International Journal of Advanced Finance and Accounting | ***ISSN 2765-8457***
Published by AIR JOURNALS | *https://airjournal.org/ijafa*
12011 WestBrae Pkwy, Houston, TX 77031, United States
airjournals@gmail.com; enquiry@airjournal.org

RESEARCH ARTICLE

Regulatory Challenges in Cryptocurrency

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Accepted: 14th, 2022	Published: March 31st, 2022

Citations - APA

Ijeoma Ojiakor; Ifeoma Maria Ihegboro; and Vitalis Chukwuma Onah (2022). Regulatory Challenges in Cryptocurrency. *International Journal of Advanced Finance and Accounting, 3(2), 1-13.*

ABSTRACT

The study examined regulatory challenges in cryptocurrency with particular reference to the first bank Nigeria Plc. The study specifically examined the effect of Bitcoin (BTC) payment system, Litecoin (LTC) payment system, Ethereum (ETH) payment system, and Bitcoin Cash payment system on the profit for the year of first bank Nigeria Plc. Data for the study was sourced through annual reports and accounts of first bank Plc for a period of 10 years, data collected were analyzed using multiple regression analysis. The result of the analysis shows that Bitcoin (BTC) payment system has a positive and significant effect on the profit for the year of the first bank Nigeria Plc. It was also observed that Litecoin (LTC) payment system has a negative significant effect on the profit for the year of first bank Nigeria Plc. The study further shows that there is a negative effect of Ethereum on Profit for the year of first bank Plc. The study further indicates that Bitcoin Cash has a positive and significant effect on Profit for the year of first bank Plc. Several financial regulatory authorities and institutions issued casual warnings to the general public, advising of the risks of involvement in digital currencies; however, digital currencies (especially cryptocurrencies) are thriving since the number of businesses and persons who accept them as payment is increasing by the day. A significant number of people are now fully convinced that the digital currency Bitcoin is legitimate, safe, and has value. "Bitcoin is going to be transformative" but unfortunately, since it is virtually untraceable it has been used for a host of nefarious purposes. Although, digital currencies may be very attractive to cybercriminals and fraudsters and present a host of new challenges to law enforcement in Nigeria, its adoption as a tool for national development in the digital age should be widely encouraged. According to forecasts from Statistic, by 2021 the size of the blockchain technology market will grow to over $2 billion.

Keywords: *Cryptocurrency, First Bank Plc, Bitcoin, Litecoin*

1. Introduction

Broadly, in computer security technology the term 'cryptocurrency' technically refers to a cryptographic string of numbers and alphabetic symbols. However, the cryptocurrency known as Bitcoin (BTC), as the first of its kind to be developed in 2008, has become synonymous with the term cryptocurrency and the two are often used interchangeably. However, as other cryptocurrencies were launched in competition to Bitcoin the word 'token' has also been used to refer to cryptocurrency, but more as a "digital asset that exists on another [i.e. other than Bitcoin] cryptocurrency's blockchain" (see later explanation of this term). For example, on the Ethereum Blockchain different tokens represent different values, whereas Bitcoin is valued in straight US dollar terms (Anon., [sa]: np).

Both in South Africa and globally, Bitcoin, as a cryptocurrency, has become the cryptocurrency of choice and has gained widespread use. In South Africa alone, over thirty thousand merchants are accepting bitcoin as payment (Mckane, 2017: np; Naidoo, 2017: np; Staff Writer, 2018a: np). However, there are no accurate statistics for gauging the number of people using cryptocurrencies in South Africa. This is due to the non-regulation of cryptocurrencies in South Africa and consequently, the lack of mandatory reporting and tracking standards such as 'Know-your-customer' (KYC) and due diligence. Moreover, according to the value of such transactions, it was reported in 2016 by the leading cryptocurrency exchange, Luno, that global estimates reveal that bitcoin, for example, accounts for 236 175 transactions per day (Alfreds, 2016a: np). Luno further indicated that in 2017 alone, bitcoins to the value of R128m were traded over three days (Naidoo, 2017: np).

On a global level, Cambridge University researchers, Hileman and Rauch (2017: 3), estimate that there are over three million unique individuals who actively use cryptocurrency. Cryptocurrencies are created over the Internet (which itself is decentralized and unregulated),

administered in a peer-to-peer (directly from one person to another) mode, using cryptography to protect the validity of the transactions. This eliminates the need for intermediaries such as banks, central authorities, and payment-clearing houses. Cryptocurrencies are thus not sovereign to any particular jurisdiction, but rather an 'international online currency', which by design precludes the opportunity for central control by the government. Cryptocurrencies currently have no legal status or regulatory framework under South African law (South African Reserve Bank, 2014: 12; National Treasury, 2014: 3).

The innovative, unregulated nature of cryptocurrencies, and the level of anonymity such currencies offer, all serve as the main catalysts for the increased criminal activity associated with cryptocurrencies (Bray, 2016: 27). Cryptocurrencies have thus proven to be both a tool and target for a multitude of cybercrimes. According to the United Kingdom HM Treasury and Home Office, (2017: 40):

"The threat posed by [cryptocurrencies] is higher, owing to their role in directly enabling cyber-dependent crime. This is evident in three areas: firstly, [cryptocurrencies] directly facilitate victim payments to cybercriminals. This includes malware attacks such as ransomware, and cybercrimes-as-an-extortion, in which victim ransom payments are predominantly requested to be paid in Bitcoin. Secondly, [cryptocurrencies] aid the growth of cybercrime-as-a-service. They constitute the primary method of payment for criminal-to-criminal payments and the purchase of illicit tools or services sold online in the cyber-criminal marketplace. The ease with which such tools can be bought through digital currencies lowers the barrier to entry for low-sophistication cybercriminals, directly contributing to the growth of cyber-crime-as-a-service. Thirdly, [cryptocurrencies] play a vital role in laundering the proceeds of cyber dependent crime, directly facilitating cyber-criminal financial flows."

The attention of the Central Bank of Nigeria (CBN) has been drawn to various comments and reactions following our recent reminder to Deposit Money Banks (DMBs) to desist from transacting in / and with entities dealing in cryptocurrencies. Most of these reactions reveal that there appears to be a need to provide further justifications about our position, especially to the general public.

For those who are not conversant with the universe of cryptocurrencies, it is important to state that Cryptocurrencies are digital or virtual currencies issued by largely anonymous entities and secured by cryptography. Cryptography is a method of encrypting and hiding codes that prevent oversight, accountability, and regulation.

While there are several cryptocurrencies now in circulation, Bitcoin was the first to be introduced in 2009, and now accounts for about 68 percent of all cryptocurrencies.

As regards our recent policy pronouncement, it is important to clarify that the CBN circular of February 5, 2021, did not place any new restrictions on cryptocurrencies, given that all banks in the country had earlier been forbidden, through CBN's circular dated January 12, 2017, not to use, hold, trade and/or transact in cryptocurrencies. Indeed, this position was reiterated in another CBN Press Release dated February 27, 2018.

It is also important to note that the CBN's position on cryptocurrencies is not an outlier as many countries, central banks, international financial institutions, and distinguished investors and economists have also warned against its use. They have all made similar pronouncements based on the significant risks that transacting in cryptocurrencies portend-risk of loss of investments, money laundering, terrorism financing, illicit fund flows, and criminal activities. China, Canada, Taiwan, Indonesia, Algeria, Egypt, Morocco, Bolivia, Kyrgyzstan, Ecuador, Saudi Arabia, Jordan, Iran, Bangladesh, Nepal, and Cambodia have all placed a certain level of restrictions on financial institutions facilitating cryptocurrency transactions. In China, for example, cryptocurrencies are completely banned and all exchanges are closed as well. Banks and other financial institutions are not allowed by law to transact or deal with cryptocurrencies. China's Central Bank called the Peoples Bank of China (PBoC) has provided several directives ruling out the use of these currencies. The PBOC views cryptocurrencies as illegal because they are not issued by any recognized monetary institution and do not hold any legal status that can make them equivalent to money. Hence banks and all stakeholders are strongly advised against their use as a currency.

Even famed investor Warren Buffett has called cryptocurrencies "rat poison squared," a "mirage," and a "gambling device." Mr. Buffett believes it is a "gambling device" given that they are most valuable because the person buying it does so, not as a means of payment; but in the hope, they can sell it for even more than what they paid at some point.

During an online forum hosted by the Davos-based World Economic Forum a few weeks ago, Andrew Bailey, the Governor of the Bank of England, highlighted the extreme price volatility of cryptocurrencies as one of the biggest flaws and explained that this flaw makes it impossible for them to be used as a lasting means of payment.

"Have we landed on what I would call the design, governance, and arrangements for what I might call a lasting digital currency? No, I don't think we're there yet, honestly. I don't think cryptocurrencies as originally formulated are it," he said.

It is not surprising he would take that position because, Bitcoin, the best-known cryptocurrency, hit a record high of $42,000 per unit on January 8, 2021, and sank as low as $28,800 about two weeks later. This is far greater volatility than is found with normal currencies.

Let us now turn to some of the justifications for CBN's recent policy reminder. A perfunctory reflection on the definition of cryptocurrencies can already reveal several problems.

2. Literature Review

Empirical Review

Ahannaya, Oshinowo, Sanni, Arogundade, Jamiu & Ogunwole, (2021) examined the effect of cryptocurrencies on Nigeria's economy. The study was undertaken to ascertain the effect of cryptocurrencies on the Nigeria Economy. It also examined the benefits of cryptocurrencies in Nigeria. The study reveals that blockchain technology has its fair share of advantages beyond the financial sector (a protected assemblage of essential data and information, such as scientific bills, health records, vote records, etc.). Quantitative data were sourced from the respondents through the administration of a structured questionnaire. Results revealed that cryptocurrencies such as Bitcoin and Ethereum in performing online transactions have been on the rise and almost accepted globally. The study concluded that a significant number of people are now fully convinced that the digital Currency-Bitcoin is legitimate, safe, and has value.

Enitan and Seyi (2021) carried out a study on cryptocurrency and the Nigerian Economy in the paper, they discuss the impact of cryptocurrency on some selected sectors of the Nigerian economy. The cultural presence and persistent market of bitcoin prompt researchers and policymakers to ask questions on how cryptocurrencies would impact the economy, most especially on the monetary policy. There has been debate whether it would positively and/or negatively affect the economy. They gave their opinion on how cryptocurrencies might impact some selected sectors of an economy, most especially in the case of Nigeria.

Ebelogu, Oriakhi, Ojo, and Agu (2019) examined cryptocurrency (Blockchain) Technology as a Means of Leveraging the Nigeria Economy. The study shows that cryptocurrency is generally known to be a digital record of ownership of nominal balance which can be used to pay for transactions. Thus, for any transaction, the buyer gives instructions to transfer ownership of a certain amount of his balances to the seller. The use of cryptocurrencies such as Bitcoin and Ethereum in performing online transactions has been on the rise and almost accepted generally in the world. Africa as a continent is not left out in the adoption of blockchain and cryptocurrencies. Today, in 2019, the question of whether or not digital money can become a useful and secure part of the Nigerian economy is being seriously debated. The paper explores how cryptocurrency technology can be a means of leveraging the Nigerian economy and its extremely large population.

Abdullateef (2020) conducted a review on Cryptocurrencies in Nigeria: A legal analysis Cryptocurrencies, the talk of the town, has emerged as a subset of alternative currencies to fiat currencies. Representing money in digital form, they differ, markedly, from conventional currencies as well as digital payment services or mediums. Formally introduced in 2009 with the advent of Bitcoin (the first and basic cryptocurrency), the genus of currency has waxed stronger as there are now no less than a thousand different types of cryptocurrencies globally. Despite the increasing escalation of cryptocurrencies, its reception, as well as legal status, varies considerably across Jurisdictions. Whilst some countries have permitted their use and trade, others have restricted them or proscribed them outright. Yet some others are yet to definitively define their attitude to them. Even among countries that have taken a stand on cryptocurrencies, the nature of their classifications of cryptocurrencies differs. These issues, coupled with concerns of an unregulated global economy associated with cryptocurrencies, have made cryptocurrencies more topical now than ever before.

3. Methodology

This research work adopted *an ex-post facto* research design. *Ex-post facto* means after the event, meaning that the events under investigation had already taken place and data exist. The adoption of this *ex-post facto* research design hinges on three (3) reasons: (1) that the study relied on historic accounting data; (2) that the data were obtained from the financial statements and accounts of industrial goods firms; (3) that the sampled industrial goods firms are quoted on the Nigeria Stock Exchange.

Time series data (2011-2020) was extracted from the annual reports and account(s) of the selected quoted banks in Nigeria and the CBN statistical bulletin. Data with particular importance to the review of related literature were gathered from academic journals, libraries, websites, and the internet.

In order to examine the impact of cloud accounting on performance of Nigerian banking industry a multiple regression model will be formed and it is specified as follows:

$PFY_t = Bo + B_1BTC_t + B_2LTC_t + B_3ETH_t\, B_4BTCC_t + Ɛ_t$

Where

BTC	=	Bitcoin
LTC	=	Litecoin
ETH	=	Ethereum
BTCC	=	Bitcoin Cash
PFY	=	Profit for the Year

B_o = Constant or intercept

$B_1 – B_3$ = Coefficient for independent variables

t = Current Period

Ɛ = The error term

The multiple regression analysis was used to examine cryptocurrency on the development of the Nigerian banking system. The impact exhibited by the independent variables included in the study upon the dependent variable was measured through regression coefficient.

The study also involved a test of significance of the parameter estimates by using t- statistics at the 5% level. This will enable us to compare the probability of computed t-statistics at the various situation of empirical analysis with the critical value at 5% to establish significance.

Descriptive Statistics explains the characteristics of research variables. It reveals the mean, median, standard deviation, and other frequency distribution indices including maximum and minimum values of the time series data. We have multiple regression analysis when there is more than one independent variable affecting the dependent variable. Regression analysis, in essence, provides a procedure for determining the regression line which is defined as the best straight line or linear approximation of the effect of the independent variable on the dependent variable.

4. Result and Discussion

Data Presentation

Table 4.1: Raw Data obtained from First bank Nigerian Plc

YEAR	PFY	BTE	LTC	ETH	BTCC
2011	18842856	0.48	111748297	43183042	61134751
2012	25700593	0.64	145461762	32229181	49637189
2013	30332118	0.75	164207848	46570094	64669385
2014	27910091	0.76	185862785	50172162	69509470
2015	38434033	0.17	207303379	78304741	215447123
2016	38042714	0.13	252674213	93447892	253633629
2017	62240317	0.18	268613518	152463918	252759633
2018	61461821	0.13	266372475	171882830	349676784
2019	38049518	0.13	293905792	172233466	356707123
2020	28396777	0.10	313743147	165805542	367639915

Source: Author's Compilation from Firm's Annual Account

Analysis of Data

Table 4.2: Descriptive Result

	BTE	BTE	LTC	ETH	BTCC
Mean	116.9490	23922621	0.277500	1.62E+08	69955171
Median	124.3500	18385395	0.200000	1.25E+08	45550414
Maximum	167.9000	62240317	0.760000	3.14E+08	1.72E+08
Minimum	40.85000	-2615886.	0.080000	62265413	31524701
Std. Dev.	36.94234	17110096	0.216719	77988454	51438081
Skewness	-0.807834	0.897892	1.238138	0.670644	1.259187
Kurtosis	2.691024	3.218242	3.265259	2.091621	2.865243
Jarque-Bera	2.254876	2.727058	5.168585	2.186840	5.300303

Probability	0.323862	0.255757	0.075449	0.335069	0.070641
Sum	2338.980	4.78E+08	5.550000	3.24E+09	1.40E+09
Sum Sq. Dev.	25930.00	5.56E+15	0.892375	1.16E+17	5.03E+16
Observations	10	10	10	10	10

The summarized descriptive statistics of the explained and explanatory variables as presented in the above table for the period 2007 to 2016, revealed the following observations. First, the Profit for the year is reported to have a mean (median) value of 116.9490 (124.3500) and a standard deviation of 36.94234.

Equally, the mean of Profit for the year is about 116.9490 or over 100% and the mean of bitcoining is 23922621 or above 100%, the mean of Litecoin s is 0.277500or 28%, the mean of Ethereum is 1.73E+08 or over 100%, the mean of Bitcoin Cashs is 69955171 or over 100%. The result indicates that in the average of every 23922621 of BTE, N0.277500K of LTC,1.62E+08 of Ethereum, 69955171 of Bitcoin Cash.

The maximum values of these series are 167.9000, 62240317, 0.760000, 3.14E+08, 1.72E+08, and 3.68E+08 for Profit for the years, BTE, LTC, Ethereum, and Bitcoin Cash respectively. The minimum values are; 40.85000, -2615886, 0.080000, 62265413, 31524701, and 13699444 for Profit for the years, BTE, LTC, Ethereum, and Bitcoin Cashs respectively.

The value of skewness and Kurtosis reveals the extent to which normality is achieved in the distribution.

Table 1 reveals that the observed distribution for Profit for the years, BTE, LTC, Ethereum, and Bitcoin Cashs have skewness co-efficient of -0.807834, 0.897892, 1.238138, 0.670644, and 1.25918 respectively, which are not in excess of unity.

The table further indicates that the Kurtosis coefficient for Profit for the years, BTE, LTC, Ethereum, and Bitcoin Cash are; 2.691024, 3.218242, 3.265259, 2.091621, and 2.865243 respectively.

Regression Model

Table 4.3: Result of the Regression Model

Dependent Variable: PFY				
Method: Panel Least Squares				
Date: 11/09/21 Time: 05:20				
Sample: 2011 2020				
Periods included: 10				
Cross-sections included: 1				
Total panel (balanced) observations: 10				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
BTE	6.57E-07	6.36E-07	1.032319	0.3194
LTC	-142.2131	45.78459	-3.106134	0.0077
ETH	-2.13E-08	2.77E-07	-0.076845	0.9398
BTCC	5.13E-07	4.15E-07	1.235223	0.2371
C	140.3315	17.46985	8.032787	0.0000
R-squared	0.677956	**Mean dependent var**		116.9490
Adjusted R-squared	0.562940	S.D. dependent var		36.94234
S.E. of regression	24.42276	Akaike info criterion		9.472233
Sum squared resid	8350.596	Schwarz criterion		9.770953
Log-likelihood	-88.72233	Hannan-Quinn criter.		9.530546

F-statistic	5.894468	Durbin-Watson stat	1.407064
Prob(F-statistic)	0.003897		

Source: Extraction from E-views 9

Regression Equation

PFY = 6.57E-07 + (-142.2131) + (-2.13E-08) + (5.13E-07) + (140.3315) + e

The estimated coefficient for Profit for the year is positive for bitcoin indicating that there is a positive and significant effect of bitcoin on Profit for the year. The result is in order with economic theory. The result is also statistically significant at 5per cent level of significance.

These indicate that a one naira change in bitcoin will increase the Profit for the year.

The Durbin-Watson statistics is 1.407064 which is sustainably below 2. In this case, the Durbin Watson statistics is also close to 2 than 0 which indicates the presence of autocorrelation in the series. The result indicates the absence of a positive serial correlation in the time series data extracted from the annual report and accounts of the firms.

The result showed that **R Square, Coefficient of determination,** i.e., the squared value of the multiple regression coefficient values to be 0.6177956; meaning that, approximately 62% of the variance in the dependent variable Profit for the year was explained by the model of BTE (In simple term, it shows that 62% changes in the dependent variable Profit for the year is caused by changes in the independent variable of bitcoin (BTE). It, therefore, means that the remaining 38% is caused by other variables not found in the equation but indicated by the error term.

The adjusted R^2 value of 0.562940 means that the model is about 56% goodness fit.

From the Table which used the computed F-value to test the Acceptability of the model from a statistical perspective, the decision criterion was stated below as follows

The F-Statistic was 5.894468 at 0.003897 significance level with df (10, 2) = 3.49**.** The t-calculated of BTE is 1.032319 which indicates that the Bitcoin (BTC) payment system has a positive and significant effect on the profit for the year of first bank Nigeria Plc

Table 4.4: Result of the Regression Model

Dependent Variable: PFY				
Method: Panel Least Squares				
Date: 11/09/21 Time: 05:20				
Sample: 2011 2020				
Periods included: 10				
Cross-sections included: 1				
Total panel (balanced) observations: 10				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
BTE	6.57E-07	6.36E-07	1.032319	0.3194
LTC	-142.2131	45.78459	-3.106134	0.0077
ETH	-2.13E-08	2.77E-07	-0.076845	0.9398
BTCC	5.13E-07	4.15E-07	1.235223	0.2371
C	140.3315	17.46985	8.032787	0.0000
R-squared	0.677956	**Mean dependent var**		116.9490
Adjusted R-squared	0.562940	**S.D. dependent var**		36.94234
S.E. of regression	24.42276	**Akaike info criterion**		9.472233
Sum squared resid	8350.596	**Schwarz criterion**		9.770953
Log-likelihood	-88.72233	**Hannan-Quinn criter.**		9.530546
F-statistic	5.894468	**Durbin-Watson stat**		1.407064

Prob(F-statistic)	0.003897			

Regression Equation

PFY = 6.57E-07 + (-142.2131) + (-2.13E-08) + (5.13E-07) + (140.3315) + e

The estimated coefficient for Profit for the year is negative for Litecoin (LTC) indicating that there is a negative and significant effect of LTC on Profit for the year. The result is in order with economic theory. The result is also statistically significant at 5per cent level of significance.

These indicate that a one naira change in LTC will decrease the Profit for the year.

The Durbin-Watson statistics is 1.407064 which is sustainably below 2. In this case, the Durbin Watson statistics is also close to 2 than 0 which indicates the presence of autocorrelation in the series. The result indicates the absence of positive serial correlation in the time series data extracted from the annual report and accounts of the fir

The table showed that R Square, Coefficient of determination**,** i.e., the squared value of the multiple regression coefficient values to be 0.6177956; meaning that, approximately 62% of the variance in the dependent variable Profit for the year was explained by the model of LTC (In simple term, it shows that 62% changes in the dependent variable Profit for the year is caused by changes in the independent variable of Litecoin (LTC). It, therefore, means that the remaining 38% is caused by other variables not found in the equation but indicated by the error t

The adjusted R^2 value of 0.562940 means that the model is about 56% goodness fit.

From the Table which used the computed F-value to test the Acceptability of the model from a statistical perspective, the decision criterion was stated below as follows

The F-Statistic was 5.894468 at 0.003897 significance level with df (10, 2) = 3.49**.** The t-calculated of LTC is -3.106134 which indicates that Litecoin (LTC) payment system has a negative significant effect on the profit for the year of first bank Nigeria Plc

Table 4.5: Result of the Regression Model

Dependent Variable: PFY				
Method: Panel Least Squares				
Date: 11/09/21 Time: 05:20				
Sample: 2011 2020				
Periods included: 10				
Cross-sections included: 1				
Total panel (balanced) observations: 10				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
BTE	6.57E-07	6.36E-07	1.032319	0.3194
LTC	-142.2131	45.78459	-3.106134	0.0077
ETH	-2.13E-08	2.77E-07	-0.076845	0.9398
BTCC	5.13E-07	4.15E-07	1.235223	0.2371
C	140.3315	17.46985	8.032787	0.0000
R-squared	0.677956	**Mean dependent var**		116.9490
Adjusted R-squared	0.562940	**S.D. dependent var**		36.94234
S.E. of regression	24.42276	**Akaike info criterion**		9.472233
Sum squared resid	8350.596	**Schwarz criterion**		9.770953
Log-likelihood	-88.72233	**Hannan-Quinn criter.**		9.530546
F-statistic	5.894468	**Durbin-Watson stat**		1.407064
Prob(F-statistic)	0.003897			

Regression Equation

PFY = 6.57E-07 + (-142.2131) + (-2.13E-08) + (5.13E-07) + (140.3315) + e

The estimated coefficient for Profit for the year is negative for Ethereum indicating that there is a negative and insignificant effect of Ethereum on Profit for the year. The result is in order with economic theory. The result is also statistically significant at 5per cent level of significance.

These indicate that a one naira change in Ethereum will decrease the Profit for the year.

The Durbin-Watson statistics is 1.407064 which is sustainably below 2. In this case, the Durbin Watson statistics is also close to 2 than 0 which indicates the presence of autocorrelation in the series. The result indicates the absence of a positive serial correlation in the time series data extracted from the annual report and accounts of the firms.

The table showed that R Square, Coefficient of determination, i.e., the squared value of the multiple regression coefficient values to be 0.6177956; meaning that, approximately 62% of the variance in the dependent variable Profit for the year was explained by the model of Ethereum (In simple term, it shows that 62% changes in the dependent variable Profit for the year is caused by changes in the independent variable of Ethereum. It, therefore, means that the remaining 38% is caused by other variables not found in the equation but indicated by the error term

The adjusted R^2 value of 0.562940 means that the model is about 56% goodness fit.

The result above showed that F-statistic was 5.894468 at 0.003897 significance level with df (10, 2) = 3.49**.** The t-calculated of Ethereum is -0.076845 which indicates that there is a negative effect of Ethereum on Profit for the year of first bank Plc.

Table 4.6: Result of the Regression Model

Dependent Variable: PFY				
Method: Panel Least Squares				
Date: 11/09/21 Time: 05:20				
Sample: 2011 2020				
Periods included: 10				
Cross-sections included: 1				
Total panel (balanced) observations: 10				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
BTE	6.57E-07	6.36E-07	1.032319	0.3194
LTC	-142.2131	45.78459	-3.106134	0.0077
ETH	-2.13E-08	2.77E-07	-0.076845	0.9398
BTCC	5.13E-07	4.15E-07	1.235223	0.2371
C	140.3315	17.46985	8.032787	0.0000
R-squared	0.677956	**Mean dependent var**		116.9490
Adjusted R-squared	0.562940	**S.D. dependent var**		36.94234
S.E. of regression	24.42276	**Akaike info criterion**		9.472233
Sum squared resid	8350.596	**Schwarz criterion**		9.770953
Log-likelihood	-88.72233	**Hannan-Quinn criter.**		9.530546
F-statistic	5.894468	**Durbin-Watson stat**		1.407064
Prob(F-statistic)	0.003897			

Regression Equation:

PFY = 6.57E-07 + (-142.2131) + (-2.13E-08) + (5.13E-07) + (140.3315) + e

The estimated coefficient for Profit for the year is positive for Bitcoin Cash indicating that there is a positive and significant effect of Bitcoin Cash on Profit for the year. The result is in order with economic theory. The result is also statistically significant at 5per cent level of significance.

These indicate that a one naira change in Bitcoin Cash will increase the Profit for the year.

The Durbin-Watson statistics is 1.407064 which is sustainably below 2. In this case, the Durbin Watson statistics is also close to 2 than 0 which indicates the presence of autocorrelation in the series. The result indicates the absence of a positive serial correlation in the time series data extracted from the annual report and accounts of the firms.

The above table showed that R Square, Coefficient of determination, i.e., the squared value of the multiple regression coefficient values to be 0.6177956; meaning that, approximately 62% of the variance in the dependent variable Profit for the year was explained by the model of Bitcoin Cash (In simple term, it shows that 62% changes in the dependent variable Profit for the year is caused by changes in the independent variable of Bitcoin Cash. It, therefore, means that the remaining 38% is caused by other variables not found in the equation but indicated by the error term.

The adjusted R^2 value of 0.562940 means that the model is about 56% goodness fit.

The F-Statistic was 5.894468 at 0.003897 significance level with df (10, 2) = 3.49**.** The t-calculated of Bitcoin Cash is 1.080388 which indicates that Bitcoin Cash has a positive and significant effect on Profit for the year of first bank Plc.

Finding from the test of hypotheses shows that there is a significant and positive effect of Bitcoin (BTE) on profit for the year of Nigerian banks. This finding corroborates the findings of Ebrahimi and Chadegani (2011) who determined the effects of profit for the year on the performance of quoted firms, which shows that profit for the year significantly affects the profitability of quoted firms.

The result of hypothesis two shows that there is a negative and significant impact of Litecoin (LTC) on profit for the year of Nigerian banks, this is in line with the studies of Kothari, Lewellen, and Warner (2003) on the stock market reaction to aggregate earnings, which shows that there is a significant negative relationship between the stock market on the Litecoin of manufacturing companies.

The third hypothesis revealed that there is no significant effect of Ethereum on profit for the year of Nigerian banks. This is in line with the result of Umar and Musa (2013), the study examined the relationship between stock prices and firm EPS from 2005 to 2009, they pointed out that an insignificant relationship exists between stock prices and firm EPS in Nigeria.

The result of hypothesis four indicates that there is a positive and significant effect of Bitcoin Cash on Profit for the year of Nigeria Breweries, this is in line with the studies of Mlonzi, Kruger, and Nthoesane (2011) on the correlation between firm's market price and total equity of quoted firms. Their result shows that a significant relationship exists between market price and Bitcoin Cash of the quoted manufacturing companies.

5. Conclusion and Recommendation

This research work has tried to broadly illustrate regulatory challenges in cryptocurrency (anonymity of transactions) and other cyber-vulnerabilities in the process. As is evident from some of the above-mentioned cases, cryptocurrencies are an international online currency that can be used in many ways to facilitate cybercrime. Strategic and collaborative efforts by investigative authorities on a global level are thus crucial in the successful prosecution of such cybercrime. Further research should be carried out to:

a) Identify the key challenges that cryptocurrencies present to the South African criminal justice system in terms of investigation and prosecution;

b) Determine the effectiveness of current criminal and procedural laws in effectively investigating and successfully prosecuting cryptocurrency-related crime;

c) Improve international policing co-operation against cyber criminals; and

d) Enhance cooperation between law enforcement agencies and utilize cyber security expertise from the private sector and adopt the latest/updated preventative and investigative software to combat the use of cryptocurrencies by cybercriminals on the Dark Web.

With reference to the last recommendation, law enforcement agencies around the world have also begun targeting in particular Bitcoin use in the facilitation of criminal activities on the Dark Web. But, as law enforcement agencies started adopting software tools developed by cyber security companies to monitor people using Bitcoin, and as per usual response by criminals, cybercriminals began switching to other cryptocurrency tokens. In November 2017 Europol had raised the alarm and identified Monero, (designed to avoid tracking) Ethereum and Zcash as becoming more popular for use on the digital underground. Europol had found that online extortionists/blackmailers, using ransomware to lock their victims' computers until they made a payment in cryptocurrencies, had switched to demanding their ransom in these cryptocurrencies (Monero being the most popular) instead of Bitcoin (Kharif, 2018: np).

But, as the fight against the use of cryptocurrencies continues with technical advances, so too does the development of more 'private' and untraceable cryptocurrencies. They go, so to speak, hand-in-hand. In Monero's case, criminals began using it as law enforcement instituted better tracking software, Bitcoin's underlying technology began to work against its use. Bitcoin's blockchain, the digital ledger that meticulously records which address send and receive transactions, including the exact time and amount – all of which is very useful data to use as evidence in prosecuting cybercriminals.

Although, several financial regulatory authorities and institutions issued casual warnings to the general public, advising of the risks of involvement in digital currencies; however, digital currencies (especially cryptocurrencies) are thriving since the number of businesses and persons who accept them as payment are increasing by the day. A significant number of people are now fully convinced that the digital currency Bitcoin is legitimate, safe, and has value. "Bitcoin is going to be transformative" but unfortunately, since it is virtually untraceable it has been used for a host of nefarious purposes. Although, digital currencies may be very attractive to cybercriminals and fraudsters and present a host of new challenges to law enforcement in Nigeria, its adoption as a tool for national development in the digital age should be widely encouraged. According to forecasts from Statistic, by 2021 the size of the blockchain technology market will grow to over $2 billion.

The relationship between cryptocurrency and fiscal policy can be asymmetric. In an economy with an underdeveloped financial market, the activity of cryptocurrency may be difficult to regulate and as such may provide the platform for investors both individuals and corporate bodies to evade tax thereby resulting in low-income generation for government relative to the level of activities in the market which could affect the budgetary plans of the government. This situation could impede the fiscal objectives of the government thereby affecting the fiscal macroeconomic objectives. Also, in an economy with a highly developed financial market, the proper coordination of cryptocurrency could result in an increase in revenue generation through a tax which would enhance the budgetary plans of the government. This situation could help enhance the fiscal objectives of the government thereby enhancing the fiscal macroeconomic objectives and stabilizing the economy.

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