Conjuncture Fluctuation Effect from Commodity Supercycle Pattern:
Empirical Case Between Velocity and Risk Factor on Return Cryptocurrency in Indonesia

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ABSTRACT

This research type is quantitative version with population, particularly 5 cash of cryptocurremcies with the largest market caps in Indonesia, specifically Bitcoin, Ethereum, Ripple, Bitcoin cash, Litecoin in Indonesia. Varians data in this examine is time series facts taken from January 2017 to December 2020 by using conducting a documentation look at carried out at the ebook of monthly digital assets transaction reports, in order that the target population is 240 (four years x 12 months x five cash) monthly report information sampels. The evaluation approach of records on this take a look at makes use of mild Regression analysis (MRA) model regression and information analysis the usage of e-views statistical software. Cryptocurrency is an funding commodity which could generate returns and already has a license to be traded in trade trading through the Indonesian Commodity Futures trading Regulatory organisation. This studies is added a brand new idea of motion crypto asset that we called it pace. on this second we use velocity Token approach that adapted from the monetary Equation of change via economists known as the quantity principle of money, and its model might be large motion with the aid of token costs. in line with this approach , low speed method that crypto assets last longer within the pockets , that means that traders who to begin with attempted to invest on asset purchases speedy are actually turning to holders, or individuals who keep crypto for the long time. Many quite a variety of crypto virtual belongings traded in Indonesia through the trading corporation Indodax. The effects of records analysis within the examine show that coal price efeect has a advantageous however no longer good sized on virtual assets returns in order that it could be justified as a effective hazard evaluation model. pace of cryptocurrency does not moderate the have an impact on of coal rate on digital belongings returns.

Keywords: Return Cryptocurrency, Velocity of Cryptocurrency, Coal Price, Commodity Supercycle.

1.INTRODUCTION

The cryptocurrency Bitcoin is the first decentralized peer-to-peer charge community that fully managed via its users without any vital authority or middleman regulatory. when regarded from the user's point of view, Bitcoins are much like cash inside the internet international. Bitcoins cannot be cashed however may be used to buy goods at the net. Bitcoin is produced thru facts encryption and certain algorithms. Bitcoins cryptocurrency makes use of a peer-to-peer topology gadget and lacks a single administration, making its price unable to be manipulated by using authorities or governments, and does no longer cause inflation if Bitcoin production will increase.

Investments in digital currencies or cryptocurrencies are increasingly more vast at some point of the world, along with in Indonesia, thinking about that the capacity earnings for cryptocurrencies is extraordinarily high, although at the identical time the dangers faced via buyers also are excessive. The excessive earnings ability of virtual assets investment is supported through charge increases that arise beyond commonsense as indicated by using price of the cryptocurrencies highest coin, namely Bitcoin as of December 31, 2016 which changed into at the level people\$ 960 consistent with 1 BTC. And on December 31, 2017 the rate of 1 BTC became

equivalent to US $ 12,952, from this reality the go back of Bitcoin reached 1.250% in a yr (www. coinmarketcap.com, accessed June 27, 2021).

Bitcoin is again inside the highlight because it controlled to interrupt via the charge of USD 11 thousand or Rp. a hundred and fifty five million (USD 1 = Rp. 14,159). In reality, in June 2018 the price of Bitcoin became nevertheless inside the range of USD 6,500 or around Rp. 93 million, the charge of Bitcoin has jumped 170 % up to now this year. The increase in Bitcoin additionally boosted the rate of digital assets which includes Ethereum which doubled. There are numerous factors that made the rate of Bitcoin skyrocket, as an example the increasing hobby of investors on this coin. any other factor is the presence of Libra . This charge boom is due to most important factors, first is the consensus many of the investment community that Bitcoin is a legitimate medium of exchange within the digital technology, and second, the launch of fb's digital coin, Libra, has forced every CEO to don't forget digital property severely.

moreover, the factors that influence the return on cryptocurrency funding are commodity fees including gold prices and reference coal expenses, that are fellow funding commodity products. in the funding global, gold become initially used as an funding in case while economic situations were unsure. but, along side the development of the funding world, gold can now be used as one of the most important investments to help an funding portfolio.

1.1 Coal Price

Coal is a fossil fuel. the overall definition is sedimentary rock that can be burned, shaped from organic deposits, specifically plant remains formed via the coalification process. the principle factors are carbon, hydrogen and oxygen. The benchmark global coal rate is received from the Intercontinental trade marketplace (ICE) trading originating from the us and running on-line international. consistent with Sumani's (2012) research on coal prices and the joint inventory rate index on inventory returns of mining companies, the end result display that the commodity charges on coal and the joint stock charge index have good sized effect at the inventory returns of coal mining corporations. This study result display in accordance with leading indicator concept, conventional stock valuation idea, and wealth impact idea. in the meantime, in other commodity funding sectors, the high index increase in the mining sector shows top notch investor interest in mining region shares which might be seen as profitable funding alternatives.

this could additionally greatly have an effect on investment in the virtual belongings marketplace in Indonesia, and based on statistics on March 30, 2012 it's

miles acknowledged that the full market capitalization price within the mining industry reaches Rp. 458.7 trillion or 12% of the entire marketplace capitalization cost of Rp. three, 877.five trillion, ranked 1/3 in phrases of commercial capitalization after the financial region and infrastructure, utilities and transportation sectors. (www.idx.co.id)

1.2 Research Objectives

in this study, there are objectives to be completed, particularly to determine and observe the effect of reference coal prices and international gold expenses on virtual assets returns, then to take a look at pace of cryptocurrency as a moderating variable inside the courting between reference coal expenses and international gold prices on virtual assets returns.

2. LITERATURE REVIEWS
2.1 Market Microstucture Theory

Easley & O'Hara (1995) stated that the marketplace Micro shape is " The have a look at of the system and effects of replacing belongings beneath express buying and selling regulations." O'Hara's idea genuinely states that this study discusses how asset expenses are fashioned in a marketplace with current buying and selling policies. Frino et all (2004) said "market Microstructure is the branch of financial economics that investigates buying and selling and the business enterprise of markets". This statement explains that marketplace microstructure is a department of economic economics that investigates inventory trading and marketplace employer. Hasbrouck (2007) shared thet market microstructure studies "The have a look at of the mechanisms used for economic buying and selling securities."

Hasbrouck's statement is clearer and more targeted than O'hara's where it's far in reality stated to have a look at the transaction mechanism utilized in financial securities. the focus of debate of this look at affords an outline of how securities are.

2.2 Signaling Theory

Signaling idea is an effect that arises from the declaration of economic statements which can be captured with the aid of customers of financial statements specifically for investors. Signaling impact generated from the brand new statistics, and not by way of the difficulty that happened a bag base signaling motivation, control forced to provide the earnings document that led to the staying power of earnings (S. Penman & Reggiani, 2013) . The persistence of sustainable earnings is expressed as income that have high nice. Conversely, if unsustainable profits are declared as profits which have poor high-quality (SH Penman, 2004). in the meantime, Fama & French (2002)

stated that a agency's earnings this is sustainable may have an predicted dividend yield to grow desk bound.

regarding the signaling motivation concept, disclosure of financial records can provide an amazing signal accurate news or a awful sign to the customers of the agency's financial statistics. Signaling principle can explain that signaling is achieved through managers to lessen records asymmetry. Managers can provide statistics on their performance through economic statements by making use of conservatism accounting policies that may produce higher excellent profits due to the fact this precept prevents organizations from exaggerating profits and facilitates users of financial statements by means of supplying profits and property that are not overstate (Jama' an, 2008).

2.3 Arbitrage Pricing Theory (APT)

Arbitrage Pricing principle is an alternative model of CAPM for valuing economic assets. The concept used in Arbitrage Pricing idea is the law of the only charge. If the property with the same traits are less costly at exceptional charge, there might be an opportunity to do arbitrage by buying assets and at the same time selling them at a higher price that allows you to get a danger-unfastened earnings. Arbitrage Pricing principle become based on the basis that investment possibilities with the equal traits cannot be offered at distinctive expenses.

Arbitrage Pricing concept turned into prepared based totally on five simple assumptions. First, the capital market is believed to be in perfect competition situations. second, buyers have homogeneous expectations of the go back on each inventory. 1/3, this return expectation comes from various of things which have a linear affect. The fourth assumption, standard elements accommodate all the systematic threat of the analyzed assets. The 5th assumption is that the range of common factors is much much less than the wide variety of belongings analyzed.

The process of incomes a return (return-producing method) via APT can be formulated as follows..

$$Ri = E(R_i) + {}_1(RF_1 - E(RF_1)) + ... + {}_N(RF_N - E(RF_N)) + ei$$

where:
Ri_i = rate of *return on* asset i that occurs
$E(R_i)$ = expected rate of return on asset i
$_{1...N}$ = systematic risk of the asset to factor 1...factor N
$E(RF_1)...E(RF_N)$ = expected rate of profit from factor 1...factor

According to Andri (2010), to calculate the expected securities income in the APT model, the following formula can be used:
$$E(Ri,t) = i + i1F1t + i2F2t + ... + ik Fkt$$
Information :

$E(Ri,t)$ = the expected level of income of security i in period t.
i = constant
ik = sensitivity of I securities earnings to factor k
Fkt = k factor that affects income in period t
eit = *random error*

2.4 Risk Management Concept

hazard management may be described as a dependent and systematic process of identifying, measuring, mapping, developing alternative chance management, and tracking and controlling the implementation of threat management. companies are always faced with numerous styles of dangers (Djohanputro, 2008) . management's potential to control those various varieties of dangers is a have to. That situation intended by means of hazard management in line with Oliver (2013) are the techniques utilized by management to cope with various problems caused by the presence of threat.

primarily based on the investment context, it is suitable for investment managers or traders individually if you want to manage the dangers they will face, risk control may be carried out with many methods, in particular on inventory exchanges and crypto digital asset markets which can be very prone to dangers each from within essentially belongings and groups in addition to destiny dangers from external parties.

in line with Wati & Darda (2012) chance control is the implementation of management functions in overcoming risks, mainly the risks confronted by way of corporations/agencies, families and communities. So it consists of the sports of planning, organizing, compiling, leading, coordinating, and supervising which include evaluating hazard control applications. primarily based on research by means of M.Hanafi (2014) risk control is a field of science that discusses how an business enterprise applies measures in mapping numerous present trouble by using setting numerous management method in a comprehensive and systematic way.

2.5 Concept of Return Cryptocurrency

Horne & Wachoviz (1998) defines go back as blessings related area with proprietor that consists of the coins dividend paid final year collectively with the that's the market value of capital gain appreciation or consciousness in the which is the give up of the yr".

in accordance Novius (2017) return marketplace became the yield and capital gain or loss. Yield is cash waft that is paid periodically to investment holders. in the meantime, capital advantage or capital loss changed into the difference between the charge of an funding at the time of buy and the fee on the time of sale.

go back is the end result acquired from investment (Hartono M, 2017). checking out the predictability of returns may be accomplished in various methods, along with by using (Tandelilin, 2010) :
a) Studying seasonal return patterns

b) Using return data in the past, both for short-term and long-term predictability

c) Studying the relationship of return with the characteristics of the company.

inventory go back from the organisation became inspired with the aid of several essential factors, along with go back on equity, quick ratio, leverage ratio, asset growth, accounting beta, earning variability and dividend payout. essential elements are that have an effect on inventory beta. investors will face two possibilities in investing, particularly the anticipated rate of return and the level of danger.

basically the motive of humans making an investment is to make some cash. Many buyers assume that making an investment within the stock marketplace and virtual belongings are one of the superb investment at present, because of the fashion of d tremendous ongoing and marketplace sentiment in responding instrument invesatsi provided at wada h exchanges and virtual belongings.

making an investment is essentially buying an asset that is anticipated to be resold inside the future at a higher fee. one of the most important reasons for investing is getting a better life in the destiny, lowering inflationary pressures and the drive to save taxes (Tandelilin, 2010). The motive of investment in wellknown, specifically to expect extra profits (return) on investments that have been made for the outcomes to be received inside the destiny and of course with the extent of threat that usually accompanies it.

2.6 Concept of Cryptocurrency

Decentralized of cryptocurrency property turned into delivered by using Satoshi Nakamoto in 2009. Bitcoin became the primary cryptocurrency to be brought inside the on-line market and had an impact everywhere in the international. All processes use cryptographic hash capabilities with all current schemes. After Bitcoin , many other cryptocurrencies have emerged with their respective superior features. virtual property with low market capitalization have now not been able to survive until now (Kim, 2016) . a brand new generation of transactions and banking has now begun. digital foreign money transparency will dramatically change the enterprise world . The gain of virtual foreign money is that it's far rapid, encrypted and inexpensive. The hazards are inclusive of lack of trust, lack of popularity, or worry of preventing the present gadget (Syamsiah, 2017) .

virtual belongings emerged as a solution to the barriers confronted via modern-day price structures that depend closely on third parties as payment product issuing agencies which are depended on to control digital transactions including visa, mastercard, paypal, and others. virtual property is the name given to a gadget that makes use of cryptography to soundly transmit information and to change virtual tokens in a allotted way (Syamsiah, 2017).

because of the use of virtual property technology as payment machine generation, it turns out that it still has several limitations related to problems that have been faced for a long term and feature not been solved for years inside the world of laptop technological know-how, particularly the double spending hassle and the byzantine general problem (Syamsiah, 2017). So the development at that time become not so big.

there are numerous varieties of virtual assets, such as Bitcoins, Ripple, Altcoins, Litecoins, Ethereum, dash, Dogecoin, Stellar, Peercoin, Bitshares , NXT, and so forth. till now, some of those cryptocurrencies have had a terrific popularity and feature a large marketplace share, so they're used and universal as a method of payment through on-line merchants and e-commerce web sites .

in short, cryptocurrency is the currency system virtualyang mat functions like a money wellknown templates to enable users to perform a payment in digital upon the transaction of business that happens with out a provider fee however nevertheless believe government were centralized. digital property rely on the transmission of facts digitally, the use of techniques of cryptography to make certain the legitimacy of any transactions, which arise. while this Bitcoin has the most important marketplace percentage of virtual cash with the decentralized currency and bebasdari bureaucratic company. these electronic coin transactions occur through the usage of a peer-to-peer network.

3.PREVIOUS RESEARCH
3.1 Coal price to *return*

Ratti & Hasan (2012) Oil and coal charge shocks and coal industry returns on international proof . The notably big boom in coal and oil expenses has a statistically vast and disproportionate effect on stock returns inside the coal zone.

Sundari (2015) Coal rate to return stocks With Profitability As an intervening variable On Coal corporation in Indonesia inventory change. The effects showed that coal charge had a nice effect on inventory returns with profitability because the intervening variable.

Rinowigunanto (2017) The impact of Coal and Oil costs on stock Returns within the Mining area indexed at the Indonesia stock trade for the 2011-2015 period. The consequences show that the rate of coal and world oil costs have a fine have an effect on on inventory returns of mining companies in Indonesia.

3.2 Velocity on *return*

Sharma & Syarifuddin (2019) Determinants Of Indonesia's profits pace of cash. The outcomes show that ultimately, tax revenue, quick-time period hobby fees, commercial manufacturing and within the short time period money call for, extensively determine the speed of cash profits.

RG Anderson, Bordo, & Duca (2015) money and speed throughout financial Crises: From the exquisite despair to the remarkable Recession . The effects show that the yields given by means of company bonds may

be directly proportional to the extent of stability within the move of foreign money values.

Prasetyo (2018) Determinants of call for For money And the speed of cash In Indonesia . The study concluded that the increase of the economy inside the long term and the velocity of money in Indonesia has tendencies d rise and feature a giant impact at the growth charge of the rupiah/USD.

4. RESEARCH METHOD
4.1 Types of Research

This sort of studies is quantitative version, particularly critical observations to acquire unique facts on a specific trouble and item in a particular community institution region or region can be studied or defined or described a state of affairs as in reality as viable with none remedy of the object underneath take a look at (Ruslan, 2010). Then regarded from the studies targets, the researcher belongs to explanatory research , particularly research that explains the causal, causal courting among the impartial variable and the dependent variable (Sekaran & Bougie, 2010).

4.2 Population and Sample

The population of this studies is five (five) digital property coins with the largest market caps in Indonesia, particularly Bitcoin (BTH), Ethereum (ETH), Ripple (XRP), Bitcoin coins (BCH), Litecoin (LTC) in Indonesia. The type of statistics on this studies is facts time collection are taken from January 2017 until December 2020 by using studying documentation completed on publication of reports digital assets transaction month-to-month, so we get a goal populace of 240 (4 years x one year x five coin) month-to-month report statistics for the sample information on this examine.

The sample in this study is all items which are the goal population of 240 facts samples along with month-to-month transaction reviews of 5 digital belongings cash with the biggest marketplace caps in Indonesia for 4 years

4.3 Operationalization of Variables
4.3.1 *Return cryptocurrency (Y)*

return cryptocurrency is the fee of return on the purchase or investment of cryptocurrency (Widyawati, 2015). The go back information on cryptocurrencies on this take a look at is the full monthly return of virtual belongings beginning from January 201 7 - December 2020 in USD gadgets.

go back virtual property is calculated by:

$$Rit = \frac{Pt - Pt_{-1}}{Pt_1}$$

Pt = Price of cryptocurrency at the beginning of period t
Pt-1 = coin price at the end of period t

4.3.2 Coal Price (X)

Coal fee price is sourced from the average of 4 commonly used coal charge indices, particularly the Indonesia Coal Index , Platts Index , New fortress Export Index and New castle global Coal Index .
HBA = 25% ICI + 25% Platts + 25% NEX + 25% GC
Where :
HBA = Coal Price
ICI = Indonesia Coal Index
NEX = New Castle Export Index
GC = New Castle Global Coal Index

The reference coal charge records could be obtained directly on the global funding prediction service web page www.making an investment.com at the web site the reference coal charge data has been calculated based on survey strategies and valid size standards by using international commodity buying and selling establishments.

4.3.3 *Velocity of Cryptocurrency* **(Z)**

the rate Token approach is adapted from the financial Equation of exchange (MV = PQ), by economists called the amount idea of money, speed is a great motion of token costs. based on this method research and new of payment era, low pace manner that digtal assets remaining longer within the wallet , that means that buyers who to begin with tried to invest on asset purchases fast are now turning to holders, or individuals who maintain digital belongings for the long term.

The velocity of virtual property tokens shifting can not be decided or measured in a short time and different elements on this approach are also no longer easy to measure and estimate other factors are assumed to be steady. The shape of the digital assets valuation equation version using the speed token method:
MV=PQ
Information:
M = Money Supply / Size of Asset Base
V= Velocity / Cryptocurrency Circulation   Speed (how fast crypto changes hands).
P = Price of digital asset
Q = Number of digital assets in circulation
So to find the value of Velocity of Cryptocurrency can be measured by the formula:
V = PQ/M
V = Velocity cryptocurrency Circulation Speed and how fast digital assets changes hands.
P = Price of digital asset
M = Money Supply/Size of Asset Base
Q = Number of digital assets in circulation
Velocity of Cryptocurrency data that will be used as research variables is monthly data starting from January 2017 to December 2020.
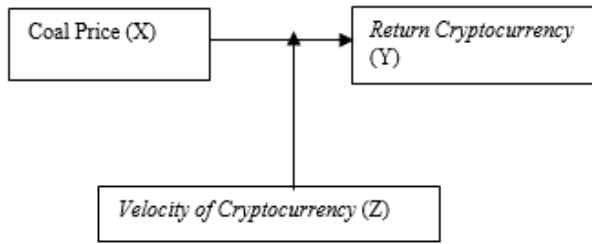
4.3.4 Research Conceptual Framework

Figure.1 Conceptual Framework

5. DATA ANALYSIS RESULTS
5.1 Descriptive Analysis
Table 1. Descriptive Statistics of Research Variables

Variable	Y	X	Z
Mean	0.142107	61.93	0.575120
Minimum	-0.584060	49.82	0.001525
Maximum	7.404070	100.0	2.555820
Std. Dev.	0.697110	10.88	0.658456
Observations	240	240	240

Source: Data Processing Results, 2021.

5.2 Panel Data Regression Model
a. *Common Effect Model* (CEM)

in keeping with Ghozali (2015) the commonplace impact version technique makes use of the everyday Least rectangular (OLS) method or the least squares technique to estimate the panel records model.

b. *Fixed Effect Model* (FEM)

according to Ghozali (2015) Random effect model approach In principle, Random impact model (REM) is different from the common effect version (CEM) and glued impact version (FEM), specially this model does no longer use the everyday least square principle but uses the maximum probability or fashionable least rectangular principle.

c. *Random Effect Model* (REM)

Random effect in line with Ghozali (2015) Random impact model technique In principle, Random impact version (REM) is different from the not unusual impact model (CEM) and fixed effect version (FEM), particularly this version does now not use the normal least square principle but makes use of the maximum probability or trendy least rectangular principle.

5.3 Panel Data Regression Model
5.3.1 Chow Test

In figuring out the estimation version among not unusual effect model (CEM) and stuck impact model (FEM) the Chow test is executed with the subsequent results:

Table 2 Result of Chow Test
Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.111318	(19,208)	0.0057
Cross-section Chi-square	42.325069	19	0.0016

Source: Data Processing Results, 2021.

Based on the results of the Chow test in Table 2, it is known that the probability value in the chi-square cross section is $0.0016 < (0.05)$, meaning that Fixed Effect Model (FEM) estimation model is better than the Common Effect Model (CEM).

5.3.2 Hausman Test

In determining the estimation model between Fixed Effect Model (FEM) and Random Effect Model (REM) the Hausman Test is carried out with the following results:

Table 3 Result of Hausman Test
Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	12	1.0000

Source: Data Processing Results, 2021.

Based on the Hausman test results in Table 2, it is known that the probability value is $1.0000 > (zero.05)$, that means that from Hausman check effects it could be concluded that Random effect model (REM) estimation model is higher than constant impact model (FEM).

5.4 Moderate Regression Analysis (MRA)

in keeping with Ghozali (2011) moderated regression analysis (MRA) is a unique analysis approach for more than one linear regression, in which the regression equation carries an interaction element, specifically the multiplication between or greater independent variables. MRA is due to the fact on this examine the use of a moderator variable, so the regression equation for the moderator variable is to apply the MRA equation.

the following is the regression equation slight Regression evaluation (MRA) so as to be used in this take a look at are as follows:

Equation 1:

$Y = b_0 + b_1 X + e_i$

Equation 2:

$Y = b_0 + b_1 X + b_2 X * Z + + e_i$

Where:

Y = Return Cryptocurrency
X^1 = Coal Price
X^2 = Gold Price
Z = Velocity of Cryptocurrency
b_0 = Constant
b_1- b_4 = Regression Coefficient
e_i = Error Term

in line with Ghozali (2013), if a variable with a enormous coefficient price is smaller than the alpha fee, which means it's miles widespread and has a bad value, this variable can be used as a moderating variable. The moderating hypothesis is normal if the t price is poor and tremendous, then the version. that is loose from multicollinearity interference..

Table 4 Estimation Results of Model 2 MRA . Method

Variable	Koefisien Regresi	Standart Error	t-statistik	Sig.
Constanta	0,1111	1,5810	0,0702	0,9440
Coal (X)	0,004	0,003	1,289	0,1987
X*Z	0,017	0,009	1,929	0,0462
R^2 : 0,585				
Adj. R^2 : 0,561				
F-statistik : 24,476, Sig = 0,000.				
DW-statistik : 1,880				
N : 240				

Source: Data Processing Results, 2021.

Mathematically the results of the moderate Regression evaluation (MRA) more than one linear regression analysis can be written as follows:
$Y = 0.111 + 0.004\,X + 0.017\,X * Z + e\,i$

5.5 Classical Assumption Test
5.5.1 Normality Test
The normality test targets to test whether within the regression version the dependent variable and the impartial variable have a ordinary distribution or not. a terrific regression model is to have a everyday records distribution or near ordinary (Ghozali, 2016). to check for normality, can examine the price of JB -records .

The outcomes of the calculation, the possibility price χ^2 -statisik model 1 = zero.354 and the opportunity version 2 = zero.429> level of considerable = 0.05, then the null speculation that the residuals were usually disbursed is correct.

5.5.2 Linearity Test
The linearity check is used to look if the model specifications used are accurate or no longer. based on the outcomes of the linearity take a look at, the possibility fee of F- statistics version 1 = 0.825 and version 2 = 0.499 > degree of giant = zero.05, then the null hypothesis which states that the linear model specification is correct..

5.5.3 Multicolinearity Test
Multicollinearity take a look at is a circumstance where one or greater unbiased variables can be expressed as a linear combination of different impartial variables. one of the assumptions of classical linear regression is the absence of ideal multicollinearity or show there may be no ideal multicollinearity.

A regression model display the tormented by multicollinearity is a super or precise linear relationship among some or all of the independent variables. As a end result, it'll be hard to look the affect of person unbiased variables on the based variable (Ghozali, 2016).

The detection of multicollinearity on this look at become carried out the use of the correlation matrix approach. The outcomes of the multicollinearity test with the correlation matrix check are as follows:

Tabel 5 Multicollinearity Test Results

Variabel	X	Z
X	1.000	0.161
Z	0.161	1.000

Source: Data Processing Results, 2021.

The calculation consequences if the correlation matrix fee among explanatory variables is much less than zero.eight, it manner that each one explanatory/unbiased variables do no longer occur multicollinearity, so it does no longer bias the interpretation of the results of the regression evaluation.

5.5.4 Autocorrelation Test
Autocorrelation is a situation in which the confounding aspect and errors time period in a sure length is correlated with the confounding issue in any other duration. Confounding elements aren't random.

Autocorrelation was born by means of factors of inertia inertial, facts manipulation, errors in determining the model and specification bias, the presence of different phenomena, and the use of lag inside the model. The detection of autocorrelation assumptions on this study become achieved via the use of the LM check.

Autocorrelation test calculation effects with check LM check values obtained probability χ^2 -statisik model 1 and model 2 = 0.067 = 0.074> degree of widespread = zero.05, then Ho is ordinary. this means that the estimated model is free from autocorrelation issues.

5.5.5 Heteroskedasticity Test
Homoscedasticity is a scenario in which the variance (σ^2) of the disturbance thing or disturbance

term is the identical for all observations X. Deviations from this assumption are known as heteroscedasticity, i.e. if the price of variance (σ 2) of the established variable (Yi) increases as a result of increasing variance. of the unbiased variable (Xi), then the variance of Y i isn't the equal (Ghozali, 2016). Heteroscedasticity detection on this look at became carried out by means of the White technique.

Heteroscedasticity check calculation effects with check White obtained the value of the chance of χ 2 - statisik m odel 1 = 0.179 and version 2 = 0,142> degree of giant = 0.05, then Ho is universal. which means that the envisioned model is loose from heteroscedasticity.

5.5.6 Testing R 2 (Coefficient of Determination)

R 2 (Coefficient of dedication) is used to decide how lots the impartial variable's capability to comprehensively give an explanation for the based variable. The fee of R 2 (coefficient of determination) has a range among zero-1. the bigger R 2 suggests the extra the potential of the unbiased variable in explaining the dependent variable.

The results of method that using the OLS acquired R2 Coefficient of dedication via zero.532, that means that the version of the dependent variable (Y) in the model, particularly digital belongings return (Y) may be explained through variations in Coal fee variable (X) amounted to fifty three.2%, even as the final 46.8% is explained via different variables outdoor the model.

The effects of method the use of the OLS acquired R2 Coefficient of dedication by means of 0.585, meaning that the version of the dependent variable (Y) in the version, particularly virtual belongings return (Y) may be defined by means of versions in Coal price variable (X) with Moderation X*Z at the same time as the closing forty one.5% is defined with the aid of other variables outdoor the model.

6. DISCUSSION

6.1 Effect of Reference Coal Price (X) on *digital assets Return* (Y)

The end result recognised that the reference coal rate coefficient on virtual property returns is bad, particularly 0.004 with T count number 1.289 > 1.970 and p-fee 0.1987 < 0.05, the reference coal price has a positive and insignificant effect on digital assets returns, meaning that every increase in the reference coal price 1 US dollar will significantly reduce digital assets returns by 0.004 percent.

Shows that , if the Coal Price (X1) increases, the digital assets Return (Y) will decrease. This research reveals that coal prices will trigger the country's economic growth and investment interest in coal stocks and coal commodities will increase, one of the triggers is also because Indonesia is one of the coal exporting countries and this situation will trigger an increase in money market and capital market investment, but in In the digital assets market investment, the opposite happens because the increased flow of investment

capital that enters Indonesia will not automatically increase the return on digital assets investment.

Indonesia is one of the largest coal producers and exporters in the world. Since 2005, when it surpassed Australian production, Indonesia has become a leading exporter of thermal coal. A significant portion of the exported thermal coal consists of medium quality types (between 5100 and 6100 cal/gram) and low quality types (below 5100 cal/gram) where most of the demand comes from China and India. Based on information provided by the Indonesian Ministry of Energy and Mineral Resources, Indonesia's coal reserves are estimated to be depleted in approximately the next 83 years if current production levels are continued.

In terms of global coal reserves, Indonesia is currently ranked 9th with around 2.2% of the total proven global coal reserves based on the Central Agency for Statistical Review of World Energy. Around 60 percent of Indonesia's total coal reserves consist of less expensive sub-bituminous coal containing less than 6100 cal/gram. This fact certainly makes world coal trade conditions can have a related impact on Indonesia's economic growth, and the influence of fluctuations in the reference coal price will automatically affect investor transactions on the money market and capital market as well as a surprising effect (Contegent Effect) which spreads to market trading transactions. cryptocurrencies in Indonesia.

Genesis opposite is true when compared with research Sumani et al l (2012) coal price and the stock price index to return mining company, the results of which commodity price of coal and the stock price index has a significant influence on the dependent variable (return coal mining company shares). The results of this study are in accordance with the theory of leading indicators . Traditional stock valuation theory, and wealth effect theory.

6.2 Effect of Moderation X*Z on digital assets Return (Y)

It is known that the MRA coefficient value from the interaction velocity of digital assets_the reference coal price to the digital assets return is worth 0.017 with a T count of 1.929 > 1.970 and a p-cost of 0.0462 < zero.05, this indicates that the velocity of virtual belongings variable is not a moderator variable or can't moderating the connection among the benchmark coal charge and digital assets returns.

suggests that, if Moderation X*Z increases, the digital property return (Y) will remain regular. This study exhibits the truth that the speed of digital belongings does no longer have an impact at the impact of coal fees at the go back on investment inside the cryptocurrency marketplace, this happens because whilst coal charges increase, it's going to provide fantastic sentiment to capital flows that enter the cash marketplace and capital marketplace but there is no asset marketplace. digital property in order that the rate of digital asset commodities will not necessarily continue to increase, while this takes place buyers

should be observant in taking the momentum and trading virtual assets for a quick period of time in order that the returns obtained will growth due to the quicker movement and turnover of crypto virtual assets while the price rises. the better the go back that buyers will get within the digital asset market.

The results of this have a look at are in accordance with Sundari's studies (2015) which shows that the coal fee variable has a nice and vast impact on stock returns within the mining region on the Indonesia stock trade . Then there is a justification inside the research made by way of the author and indicates that the rate of virtual property variable moderates the impact of the Coal fee at the return of Bitcoin. Coal is one of the fossil fuels. the overall definition is sedimentary rock that may be burned, fashioned from organic deposits, mainly plant stays fashioned thru the coalification technique. the main elements are carbon, hydrogen and oxygen. the sector coal benchmark rate derived from trading Inte c ontinental alternate marketplace (ICE) coming from the us and operates online all through the world.

in step with the studies of Sumani et all. (2012) that coal charges and the composite stock price index at the stock returns of mining corporations, the result is that coal commodity prices and the joint stock charge index have a big have an effect on on the based variable inventory returns of coal mining organizations. The effects of this have a look at are according with main indicator concept, traditional stock valuation principle, and wealth impact theory, so on this look at we strive to don't forget systematic threat and unsystematic threat via building different variables to moderate the have an impact on of digital assets risk factors on returns of cryptocurrency.

7.CONCLUTION

based at the studies that has been done, right here are a few things that can be concluded:

1).The consequences of statistics analysis display that there is a wonderful however no longer substantial impact of the Chaotic Coal charge variable on digital assets go back. this indicates, if the Coal rate will increase, the return will boom slightly.

2).The effects of regression analysis of the MRA version display that the interplay of the Coal rate with the rate of digital assets does not have a sizable impact on digital property return. this means, if the interplay of Coal fee with the velocity of digital assets will increase, the digital assets return will continue to be or be steady.

3).discovered that the speed of digital assets offer no large moderating affect of the relationship between coal price reference to the go back of the investment virtual property market, due to the fact mununjukkan T-statisctik fee is 1,929 . This takes place due to the fact when the rate of coal will increase it'll supply a fantastic sentiment to the capital flows that enter the cash marketplace and capital market however there's no digital asset market so that the fee of virtual asset

commodities will now not necessarily preserve to growth, when this occurs investors have to be eager to take momentum and trading digital belongings for a brief time period so that the returns acquired will growth because of the quicker movement and turnover of virtual assets while the rate rises, the better the returns that investors gets inside the virtual asset marketplace.

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