

## CHAPTER V

### CONCLUSION

#### 5.1. Conclusion

Based on the results of the research presented in the previous chapter, the following conclusions can be drawn:

- 1) The volume of bitcoin has no significant influence on the price of bitcoin.
- 2) The stock market indices which is represented by Dow Jones Industrial Average has no significant influence on the price of bitcoin.
- 3) The number of bitcoin wallet users has a positive influence of 0.000822% on the price of bitcoin.
- 4) Gold price which is represented by COMEX Gold Price has no significant influence on the price of bitcoin.
- 5) Oil price which is represented by West Texas Intermediate (WTI) Oil Price has no significant influence on the price of bitcoin.
- 6) The variable that most influences the price of bitcoin is the number of bitcoin wallet users.

## 5.2. Managerial Implication

Based on the results of the analysis and conclusions of this research it is expected to provide benefits for investors, especially new investors, in terms of making the decision to buy bitcoin. The implications or benefits of this research are:

- 1) The investor should concern about the number of bitcoin wallet users which impacts the price of bitcoin as shown in the result of this result.
- 2) Besides the factors in this research, investors should study and read deeper about other aspects impacted the price of bitcoin, especially in the earliest international journals. The other factors that can be found in previous researches are the google trend, political incidents, and criminal issues.

## 5.3. Research Limitations

This research has been tried and carried out as well as possible, but still has limitations including:

- 1) The period of the research time is quite short.
- 2) The limitation of the variables of the observations.
- 3) the data used has a different units and scales.
- 4) The variables used in the study are limited, there are still many other factors that affect the price of Bitcoin, both from internal factors and external factors like the political or technical issue about bitcoin, like the cryptocurrency being hacked by criminals.

#### 5.4. Suggestion

Based on the conclusions and limitations of this study, the following are the suggestions that can be used for further research, the reader, or new investor.

- 1) For academics or researchers, it is recommended to add research variables, and test other factors which might affect the price of Bitcoin. In addition, the research period is expected to be longer and uses the latest year to provide an up-to-date price of Bitcoin, also using more observations in order to get more valid data of research.
- 2) For investors and potential investors who want to invest in cryptocurrency such as Bitcoin, are expected to pay attention to risk factors by studying the cycle of Bitcoin price movements and sentiments before making a decision to invest. Investors need to choose a digital wallet or Bitcoin storage place that is felt to be the safest and in accordance with needs.

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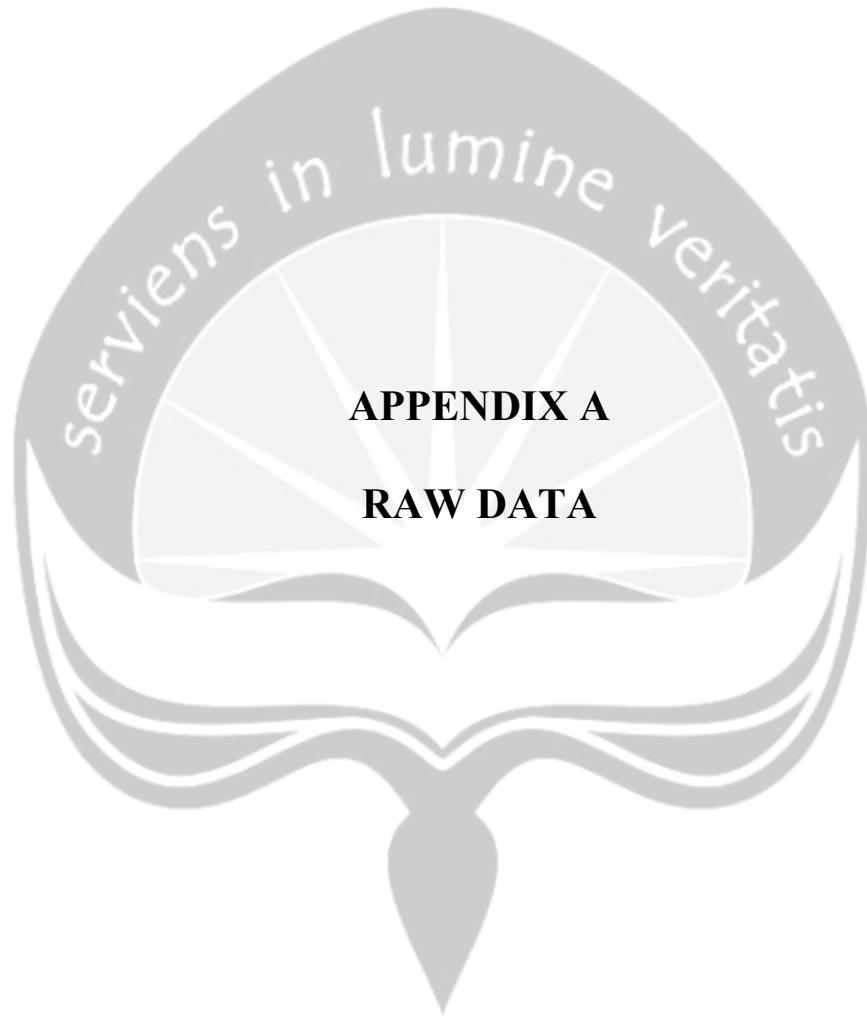
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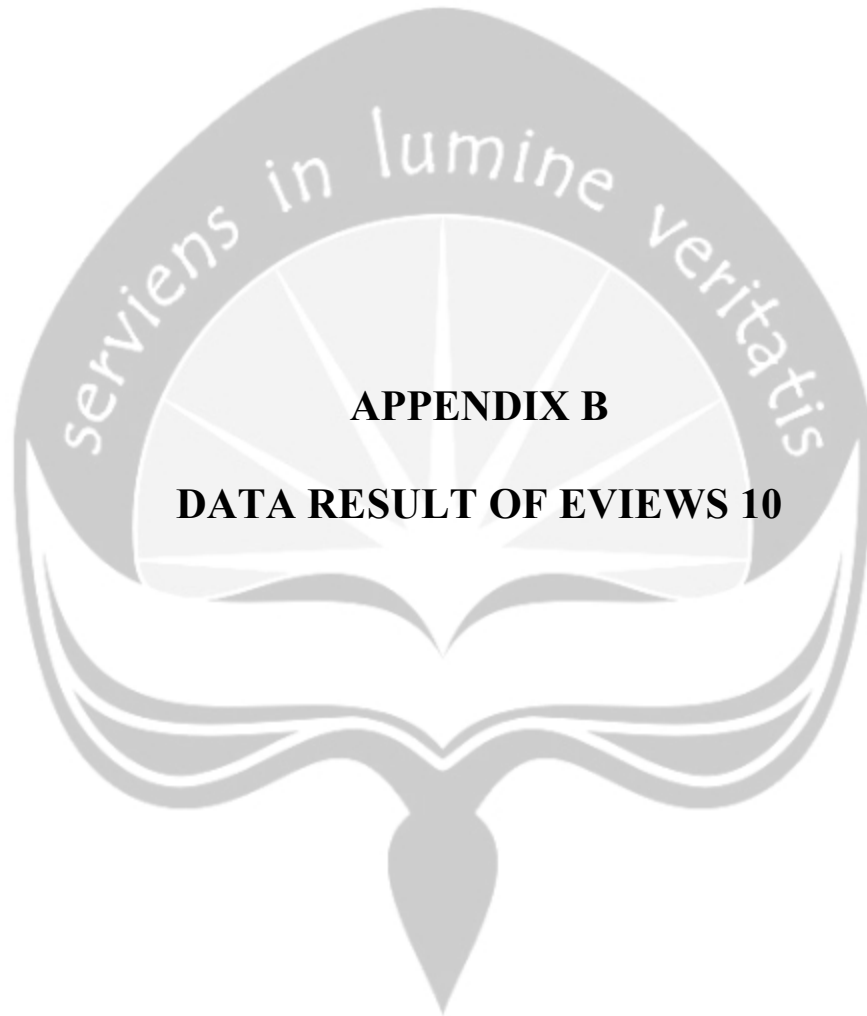
**APPENDIX A**

**RAW DATA**

Date	BTC_PRICE_Y	BTC_VOLUME_X1	DJIA_X2	BTC_WALLET_X3	GOLD_PRICE_X4	OIL_PRICE_X5
Jul-19	10,088.00	266288.327	268.52	40904092	1,437.80	58.58
Jun-19	10,745.00	500190.3507	265.85	40060638	1,425.10	58.47
May-19	8,533.30	507605.6376	248.22	38843700	1,322.60	53.5
Apr-19	5,599.52	492338.1497	265.79	36566166	1,303.60	63.91
Mar-19	4,167.60	411120.3951	259.13	34627637	1,298.50	60.14
Feb-19	3,894.00	205371.0018	259.28	33733170	1,322.70	57.22
Jan-19	3,501.10	372923.9233	250.12	32816146	1,331.60	53.79
Dec-18	3,830.50	433174.6647	233.2	31884658	1,294.20	45.41
Nov-18	4,038.30	969513.8607	255.51	31115819	1,237.90	50.93
Oct-18	6,368.39	948425.5844	251.19	29737907	1,233.00	65.31
Sep-18	6,618.10	411973.5264	264.4	28863437	1,213.20	73.25
Aug-18	7,025.90	650142.6065	259.85	28079069	1,223.40	69.8
Jul-18	7,730.60	906077.8078	254.17	26892507	1,250.90	68.76
Jun-18	6,391.50	785191.7833	242.73	25700598	1,284.60	74.15
May-18	7,485.80	701110.7207	244.18	24999675	1,336.30	67.04
Apr-18	9,240.00	813996.0367	241.54	24391577	1,357.60	68.57
Mar-18	6,925.30	1256129.679	241.4	23922469	1,364.90	64.94
Feb-18	10,315.00	1770752.217	250.2	23329572	1,361.00	61.64
Jan-18	10,284.00	1880057.397	261.44	22694466	1,383.00	64.73
Dec-17	13,800.00	1597840.081	247.38	21468633	1,347.40	60.42
Nov-17	9,907.00	2211209.503	242.84	19336323	1,314.00	57.4
Oct-17	6,458.30	2100417.391	233.63	18130912	1,307.50	54.38
Sep-17	4,367.00	1341105.258	223.82	17226168	1,320.90	51.67
Aug-17	4,718.20	1490809.045	219.52	16452279	1,354.30	47.23

Jul-17	2,856.00	944432.3102	218.7	15277283	1,305.80	50.17
Jun-17	2,420.70	940068.5453	213.24	14931956	1,281.20	46.04
May-17	2,191.83	645492.5622	210	14164776	1,314.40	48.32
Apr-17	1,435.20	740583.2841	209.08	13386157	1,312.00	49.33
Mar-17	1,081.70	419458.2359	206.34	12870915	1,295.10	50.6
Feb-17	1,189.10	1012152.121	207.98	12284096	1,299.70	54.01
Jan-17	966.19	477722.6879	198.36	11653093	1,257.00	52.81
Dec-16	966.58	699569.8303	197.51	10961809	1,199.50	53.72
Nov-16	739	288299.8684	191.4	10229895	1,214.10	49.44
Oct-16	704.09	269794.6509	181.17	9494407	1,312.80	46.86
Sep-16	611.1	195726.5123	182.78	8935190	1,353.50	48.24
Aug-16	576.15	129753.7876	183.94	8504950	1,347.00	44.7
Jul-16	623.67	188031.6326	184.13	8123646	1,395.20	41.6
Jun-16	674.74	668094.8138	179	7784628	1,358.00	48.33
May-16	530.69	1677574.536	177.65	7434197	1,252.70	49.1
Apr-16	446.6	604055.3211	177.59	7012014	1,321.90	45.92
Mar-16	416.02	366066.768	176.64	6635323	1,261.60	38.34
Feb-16	439.16	416438.8856	164.96	6215834	1,255.00	33.75
Jan-16	365.5	643383.6577	164.37	5879958	1,140.00	33.62
Dec-15	429.02	893544.9034	173.99	5428667	1,095.80	37.04
Nov-15	376.88	1154275.866	177.23	5011010	1,098.30	41.65
Oct-15	316	1638014.11	176.49	4677539	1,169.90	46.59
Sep-15	236.49	568317.2174	162.62	4362605	1,149.40	45.09
Aug-15	231.35	296294.19	165.18	4146673	1,177.50	49.2
Jul-15	284.45	707267.4814	176.68	3897914	1,143.50	47.12

Jun-15	262.89	825955.6283	175.82	3666010	1,229.70	59.47
May-15	228.7	592029.9919	180.11	3495018	1,240.80	60.3
Apr-15	236.11	476461.5211	178.18	3329868	1,231.90	59.63
Mar-15	244.33	733206.8657	177.58	3177707	1,230.80	47.6
Feb-15	255.7	1239084.888	181.19	3029971	1,267.60	49.76
Jan-15	217.41	1129858.873	171.45	2869986	1,325.40	48.24
Dec-14	317	2054762.961	177.88	2723272	1,251.30	53.27
Nov-14	376.72	527554.394	178.1	2578398	1,244.80	66.15
Oct-14	337	955828.0316	173.45	2428297	1,248.50	80.54
Sep-14	387.14	857821.6305	170.07	2271978	1,310.60	91.16
Aug-14	483.37	392789.9086	170.88	2114088	1,384.50	95.96
Jul-14	579.04	362044.2787	165.29	1937615	1,385.40	98.17
Jun-14	640.01	158002.7031	167.89	1791263	1,419.00	105.37
May-14	635.6	354190.5103	166.93	1672398	1,342.80	102.71
Apr-14	448.27	259639.1589	165.45	1562212	1,405.70	99.74
Mar-14	452	433927.2112	164.24	1448143	1,407.70	101.58
Feb-14	565	380091.4748	163.02	1320250	1,446.40	102.59
Jan-14	800	606403.2218	156.75	1163953	1,370.20	97.49
Dec-13	727.71	302141.3439	165.47	966885	1,338.40	98.42
Nov-13	1,112.35	542655.4626	160.72	708388	1,377.20	92.72
Oct-13	198.23	481914.8017	155.29	513288	1,453.90	96.38
Sep-13	123.1	324327.8622	151	452302	1,485.40	102.33
Aug-13	129.46	108619.7302	147.85	414788	1,573.00	107.65
Jul-13	97.91	131902.7818	154.84	370519	1,468.60	105.03
Jun-13	97.51	166897.2774	148.55	332040	1,374.90	96.56



**APPENDIX B**

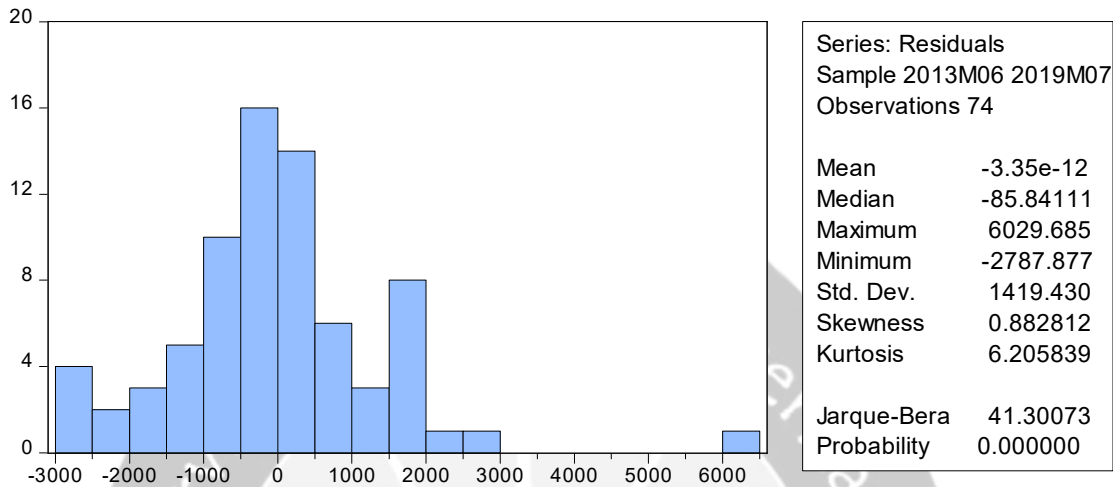
**DATA RESULT OF EIEWS 10**

## 1. Descriptive Statistics

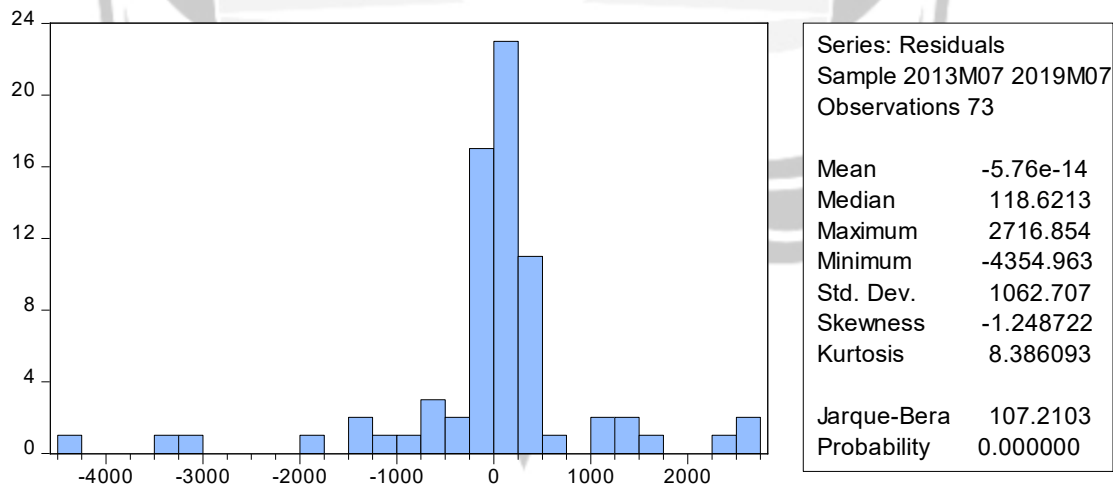
	BTC_PRICE_Y	BTC_VOLUME_X1	DJIA_X2	BTC_WALLET_X3	GOLD_PRICE_X4	OIL_PRICE_X5
Mean	2744.502	729814.7	200.1208	12667849	1307.451	63.80608
Median	689.4150	598042.7	181.1800	7954137.	1312.400	57.31000
Maximum	13800.00	2211210.	268.5200	40904092	1573.000	107.6500
Minimum	97.51000	108619.7	147.8500	332040.0	1095.800	33.62000
Std. Dev.	3476.443	507631.4	37.72913	11973143	90.26318	21.03170
Skewness	1.323057	1.219308	0.496637	0.846462	0.032338	0.832896
Kurtosis	3.606156	3.850699	1.732887	2.437586	3.321608	2.379290
Jarque-Bera Probability	22.72216 0.000012	20.56749 0.000034	7.992516 0.018384	9.812105 0.007402	0.331812 0.847126	9.743772 0.007659
Sum	203093.2	54006291	14808.94	9.37E+08	96751.40	4721.650
Sum Sq. Dev.	8.82E+08	1.88E+13	103914.5	1.05E+16	594763.2	32290.26
Observations	74	74	74	74	74	74

## 2. Normality Test

### a. Raw Data



### b. Transformed Data



### 3. Multicollinearity Test

#### a. Raw Data

Variance Inflation Factors  
Date: 09/20/19 Time: 10:49  
Sample: 2013M06 2019M07  
Included observations: 74

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	21021878	719.2197	NA
BTC_VOLUME_X1	2.16E-07	5.812382	1.877835
DJIA_X2	449.9625	638.1430	21.61777
BTC_WALLET_X3	4.32E-09	44.65575	20.91854
GOLD_PRICE_X4	6.627131	389.4071	1.822334
OIL_PRICE_X5	140.5971	21.68248	2.098970

#### b. Transformed Data

Variance Inflation Factors  
Date: 09/16/19 Time: 05:38  
Sample: 2013M06 2019M07  
Included observations: 73

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	40184.06	2.417084	NA
D(BTC_VOLUME_X1)	1.07E-07	1.103044	1.103032
D(DJIA_X2)	393.2476	1.287346	1.223460
D(BTC_WALLET_X3)	7.50E-08	2.419112	1.024870
D(GOLD_PRICE_X4)	7.816510	1.129262	1.128913
D(OIL_PRICE_X5)	683.5742	1.224438	1.213308



#### 4. Homoskedasticity Test

##### a. Raw Data

Heteroskedasticity Test: White

F-statistic	2.372706	Prob. F(5,68)	0.0481
Obs*R-squared	10.99252	Prob. Chi-Square(5)	0.0515
Scaled explained SS	24.16085	Prob. Chi-Square(5)	0.0002

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 09/23/19 Time: 03:36

Sample: 2013M06 2019M07

Included observations: 74

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3021734.	5311775.	-0.568875	0.5713
BTC_VOLUME_X1^2	7.04E-07	5.77E-07	1.219778	0.2268
DJIA_X2^2	53.03078	88.56509	0.598777	0.5513
BTC_WALLET_X3^2	1.08E-09	3.07E-09	0.352249	0.7257
GOLD_PRICE_X4^2	1.491924	2.959660	0.504086	0.6158
OIL_PRICE_X5^2	-140.1941	241.0340	-0.581636	0.5627

R-squared	0.148548	Mean dependent var	1987554.
Adjusted R-squared	0.085941	S.D. dependent var	4565818.
S.E. of regression	4365217.	Akaike info criterion	33.49384
Sum squared resid	1.30E+15	Schwarz criterion	33.68065
Log likelihood	-1233.272	Hannan-Quinn criter.	33.56836
F-statistic	2.372706	Durbin-Watson stat	2.282502
Prob(F-statistic)	0.048090		

## b. Transformed Data

Heteroskedasticity Test: White

F-statistic	2.226747	Prob. F(5,67)	0.0616
Obs*R-squared	10.40220	Prob. Chi-Square(5)	0.0646
Scaled explained SS	32.36040	Prob. Chi-Square(5)	0.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 09/16/19 Time: 05:39

Sample: 2013M07 2019M07

Included observations: 73

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	642464.0	574177.8	1.118929	0.2672
D(BTC_VOLUME_X1)^2	-2.10E-07	9.85E-07	-0.213053	0.8319
D(DJIA_X2)^2	2102.959	4117.452	0.510743	0.6112
D(BTC_WALLET_X3)^2	9.81E-07	3.97E-07	2.469844	0.0161
D(GOLD_PRICE_X4)^2	-103.1709	110.5628	-0.933143	0.3541
D(OIL_PRICE_X5)^2	3852.576	7600.967	0.506853	0.6139
R-squared	0.142496	Mean dependent var		1113876.
Adjusted R-squared	0.078503	S.D. dependent var		3048172.
S.E. of regression	2926082.	Akaike info criterion		32.69484
Sum squared resid	5.74E+14	Schwarz criterion		32.88310
Log likelihood	-1187.362	Hannan-Quinn criter.		32.76987
F-statistic	2.226747	Durbin-Watson stat		1.693281
Prob(F-statistic)	0.061642			

## 5. Non-Autocorrelation Test

### a. Raw Data

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	12.74465	Prob. F(2,66)	0.0000
Obs*R-squared	20.61671	Prob. Chi-Square(2)	0.0000

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 09/23/19 Time: 03:43

Sample: 2013M06 2019M07

Included observations: 74

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1782.408	3984.638	0.447320	0.6561
BTC_VOLUME_X1	-0.000150	0.000405	-0.371276	0.7116
DJIA_X2	-8.837202	18.41494	-0.479893	0.6329
BTC_WALLET_X3	2.95E-05	5.71E-05	0.517436	0.6066
GOLD_PRICE_X4	-0.034967	2.227726	-0.015696	0.9875
OIL_PRICE_X5	-3.372086	10.30081	-0.327361	0.7444
RESID(-1)	0.495297	0.123214	4.019798	0.0002
RESID(-2)	0.093274	0.126819	0.735488	0.4646
R-squared	0.278604	Mean dependent var	-3.35E-12	
Adjusted R-squared	0.202092	S.D. dependent var	1419.430	
S.E. of regression	1267.915	Akaike info criterion	17.22994	
Sum squared resid	1.06E+08	Schwarz criterion	17.47903	
Log likelihood	-629.5078	Hannan-Quinn criter.	17.32931	
F-statistic	3.641328	Durbin-Watson stat	1.883077	
Prob(F-statistic)	0.002220			

## b. Transformed Data

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.519712	Prob. F(2,65)	0.2264
Obs*R-squared	3.261021	Prob. Chi-Square(2)	0.1958

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 09/16/19 Time: 05:39

Sample: 2013M07 2019M07

Included observations: 73

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27.91799	200.1535	-0.139483	0.8895
D(BTC_VOLUME_X1)	-5.62E-05	0.000327	-0.171747	0.8642
D(DJIA_X2)	5.474088	21.05113	0.260038	0.7957
D(BTC_WALLET_X3)	3.40E-05	0.000273	0.124771	0.9011
D(GOLD_PRICE_X4)	0.219585	2.786359	0.078807	0.9374
D(OIL_PRICE_X5)	-3.344564	26.03254	-0.128476	0.8982
RESID(-1)	-0.069637	0.132018	-0.527485	0.5997
RESID(-2)	0.204224	0.124531	1.639945	0.1058
R-squared	0.044672	Mean dependent var	-5.76E-14	
Adjusted R-squared	-0.058210	S.D. dependent var	1062.707	
S.E. of regression	1093.200	Akaike info criterion	16.93471	
Sum squared resid	77680585	Schwarz criterion	17.18572	
Log likelihood	-610.1170	Hannan-Quinn criter.	17.03474	
F-statistic	0.434203	Durbin-Watson stat	1.934894	
Prob(F-statistic)	0.877215			

## 6. Ordinary Least Square

Dependent Variable: D(BTC\_PRICE\_Y)

Method: Least Squares

Date: 09/16/19 Time: 05:37

Sample (adjusted): 2013M07 2019M07

Included observations: 73 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-330.6671	200.4596	-1.649544	0.1037
D(BTC_VOLUME_X1)	0.000168	0.000328	0.511404	0.6107
D(DJIA_X2)	5.270163	19.83047	0.265761	0.7912
D(BTC_WALLET_X3)	0.000822	0.000274	3.000721	0.0038
D(GOLD_PRICE_X4)	1.294725	2.795802	0.463096	0.6448
D(OIL_PRICE_X5)	-1.279828	26.14525	-0.048951	0.9611
R-squared	0.132254	Mean dependent var		136.8560
Adjusted R-squared	0.067496	S.D. dependent var		1140.820
S.E. of regression	1101.647	Akaike info criterion		16.92562
Sum squared resid	81312958	Schwarz criterion		17.11387
Log likelihood	-611.7850	Hannan-Quinn criter.		17.00064
F-statistic	2.042300	Durbin-Watson stat		2.118939
Prob(F-statistic)	0.083794			