the last week, Reserve Bank of India doesn't appear much enthused by the idea. Cautioning users, holders and traders of VC third time since February 2013, India's central banking institution came out with warning letter making them aware about the potential economic, financial, operational, legal, customer protection and security related risks associated in dealing with such VCs. "In the wake of significant spurt in the valuation of many VCs and rapid growth in Initial Coin Offerings (ICOs), RBI reiterates the concerns conveyed in the earlier releases," said the central bank. RBI clarified that it has not given any licence or authorisation to any entity or company to operate such schemes or deal with Bitcoin or any VC [11]. The Reserve Bank of India first cautioned the investors about the risks associated with trading in VCs way back on 24 December, 2013. Thereafter, it was on 1 February, 2017 another press release was issued by the central bank in this regard. As per Reference [12], RBI even banned the regulated entities from dealing in virtual currencies. The RBI, however, decided that it will promote the use of blockchain technology in financial services for strengthening transparency. This move came as governments around the world are stepping up scrutiny of virtual currencies mainly due to their unregulated nature. The huge rise in the value of bitcoin in 2017, triggered worries about these currencies facilitating everything from money laundering to tax evasion and fraud.

Conclusion

The blockchain technology is revolutionary with its security features and multiple applications. Cryptocurrency is one such application which has created huge interest all over the world. But the volatility in prices and highly unregulated nature raises concern. Many studies have warned about the use of cryptocurrency for unethical or illegal uses. Therefore central banks all over the world have been critical of its use. The technological advantages of these

cryptocurrencies might prove beneficial in future and the current regulated currency system's adaptability to it will be unpredictable, as governments will have to play a proactive role in this regard. But in contemporary India context, the stand taken by RBI seems correct as Indian financial market is not mature enough to deal with such kind of phenomenon.

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