

The Role of Virtual Currency in Developing Economies: A Case Study of India

Dr. Elena Petrova, Dr. Ivan Novak, Dr. Marta Kowalska

Department of Materials Science, Lomonosov Moscow State University, Moscow, Russia

Department of Applied Mathematics, University of Zagreb, Zagreb, Croatia

Faculty of Mechanical Engineering, Warsaw University of Technology, Warsaw, Poland

ABSTRACT

Recent year's virtual currency becoming more popular. In the near past virtual currency have been well-discussed and well-cited. due to the fear of loss of capital, the loss of faith in the banking sector, low interest rate and uncertainty of existing currencies, the ground of virtual currency was given. This research paper discusses on the use of virtual currency in developing countries and also its implication in there. This paper also analyzes the relationship between the most popular virtual currency bit-coin and a range of selected developing countries fiat currency. Virtual currency is a hot topic in finance due to their strict relationship with the block-chain system they originate from. Therefore a sample of 7 developing countries fiat currency and with assessment to bit-coin in US dollar exchange rate was taken and the secondary data was gathered through the reports, websites and literature reviews and annual reports. The gathered data was put in MS EXCEL to analyze the correlation between the fiat currencies and bit-coin. Bar graph and chard was used to show the graphical representation of the correlation between these currencies. Therefore the study stated that whether the virtual currency usable in developing economies or not and also its implication in there.

Keywords: *virtual currency, cryptocurrency, bit-coin, fiat currency, ms excel, implication of virtual currency.*

I. INTRODUCTION

The world of virtual currency is becoming more popular in recent year. These currencies haven't any physical form, without any central control these currencies are traded on a decentralized form. In the recent past years many virtual currencies have came into maneuver due to dawn of advanced information technology and increasing internet users. As decentralized, math-based virtual currencies—predominantly Bitcoin—have garnered increasing attention, two popular narratives have emerged: virtual currencies are the flourish of the future for payment systems; and virtual currencies provide a commanding new tool for criminals, terrorist financiers and other sanctions evaders to move and store illegitimate funds, out of the reach of law enforcement and other authorities.

Origins and trends of virtual currency

David Chaum, cryptography researcher, progressed first towards a virtual currency, which used cryptographically, signed tokens. This proposal paid significant attention to an untraceable, anonymous currency issued centrally and backed by banks or other financial institution. Digicash, the company Chaum started, managed only a three-year tryout at a single bank, which consequently was not pursued.

Virtual currency is a digital representation of value that can be traded digitally and functions as

1. a medium of exchange;
2. and a unit of account;
3. or a store of value,

But it does not have any legal tender status in any jurisdiction. It is neither issued nor guaranteed by any jurisdiction, and fulfils the above functions only by agreement within the community of the virtual currency users. Virtual currency is totally different from the fiat currency (i.e. real currency and money or nation currency), which is a paper and coin money of any country that it is have a legal tender; circulates and is commonly used and accepted as a medium of exchange in the issuing country. It is also distinct from e-money, which is a digital representation of fiat currency used to electronically transfer value denominated in fiat currency

II. LITERATURE REVIEW

- **Lawrence Trautman (2014)** conclude in their article that virtual currency has quickly becoming a reality, in a very short period its gaining significant traction and are rapidly evolving.
- **Saleh Alghamdi and Natalia Beloff (July 2015)** analysed in their work that virtual currency platforms and extracted many concerns and challenges that put such financial system under the risk. In virtual currency system the main concern is considered is the lack of legislations.
- **Charles W Evans (2015)** considering that in world's population, Muslims make up about 25% and that bitcoin is free of interest, he argues that the overlap between hard money advocacy and Shari'a-complaint finance in large.
- **Shailak Jani (2017)** focuses on the technology used in bitcoin & its application. And also highlights the opinion of the government of India towards bitcoin technology and also describes how bitcoin works.
- **Leela Joshi (2017)** attempt to analyze the historical trading behavior of bitcoin has been made to examine whether this virtual currency behaves like other sovereign currencies or not.
- According to **Nishad Girish Chavan (2017)** virtual currency would helps in safe and secure transaction of digital money. This would minimize the threats of damages of hard cash currency and also promote safe transaction.
- **Global Legal Research Directorate Staff (2018)**, this report provides the information about the regulation of cryptocurrency in selected jurisdictions and around the world.
- **Nandini.A (2018)** presented the strengths and weaknesses of Bit coin and analyzed what opportunities and threats it faces in the world of financial environment.

Objective of the study

- To study about the Virtual Currency, Crypto-currency and different kinds of digital currencies.
- To investigate the use of virtual currency in developing economy like India.

To analyzed the correlation between bit-coin and developing currencies fiat currency.

III. RESEARCH METHODOLOGY OF THE SUDY

On the basis of nature of the research, the study will cover qualitative and quantitative research which further will divided into descriptive research which describes the characteristics in details. For the purpose of this study, we have used the secondary data collection form websites, generals, articles and annual reports. The sample of 7 developing countries currency and bit-coin is collected and used in the study. In the research study the dataset of variables has being taken with the five years average data (min, max, %change, 1st and last price of the selected developing countries currencies) of the currencies from 2013 to 2019 which varies from one currency to another, given that the bitcoin as a cryptocurrency and the other hand the selected developing countries currencies analyzed in this research came into existence at different point of time.

Therefore the dataset as summarized:

Table: dataset

Virtual currency	Fiat currency of developing countries
Bitcoin	BDT(Bangladesh)
	PHP (Philippine)
	AFG (Afghanistan)
	INR (India)

	ZWL(Zimbabwe)
	AFA (Africa)
	CNY (Chaina)

The analysis based on past 5 year average data of crypto currency bit-coin with comparison to selected developing countries currencies. The data is taken from the coin market cap and investment.com and the analysis is done on the excel sheet and the correlation analysis is done on the basis of minimum and maximum 5 year average values of the currencies. The appropriate statistical tool will be employed for the analysis is the Correlation analysis which tells about the relationship between the cryptocurrency bit-coin and the fiat currency. The data of the currencies are based on the US dollar Base Exchange rate are directly converted from the websites.

Data analysis

Table: Comparison of Bit-coin With Developing Countries Fiat Currency(Average Data 2013-2019)

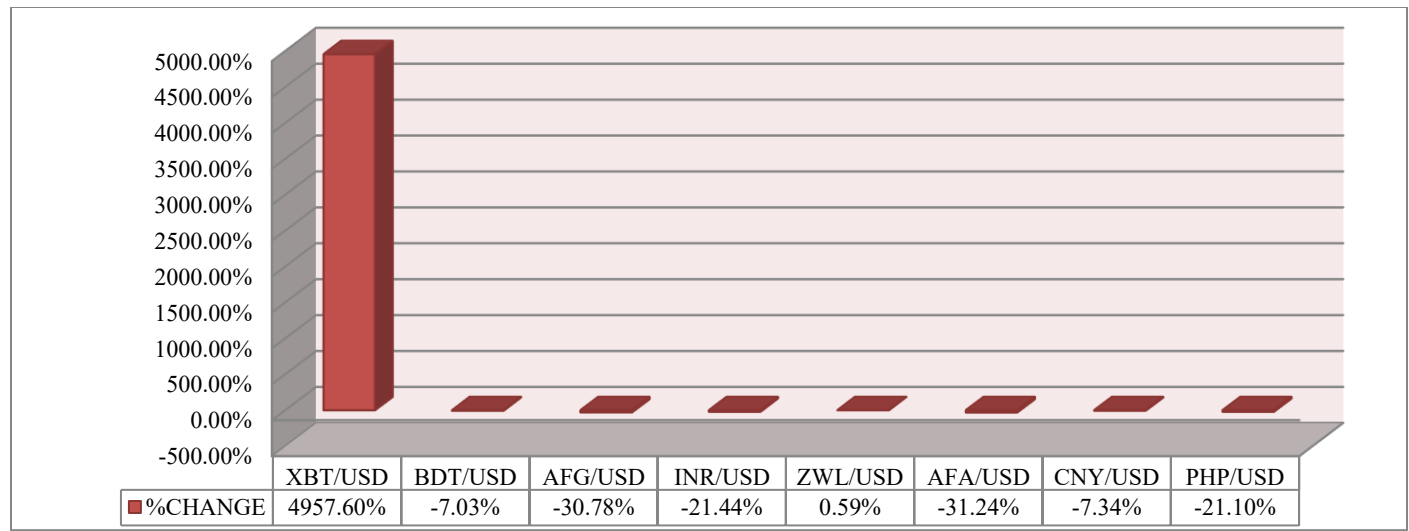
CURRENCY	XBT/USD	BDT/USD	AFN/USD	INR/USD	ZWL/USD	AFA/USD	CNY/USD	PHP/USD
MAX/MIN	187998.80%	11.42%	46.24%	38.41%	2.66%	47.29%	15.41%	33.37%
%CHANGE	4957.60%	-7.03%	-30.78%	-21.44%	0.59%	-31.24%	-7.34%	-21.10%
MAX	120006.7	0.013	0.019	0.0186	0.0032	0	0.1655	0.0245
MIN	66.3	0.0117	0.013	0.0134	0.0031	0	0.1434	0.0184
1ST	104.7	0.0128	0.0188	0.0184	0.0031	0	0.1609	0.0245
LAST	5295.3	0.0119	0.013	0.0145	0.0031	0	0.1491	0.0193

SOURCE: <http://fxtop.com/en/historical-exchange-rates-comparison>

Interpretatoin

The above data shows the difference between the bit-coin and the fiat currencies. The average data of the currencies identify that bit-coin is trade more the fiat currencies and the change of the price in 5 year bit-coin prices are surprisingly higher than the other fiat currencies. And the minimum and the maximum prices of the currencies, bit-coin prices are increasing more than the other currencies.

Figure: %change graph



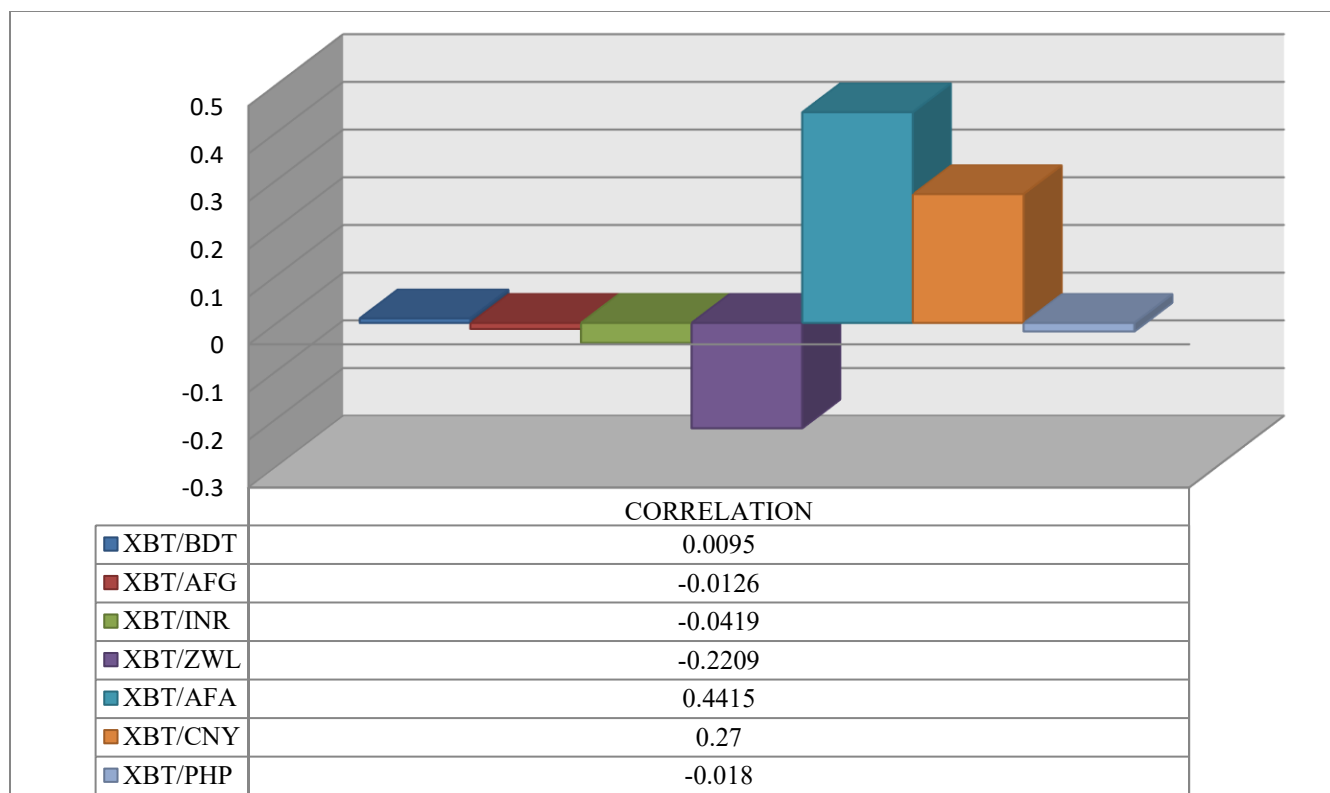
Interpretation

As per the analysis of the currency above chart analyze that change in price of Bit-coin is increasingly more than 500 times of the developing countries currency. Bit-coin price is change percentage is 4957.60% that is effectively more than the fiat currencies. Exclude the Zimbabwe currency change percentage is positive than the other fiat currency. The results showing clearly that the bitcoin traded more than the other fiat currencies science 2013 till 2015.

Table: correlation analyses on the basis of 5 year average minimum and maximum prices of the currencies

BITCOIN TO FIAT CURRENCY	CORRELATION
XBT/BDT	0.0095
XBT/AFN	-0.0126
XBT/INR	-0.0419
XBT/ZWL	-0.2209
XBT/AFA	0.4415
XBT/CNY	0.27
XBT/PHP	-0.018

Figure: Correlation 3-d bar graph



Interpretation

The results that stand out are that cryptocurrency bit-coin is somehow related to one or more fiat currencies. There is clear predominance of the currencies when it comes to getting significant correlation of some kind. The correlation analysis clearly identify that the currency of Bangladesh, Africa and China have a positive correlated with Bit-coin and the currency of Afghanistan, India, Zimbabwe, and Philippine are negatively correlated with Bit-coin.

IV. CONCLUSION

Virtual currency offers a new, attractive and effective way of payment methods that can boost company's revenue. It can also provide an alternative mode of payment, apart from the real money, that facilitates users to make the financial activity such buying, selling, exchanging and transferring the virtual goods easily. Although the virtual currency platform many channels for digital financial transaction and also provide a new form of currency with different mechanism and methods, they are not regulated and controlled as they deserve. The research analyzed a correlation analysis between virtual currency bit-coin and developing countries fiat currency. That shows clear results that the returns of bit-coin are too high by the fiat currencies returns and bit-coin is high volatile and high riskier currency then the fiat currency.

REFERENCE

1. Lawrence Trautman, "Virtual Currencies Bitcoin & What Now After Liberty Reserve, Silk Road, And Mt. Gox?", Volume 20, Issue 4, 20
2. Seitim Aiganyim, 2014, "The Usage Of Cryptocurrency as an Alternative Solution", Issue-02,
3. Shailak Jani, December 2017, "Scope for Bitcoins in India".
4. Saleh Alghamdi, N. Beloff, July 2015, "Virtual Currency Concept Its Implementation, Impacts and legislation".
5. Charles W. Evans, June 2015, "Bitcoin is Islamic Banking and Finance", vol. 3, no. 1, PP. 1-11
6. Leela Jsoshi, December 2017, "Bitcoin: Real or Virtual Currency?, Vol. 8, Issue, 12, pp. 22354-22357
7. Nandini. A, November 2018, "ASwot Analysis of Bitcoin And Cryptocurrency", Volume 5, Issue 3
8. S.M. Nasti, S.J.Nasti, R.Bashir, M.A. Butt, Jan 2018, "Bitcoin: Surveying First Revolutionary Cryptographic Virtual Currency", Volume-6, Issue-1

9. *The Law Liberty of Congress, Global Legal Research Centre, June 2018, Regulation of Cryptocurrency Around The World.*
10. Nakamoto, Satoshi, January 2009, "Bitcoin" //https://en.wikipedia.org/wiki/Bitcoin
11. <http://fxtop.com/currency-comparison/chart>
12. <http://bitcoincharts.com/charts/mtgoxUSD> (Bitcoin).
13. <http://bitcoinmarektcap/historicaldata/Bitcoin>.