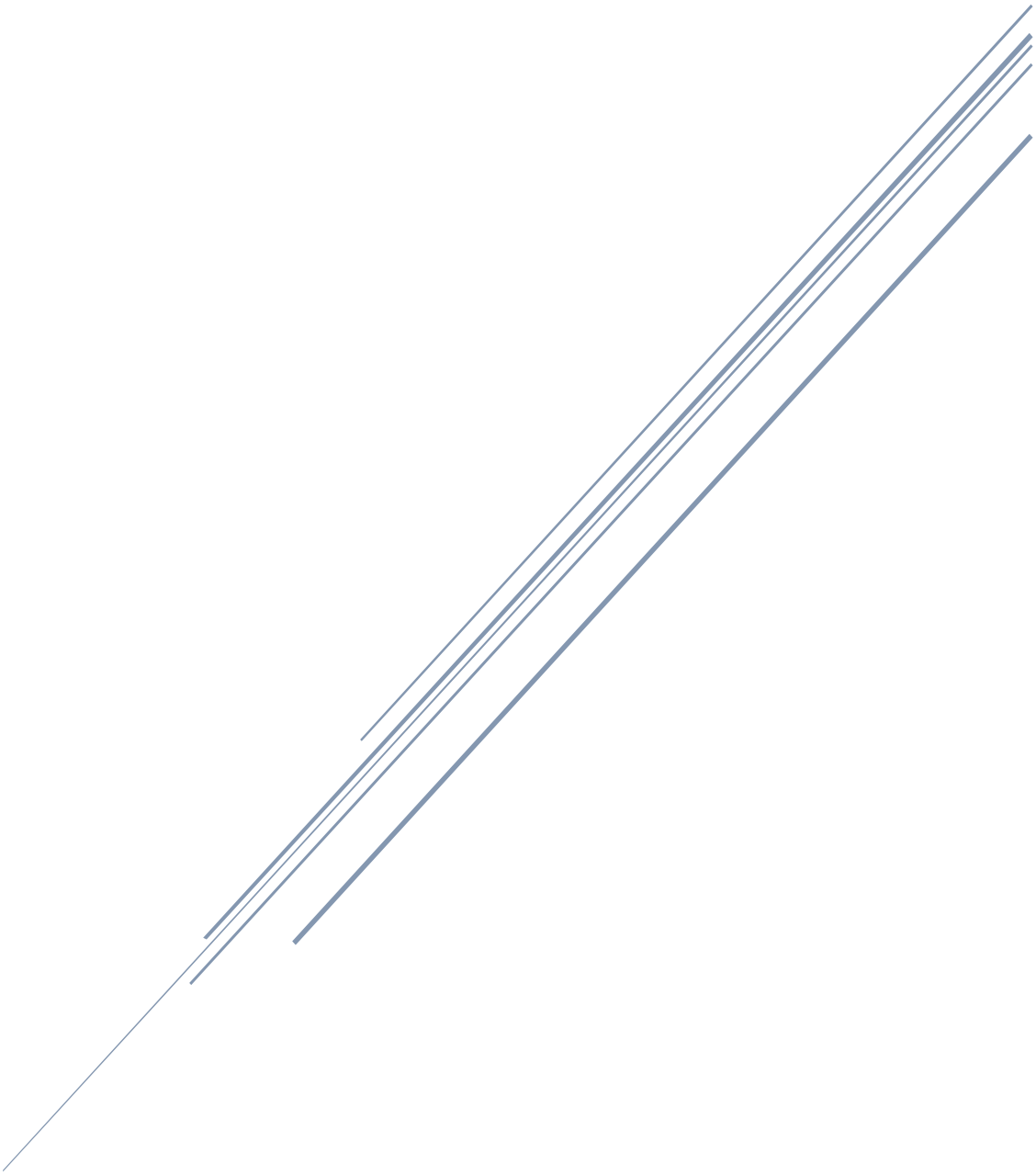
RECOGNIZING PROSPECTS OF DIGITAL CURRENCY IN INDIA: THE WHAT AND WHYS

A Research Paper



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Abstract

Technological change is upending finance. This study attempts to present the prospects and problems of digital currencies around the world. The finance and business sector as we know it is prone to transformation by the speed of evolution in technology, consumer acceptance and perception, providing both threats and opportunities to financial institutions. To survive in this era of information and communication, financial institutions are responding with innovation and digitization initiatives led by their investments in cloud technologies and data analytics that attempt to make lending patterns and investments more consumer-centric. This paper is a study to find the future of digital currencies in India. The study contains a systematic literature review (SLR) of research on digital currencies containing (PUT NUMBER) articles. It uses data from YEAR to YEAR for chosen currencies to study their price and trading volume. This study also contains a survey collected through " questionnaires ". The consents of 50 respondents present a positive attitude of the general public towards digital currency.

Introduction

New technologies are causing changes in the global economy, and in the past few years digital currencies and especially crypto currencies have come to popularity. They have captured the imagination of the many investors, struck fear among governments and confused many the rest. Digital currency is a balance of record stored on an internet distributed database, an electronic computer database, a digital file or a stored value card. An American computer scientist named David Chaum was the developer of the first concept of digital currency in 1983. In the early 1990s, various digital cash companies were founded. The two major forms of digital currencies are crypto currencies and virtual currencies. As of January 2022, there are nearly over 8000 crypto currencies- a severe increase form just a few digital coins in 2013.

The functions of some digital currencies are different and it is not possible to predict the future technological innovations that the makers of new digital currencies may use. An important feature of digital currency transactions are that it helps the transacting parties to remain anonymous. They're moved directly from one location to another in the electronic ecosystem without the involvement of any financial institutions. The unit is stored at an e-address with a unique public ID. Multiple addresses can be combined into an e-wallet. Digital currencies are usually recorded chronologically in a public decentralised ledger, commonly referred to as a blockchain. The ledger is made up of blocks that contain records of past transactions. While some people are moving towards the use of various paperless currencies like electronic money, some people argue the need for something that does not come under the purview of the government and can be traded independently. However some people still feel the need to establish their confidence in the new currency system. However, between all these options some governments decided to adopt digital currencies, while some also thought banning might be the safer option.

Systematic Literature Review

The study represents a systematic literature review (SLR) of research on digital currency

Sr. No.	Title	Paper type	Methodolgy used	Findings
1	A Scientometric Review of Digital Currency and Electronic Payment Research: A Network Perspective	Review Article	Network analysis	1. While the roles of digital currencies in financial markets have been empirically studied, theoretical analysis of the underlying economic model is comparatively rare. 2. Compared to digital currencies issued by private entities, central bank digital currency deserves further attention, especially the impact on modern monetary theory, international trade and payment, and cross-border collaboration
2	Central bank digital currencies: motives, economic - BIS Working Papers	Published Paper	Research by primary and secondary data	If properly designed, digital currencies present an opportunity to improve payments with a technologically advanced representation of central bank money, one which preserves the core features of finality, liquidity and integrity that only the central bank can provide. They could form the backbone of a highly efficient new digital payment system by enabling broad access, and they may also help to provide strong data governance

				and privacy standards.
3	Prospects of Digital Currency in India - A Way Forward	Published paper	Secondary Research	Different countries are handling the trading of digital currencies in a good manner and have innovative methods of policy reforms. Some of the countries are even thinking of launching their digital currency
4	**Can cryptocurrencies fulfil the functions of money?- quarterly review of finance and economics**	Article	Review and secondary research	1.Digital currencies' inflexible supply and wildly fluctuating demand make them too unstable to be used as a unit of account for the foreseeable future. 2.Application currencies' instability is likely to be an insurmountable hurdle to their successful adoption.
5	Digital currencies and the future of the monetary system- Bank for international settlements	Article	-	Developing CBDC comes with a host of technological, legal and economic issues that warrant careful examination before issuance. Central banks – the guardians of stability – will proceed carefully, methodically and in line with their mandates.
6	A Central Bank Digital	Working	-	The impact of CBDC issuance on monetary stability and the financial

	Currency for India – Proceeding with Cautious Optimism	paper		system is of primary significance for central banks. If the demand for CBDC is high, there may be huge and rapid shifts from bank deposits to CBDC. This may lead banks to increase deposit rate to attract funding, which in turn will impact its profitability, leading them to resort to expensive or lower provision of credit.

Research Methodology

Objective

The paper's objective is to analyse the working of digital currencies our economy lining out how in India the future of digital currencies will shape up and what reforms will be needed to do so.

The study is conducted using both primary and secondary data.

Research strategy

The study combined two types of research strategies to analyze the data collected. Some findings needed personal assessment of information obtained from consumers while some conclusions could be reached after doing simple mathematical computations.

1. Quantitative approach
2. Qualitative approach

Data Analysis

Sample selection

For analyzing the overall prospect of digital currency, the study uses the top 10 digital currencies. To showcase the scenario of digital currency, both secondary and primary data have been used. This study conducts a questionnaire survey that covers 130 respondents from different groups of people regarding their views and opinions about digital currency.

Selection periods

For every crypto currency taken under observation, the time frame starts 2014 and ends up the last data available for the January 2022.

Crypto	Start Date	Number Of Observations
Bitcoin	17-09-2014	2707
Ethereum	09-11-2017	1558
Tether	09-11-2017	1558
Binance Cash	11-11-2017	1556
Cardano	09-11-2017	1558
Avalanche	13-07-2020	512
Terra	26-07-2019	934
Solana	10-04-2020	675
USD Coin	08-10-2018	1225
Ripple	09-11-2017	1558

Name	Market Cap	Circulating Supply
Bitcoin	$ 8,01,29,89,61,354	1,89,56,531
Ethereum	$ 3,48,74,36,19,687	11,95,58,522
Tether	$ 78,47,68,87,949	78,42,30,51,214
BNB	$ 66,54,13,85,052	16,51,16,761
USD Coin	$ 52,30,45,01,959	52,34,73,75,036
XRP	$ 39,66,04,67,415	47,83,24,61,678
Cardano	$ 35,28,21,55,404	33,59,25,27,455

Solana	$	30,44,36,12,954	31,77,66,039
Terra	$	21,23,23,00,414	39,83,28,166
Avalanche	$	20,20,76,45,004	24,52,79,009

Description of data

Source of data

The secondary data is collected from yahoo finance and coinmarketcap.com. The computations of the data were coded on python to find mathematical conclusions. Primary data is collected through the questionnaire of 130 respondents.

Excel link of responses:

https://drive.google.com/file/d/1F_3GZmy_LqZfxm17TWssiyXzr_zoPDfu/view?usp=sharing

Google form link:

https://forms.gle/RUAu1wJ8SdBtEzWm8

Descriptive statistics

The table below shows the descriptive statistics of daily price of Bitcoin, entherum, Tether, Binance cash, Cardano, Avalanche, Solana, Terra, USD coin and Ripple. In the first column we can see the mean value, the second column shows the standard deviation of the observations. Standard deviation helps determine market volatility or the spread of asset prices from their average price. The third and fourth column contain the minimum and maximum values. The fifth column indicates the soreness coefficients. The skew index is a measure of potential risk, it can be a proxy for investor sentiment and volatility.

High idiosyncratic skewness is associated with low expected returns. On the other hand, because investors are risk-averse, stocks with negative skewness are associated with higher expected returns.

Along with skewness, kurtosis is an important descriptive statistic of data distribution.

The last column shows the kurtosis is coefficient respectively. The kurtosis identifies whether the tails of a given distribution contain extreme values. A large kurtosis is associated with a high risk for an investment because it indicates high probabilities of extremely large and extremely small returns. On the other hand, a small kurtosis signals a moderate level of risk because the probabilities of extreme returns are relatively low.

Table: descriptive statistics of the price of digital currencies since data collected

Crypto	Mean($)	SD	Variance	Min($)	Max($)	Skew	kurtosis
Bitcoin	11237.94	16035.22	257128190.46	171.51	68789.63	1.87	2.32
Etherem	980.42	1211.06	1466667.55	82.83	4891.70	1.52	1.05
Tether	1.00	0.01	0.00	0.90	1.11	1.13	11.32
Binance Cash	142.64	226.68	51385.88	1.85	836.24	1.59	0.99
Cardano	0.47	0.67	0.45	0.02	3.10	1.62	1.57
Avalanche	37.72	34.15	1166.03	2.79	146.22	0.90	-0.30
Terra	12.62	21.48	461.18	0.12	103.33	1.96	3.10
Solana	51.94	70.69	4996.60	0.51	260.06	1.28	0.20
USD Coin	1.00	0.01	0.00	0.93	2.35	20.53	589.94
Ripple	0.53	0.39	0.15	0.12	3.84	2.23	8.11

The average price of Bitcoin is 11237.94, Ethereum is 980.42, Tether is 1, Binance Cash is 142.64, Cardano is 0.47, Avalanche is 37.72, Terra is 12.62, Solana is 51.94, USD Coin is 1, Ripple is 0.53.

The data of Bitcoin, Binance cash and Ripple are fairly symmetrical whereas data of Ethereum are moderately skewed and the rest are highly skewed.

All the above digital currencies are positively skewed.Tether and USD Coin have 0 variance. Tether has a very high Kurtosis. USD Coin has a very high value of skewness.

Except Avalanche all the above digital currencies have a positive Kurtosis.

Table: descriptive statistics of the price of digital currencies since the past 1 year

Crypto	Mean($)	SD	Variance	Min($)	Max($)	Skew	kurtosis
Bitcoin	47628.45	9165.92	84014091.12	28893.62	68789.63	0.04	-1.03
Etherem	2922.03	900.65	811172.13	1274.36	4891.70	0.18	-1.11
Tether	1.00	0.00	0.00	1.00	1.03	6.40	54.99
Binance Cash	512.68	169.78	28824.27	54.53	836.24	-0.32	-0.24
Cardano	1.55	0.51	0.26	0.33	3.10	0.65	0.06
Avalanche	49.13	32.61	1063.70	9.34	146.22	0.66	-0.68
Terra	30.37	24.54	602.19	1.37	103.33	0.86	-0.22
Solana	90.84	73.57	5412.92	3.77	260.06	0.53	-1.21
USD Coin	1.00	0.02	0.00	0.99	2.35	18.94	366.59
Ripple	0.90	0.30	0.09	0.28	1.96	0.41	-0.36

The average price of Bitcoin is 47628.45, Ethereum is 900.65, Tether is 1, Binance Cash is 512.68, Cardano is 1.55, Avalanche is 49.13, Terra is 30.37, Solana is 90.84, USD Coin is 1 and Ripple is 0.9.

All the above digital currencies are positively skewed except Binance Cash which is negatively skewed.

Tether and USD Coin have 0 variance.

Tether and USD coin have a very high Kurtosis.
USD Coin and Tether have a very high value of Skewness.

Prospects of Digital currency in India through the questionnaire survey:

130 respondents based on their occupation participate in the survey that uses the percentage of response by participations. Secondary data can be used to supplement the analysis with purposive study.

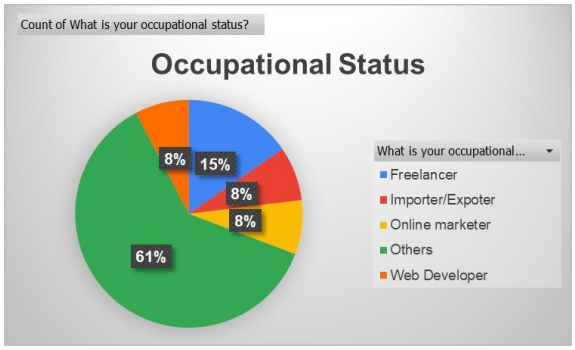


Figure 1 shows that out of all responses, 15% are freelancers, 8% are web developers, 8% are online marketers, 8% are importer/exporters and 61% are from other occupations.

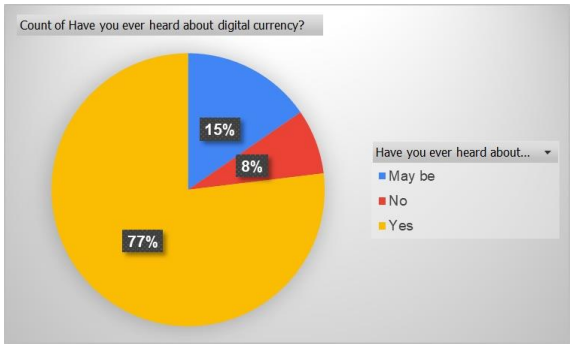


Figure 2 shows that most people have heard about digital currency.

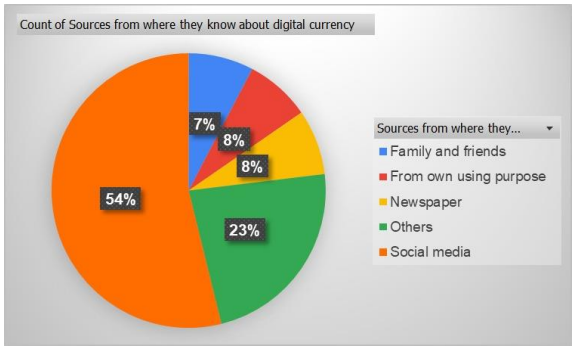


Figure 3 shows that 8% respondents know about digital currency from newspapers, 54% from social media, 7% from family and friends, 8% from their own using purpose and 23% from other sources

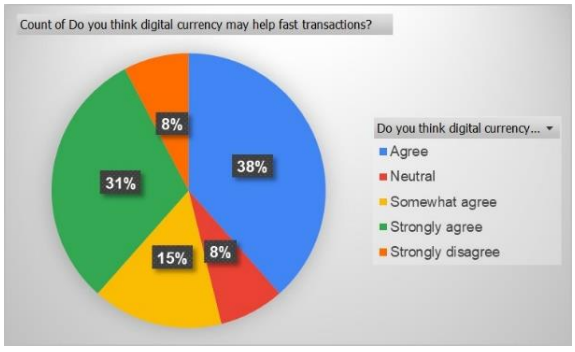


Figure 4 shows that most people strongly agree that digital currency will help aid fast transactions

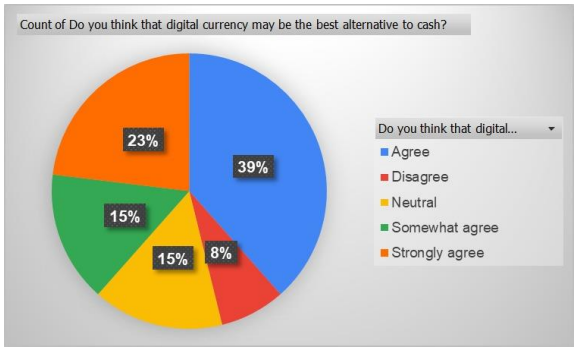
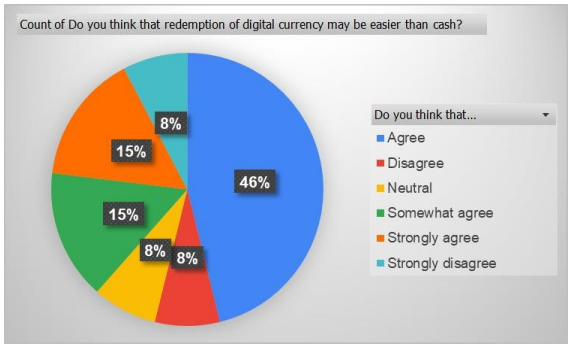


Figure 5 clearly depicts that majority of people think that digital currency may be the best alternative to cash



From figure 6, we can conclude that redemption of digital currency may be easier than cash as most people are in agreement

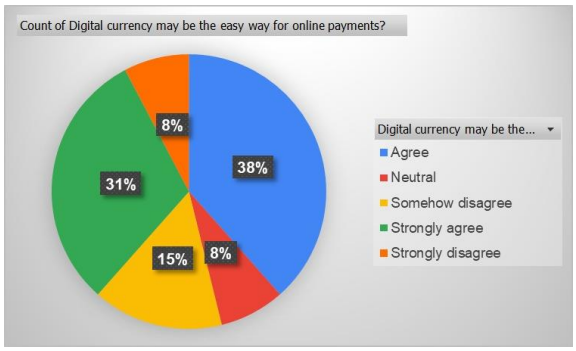


Figure 7 shows that 69% of people are in agreement that digital currency may be the easy way for online payments

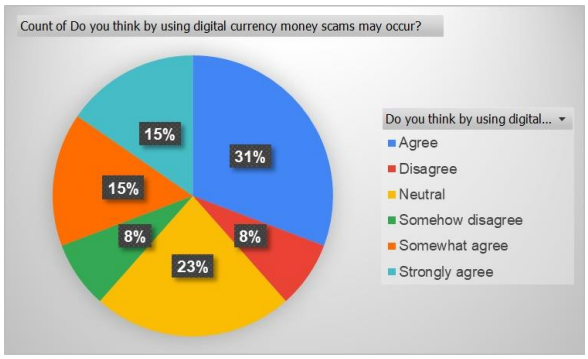


Figure 8 shows that there is no clear conclusion to prove that by using digital money scams may occur.

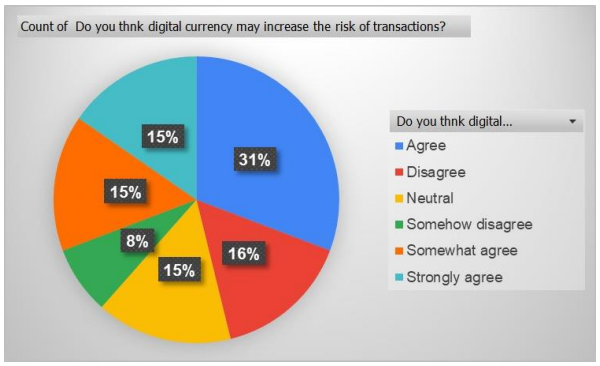


Figure 9 depicts that roughly 61% of people are in agreement that digital currency may increase the risk of transactions.

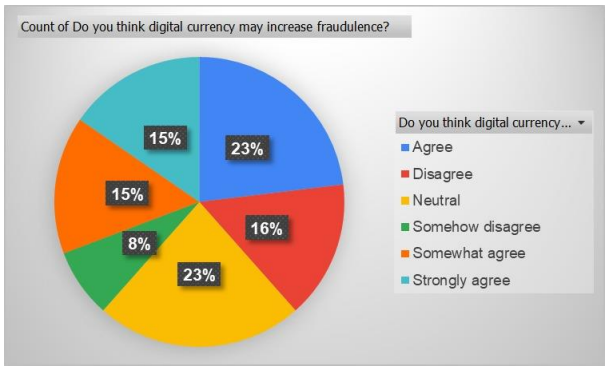


Figure 10 shows that majority of people agree that digital currency may increase fraudulence. 23% people are indifferent and around 24% people disagree to the same.

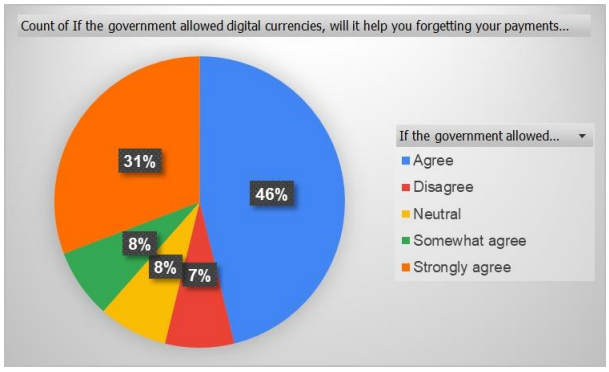


Figure 11 shows that around 77% of people are in agreement that if the government allowed digital currencies, it would help people get their payments faster

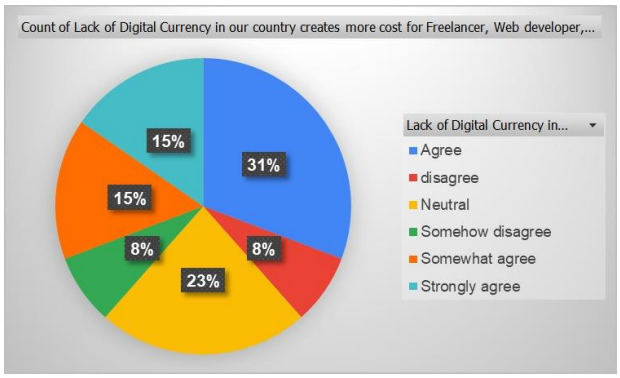


Figure 12 shows that roughly 61% people are in agreement that the lack of digital currency in our country creates more cost for freelancers, we developers, and other professionals

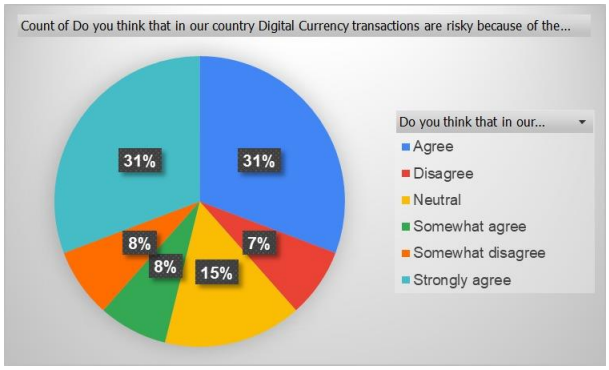


Figure 13 shows that majority of people agree that digital transactions in our country are risky because of lack of technology

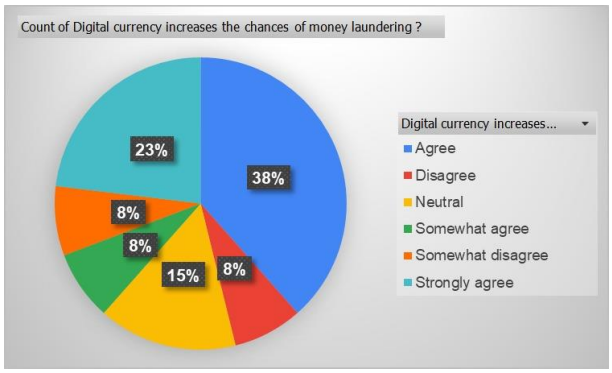


Figure 14 shows that roughly 61% people think that digital currency increases the chance of money laundering with 24% people in disagreement.

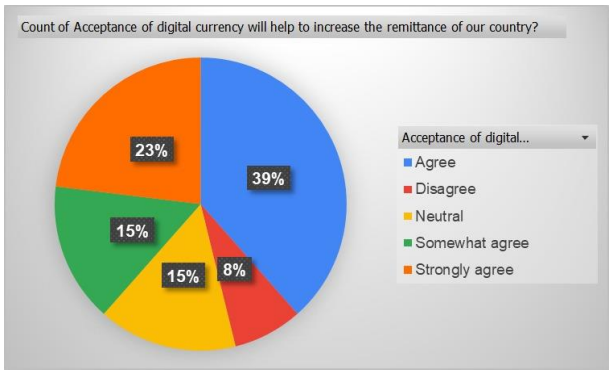


Figure 15 depicts that 23% people strongly agree that the acceptance of digital currency will help increase the remittance of our country. 8% completely disagree and 15% people are neutral.

Conclusion and Findings

Findings from the secondary data of ten digital currencies are:

The data of Bitcoin, Binance cash and XRP are fairly symmetrical whereas data of Ethereum are moderately skewed and the rest are highly skewed. On the contrary, the kurtosis values of all the variables indicate too peaked. The variables Tether, Binance cash and USD coin imply a leptokurtic distribution since it has heavy tails on either side, indicating large outliers. Bitcoin, Ethereum, XRP, and Cardano have a mesokurtic distribution and follow nearly normal distribution [N (μ, $\sigma 2$)].

Most of the variables are highly skewed with large outliers and kurtosis column shows that all the variables are near to normal distribution and investment regarding these values indicates a safe trading.

By conducting a questionnaire survey this current study considers 130 samples from different occupations such as freelancer, online marketer, web developer, and others. They answered several questions based on their opinion and expectation regarding digital currency in Bangladesh. This study results revealed that:

- About 84% of respondents agree that digital currency may be helpful for a fast transaction, although 68% of people believe that digital currency can be the best alternatives to cash, further 76% of respondents think that redemption of digital currency may be easier than cash, besides that 69% people do believe that online payments will be easier with the help of digital currency. So, the above-mentioned opinions conclude that approximately 80% of people are taking digital currency positively.

Having those positive opinions peoples are also highly concerned about some negative issues regarding digital currency-

* About 61% of respondents express that there is a chance of money scam using digital currency, 61% of people are worried about transaction risks, and 53% of respondents show concern for the threat of fraudulence through digital currencies.

For this study purpose, I also included some questions related to the aspect, if our

Government has allowed digital currencies what will the respondents opinion. From these questions, I found that-

- About 69% of respondents think that digital currency will help them in fast transactions,

62% of people think it will increase remittances, and 61% of people agreed that lack of digital currency causes additional cost for the freelancers and so on.

Having several advantages although digital currency possesses some threats for us.

- 70% of people think that the country doesn't have proper technologies for regulating digital currencies, further 69% of respondents fear the chances of money laundering inThese findings played a big role in helping us to know where the future of digital currency

Our study focused on the possible opportunities of digital currency in India and also focused on its limitations. Observing the potential of digital currency, the emerging global demand is clearly visible. Modifying some regulatory acts along with ensuring the security of transactions digital currency could be an attractive option. The study further states that if the government and policy makers take appropriate action, digital currency can have an impact on the financial sector, respectively. But whatever day person forecasts for crypto currencies, it’s getting harder to imagine a future without them.

Through its capacity to reach people and companies in remote and neglected areas, digital currency holds great promise for financial inclusion too. We all know that banks aren't exactly clamouring to help the poor and rural. This is crucial because cash may no longer be an option in this situation. If the majority of people switch to digital money, cash's infrastructure will deteriorate, leaving those on the margins behind.

Of course, providing a digital currency isn't the sole solution. Governments may be able to support private-sector solutions by giving funds or improving infrastructure.

After studying and analyzing in detail, we can be sure that the world is rapidly moving towards technological advancements and innovations. One such advancement is the technology of blockchain and digital payments. The world's inclination towards these digital methods is increasing, resulting in more and more people supporting digital currencies.

The last decade has been very encouraging globally in the digital payment space due to inspiring innovations in independent cryptocurrencies to virtual money triggered way back in 2008.

In the Indian context, which traditional payments have predominantly driven, digital currency faces many challenges. With a strong legal framework, India empowers RBI to supervise and regulate the payments systems, which are safe and secure. The payment systems have been very efficient, fast, and affordable. For the digital currency to be implemented in India, strong frameworks which tests and authenticates the parameters affecting various stakeholders need to be developed.

Digital Currency's Risks and Reccomendations

Technical abilities and at least a rudimentary understanding of how the blockchain works are required to invest or trade in digital currency successfully. In this fast changing new market, there are a few key things that investors should keep in mind. Loss or destruction of private keys, cyber security risks, peer-to-peer transactions risk, loss of confidence, rules for preventing or restricting digital currency transactions, currency exchange risk, digital currency taxation, liquidity risk, risk of price changes, business hour risks, bankruptcy risks, and network slow down risks are some of the common risks associated with digital currencies. There are some financial and security concerns with this type of digital currency.

This study studied many studies and observed some digital currency sales forums in order to better understand the obstacles and concerns associated with this virtual phenomena. Security risks, system crashes, actual currency systems, fluctuating value, and the possibility of money laundering are some of the key issues with digital currency. Despite the aforementioned

concerns, digital currency can be promoted as a critical means of commerce in the future, and the implications of the new provoking currency cannot be overlooked.

Digital currency responds to real market demand and it is likely to stay with us for some time. The following action can be taken by the government to use digital currency-To encourage international trade in products and services, India should upgrade its digital transaction platform.More research on digital currency and its application in the financial industry should be conducted by banks.Policymakers and regulators should not ignore or try to outlaw digital currencies.Based on its market importance, complexity, and related risk, regulators should treat digital currency like any other financial product.It is proposed that such rules be adopted into all jurisdictions due to their worldwide and border nature.Digital currency investments should be taxed in the same way that other financial assets are.Advanced technology can make using a variety of digital currencies more transparent, secure, and simple.This can boost your chances of succeeding.

Bibilography

Jacobs, G. (2018). Cryptocurrencies and the challenge of global governance. Cadmus, 3(4), 109-23.

Ammous, S. (2018). Can cryptocurrencies fulfill the functions of money? The Quarterly Review of Economics and Finance, 70, 38-51.

D. Duffie, “Digital currencies and fast payment systems,” in Mimeo, , Stanford University, Stanford, CA, USA, 2019.

M. Swan, Blockchain: Blueprint for a New Economy, O’Reilly Media, Inc, Sebastopol, CA, USA, 2015.

M. Swan, Blockchain: Blueprint for a New Economy, O’Reilly Media, Inc, Sebastopol, CA, USA, 2015.

C. Lagarde, in Winds of Change: The Case for New Digital Currency, p. 12, International Monetary Fund, Washington, DC, USA, 2019.