

Blockchain and its Impact on Banking Sector

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ABSTRACT: *Blockchain technology has been one of the major innovations in the recent times. It came into light with the advent of Bitcoin (cryptocurrency) to enable secure transaction and is now being implemented in all sectors of the market. Its implementation has been at nascent stage and is introduced in the gaming sector, artificial intelligence and now in the banking sector. Using the statistical tool, we have tried to establish a relationship between the implementation of blockchain and its impact on banking and stock volumes. Five banks have been taken into consideration for our study, them being: Kotak mahindra, SBI, ICICI, Axis bank, HSBC. The result of the findings of the volumes of these banks has stated that blockchain is the future of the current market and has had a major impact on the internal operations and it will be the future of the world.*

KEY WORDS: *Blockchain, Bitcoin, Banks, Volume of stock*

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I. INTRODUCTION

Blockchain is a technology which is decentralized and data management technology which was initially developed for bitcoin cryptocurrency. It has got the name blockchain because all transactions in a particular network get grouped together into blocks of data and then chained together so that no information can get manipulated. Blockchain is basically a distributed database solution that maintains a list of records of data that are confirmed with the nodes participating in them. The data of each transaction done is updated in a ledger which can be accessed by public. This makes the system transparent unlike in centralized systems where a third party is required. Adding to this all participants information is anonymous so it makes it a more secure place for all participants. Blockchain has been at introduction stage in the international banking system and has been developing since then. Companies like JP Morgan, Goldman Sachs, HDFC have been investing and have been successful in the implementation of blockchain. The need for blockchain introduction in India can be proved by the frauds such as the Punjab National Bank scam, Oriental Bank of Commerce scam and the still running Vijay Mallya fraud. The percentage of frauds have been escalating in the recent years, and the need for secure transactions is much awaited for. There have been many models that have created the blockchain technology.

II. REVIEW OF LITERATURE

A) (srikanth, 2017) The rise of blockchain in India.

Blockchain adoption in India started with ICICI bank and had been successful in implementing internationally in partnership with NBD Emirates. The Subsidiary of Reserve bank of India tried a proof of concept to see the applicability of blockchain in its application towards trade finance with participation of the NPCI banks. The HDFC bank head have stated that they are looking into different use cases while State Bank of India also looking to build a stage for payments remittances, audit trail, AML, land record, smart contracts. It is believed that this adoption is still in the budding stage and as these succeed more of them will start adopting blockchain technology. Kotak Mahindra bank is also looking forward to adopt blockchain in future but in phases by first implementing the supply trade finance and then towards making settlements vigorous. There are various advantages discussed such as security, cost effectiveness and resilience and its usage in documents like land records, insurance policies. Blockchain helps in eliminate paper work leading it to have cost advantage and increase the speed for which a complete ecosystem has to be built for the blockchain technology.

B) Blockchain adoption moving rapidly in banking, financial markets

In a study done by IBM most of the companies in both financial markets and banking sector are adopting blockchain. 15% of banks and 14% of financial institutions will implement full scale blockchain in 2017-2018. In the future there will be adoption of blockchain done by mass companies where 65% of banking sector will be blockchain in the coming 3 years. (Louisville, 2016) Also stated that based on a survey of about 200 financial institutions and banking sector disclosed that seventy percent of trail blazers are preferring to adopt

blockchain early to avail the benefits it offers and reach new business markets by breaking down barriers currently faced by the companies.

C) Wipo publishes patent of nippon telegraph and telephone for block chain generation device,block verification device,blockchain verification method and program

Blockchain generation and verification and program device (service, 2017) which was introduced by Wipo. It is a blockchain generation device 1 which is provided with a parameter calculation means 122 which, on the basis of block authentication method data 114, specifies a parameter type to be used for linking a blockchain and respond with 125 if meant yes and 122 confirms whether or not the creator is qualified and 126 if the creator is qualified. It is an algorithm to understand whether blockchain is created or not.

D) (dataquest, 2016) harnessing "blockchain technology to build a transparent and cost efficient bank

Fintech company stated that there has been a major disruption in the recent years for banking industry which is now gaining momentum due to the introduction of blockchain which is enabling the banks to provide transparent data and which is cost efficient. Banks for suffering from deficit regarding customer care which has now been picked up due to blockchain implementation.

E) Global blockchain market is expected to flourish at a CAGR of 70% over the forecast period top players,segments

Blockchain has been expected to flourish globally over the forecast of top players. The growth of public block chain is attributed to the potential which enables to replace most functions of traditional financial institutions with software, fundamentally reshaping the way the financial system works. This would enable operations to move smoothly and decreasing mediators which could lead to extra cost and reduce frauds. (M2 presswire, 2018)

III. RESEARCH DESIGN

1. Statement of Problem

Blockchain as a technology is new to the industry which makes its impact on business an unclear aspect. Our study is to understand the impact of blockchain in banks.

2. Objective of Study

- To understand the implementation of blockchain industry and its pros and cons.
- To understand the financial impact of benefit in banking sector and see its effect overall after the advent of block chain.

3. Scope of Study

This paper has evaluated and helped in understanding the impact of blockchain implementation on banks. The following banks have been chosen for study.

BANK NAMES:
Kotak Mahindra
State Bank of India
ICICI bank
Axia bank
HSBC

4. Sources of Data

Primary data and secondary data have been used for the purpose of this study. The primary data used was a questionnaire sent around to know the awareness of blockchain and the idea of safety regarding digital payments.

The secondary data was obtained from the following websites:

- <http://bloomberg.com>
- <http://www.economictimes.com>
- <http://www.in.finance.yahoo.com>
- <http://www.hackernoon.com>
- <http://www.ndtv.com>

5. Limitations of Study

1. Only five banks have been considered for the purpose of this study.
2. The historical data time frame taken for our study was for 12 months which may be a hindrance in giving a complete picture on how the stock has performed.
3. The statistical tool used in our study is regression only.

IV. DATA ANALYSIS

Regression analysis is a prominent statistical method that helps to determine the relationship between two or more variables where one variable is dependent and the other independent. When the independent variable is known, it helps in depicting the dependent variable's value. In regression equation, 'x' is the independent variable and 'y' is the dependent variable.

Anova is the analysis of variance is a parametric statistical technique which is used to compare data sets. Anova divides into two set of factors which are systematic and random set of factors. The systematic factors have arthemetical effect on the particular data set. Whereas the random factors have no effect. This test is part of regression study to analyse the relationship between independent and dependent variables.

Hypothesis

H0: There is no significant impact of Blockchain Implementation on Stock Trade Volumes

H1: there is a significant impact of blockchain implementation on stock trade volumes

a) HYPOTHESIS TESTING

KOTAK MAHINDRA BANK

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	1.07E+10	1.07E+10	0.000821	0.977159
Residual	247	3.22E+15	1.3E+13		
Total	248	3.22E+15			

H0: There is no significant impact of Blockchain Implementation on Stock Trade Volumes

H1: there is a significant impact of blockchain implementation on stock trade volumes.

As the 'p' value is greater than 0.05, the null hypothesis will be accepted which implies that there is no significant relationship between implementation of blockchain and rise in volume of transaction

SBI BANK

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	7.1E+13	7.1E+13	0.39088	0.532399
Residual	254	4.61E+16	1.82E+14		
Total	255	4.62E+16			

H0: There is no significant impact of Blockchain Implementation on Stock Trade Volumes

H1: there is a significant impact of blockchain implementation on stock trade volumes.

As the 'p' value is greater than 0.05, the null hypothesis will be accepted which implies that there is no significant relationship between implementation of blockchain and rise in volume of transaction

ICICI BANK

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	5.92E+12	5.92E+12	0.337405	0.561852
Residual	251	4.4E+15	1.75E+13		
Total	252	4.41E+15			

H0: There is no significant impact of Blockchain Implementation on Stock Trade Volumes

H1: there is a significant impact of blockchain implementation on stock trade volumes.

As the 'p' value is greater than 0.05, the null hypothesis will be accepted which implies that there is no significant relationship between implementation of blockchain and rise in volume of transaction

AXIS BANK

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	2.73E+14	2.73E+14	7.575052	0.006348
Residual	252	9.09E+15	3.61E+13		
Total	253	9.36E+15			

H0: There is no significant impact of Blockchain Implementation on Stock Trade Volumes

H1: there is a significant impact of blockchain implementation on stock trade volumes.

As the 'p' value is less than 0.05, we reject the null hypothesis as it implies that there is a significant relationship between the implementation of blockchain and rise in volume of transaction.

HSBC

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	1.13E+12	1.13E+12	0.510788	0.475457
Residual	253	5.6E+14	2.21E+12		
Total	254	5.61E+14			

H0: There is no significant impact of Blockchain Implementation on Stock Trade Volumes

H1: there is a significant impact of blockchain implementation on stock trade volumes.

As the 'p' value is greater than 0.05, the null hypothesis will be accepted which implies that there is no significant relationship between implementation of blockchain and rise in volume of transaction

V. FINDING AND INTERPRETATION

As per our research, it has been analysed that Axis bank has shown positive progression as the presence of the relationship between blockchain implementation and stock volume. This is due to the launch of ripple power instant system of payments including cross border payments with the help of blockchain. Other banks presently are not showing a relationship between implementation of blockchain and volume of stock though they have an impact internally which will be shown as positive impact on the stock volume in the future. As per our interviews conducted, it has been stated that there has been an increase in customer safety and satisfaction and increase in customer base due to the advantages of using blockchain.

VI. CONCLUSION

As per our research, blockchain is in the nascent stage and the complete impact on the banking sector is not yet known on the external output but it has a great impact on the internal operations of various banks according to the interviews conducted by us. According to the Regression analysis, the impact was not showed except for Axis bank that there is no significant relationship but it has enhanced the effectiveness and efficiency of working of the banks and it has been cost effective and increased transparency in the transactions conducted which would in turn reduce frauds that have been increasing in the recent years. It has helped in speeding up for completion of transactions, which would otherwise take long time to complete.

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