PREVIOUS RESEARCH

Table 1 Previous Research

No	Name	Variable	Analysis Tools	Results
1	Pundy Sayoga and Syamsurijal Tan (2017)	Dependent variable: Foreign Exchange Reserves Independent variable: External Debt, Export Exchange Rate	Multiple Linear Regression Analysis	Simultaneously: Foreign debt, exchange rates, and exports affect foreign exchange reserves. Partially: Foreign debt, exchange rates, and exports have an effect on foreign exchange reserves.
2	Agnes Putri Sonia and Nyoman Djinar Setiawina (2016)	Dependent variable: Foreign Exchange Reserves Independent variables: Exchange Rate, Money Supply, Inflation, Export, Import	Multiple Linear Regression Analysis (Path Analysis)	Directly: Exchange rate has a negative effect on foreign exchange reserves, JUB has a positive effect on foreign exchange reserves, exports have a positive effect on foreign exchange reserves, the inflation rate has a positive effect on foreign exchange reserves. Indirectly: Exchange rate and inflation rate have no direct effect on foreign exchange reserves through exports, JUB has an indirect effect on foreign exchange reserves.
3	Lusia Bunga Uli (2016)	Dependent variable: Foreign Exchange Reserves Independent variables: Export, Import,	Vector Autoregression Model (VAR) Analysis	There is a unidirectional relationship between the variable of foreign exchange reserves to exports and a unidirectional relationship between the exchange rate and exports. Then there is a two-way relationship between

		Exchange Rate		imports and foreign exchange reserves, a two-way relationship between exchange rates and foreign exchange reserves, a two-way relationship between imports and exports, a two-way relationship between exchange rates and imports. Long-term impact: Exports, imports and exchange rates have no effect to foreign exchange reserves.
4	Muhammad Ridho (2015)	Dependent variable: Foreign Exchange Reserves Independent variable: Exports, External Debt, Exchange Rate	Multiple Linear Regression Analysis	Simultaneously: Exports, foreign debt and exchange rates affect foreign exchange reserves. Partially: Exports, foreign debt and exchange rates affect foreign exchange reserves.
5	Agustina dan Reny (2014)	Dependent variable: Foreign Exchange Reserves Independent: Exports, Imports, Exchange Rates, Inflation Rate	Multiple Linear Regression Analysis	Simultaneously: Exports, imports, rupiah exchange rates and inflation rates affect foreign exchange reserves. Partially: Exports and the rupiah exchange rate have an effect on foreign exchange reserves while imports and the rupiah exchange rate have no effect on foreign exchange reserves.
6	Jimmy Benny (2013)	Dependent variable: Foreign Exchange Reserves	Multiple Linear Regression Analysis	Simultaneously: Exports and imports affect foreign exchange reserves. Partially: Exports and imports

		Independent variable: Export, Import		affect foreign exchange reserves.

APPENDICES

Appendix 1: Research Data

Year	Export (USD)	Import (USD)	Net Exports (USD)	Exchange Rate (IDR-USD)	Foreign Exchange Reserves (USD)
1990	25675.3	52116.50	-26441.2	1842	8661
1991	29142.4	60083.8	-30941.4	1941	9868
1992	33967	63296.1	-29329.1	2023	11611
1993	36823	28327.8	8495.2	2083	12352
1994	40053.3	31988.6	8064.7	2147	13158
1995	45418.2	40654.1	4764.1	2248	14674
1996	49814.7	42928.6	6886.1	2383	16000
1997	53443.6	41679.8	11763.8	4650	19900
1998	48847.6	27336.9	21510.7	8025	16600
1999	48665.5	24003.3	24662.2	7100	25700
2000	62124	33514.8	28609.2	9595	29300
2001	56323.1	30962.1	25361	9980	79000
2002	57105.8	31288.9	25816.9	8940	71600
2003	61034.5	32550.7	28483.8	8465	68100
2004	71584.6	46524.5	25060.1	9290	86300
2005	85659.9	57700.9	27959	9830	94700
2006	100798.6	61065.5	39733.1	9020	42600
2007	114101	74473.4	39627.6	9419	59900
2008	137020.4	129197.3	7823.1	10950	51600
2009	116510	96829.2	19680.8	9400	66100
2010	157779.1	135663.3	22115.8	8991	96200
2011	203496.6	177435.7	26060.9	9068	110100
2012	190020.3	191691	-1670.7	9670	112800
2013	182551.8	186628.7	-4076.9	12189	109400
2014	175980	178178.8	-2198.8	13795	111800
2015	150366.3	142694.5	7671.8	13459	105931
2016	145134	135652.8	9481.2	13374	116362
2017	168828.2	156985.5	11842.7	13451	130196
2018	180012.7	188711.2	-8698.5	14318	120654
2019	167683	170727.4	-3044.4	14275	129183
2020	163306.5	141568.8	21737.7	14105	135897

Appendix 2: Correlation Test

	NET_EXPORT	EXCHANGE_RATE
NET_EXPORT	1.000000	-0.471531
EXCHANGE_RATE	-0.471531	1.000000

Appendix 3: Descriptive Statistical Analysis Test

	FOREIGN_EXCHANGE_RESERVES	NET_EXPORT	EXCHANGE_RATE
Mean	66975.71	101912.0	8581.484
Median	68100.00	85659.90	9290.000
Maximum	135897.0	203496.6	14318.00
Minimum	8661.000	25675.30	1842.000
Std. Dev.	44379.49	58848.22	4215.471
Skewness	0.011672	0.271569	-0.399900
Kurtosis	1.478397	1.490497	2.002039
Jarque-Bera	2.991267	3.324230	2.112657
Probability	0.224107	0.189737	0.347730
Sum	2076247.	3159271.	266026.0
Sum Sq. Dev.	5.91E+10	1.04E+11	5.33E+08
Observations	31	31	31

Appendix 4: Normality Test

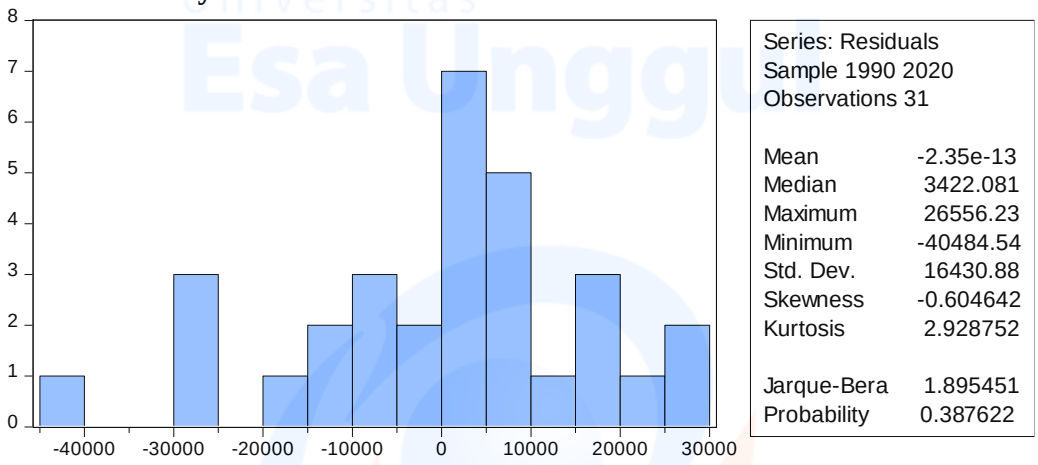

Figure 1 Normality Test

Appendix 5: Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.789189	Prob. F(2,26)	0.0799
Obs*R-squared	5.476206	Prob. Chi-Square(2)	0.0647

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 05/28/21 Time: 15:21
Sample: 1990 2020
Included observations: 31
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-289.7078	6633.243	-0.043675	0.9655
NET_EXPORT	-0.021386	0.083686	-0.255548	0.8003
EXCHANGE_RATE	0.311976	1.168214	0.267053	0.7915
RESID(-1)	0.451081	0.199842	2.257183	0.0326
RESID(-2)	-0.055607	0.199985	-0.278054	0.7832

R-squared	0.176652	Mean dependent var	-2.35E-13
Adjusted R-squared	0.049983	S.D. dependent var	16430.88
S.E. of regression	16014.99	Akaike info criterion	22.34713
Sum squared resid	6.67E+09	Schwarz criterion	22.57842
Log likelihood	-341.3805	Hannan-Quinn criter.	22.42252
F-statistic	1.394595	Durbin-Watson stat	2.027421
Prob(F-statistic)	0.263412		

Appendix 6: Multicolleniarity Test

Variance Inflation Factors
Date: 05/28/21 Time: 15:18
Sample: 1990 2020
Included observations: 31

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	49555666	5.310923	NA
NET_EXPORT	0.007797	11.47852	2.800309

EXCHANGE_RATE	1.519419	14.79196	2.800309

Appendix 7: Heteroscedasticity Test

Heteroskedasticity Test: ARCH

F-statistic	1.358809	Prob. F(1,28)	0.2536
Obs*R-squared	1.388485	Prob. Chi-Square(1)	0.2387

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/28/21 Time: 15:20
Sample (adjusted): 1991 2020
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.14E+08	82675061	2.584375	0.0153
RESID^2(-1)	0.213651	0.183284	1.165679	0.2536

R-squared	0.046283	Mean dependent var	2.69E+08
Adjusted R-squared	0.012221	S.D. dependent var	3.72E+08
S.E. of regression	3.70E+08	Akaike info criterion	42.36124
Sum squared resid	3.84E+18	Schwarz criterion	42.45465
Log likelihood	-633.4186	Hannan-Quinn criter.	42.39113
F-statistic	1.358809	Durbin-Watson stat	2.152680
Prob(F-statistic)	0.253578		

Appendix 8: Multiple Regression Analysis Test

Dependent Variable: FOREIGN_EXCHANGE_RESERVES

Method: Least Squares

Date: 05/28/21 Time: 15:17

Sample: 1990 2020

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15216.73	7039.579	-2.161597	0.0393
NET_EXPORT	0.347180	0.088298	3.931910	0.0005
EXCHANGE_RATE	5.454839	1.232647	4.425304	0.0001

R-squared	0.862925	Mean dependent var	66975.71
Adjusted R-squared	0.853134	S.D. dependent var	44379.49
S.E. of regression	17007.58	Akaike info criterion	22.41247
Sum squared resid	8.10E+09	Schwarz criterion	22.55124
Log likelihood	-344.3933	Hannan-Quinn criter.	22.45771
F-statistic	88.13413	Durbin-Watson stat	1.146379
Prob(F-statistic)	0.000000		

Appendix 9: F-test

R-squared	0.862925	Mean dependent var	66975.71
Adjusted R-squared	0.853134	S.D. dependent var	44379.49
S.E. of regression	17007.58	Akaike info criterion	22.41247
Sum squared resid	8.10E+09	Schwarz criterion	22.55124
Log likelihood	-344.3933	Hannan-Quinn criter.	22.45771
F-statistic	88.13413	Durbin-Watson stat	1.146379
Prob(F-statistic)	0.000000		

Appendix 10: T-test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15216.73	7039.579	-2.161597	0.0393
NET_EXPORT	0.347180	0.088298	3.931910	0.0005
EXCHANGE_RATE	5.454839	1.232647	4.425304	0.0001

Appendix 11: Determination Coefficient Test

R-squared	0.862925	Mean dependent var	66975.71
Adjusted R-squared	0.853134	S.D. dependent var	44379.49
S.E. of regression	17007.58	Akaike info criterion	22.41247
Sum squared resid	8.10E+09	Schwarz criterion	22.55124
Log likelihood	-344.3933	Hannan-Quinn criter.	22.45771
F-statistic	88.13413	Durbin-Watson stat	1.146379
Prob(F-statistic)	0.000000		