APPENDIX

StasionaryTest

Stasionary Test on data LEVEL :

Null Hypothesis: EXCHRTE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.466156	0.1288
Test critical values:	1% level	-3.544063	
	5% level	-2.910860	
	10% level	-2.593090	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXCHRTE)
Method: Least Squares
Date: 11/16/18 Time: 11:56
Sample (adjusted): 3 62
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCHRTE(-1)	-0.083298	0.033776	-2.466156	0.0167
D(EXCHRTE(-1))	-0.367478	0.117494	-3.127627	0.0028
C	1143.000	428.8104	2.665512	0.0100

R-squared	0.217780	Mean dependent var	67.68333
Adjusted R-squared	0.190334	S.D. dependent var	355.6085
S.E. of regression	319.9817	Akaike info criterion	14.42311
Sum squared resid	5836131.	Schwarz criterion	14.52783
Log likelihood	-429.6933	Hannan-Quinn criter.	14.46407
F-statistic	7.934774	Durbin-Watson stat	2.015443
Prob(F-statistic)	0.000912		

Null Hypothesis: INF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.572714	0.4903
Test critical values:	1% level	-3.542097	
	5% level	-2.910019	
	10% level	-2.592645	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 11/16/18 Time: 11:57
Sample (adjusted): 2 62
Included observations: 61 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.091978	0.058483	-1.572714	0.1211
C	0.004573	0.003290	1.389640	0.1699

R-squared	0.040236	Mean dependent var	-0.000328
Adjusted R-squared	0.023969	S.D. dependent var	0.008360
S.E. of regression	0.008259	Akaike info criterion	-6.722724
Sum squared resid	0.004025	Schwarz criterion	-6.653515
Log likelihood	207.0431	Hannan-Quinn criter.	-6.695600
F-statistic	2.473428	Durbin-Watson stat	1.813720
Prob(F-statistic)	0.121133		

Null Hypothesis: M1 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.088850	0.7150
Test critical values:	1% level	-3.542097	
	5% level	-2.910019	
	10% level	-2.592645	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M1)
Method: Least Squares
Date: 11/16/18 Time: 11:58
Sample (adjusted): 2 62
Included observations: 61 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M1(-1)	-0.096870	0.088966	-1.088850	0.2806
C	90484.50	75132.44	1.204333	0.2333

R-squared	0.019699	Mean dependent var	10073.66
Adjusted R-squared	0.003084	S.D. dependent var	108152.0
S.E. of regression	107985.1	Akaike info criterion	26.04961
Sum squared resid	6.88E+11	Schwarz criterion	26.11882
Log likelihood	-792.5131	Hannan-Quinn criter.	26.07673
F-statistic	1.185594	Durbin-Watson stat	1.889763
Prob(F-statistic)	0.280648		

Null Hypothesis: M2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.578080	0.4876
Test critical values:	1% level	-3.542097	
	5% level	-2.910019	
	10% level	-2.592645	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M2)
Method: Least Squares
Date: 11/16/18 Time: 11:59
Sample (adjusted): 2 62
Included observations: 61 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2(-1)	-0.079889	0.050624	-1.578080	0.1199
C	116934.4	97766.00	1.196064	0.2365

R-squared	0.040500	Mean dependent var	-8192.246
Adjusted R-squared	0.024237	S.D. dependent var	452217.5
S.E. of regression	446703.7	Akaike info criterion	28.88942
Sum squared resid	1.18E+13	Schwarz criterion	28.95862
Log likelihood	-879.1272	Hannan-Quinn criter.	28.91654
F-statistic	2.490335	Durbin-Watson stat	1.934033
Prob(F-statistic)	0.119894		

Null Hypothesis: SUKU_BUNGA has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.962166	0.7613
Test critical values:	1% level	-3.542097	
	5% level	-2.910019	
	10% level	-2.592645	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SUKU_BUNGA)
Method: Least Squares
Date: 11/16/18 Time: 11:59
Sample (adjusted): 2 62
Included observations: 61 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SUKU_BUNGA(-1)	-0.030754	0.031963	-0.962166	0.3399
C	0.197532	0.208672	0.946616	0.3477

R-squared	0.015448	Mean dependent var	0.000328
Adjusted R-squared	-0.001239	S.D. dependent var	0.305897
S.E. of regression	0.306087	Akaike info criterion	0.502341
Sum squared resid	5.527659	Schwarz criterion	0.571550
Log likelihood	-13.32141	Hannan-Quinn criter.	0.529465
F-statistic	0.925763	Durbin-Watson stat	1.669615
Prob(F-statistic)	0.339893		

Null Hypothesis: M1ISL has a unit root
Exogenous: Constant
Lag Length: 6 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.179350	0.6772
Test critical values:	1% level	-3.555023	
	5% level	-2.915522	
	10% level	-2.595565	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M1ISL)
Method: Least Squares
Date: 11/16/18 Time: 12:02
Sample (adjusted): 8 62
Included observations: 55 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M1ISL(-1)	-0.051220	0.043431	-1.179350	0.2442
D(M1ISL(-1))	-0.404699	0.158883	-2.547144	0.0142
D(M1ISL(-2))	-0.409086	0.178714	-2.289055	0.0266
D(M1ISL(-3))	-0.377226	0.175877	-2.144826	0.0372
D(M1ISL(-4))	-0.388660	0.175730	-2.211685	0.0319
D(M1ISL(-5))	-0.268997	0.178800	-1.504462	0.1392
D(M1ISL(-6))	0.411354	0.164785	2.496304	0.0161
C	37618.59	22825.06	1.648127	0.1060

R-squared	0.515679	Mean dependent var	2932.504
Adjusted R-squared	0.443546	S.D. dependent var	41213.81
S.E. of regression	30743.77	Akaike info criterion	23.63849
Sum squared resid	4.44E+10	Schwarz criterion	23.93046
Log likelihood	-642.0584	Hannan-Quinn criter.	23.75140
F-statistic	7.149021	Durbin-Watson stat	1.939754
Prob(F-statistic)	0.000008		

Null Hypothesis: M2ISL has a unit root
Exogenous: Constant
Lag Length: 7 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.397353	0.5769
Test critical values:	1% level	-3.557472	
	5% level	-2.916566	
	10% level	-2.596116	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M2ISL)
Method: Least Squares
Date: 11/16/18 Time: 12:02
Sample (adjusted): 9 62
Included observations: 54 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2ISL(-1)	-0.048924	0.035012	-1.397353	0.1692
D(M2ISL(-1))	-0.577482	0.168363	-3.429990	0.0013
D(M2ISL(-2))	-0.374317	0.191226	-1.957459	0.0565
D(M2ISL(-3))	-0.278246	0.200501	-1.387750	0.1720
D(M2ISL(-4))	-0.261394	0.199525	-1.310080	0.1968
D(M2ISL(-5))	-0.082772	0.200834	-0.412138	0.6822
D(M2ISL(-6))	0.612874	0.192880	3.177494	0.0027
D(M2ISL(-7))	0.355574	0.174778	2.034434	0.0478
C	36703.35	20974.68	1.749888	0.0870

R-squared	0.567103	Mean dependent var	5031.485
Adjusted R-squared	0.490144	S.D. dependent var	40841.96
S.E. of regression	29162.87	Akaike info criterion	23.55019
Sum squared resid	3.83E+10	Schwarz criterion	23.88169
Log likelihood	-626.8552	Hannan-Quinn criter.	23.67804
F-statistic	7.368865	Durbin-Watson stat	1.753188
Prob(F-statistic)	0.000003		

Null Hypothesis: RS has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.742354	0.4052
Test critical values:	1% level	-3.542097	
	5% level	-2.910019	
	10% level	-2.592645	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RS)
Method: Least Squares
Date: 11/16/18 Time: 12:03
Sample (adjusted): 2 62
Included observations: 61 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RS(-1)	-0.096377	0.055314	-1.742354	0.0867
C	0.500643	0.326174	1.534894	0.1302

R-squared	0.048936	Mean dependent var	-0.008558
Adjusted R-squared	0.032816	S.D. dependent var	1.150309
S.E. of regression	1.131277	Akaike info criterion	3.116808
Sum squared resid	75.50746	Schwarz criterion	3.186017
Log likelihood	-93.06266	Hannan-Quinn criter.	3.143932
F-statistic	3.035797	Durbin-Watson stat	1.774428
Prob(F-statistic)	0.086657		

Stasionary Test data 1st different :

Null Hypothesis: D(EXCHRTE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.16089	0.0000
Test critical values:	1% level	-3.544063	
	5% level	-2.910860	
	10% level	-2.593090	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXCHRTE,2)
Method: Least Squares
Date: 11/16/18 Time: 12:05
Sample (adjusted): 3 62
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXCHRTE(-1))	-1.367583	0.122534	-11.16089	0.0000
C	90.55923	43.75091	2.069882	0.0429

R-squared	0.682306	Mean dependent var	5.450000
Adjusted R-squared	0.676828	S.D. dependent var	587.0118
S.E. of regression	333.7057	Akaike info criterion	14.49116
Sum squared resid	6458849.	Schwarz criterion	14.56097
Log likelihood	-432.7348	Hannan-Quinn criter.	14.51847
F-statistic	124.5654	Durbin-Watson stat	1.978174
Prob(F-statistic)	0.000000		

Null Hypothesis: D(INF) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.272382	0.0000
Test critical values:	1% level	-3.544063	
	5% level	-2.910860	
	10% level	-2.593090	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF,2)
Method: Least Squares
Date: 11/16/18 Time: 12:05
Sample (adjusted): 3 62
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-0.953895	0.131167	-7.272382	0.0000
C	-0.000318	0.001097	-0.289739	0.7730

R-squared	0.476948	Mean dependent var	0.000000
Adjusted R-squared	0.467929	S.D. dependent var	0.011644
S.E. of regression	0.008494	Akaike info criterion	-6.666188
Sum squared resid	0.004184	Schwarz criterion	-6.596377
Log likelihood	201.9856	Hannan-Quinn criter.	-6.638881
F-statistic	52.88754	Durbin-Watson stat	1.951468
Prob(F-statistic)	0.000000		

Null Hypothesis: D(M1) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.779353	0.0000
Test critical values:	1% level	-3.544063	
	5% level	-2.910860	
	10% level	-2.593090	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M1,2)
Method: Least Squares
Date: 11/16/18 Time: 12:16
Sample (adjusted): 3 62
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M1(-1))	-1.024908	0.131747	-7.779353	0.0000
C	10790.77	14268.01	0.756291	0.4525

R-squared	0.510624	Mean dependent var	-824.5497
Adjusted R-squared	0.502187	S.D. dependent var	155781.1
S.E. of regression	109912.7	Akaike info criterion	26.08553
Sum squared resid	7.01E+11	Schwarz criterion	26.15534
Log likelihood	-780.5658	Hannan-Quinn criter.	26.11283
F-statistic	60.51834	Durbin-Watson stat	1.994997
Prob(F-statistic)	0.000000		

Null Hypothesis: D(M1ISL) has a unit root
Exogenous: Constant
Lag Length: 5 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.963258	0.0448
Test critical values:	1% level	-3.555023	
	5% level	-2.915522	
	10% level	-2.595565	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M1ISL,2)
Method: Least Squares
Date: 11/16/18 Time: 12:07
Sample (adjusted): 8 62
Included observations: 55 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M1ISL(-1))	-2.515348	0.848845	-2.963258	0.0047
D(M1ISL(-1),2)	1.077725	0.729588	1.477169	0.1462
D(M1ISL(-2),2)	0.640809	0.590168	1.085808	0.2830
D(M1ISL(-3),2)	0.248142	0.454122	0.546422	0.5873
D(M1ISL(-4),2)	-0.147375	0.314970	-0.467901	0.6420
D(M1ISL(-5),2)	-0.415721	0.165413	-2.513229	0.0154
C	11780.35	6427.873	1.832698	0.0731

R-squared	0.792540	Mean dependent var	-2307.517
Adjusted R-squared	0.766608	S.D. dependent var	63896.24
S.E. of regression	30868.69	Akaike info criterion	23.63129
Sum squared resid	4.57E+10	Schwarz criterion	23.88676
Log likelihood	-642.8604	Hannan-Quinn criter.	23.73008
F-statistic	30.56174	Durbin-Watson stat	1.916339
Prob(F-statistic)	0.000000		

Null Hypothesis: D(M2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.653816	0.0000
Test critical values:	1% level	-3.544063	
	5% level	-2.910860	
	10% level	-2.593090	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M2,2)
Method: Least Squares
Date: 11/16/18 Time: 12:08
Sample (adjusted): 3 62
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2(-1))	-1.005095	0.131319	-7.653816	0.0000
C	-7828.256	59384.48	-0.131823	0.8956

R-squared	0.502491	Mean dependent var	-554.1667
Adjusted R-squared	0.493914	S.D. dependent var	646518.0
S.E. of regression	459931.3	Akaike info criterion	28.94831
Sum squared resid	1.23E+13	Schwarz criterion	29.01812
Log likelihood	-866.4492	Hannan-Quinn criter.	28.97561
F-statistic	58.58090	Durbin-Watson stat	1.999656
Prob(F-statistic)	0.000000		

Null Hypothesis: D(M2ISL) has a unit root
Exogenous: Constant
Lag Length: 6 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.638194	0.4565
Test critical values:	1% level	-3.557472	
	5% level	-2.916566	
	10% level	-2.596116	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M2ISL,2)
Method: Least Squares
Date: 11/16/18 Time: 12:08
Sample (adjusted): 9 62
Included observations: 54 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2ISL(-1))	-1.695188	1.034791	-1.638194	0.1082
D(M2ISL(-1),2)	0.083737	0.963958	0.086868	0.9312
D(M2ISL(-2),2)	-0.321383	0.813564	-0.395031	0.6946
D(M2ISL(-3),2)	-0.616136	0.647310	-0.951841	0.3462
D(M2ISL(-4),2)	-0.883228	0.484221	-1.824020	0.0746
D(M2ISL(-5),2)	-0.966574	0.325181	-2.972418	0.0047
D(M2ISL(-6),2)	-0.351666	0.176556	-1.991812	0.0523
C	9866.871	8518.759	1.158252	0.2527

R-squared	0.809367	Mean dependent var	-1207.493
Adjusted R-squared	0.780357	S.D. dependent var	62867.02
S.E. of regression	29463.29	Akaike info criterion	23.55563
Sum squared resid	3.99E+10	Schwarz criterion	23.85030
Log likelihood	-628.0020	Hannan-Quinn criter.	23.66927
F-statistic	27.90015	Durbin-Watson stat	1.707395
Prob(F-statistic)	0.000000		

Null Hypothesis: D(RS) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.089851	0.0000
Test critical values:	1% level	-3.544063	
	5% level	-2.910860	
	10% level	-2.593090	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RS,2)
Method: Least Squares
Date: 11/16/18 Time: 12:09
Sample (adjusted): 3 62
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RS(-1))	-0.929090	0.131045	-7.089851	0.0000
C	-0.006581	0.150670	-0.043681	0.9653

R-squared	0.464282	Mean dependent var	0.005903
Adjusted R-squared	0.455046	S.D. dependent var	1.580855
S.E. of regression	1.167003	Akaike info criterion	3.179521
Sum squared resid	78.99002	Schwarz criterion	3.249332
Log likelihood	-93.38562	Hannan-Quinn criter.	3.206828
F-statistic	50.26599	Durbin-Watson stat	2.000098
Prob(F-statistic)	0.000000		

Null Hypothesis: D(SUKU_BUNGA) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.527164	0.0000
Test critical values:	1% level	-3.544063	
	5% level	-2.910860	
	10% level	-2.593090	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SUKU_BUNGA,2)
Method: Least Squares
Date: 11/16/18 Time: 12:09
Sample (adjusted): 3 62
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SUKU_BUNGA(-1))	-0.848503	0.129996	-6.527164	0.0000
C	-4.54E-05	0.039705	-0.001144	0.9991

R-squared	0.423481	Mean dependent var	-0.002167
Adjusted R-squared	0.413541	S.D. dependent var	0.401599
S.E. of regression	0.307547	Akaike info criterion	0.512386
Sum squared resid	5.485931	Schwarz criterion	0.582197
Log likelihood	-13.37158	Hannan-Quinn criter.	0.539693
F-statistic	42.60386	Durbin-Watson stat	2.020026
Prob(F-statistic)	0.000000		

M1 :

Lag Length Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LOG(M1) LOG(EXCHRTE) INF SUKU_BUNGA
Exogenous variables: C
Date: 11/19/18 Time: 10:04
Sample: 1 63
Included observations: 57

Lag	LogL	LR	FPE	AIC	SC	HQ
0	164.5134	NA	4.21e-08	-5.632049	-5.488677	-5.576330
1	378.4229	390.2910	4.07e-11*	-12.57624*	-11.85938*	-12.29764*
2	394.0939	26.39340*	4.15e-11	-12.56470	-11.27435	-12.06323
3	402.3723	12.78062	5.56e-11	-12.29377	-10.42993	-11.56941
4	408.9645	9.252225	8.07e-11	-11.96367	-9.526343	-11.01644
5	417.8000	11.16058	1.11e-10	-11.71228	-8.701467	-10.54218

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Cointegration Test

Date: 11/19/18 Time: 10:06
Sample (adjusted): 4 62
Included observations: 59 after adjustments
Trend assumption: Linear deterministic trend
Series: LOG(M1) LOG(EXCHRTE) INF SUKU_BUNGA
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.201090	30.90941	47.85613	0.6714
At most 1	0.151687	17.66354	29.79707	0.5910
At most 2	0.094250	7.957695	15.49471	0.4699
At most 3	0.035248	2.117159	3.841466	0.1457

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.201090	13.24588	27.58434	0.8709
At most 1	0.151687	9.705840	21.13162	0.7717
At most 2	0.094250	5.840536	14.26460	0.6338
At most 3	0.035248	2.117159	3.841466	0.1457

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Vector Autoregression Estimates
Date: 11/19/18 Time: 10:04
Sample (adjusted): 3 62
Included observations: 60 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LOG(M1)	LOG(EXCH...	INF	SUKU_BUNGA
LOG(M1(-1))	0.908955	-0.050082	-0.002580	0.704334
	(0.17346)	(0.04028)	(0.01277)	(0.45778)
	[5.24021]	[-1.24323]	[-0.20204]	[1.53859]
LOG(M1(-2))	-0.071320	0.030322	-0.004672	-0.605821
	(0.18356)	(0.04263)	(0.01351)	(0.48445)
	[-0.38853]	[0.71127]	[-0.34572]	[-1.25053]
LOG(EXCHRTE(-1))	0.147031	0.466136	-0.015498	-0.334146
	(0.53853)	(0.12507)	(0.03965)	(1.42127)
	[0.27302]	[3.72700]	[-0.39087]	[-0.23510]
LOG(EXCHRTE(-2))	-0.281975	0.465694	-0.025770	0.223362
	(0.53553)	(0.12437)	(0.03943)	(1.41334)
	[-0.52653]	[3.74434]	[-0.65360]	[0.15804]
INF(-1)	-1.723105	0.611257	0.856906	12.07679
	(1.88624)	(0.43807)	(0.13887)	(4.97806)
	[-0.91351]	[1.39536]	[6.17037]	[2.42600]
INF(-2)	1.873213	-0.400817	-0.136322	-3.795914
	(1.90704)	(0.44290)	(0.14041)	(5.03296)
	[0.98226]	[-0.90499]	[-0.97092]	[-0.75421]
SUKU_BUNGA(-1)	-0.000899	0.028455	0.004080	0.841469
	(0.06587)	(0.01530)	(0.00485)	(0.17384)
	[-0.01365]	[1.86001]	[0.84126]	[4.84035]
SUKU_BUNGA(-2)	-0.024826	-0.029499	-0.002603	0.059032
	(0.06279)	(0.01458)	(0.00462)	(0.16572)
	[-0.39537]	[-2.02282]	[-0.56312]	[0.35622]
C	3.647549	0.916620	0.493200	-0.100746
	(3.13389)	(0.72782)	(0.23073)	(8.27079)
	[1.16390]	[1.25940]	[2.13754]	[-0.01218]
R-squared	0.717876	0.942362	0.838071	0.953338
Adj. R-squared	0.673621	0.933321	0.812671	0.946018
Sum sq. resids	0.611196	0.032966	0.003313	4.257027
S.E. equation	0.109473	0.025424	0.008060	0.288914
F-statistic	16.22145	104.2299	32.99418	130.2453
Log likelihood	52.46414	140.0626	208.9905	-5.763104
Akaike AIC	-1.448805	-4.368753	-6.666350	0.492103
Schwarz SC	-1.134653	-4.054601	-6.352199	0.806255
Mean dependent	13.62192	9.444967	0.053000	6.423667
S.D. dependent	0.191622	0.098458	0.018622	1.243497

Determinant resid covariance (dof adj.)	2.39E-11
Determinant resid covariance	1.25E-11
Log likelihood	412.6971
Akaike information criterion	-12.55657
Schwarz criterion	-11.29996

Estimation Proc:
==========
LS 1 2 LOG(M1) LOG(EXCHRTE) INF SUKU_BUNGA

VAR Model:
==========
LOG(M1) = C(1,1)*LOG(M1(-1)) + C(1,2)*LOG(M1(-2)) + C(1,3)*LOG(EXCHRTE(-1)) + C(1,4)*LOG(EXCHRTE(-2)) + C(1,5)*INF(-1) + C(1,6)*INF(-2) + C(1,7)*SUKU_BUNGA(-1) + C(1,8)*SUKU_BUNGA(-2) + C(1,9)

LOG(EXCHRTE) = C(2,1)*LOG(M1(-1)) + C(2,2)*LOG(M1(-2)) + C(2,3)*LOG(EXCHRTE(-1)) + C(2,4)*LOG(EXCHRTE(-2)) + C(2,5)*INF(-1) + C(2,6)*INF(-2) + C(2,7)*SUKU_BUNGA(-1) + C(2,8)*SUKU_BUNGA(-2) + C(2,9)

INF = C(3,1)*LOG(M1(-1)) + C(3,2)*LOG(M1(-2)) + C(3,3)*LOG(EXCHRTE(-1)) + C(3,4)*LOG(EXCHRTE(-2)) + C(3,5)*INF(-1) + C(3,6)*INF(-2) + C(3,7)*SUKU_BUNGA(-1) + C(3,8)*SUKU_BUNGA(-2) + C(3,9)

SUKU_BUNGA = C(4,1)*LOG(M1(-1)) + C(4,2)*LOG(M1(-2)) + C(4,3)*LOG(EXCHRTE(-1)) + C(4,4)*LOG(EXCHRTE(-2)) + C(4,5)*INF(-1) + C(4,6)*INF(-2) + C(4,7)*SUKU_BUNGA(-1) + C(4,8)*SUKU_BUNGA(-2) + C(4,9)

VAR Model - Substituted Coefficients:
==========
LOG(M1) = 0.908955210376*LOG(M1(-1)) - 0.0713199220632*LOG(M1(-2)) + 0.147031097487*LOG(EXCHRTE(-1)) - 0.281974653568*LOG(EXCHRTE(-2)) - 1.72310459028*INF(-1) + 1.87321270337*INF(-2) - 0.000899201705598*SUKU_BUNGA(-1) - 0.0248258330689*SUKU_BUNGA(-2) + 3.6475494911

LOG(EXCHRTE) = - 0.050082391683*LOG(M1(-1)) + 0.0303224315987*LOG(M1(-2)) + 0.466136459138*LOG(EXCHRTE(-1)) + 0.465693979274*LOG(EXCHRTE(-2)) + 0.611256534999*INF(-1) - 0.400816659166*INF(-2) + 0.0284548213707*SUKU_BUNGA(-1) - 0.0294985085899*SUKU_BUNGA(-2) + 0.916619972845

INF = - 0.00258025550502*LOG(M1(-1)) - 0.0046722996127*LOG(M1(-2)) - 0.015497653082*LOG(EXCHRTE(-1)) - 0.0257703580728*LOG(EXCHRTE(-2)) + 0.856905501397*INF(-1) - 0.136322398138*INF(-2) + 0.00407994361479*SUKU_BUNGA(-1) - 0.00260331178473*SUKU_BUNGA(-2) + 0.493200035795

SUKU_BUNGA = 0.704334276114*LOG(M1(-1)) - 0.605820910005*LOG(M1(-2)) - 0.334146389324*LOG(EXCHRTE(-1)) + 0.223361794179*LOG(EXCHRTE(-2)) + 12.0767930929*INF(-1) - 3.79591372932*INF(-2) + 0.841469182625*SUKU_BUNGA(-1) + 0.0590319611697*SUKU_BUNGA(-2) - 0.100746098063

System: UNTITLED
Estimation Method: Least Squares
Date: 11/19/18 Time: 10:11
Sample: 3 62
Included observations: 60
Total system (balanced) observations 240

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.908955	0.173458	5.240210	0.0000
C(2)	-0.071320	0.183564	-0.388529	0.6980
C(3)	0.147031	0.538533	0.273021	0.7851
C(4)	-0.281974	0.535531	-0.526532	0.5991
C(5)	-1.723104	1.886241	-0.913512	0.3621
C(6)	1.873213	1.907044	0.982260	0.3271
C(7)	-0.000899	0.065872	-0.013651	0.9891
C(8)	-0.024826	0.062791	-0.395369	0.6930
C(9)	3.647549	3.133893	1.163903	0.2458
C(10)	-0.050082	0.040284	-1.243225	0.2152
C(11)	0.030322	0.042631	0.711270	0.4777
C(12)	0.466136	0.125070	3.726999	0.0003
C(13)	0.465694	0.124373	3.744335	0.0002
C(14)	0.611257	0.438065	1.395356	0.1644
C(15)	-0.400817	0.442896	-0.904990	0.3665
C(16)	0.028455	0.015298	1.860014	0.0643
C(17)	-0.029499	0.014583	-2.022823	0.0444
C(18)	0.916620	0.727823	1.259400	0.2093
C(19)	-0.002580	0.012771	-0.202043	0.8401
C(20)	-0.004672	0.013515	-0.345715	0.7299
C(21)	-0.015498	0.039649	-0.390867	0.6963
C(22)	-0.025770	0.039428	-0.653599	0.5141
C(23)	0.856906	0.138874	6.170372	0.0000
C(24)	-0.136322	0.140406	-0.970917	0.3327
C(25)	0.004080	0.004850	0.841262	0.4012
C(26)	-0.002603	0.004623	-0.563120	0.5740
C(27)	0.493200	0.230732	2.137541	0.0337
C(28)	0.704334	0.457780	1.538587	0.1255
C(29)	-0.605821	0.484452	-1.250528	0.2125
C(30)	-0.334146	1.421266	-0.235105	0.8144
C(31)	0.223362	1.413342	0.158038	0.8746
C(32)	12.07679	4.978060	2.426004	0.0161
C(33)	-3.795914	5.032962	-0.754211	0.4516
C(34)	0.841469	0.173845	4.840353	0.0000
C(35)	0.059032	0.165716	0.356224	0.7220
C(36)	-0.100746	8.270791	-0.012181	0.9903

Determinant residual covariance	1.25E-11

Equation: LOG(M1) = C(1)*LOG(M1(-1)) + C(2)*LOG(M1(-2)) + C(3)
*LOG(EXCHRTE(-1)) + C(4)*LOG(EXCHRTE(-2)) + C(5)*INF(-1) + C(6)
*INF(-2) + C(7)*SUKU_BUNGA(-1) + C(8)*SUKU_BUNGA(-2) + C(9)

Observations: 60

R-squared	0.717876	Mean dependent var	13.62192
Adjusted R-squared	0.673621	S.D. dependent var	0.191622
S.E. of regression	0.109473	Sum squared resid	0.611196
Durbin-Watson stat	2.059969		

Equation: LOG(EXCHRTE) = C(10)*LOG(M1(-1)) + C(11)*LOG(M1(-2)) +
C(12)*LOG(EXCHRTE(-1)) + C(13)*LOG(EXCHRTE(-2)) + C(14)*INF(
-1) + C(15)*INF(-2) + C(16)*SUKU_BUNGA(-1) + C(17)
*SUKU_BUNGA(-2) + C(18)

Observations: 60

R-squared	0.942362	Mean dependent var	9.444967
Adjusted R-squared	0.933321	S.D. dependent var	0.098458
S.E. of regression	0.025424	Sum squared resid	0.032966
Durbin-Watson stat	2.153354		

Equation: INF = C(19)*LOG(M1(-1)) + C(20)*LOG(M1(-2)) + C(21)
*LOG(EXCHRTE(-1)) + C(22)*LOG(EXCHRTE(-2)) + C(23)*INF(-1) +
C(24)*INF(-2) + C(25)*SUKU_BUNGA(-1) + C(26)*SUKU_BUNGA(-2) +
C(27)

Observations: 60

R-squared	0.838071	Mean dependent var	0.053000
Adjusted R-squared	0.812671	S.D. dependent var	0.018622
S.E. of regression	0.008060	Sum squared resid	0.003313
Durbin-Watson stat	1.945234		

Equation: SUKU_BUNGA = C(28)*LOG(M1(-1)) + C(29)*LOG(M1(-2)) +
C(30)*LOG(EXCHRTE(-1)) + C(31)*LOG(EXCHRTE(-2)) + C(32)*INF(
-1) + C(33)*INF(-2) + C(34)*SUKU_BUNGA(-1) + C(35)
*SUKU_BUNGA(-2) + C(36)

Observations: 60

R-squared	0.953338	Mean dependent var	6.423666
Adjusted R-squared	0.946018	S.D. dependent var	1.243497
S.E. of regression	0.288914	Sum squared resid	4.257027
Durbin-Watson stat	1.877961		

Granger's CasualityTest

Pairwise Granger Causality Tests
Date: 11/19/18 Time: 10:13
Sample: 1 63
Lags: 2

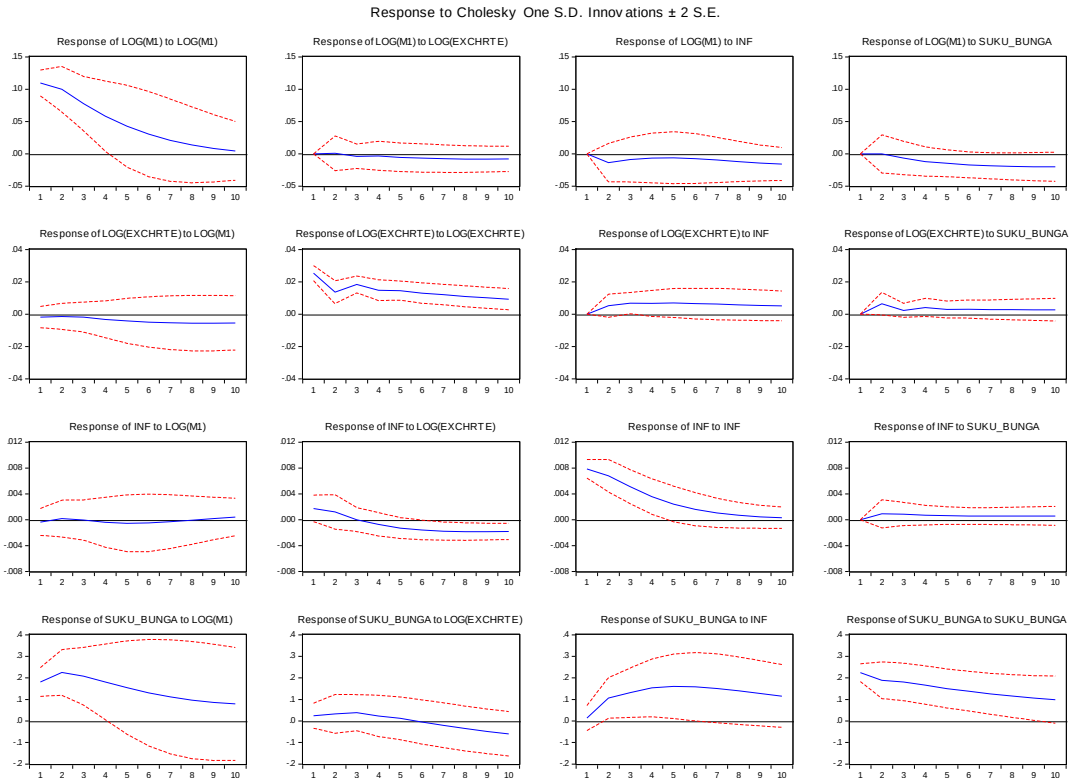
Null Hypothesis:	Obs	F-Statistic	Prob.
INF does not Granger Cause EXCHRTE	60	1.11592	0.3349
EXCHRTE does not Granger Cause INF		4.33778	0.0178
M1 does not Granger Cause EXCHRTE	60	0.00803	0.9920
EXCHRTE does not Granger Cause M1		0.07408	0.9287
SUKU_BUNGA does not Granger Cause EXCHRTE	60	1.35998	0.2652
EXCHRTE does not Granger Cause SUKU_BUNGA		1.68699	0.1945
M1 does not Granger Cause INF	60	0.59651	0.5543
INF does not Granger Cause M1		0.41173	0.6645
SUKU_BUNGA does not Granger Cause INF	60	0.37883	0.6864
INF does not Granger Cause SUKU_BUNGA		5.44700	0.0069
SUKU_BUNGA does not Granger Cause M1	60	1.86279	0.1649
M1 does not Granger Cause SUKU_BUNGA		0.65341	0.5243

Dependent Variable: LOG(M1)
Method: Least Squares
Date: 11/19/18 Time: 10:33
Sample (adjusted): 2 62
Included observations: 61 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.919201	2.384835	0.804752	0.4244
LOG(M1(-1))	0.904658	0.091476	9.889515	0.0000
LOG(EXCHRTE(-1))	-0.050028	0.163014	-0.306896	0.7601
INF(-1)	-0.027330	1.100730	-0.024829	0.9803
SUKU_BUNGA(-1)	-0.021674	0.014759	-1.468606	0.1475

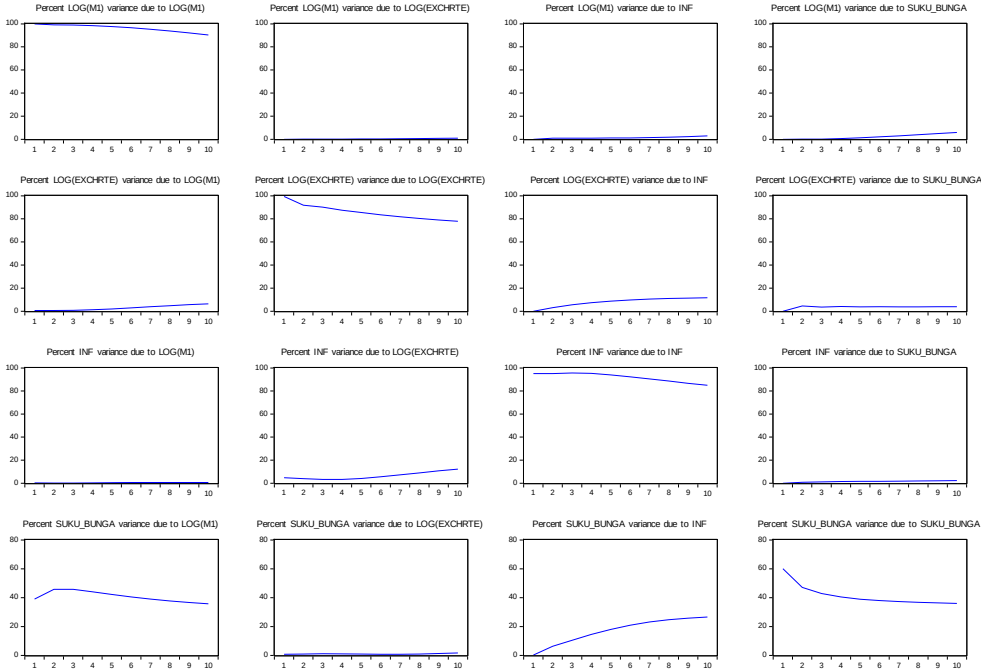
R-squared	0.707409	Mean dependent var	13.62245
Adjusted R-squared	0.686510	S.D. dependent var	0.190062
S.E. of regression	0.106416	Akaike info criterion	-1.564511
Sum squared resid	0.634163	Schwarz criterion	-1.391489
Log likelihood	52.71760	Hannan-Quinn criter.	-1.496702
F-statistic	33.84843	Durbin-Watson stat	1.920983
Prob(F-statistic)	0.000000		

Impulse Response



Variance Decomposition

Variance Decomposition



Variance Decomposition of LOG(M1):

Period	S.E.	LOG(M1)	LOG(EXC...	INF	SUKU_BU...
1	0.109473	100.0000	0.000000	0.000000	0.000000
2	0.148695	99.16619	0.002270	0.831354	0.000183
3	0.168079	98.85620	0.056349	0.935477	0.151973
4	0.178383	98.36281	0.084883	0.962819	0.589491
5	0.184170	97.62763	0.168417	1.014649	1.189308
6	0.187724	96.59484	0.280759	1.133198	1.991201
7	0.190208	95.29950	0.435421	1.362654	2.902428
8	0.192263	93.78157	0.607261	1.726184	3.884981
9	0.194186	92.11802	0.777698	2.229682	4.874601
10	0.196088	90.39006	0.925575	2.852418	5.831945

Variance Decomposition of LOG(EXCHRTE):

Period	S.E.	LOG(M1)	LOG(EXC...	INF	SUKU_BU...
1	0.025424	0.526764	99.47324	0.000000	0.000000
2	0.029996	0.606301	91.88516	2.995783	4.512753
3	0.035923	0.693419	90.15808	5.593988	3.554508
4	0.039724	1.229682	87.47590	7.320466	3.973950
5	0.043154	1.960081	85.49373	8.739381	3.806812
6	0.045896	2.885837	83.57890	9.717566	3.817695
7	0.048230	3.851324	81.90745	10.45208	3.789147
8	0.050187	4.799983	80.41602	10.98038	3.803619
9	0.051849	5.671209	79.11313	11.37990	3.835760
10	0.053261	6.439612	77.97649	11.69105	3.892853

Variance Decomposition of INF:

Period	S.E.	LOG(M1)	LOG(EXC...	INF	SUKU_BU...
1	0.008060	0.209249	4.661920	95.12883	0.000000
2	0.010648	0.144390	3.929637	95.18973	0.736244
3	0.011839	0.119134	3.178748	95.56593	1.136188
4	0.012408	0.218294	3.236160	95.20585	1.339699
5	0.012734	0.400354	4.114409	93.97949	1.505745
6	0.012957	0.534655	5.501017	92.32427	1.640058
7	0.013137	0.577016	7.187036	90.46008	1.775865
8	0.013295	0.566206	8.946118	88.57541	1.912264
9	0.013445	0.571146	10.65057	86.72657	2.051715
10	0.013590	0.648625	12.22273	84.93920	2.189443

Variance Decomposition of SUKU_BUNGA:

Period	S.E.	LOG(M1)	LOG(EXC...	INF	SUKU_BU...
1	0.288914	39.03509	0.666957	0.221091	60.07686
2	0.426661	45.74846	0.882415	6.316649	47.05248
3	0.525702	45.71520	1.106734	10.38987	42.78820
4	0.600681	44.09877	0.994894	14.47280	40.43354
5	0.658123	42.24596	0.862720	18.00140	38.88992
6	0.703174	40.47444	0.760387	20.85215	37.91302
7	0.738886	38.94513	0.762260	23.06349	37.22912
8	0.767827	37.65691	0.915580	24.68623	36.74128
9	0.791839	36.59009	1.234832	25.81918	36.35591
10	0.812331	35.70779	1.718938	26.55139	36.02189

Cholesky Ordering: LOG(M1) LOG(EXCHRTE) INF SUKU_BUNGA

M2 :

Lag Length Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LOG(M2) LOG(EXCHRTE) INF SUKU_BUNGA
Exogenous variables: C
Date: 11/19/18 Time: 10:23
Sample: 1 63
Included observations: 57

Lag	LogL	LR	FPE	AIC	SC	HQ
0	111.4862	NA	2.71e-07	-3.771445	-3.628073	-3.715726
1	320.4283	381.2278*	3.11e-10*	-10.54135*	-9.824486*	-10.26275*
2	334.7294	24.08604	3.33e-10	-10.48173	-9.191386	-9.980261
3	343.4594	13.47785	4.39e-10	-10.22665	-8.362809	-9.502295
4	349.6535	8.693516	6.47e-10	-9.882580	-7.445256	-8.935353
5	364.5576	18.82614	7.21e-10	-9.844125	-6.833313	-8.674021

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Cointegration Test

Date: 11/19/18 Time: 10:24
Sample (adjusted): 4 62
Included observations: 59 after adjustments
Trend assumption: Linear deterministic trend
Series: LOG(M2) LOG(EXCHRTE) INF SUKU BUNGA
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.201653	31.83006	47.85613	0.6215
At most 1	0.158772	18.54256	29.79707	0.5262
At most 2	0.084008	8.341930	15.49471	0.4296
At most 3	0.052227	3.164804	3.841466	0.0752

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.201653	13.28749	27.58434	0.8685
At most 1	0.158772	10.20063	21.13162	0.7256
At most 2	0.084008	5.177126	14.26460	0.7193
At most 3	0.052227	3.164804	3.841466	0.0752

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Vector Autoregression Estimates
Date: 11/21/18 Time: 13:54
Sample (adjusted): 3 62
Included observations: 60 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LOG(M2)	LOG(EXCH...	INF	SUKU BUNGA
LOG(M2(-1))	0.940931	-0.018394	0.001560	0.172151
	(0.14013)	(0.01392)	(0.00443)	(0.16104)
	[6.71468]	[-1.32135]	[0.35176]	[1.06897]
LOG(M2(-2))	-0.079149	0.009452	-0.003375	-0.117540
	(0.14191)	(0.01410)	(0.00449)	(0.16309)
	[-0.55774]	[0.67045]	[-0.75167]	[-0.72070]
LOG(EXCHRTE(-1))	-0.938368	0.465755	-0.016866	-0.446490
	(1.25449)	(0.12462)	(0.03970)	(1.44171)
	[-0.74801]	[3.73742]	[-0.42487]	[-0.30969]
LOG(EXCHRTE(-2))	0.227081	0.443543	-0.025790	0.504733
	(1.23896)	(0.12308)	(0.03920)	(1.42387)
	[0.18328]	[3.60378]	[-0.65782]	[0.35448]
INF(-1)	-7.545968	0.667902	0.856867	11.38565
	(4.37363)	(0.43447)	(0.13840)	(5.02638)
	[-1.72533]	[1.53727]	[6.19145]	[2.26518]
INF(-2)	8.551032	-0.411749	-0.126793	-3.993305
	(4.43670)	(0.44074)	(0.14039)	(5.09886)
	[1.92734]	[-0.93423]	[-0.90315]	[-0.78318]
SUKU BUNGA(-1)	-0.006795	0.022201	0.002989	0.949177
	(0.12542)	(0.01246)	(0.00397)	(0.14414)
	[-0.05418]	[1.78193]	[0.75309]	[6.58528]
SUKU BUNGA(-2)	-0.022307	-0.022018	-0.001274	-0.055471
	(0.11602)	(0.01153)	(0.00367)	(0.13334)
	[-0.19226]	[-1.91033]	[-0.34690]	[-0.41601]
C	8.778932	0.974930	0.431039	-1.022066
	(5.47173)	(0.54356)	(0.17314)	(6.28837)
	[1.60442]	[1.79361]	[2.48951]	[-0.16253]
R-squared	0.877726	0.943171	0.838810	0.952316
Adj. R-squared	0.858546	0.934257	0.813526	0.944836
Sum sq. resids	3.293715	0.032503	0.003298	4.350230
S.E. equation	0.254131	0.025245	0.008041	0.292059
F-statistic	45.76217	105.8043	33.17470	127.3182
Log likelihood	1.933540	140.4866	209.1278	-6.412836
Akaike AIC	0.235549	-4.382886	-6.670925	0.513761
Schwarz SC	0.549700	-4.068735	-6.356773	0.827913
Mean dependent	14.01365	9.444967	0.053000	6.423667
S.D. dependent	0.675695	0.098458	0.018622	1.243497

Determinant resid covariance (dof adj.)	1.93E-10
Determinant resid covariance	1.01E-10
Log likelihood	350.0720
Akaike information criterion	-10.46907
Schwarz criterion	-9.212461

Estimation Proc:
==========
LS 1 2 LOG(M2) LOG(EXCHRTE) INF SUKU_BUNGA

VAR Model:
==========
LOG(M2) = C(1,1)*LOG(M2(-1)) + C(1,2)*LOG(M2(-2)) + C(1,3)*LOG(EXCHRTE(-1)) + C(1,4)*LOG(EXCHRTE(-2)) + C(1,5)*INF(-1) + C(1,6)*INF(-2) + C(1,7)*SUKU_BUNGA(-1) + C(1,8)*SUKU_BUNGA(-2) + C(1,9)

LOG(EXCHRTE) = C(2,1)*LOG(M2(-1)) + C(2,2)*LOG(M2(-2)) + C(2,3)*LOG(EXCHRTE(-1)) + C(2,4)*LOG(EXCHRTE(-2)) + C(2,5)*INF(-1) + C(2,6)*INF(-2) + C(2,7)*SUKU_BUNGA(-1) + C(2,8)*SUKU_BUNGA(-2) + C(2,9)

INF = C(3,1)*LOG(M2(-1)) + C(3,2)*LOG(M2(-2)) + C(3,3)*LOG(EXCHRTE(-1)) + C(3,4)*LOG(EXCHRTE(-2)) + C(3,5)*INF(-1) + C(3,6)*INF(-2) + C(3,7)*SUKU_BUNGA(-1) + C(3,8)*SUKU_BUNGA(-2) + C(3,9)

SUKU_BUNGA = C(4,1)*LOG(M2(-1)) + C(4,2)*LOG(M2(-2)) + C(4,3)*LOG(EXCHRTE(-1)) + C(4,4)*LOG(EXCHRTE(-2)) + C(4,5)*INF(-1) + C(4,6)*INF(-2) + C(4,7)*SUKU_BUNGA(-1) + C(4,8)*SUKU_BUNGA(-2) + C(4,9)

VAR Model - Substituted Coefficients:
==========
LOG(M2) = 0.940930808201*LOG(M2(-1)) - 0.0791492476905*LOG(M2(-2)) - 0.938368476035*LOG(EXCHRTE(-1)) + 0.22708062555*LOG(EXCHRTE(-2)) - 7.54596814314*INF(-1) + 8.55103154593*INF(-2) - 0.00679454392918*SUKU_BUNGA(-1) - 0.0223069338938*SUKU_BUNGA(-2) + 8.77893167363

LOG(EXCHRTE) = - 0.0183937260477*LOG(M2(-1)) + 0.00945157870169*LOG(M2(-2)) + 0.465754758888*LOG(EXCHRTE(-1)) + 0.443543015734*LOG(EXCHRTE(-2)) + 0.667902290317*INF(-1) - 0.411748720182*INF(-2) + 0.022200875476*SUKU_BUNGA(-1) - 0.0220179566589*SUKU_BUNGA(-2) + 0.974929982641

INF = 0.00155975208639*LOG(M2(-1)) - 0.00337538238161*LOG(M2(-2)) - 0.0168655115902*LOG(EXCHRTE(-1)) - 0.0257895428056*LOG(EXCHRTE(-2)) + 0.856866734802*INF(-1) - 0.126793102254*INF(-2) + 0.00298872350631*SUKU_BUNGA(-1) - 0.00127360061635*SUKU_BUNGA(-2) + 0.431038697402

SUKU_BUNGA = 0.172151230793*LOG(M2(-1)) - 0.117540234783*LOG(M2(-2)) - 0.446490042413*LOG(EXCHRTE(-1)) + 0.504732735575*LOG(EXCHRTE(-2)) + 11.385650623*INF(-1) - 3.99330502717*INF(-2) + 0.949176866815*SUKU_BUNGA(-1) - 0.0554712096161*SUKU_BUNGA(-2) - 1.02206600635

System: UNTITLED
Estimation Method: Least Squares
Date: 11/19/18 Time: 10:26
Sample: 3 62
Included observations: 60
Total system (balanced) observations 240

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.940931	0.140130	6.714678	0.0000
C(2)	-0.079149	0.141912	-0.557735	0.5776
C(3)	-0.938368	1.254485	-0.748011	0.4553
C(4)	0.227081	1.238961	0.183283	0.8548
C(5)	-7.545968	4.373635	-1.725331	0.0860
C(6)	8.551032	4.436697	1.927342	0.0553
C(7)	-0.006795	0.125418	-0.054175	0.9568
C(8)	-0.022307	0.116024	-0.192261	0.8477
C(9)	8.778932	5.471734	1.604415	0.1102
C(10)	-0.018394	0.013920	-1.321349	0.1879
C(11)	0.009452	0.014097	0.670450	0.5033
C(12)	0.465755	0.124619	3.737423	0.0002
C(13)	0.443543	0.123077	3.603784	0.0004
C(14)	0.667902	0.434472	1.537273	0.1258
C(15)	-0.411749	0.440737	-0.934228	0.3513
C(16)	0.022201	0.012459	1.781930	0.0762
C(17)	-0.022018	0.011526	-1.910327	0.0575
C(18)	0.974930	0.543556	1.793614	0.0744
C(19)	0.001560	0.004434	0.351759	0.7254
C(20)	-0.003375	0.004491	-0.751668	0.4531
C(21)	-0.016866	0.039696	-0.424870	0.6714
C(22)	-0.025790	0.039204	-0.657821	0.5114
C(23)	0.856867	0.138395	6.191452	0.0000
C(24)	-0.126793	0.140391	-0.903145	0.3675
C(25)	0.002989	0.003969	0.753091	0.4523
C(26)	-0.001274	0.003671	-0.346901	0.7290
C(27)	0.431039	0.173142	2.489505	0.0136
C(28)	0.172151	0.161044	1.068968	0.2863
C(29)	-0.117540	0.163092	-0.720701	0.4719
C(30)	-0.446490	1.441712	-0.309694	0.7571
C(31)	0.504733	1.423871	0.354479	0.7233
C(32)	11.38565	5.026383	2.265178	0.0246
C(33)	-3.993305	5.098857	-0.783177	0.4344
C(34)	0.949177	0.144136	6.585277	0.0000
C(35)	-0.055471	0.133341	-0.416011	0.6778
C(36)	-1.022066	6.288369	-0.162533	0.8710

Determinant residual covariance	1.01E-10

Equation: LOG(M2) = C(1)*LOG(M2(-1)) + C(2)*LOG(M2(-2)) + C(3)
*LOG(EXCHRTE(-1)) + C(4)*LOG(EXCHRTE(-2)) + C(5)*INF(-1) + C(6)
*INF(-2) + C(7)*SUKU_BUNGA(-1) + C(8)*SUKU_BUNGA(-2) + C(9)

Observations: 60

R-squared	0.877726	Mean dependent var	14.01365
Adjusted R-squared	0.858546	S.D. dependent var	0.675695
S.E. of regression	0.254131	Sum squared resid	3.293715
Durbin-Watson stat	2.149638		

Equation: LOG(EXCHRTE) = C(10)*LOG(M2(-1)) + C(11)*LOG(M2(-2)) +
C(12)*LOG(EXCHRTE(-1)) + C(13)*LOG(EXCHRTE(-2)) + C(14)*INF(
-1) + C(15)*INF(-2) + C(16)*SUKU_BUNGA(-1) + C(17)
*SUKU_BUNGA(-2) + C(18)

Observations: 60

R-squared	0.943171	Mean dependent var	9.444967
Adjusted R-squared	0.934257	S.D. dependent var	0.098458
S.E. of regression	0.025245	Sum squared resid	0.032503
Durbin-Watson stat	2.178345		

Equation: INF = C(19)*LOG(M2(-1)) + C(20)*LOG(M2(-2)) + C(21)
*LOG(EXCHRTE(-1)) + C(22)*LOG(EXCHRTE(-2)) + C(23)*INF(-1) +
C(24)*INF(-2) + C(25)*SUKU_BUNGA(-1) + C(26)*SUKU_BUNGA(-2) +
C(27)

Observations: 60

R-squared	0.838810	Mean dependent var	0.053000
Adjusted R-squared	0.813526	S.D. dependent var	0.018622
S.E. of regression	0.008041	Sum squared resid	0.003298
Durbin-Watson stat	1.941932		

Equation: SUKU_BUNGA = C(28)*LOG(M2(-1)) + C(29)*LOG(M2(-2)) +
C(30)*LOG(EXCHRTE(-1)) + C(31)*LOG(EXCHRTE(-2)) + C(32)*INF(
-1) + C(33)*INF(-2) + C(34)*SUKU_BUNGA(-1) + C(35)
*SUKU_BUNGA(-2) + C(36)

Observations: 60

R-squared	0.952316	Mean dependent var	6.423666
Adjusted R-squared	0.944836	S.D. dependent var	1.243497
S.E. of regression	0.292059	Sum squared resid	4.350230
Durbin-Watson stat	1.919376		

Granger's Casuality Test

Pairwise Granger Causality Tests
Date: 11/19/18 Time: 10:28
Sample: 1 63
Lags: 2

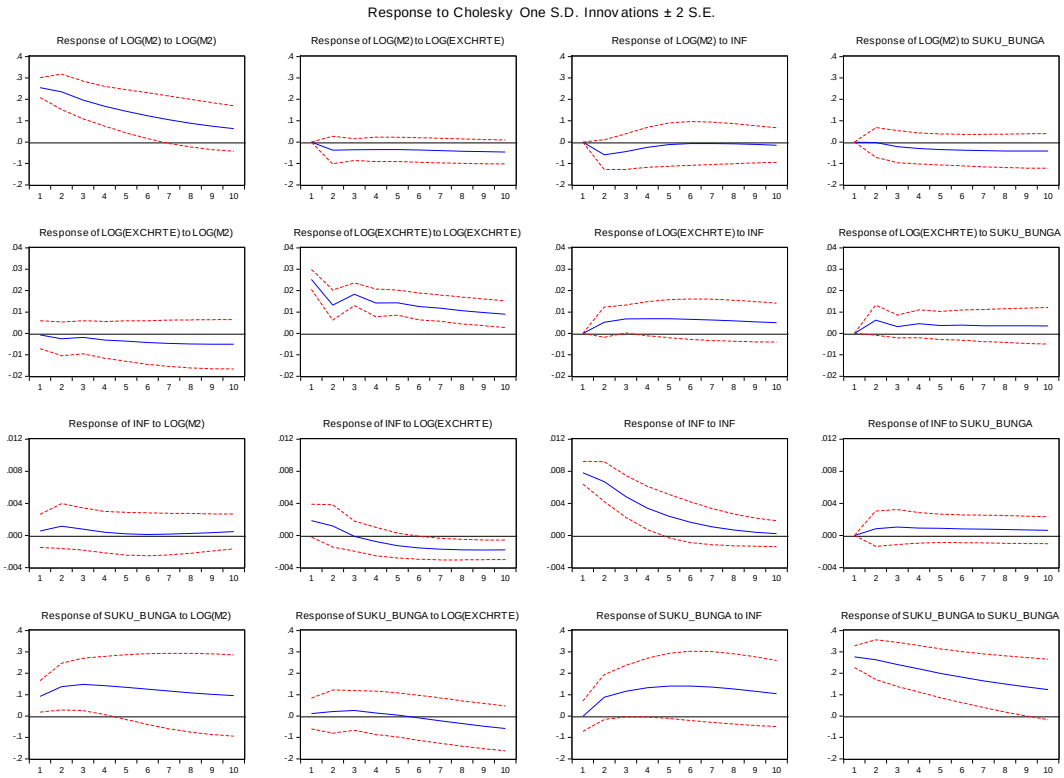
Null Hypothesis:	Obs	F-Statistic	Prob.
INF does not Granger Cause EXCHRTE	60	1.11592	0.3349
EXCHRTE does not Granger Cause INF		4.33778	0.0178
SUKU_BUNGA does not Granger Cause EXCHRTE	60	1.35998	0.2652
EXCHRTE does not Granger Cause SUKU_BUNGA		1.68699	0.1945
M2 does not Granger Cause EXCHRTE	60	0.56067	0.5741
EXCHRTE does not Granger Cause M2		1.82975	0.1701
SUKU_BUNGA does not Granger Cause INF	60	0.37883	0.6864
INF does not Granger Cause SUKU_BUNGA		5.44700	0.0069
M2 does not Granger Cause INF	60	1.05864	0.3539
INF does not Granger Cause M2		1.88652	0.1613
M2 does not Granger Cause SUKU_BUNGA	60	1.36684	0.2634
SUKU_BUNGA does not Granger Cause M2		0.05876	0.9430

Dependent Variable: LOG(M2)
Method: Least Squares
Date: 11/19/18 Time: 10:29
Sample (adjusted): 2 62
Included observations: 61 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.738710	4.934725	1.568215	0.1225
LOG(M2(-1))	0.876203	0.073338	11.94752	0.0000
LOG(EXCHRTE(-1))	-0.626433	0.450702	-1.389905	0.1701
INF(-1)	-1.216333	2.618137	-0.464579	0.6440
SUKU_BUNGA(-1)	-0.004974	0.036740	-0.135375	0.8928

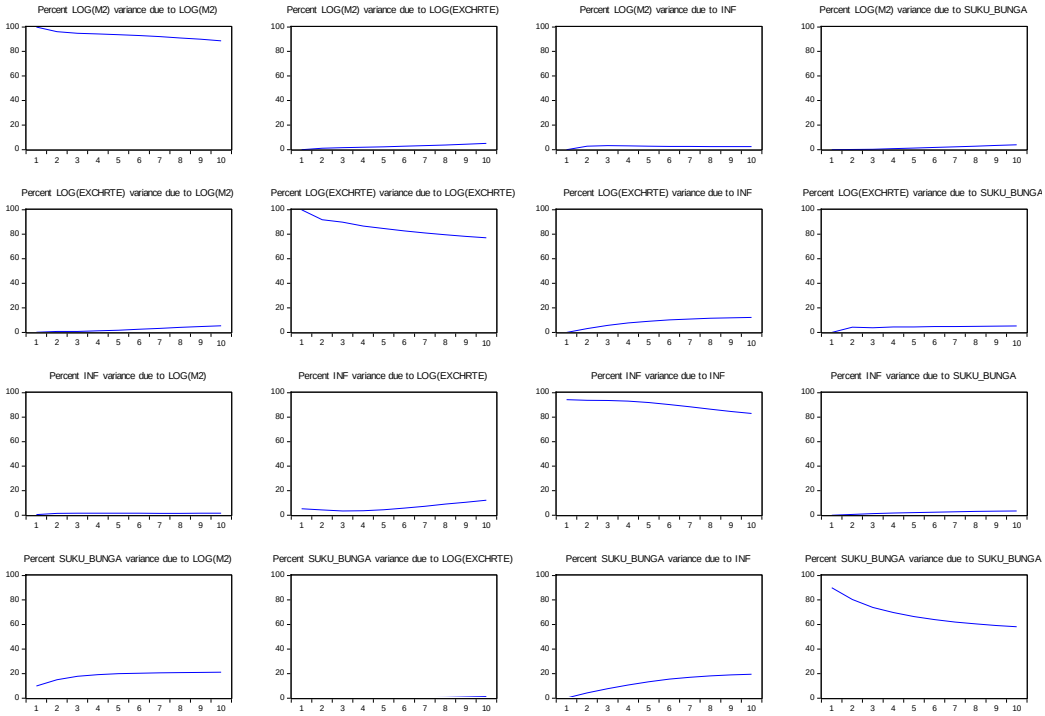
R-squared	0.868161	Mean dependent var	14.02135
Adjusted R-squared	0.858744	S.D. dependent var	0.672736
S.E. of regression	0.252842	Akaike info criterion	0.166305
Sum squared resid	3.580018	Schwarz criterion	0.339328
Log likelihood	-0.072317	Hannan-Quinn criter.	0.234115
F-statistic	92.19000	Durbin-Watson stat	1.885167
Prob(F-statistic)	0.000000		

Impulse Response



Variance Decomposition

Variance Decomposition



Variance Decomposition of LOG(M2):

Period	S.E.	LOG(M2)	LOG(EXC...	INF	SUKU_BU...
1	0.254131	100.0000	0.000000	0.000000	0.000000
2	0.353073	96.07733	1.134370	2.785456	0.002843
3	0.408548	94.82979	1.611578	3.272834	0.285801
4	0.444451	94.26518	1.965191	3.067631	0.702000
5	0.469834	93.69673	2.302251	2.812973	1.188050
6	0.488532	92.95626	2.712962	2.623545	1.707235
7	0.502729	92.05352	3.201415	2.494081	2.250982
8	0.513868	91.02301	3.763392	2.412388	2.801214
9	0.522923	89.90622	4.375505	2.374193	3.344086
10	0.530539	88.74108	5.012487	2.379648	3.866785

Variance Decomposition of LOG(EXCHRTE):

Period	S.E.	LOG(M2)	LOG(EXC...	INF	SUKU_BU...
1	0.025245	0.069492	99.93051	0.000000	0.000000
2	0.029736	0.802421	91.85862	3.059849	4.279114
3	0.035744	0.820074	89.75493	5.666654	3.758340
4	0.039457	1.285838	86.69522	7.634369	4.384570
5	0.042841	1.802403	84.71434	9.038815	4.444438
6	0.045495	2.494847	82.73815	10.11520	4.651803
7	0.047769	3.221077	81.09606	10.89574	4.787124
8	0.049665	3.976815	79.59964	11.46892	4.954618
9	0.051285	4.709103	78.29224	11.88059	5.118064
10	0.052666	5.401694	77.12676	12.17818	5.293365

Variance Decomposition of INF:

Period	S.E.	LOG(M2)	LOG(EXC...	INF	SUKU_BU...
1	0.008041	0.479407	5.204139	94.31645	0.000000
2	0.010623	1.463918	4.219948	93.70845	0.607686
3	0.011741	1.645498	3.462600	93.61580	1.276097
4	0.012290	1.609030	3.551263	93.10644	1.733265
5	0.012616	1.547694	4.401906	91.91504	2.135357
6	0.012842	1.503325	5.706611	90.31771	2.472350
7	0.013026	1.476364	7.292895	88.46676	2.763984
8	0.013189	1.475746	8.958856	86.55985	3.005547
9	0.013341	1.514788	10.59216	84.69195	3.201107
10	0.013484	1.606311	12.11527	82.92549	3.352929

Variance Decomposition of SUKU_BUNGA:

Period	S.E.	LOG(M2)	LOG(EXC...	INF	SUKU_BU...
1	0.292059	9.833379	0.165760	0.000498	90.00036
2	0.426089	15.00577	0.318600	4.294707	80.38092
3	0.524818	17.80164	0.449139	7.746842	74.00238
4	0.601772	19.14675	0.396278	10.75214	69.70483
5	0.663094	19.89363	0.331445	13.33531	66.43962
6	0.712859	20.31278	0.302462	15.42161	63.96315
7	0.753458	20.58115	0.356028	17.02944	62.03338
8	0.786885	20.77159	0.526978	18.20411	60.49732
9	0.814678	20.92991	0.827828	19.01285	59.22942
10	0.838106	21.07708	1.261348	19.52169	58.13988

Cholesky Ordering: LOG(M2) LOG(EXCHRTE) INF SUKU_BUNGA

M1ISL :

Lag Length Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LOG(M1ISL) LOG(EXCHRTE) INF RS
Exogenous variables:
Date: 11/19/18 Time: 10:37
Sample: 1 63
Included observations: 57

Lag	LogL	LR	FPE	AIC	SC	HQ
1	311.4258	NA	3.70e-10*	-10.36582*	-9.792329*	-10.14294*
2	326.4754	25.87477	3.85e-10	-10.33247	-9.185494	-9.886716
3	333.4796	11.05929	5.38e-10	-10.01683	-8.296364	-9.348197
4	339.2559	8.309732	7.99e-10	-9.658101	-7.364149	-8.766593
5	356.9272	22.94173	8.02e-10	-9.716744	-6.849304	-8.602359

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

VAR Stability

Roots of Characteristic Polynomial
Endogenous variables: LOG(M1ISL) LOG(EXCHRTE...
Exogenous variables:
Lag specification: 1 2
Date: 11/19/18 Time: 10:38

Root	Modulus
1.000520	1.000520
0.908749	0.908749
0.854202	0.854202
-0.457437	0.457437
0.292915 - 0.257391i	0.389935
0.292915 + 0.257391i	0.389935
0.219184	0.219184
-0.110893	0.110893

Warning: At least one root outside the unit circle.
VAR does not satisfy the stability condition.

Cointegration Test

Date: 11/19/18 Time: 10:39
Sample (adjusted): 4 62
Included observations: 59 after adjustments
Trend assumption: Linear deterministic trend
Series: LOG(M1ISL) LOG(EXCHRTE) INF RS
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.230762	40.44827	47.85613	0.2069
At most 1	0.187770	24.96934	29.79707	0.1625
At most 2	0.124211	12.69904	15.49471	0.1263
At most 3 *	0.079287	4.873833	3.841466	0.0273

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.230762	15.47893	27.58434	0.7095
At most 1	0.187770	12.27030	21.13162	0.5212
At most 2	0.124211	7.825208	14.26460	0.3967
At most 3 *	0.079287	4.873833	3.841466	0.0273

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Granger's Casuality Test

Pairwise Granger Causality Tests
Date: 11/19/18 Time: 10:48
Sample: 1 63
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INF does not Granger Cause EXCHRTE	60	1.11592	0.3349
EXCHRTE does not Granger Cause INF		4.33778	0.0178
M1ISL does not Granger Cause EXCHRTE	60	0.47894	0.6220
EXCHRTE does not Granger Cause M1ISL		3.00473	0.0577
RS does not Granger Cause EXCHRTE	60	1.05226	0.3561
EXCHRTE does not Granger Cause RS		2.50710	0.0908
M1ISL does not Granger Cause INF	60	4.53270	0.0151
INF does not Granger Cause M1ISL		0.20425	0.8159
RS does not Granger Cause INF	60	0.31949	0.7279
INF does not Granger Cause RS		1.85863	0.1655
RS does not Granger Cause M1ISL	60	0.16118	0.8515
M1ISL does not Granger Cause RS		0.75150	0.4764

VECM Model

Vector Error Correction Estimates
Date: 11/19/18 Time: 10:39
Sample (adjusted): 4 62
Included observations: 59 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
LOG(M1ISL(-1))	1.000000
LOG(EXCHRTE(-1))	-1.838367
	(0.33494)
	[-5.48872]
INF(-1)	9.600529
	(2.02966)
	[4.73012]
RS(-1)	0.004683
	(0.01188)
	[0.39434]
C	3.721395

Error Correction:	D(LOG(M1ISL))	D(LOG(EXC...	D(INF)	D(RS)
CointEq1	-0.036324	0.089412	-0.007722	-2.273055
	(0.08771)	(0.02965)	(0.01091)	(1.47361)
	[-0.41413]	[3.01536]	[-0.70743]	[-1.54251]
D(LOG(M1ISL(-1)))	-0.292429	-0.069471	0.005212	1.355970
	(0.17028)	(0.05757)	(0.02119)	(2.86082)
	[-1.71734]	[-1.20681]	[0.24599]	[0.47398]
D(LOG(M1ISL(-2)))	-0.239098	0.062477	0.009512	1.539873
	(0.16818)	(0.05686)	(0.02093)	(2.82554)
	[-1.42168]	[1.09886]	[0.45452]	[0.54498]
D(LOG(EXCHRTE(-1)))	0.502607	-0.495756	-0.006617	6.889515
	(0.36525)	(0.12348)	(0.04545)	(6.13641)
	[1.37608]	[-4.01493]	[-0.14558]	[1.12273]
D(LOG(EXCHRTE(-2)))	-0.067202	-0.062051	0.008948	-2.522527
	(0.37962)	(0.12834)	(0.04724)	(6.37789)
	[-0.17703]	[-0.48350]	[0.18942]	[-0.39551]
D(INF(-1))	0.881254	0.272860	0.114288	37.13488
	(1.21304)	(0.41009)	(0.15095)	(20.3799)
	[0.72649]	[0.66537]	[0.75712]	[1.82213]
D(INF(-2))	-0.006394	0.313976	-0.205543	27.03948
	(1.23548)	(0.41768)	(0.15374)	(20.7570)
	[-0.00518]	[0.75172]	[-1.33691]	[1.30267]
D(RS(-1))	0.006101	0.002588	-0.000469	0.097828
	(0.00851)	(0.00288)	(0.00106)	(0.14296)
	[0.71701]	[0.89961]	[-0.44326]	[0.68430]
D(RS(-2))	-0.001807	0.005074	0.000696	-0.018184
	(0.00843)	(0.00285)	(0.00105)	(0.14168)
	[-0.21429]	[1.77990]	[0.66362]	[-0.12834]
C	0.012908	0.009112	-0.000706	-0.044758
	(0.01053)	(0.00356)	(0.00131)	(0.17696)
	[1.22552]	[2.55888]	[-0.53897]	[-0.25292]
R-squared	0.177243	0.443998	0.100036	0.155277
Adj. R-squared	0.026124	0.341875	-0.065264	0.000123
Sum sq. resids	0.237391	0.027131	0.003676	67.00682
S.E. equation	0.069604	0.023531	0.008662	1.169396
F-statistic	1.172874	4.347690	0.605177	1.000795
Log likelihood	78.99239	142.9785	201.9439	-87.47145
Akaike AIC	-2.338725	-4.507747	-6.506573	3.304117
Schwarz SC	-1.986600	-4.155622	-6.154448	3.656242
Mean dependent	0.008439	0.005827	-0.000508	-0.003255
S.D. dependent	0.070531	0.029006	0.008392	1.169468

Determinant resid covariance (dof adj.)	2.34E-10
Determinant resid covariance	1.11E-10
Log likelihood	341.1950
Akaike information criterion	-10.07441
Schwarz criterion	-8.525056

Impulse Response

Response of LOG(M1ISL):

Period	LOG(M1ISL)	LOG(EXC...	INF	RS
1	0.069604	0.000000	0.000000	0.000000
2	0.047431	0.014477	0.003908	0.006820
3	0.035786	0.003694	0.005885	0.004558
4	0.048755	0.006651	0.002976	0.005768
5	0.043481	0.008293	0.001259	0.005454
6	0.041835	0.005867	0.001587	0.005602
7	0.043488	0.007079	0.000770	0.005584
8	0.042120	0.006904	9.28E-05	0.005403
9	0.041937	0.006574	-0.000279	0.005515
10	0.041891	0.006787	-0.000683	0.005464

Response of LOG(EXCHRTE):

Period	LOG(M1ISL)	LOG(EXC...	INF	RS
1	-0.000273	0.023529	0.000000	0.000000
2	0.001383	0.011098	0.008982	0.003457
3	0.010511	0.018562	0.013035	0.007271
4	0.006264	0.018238	0.014840	0.006093
5	0.008870	0.016800	0.016245	0.007060
6	0.010022	0.018336	0.016697	0.007167
7	0.009490	0.017735	0.017668	0.007086
8	0.010445	0.017871	0.018318	0.007238
9	0.010651	0.018057	0.018704	0.007201
10	0.010823	0.017942	0.019123	0.007244

Response of INF:

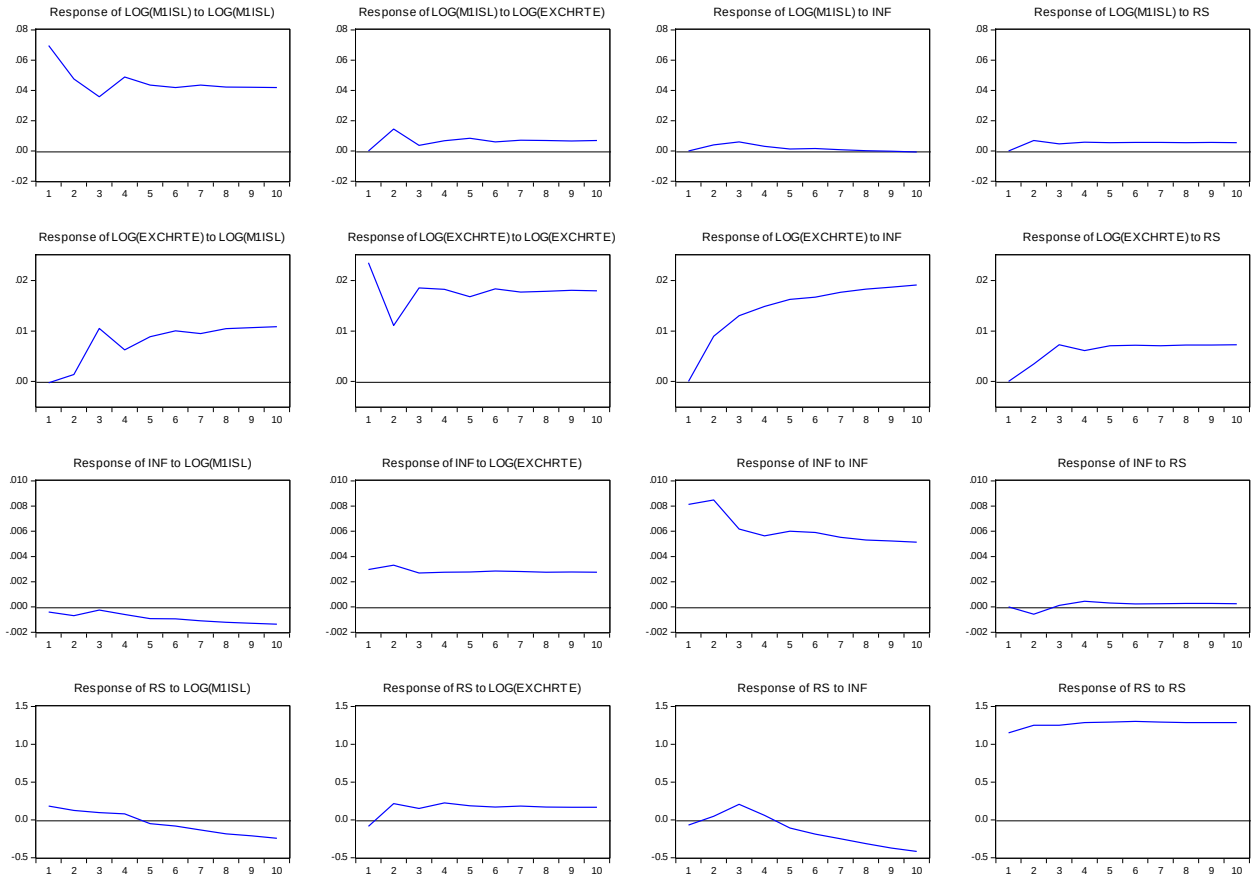
Period	LOG(M1ISL)	LOG(EXC...	INF	RS
1	-0.000407	0.002965	0.008128	0.000000
2	-0.000693	0.003305	0.008490	-0.000581
3	-0.000254	0.002697	0.006183	0.000113
4	-0.000600	0.002746	0.005629	0.000455
5	-0.000922	0.002775	0.006013	0.000322
6	-0.000939	0.002845	0.005897	0.000241
7	-0.001099	0.002804	0.005517	0.000256
8	-0.001221	0.002750	0.005311	0.000281
9	-0.001296	0.002763	0.005222	0.000268
10	-0.001378	0.002760	0.005127	0.000251

Response of RS:

Period	LOG(M1ISL)	LOG(EXC...	INF	RS
1	0.182395	-0.084207	-0.070940	1.149824
2	0.125207	0.214286	0.047333	1.250068
3	0.095645	0.151518	0.203466	1.248768
4	0.078248	0.225697	0.058680	1.286134
5	-0.048932	0.184568	-0.108190	1.290450
6	-0.081997	0.168121	-0.189339	1.301906
7	-0.133079	0.183511	-0.251301	1.292439
8	-0.184543	0.170446	-0.313830	1.286627
9	-0.212383	0.167008	-0.373124	1.286685
10	-0.243865	0.164609	-0.418370	1.284242

Cholesky Ordering: LOG(M1ISL) LOG(EXCHRTE) INF RS

Response to Cholesky One S.D. Innovations



Variance Decomposition

Variance Decomposition of LOG(M1ISL):

Period	S.E.	LOG(M1ISL)	LOG(EXC...	INF	RS
1	0.069604	100.0000	0.000000	0.000000	0.000000
2	0.085824	96.31596	2.845326	0.207300	0.631411
3	0.093356	96.09412	2.561308	0.572598	0.771973
4	0.105730	96.18233	2.392599	0.525631	0.899444
5	0.114759	95.99927	2.553156	0.458214	0.989358
6	0.122426	96.02878	2.473077	0.419432	1.078706
7	0.130235	96.00801	2.480820	0.374133	1.137033
8	0.137157	95.99221	2.490118	0.337367	1.180308
9	0.143682	95.99088	2.478421	0.307800	1.222896
10	0.149919	95.97768	2.481414	0.284795	1.256113

Variance Decomposition of LOG(EXCHRTE):

Period	S.E.	LOG(M1ISL)	LOG(EXC...	INF	RS
1	0.023531	0.013443	99.98656	0.000000	0.000000
2	0.027774	0.257527	87.73580	10.45734	1.549337
3	0.038068	7.761003	70.47498	17.29131	4.472704
4	0.045590	7.299230	65.14307	22.65255	4.905149
5	0.052470	8.368098	59.43120	26.68691	5.513795
6	0.059329	9.398794	56.03601	28.79321	5.771989
7	0.065474	9.818252	53.34748	30.92354	5.910726
8	0.071437	10.38537	51.07101	32.55193	5.991688
9	0.077100	10.82411	49.32881	33.83088	6.016209
10	0.082472	11.18211	47.84454	34.94381	6.029543

Variance Decomposition of INF:

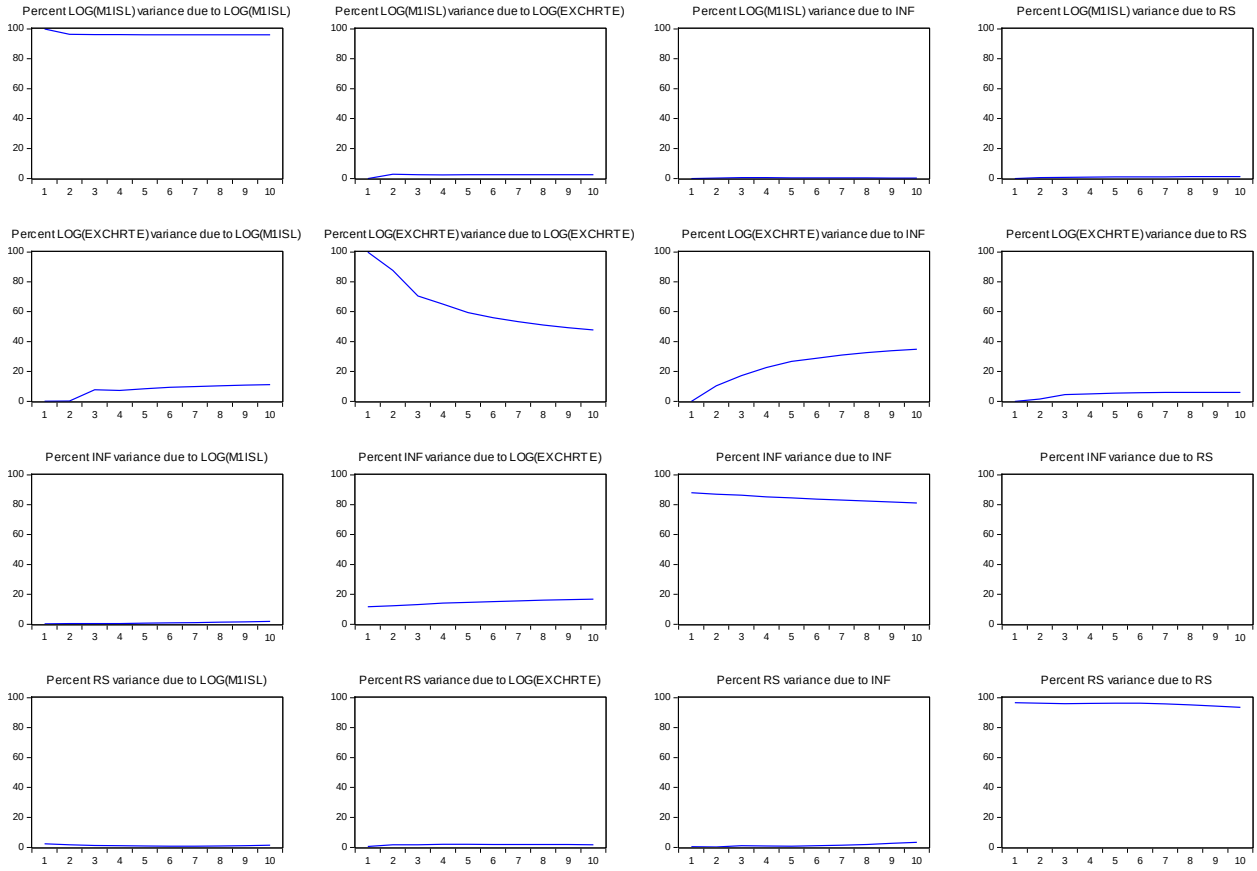
Period	S.E.	LOG(M1ISL)	LOG(EXC...	INF	RS
1	0.008662	0.221193	11.72125	88.05755	0.000000
2	0.012604	0.406477	12.41368	86.96715	0.212697
3	0.014298	0.347475	13.20423	86.27678	0.171515
4	0.015628	0.438485	14.13936	85.19363	0.228519
5	0.017001	0.664475	14.61191	84.49467	0.228938
6	0.018244	0.841846	15.12018	83.82176	0.216215
7	0.019298	1.076774	15.62466	83.08774	0.210818
8	0.020242	1.342464	16.04620	82.40042	0.210912
9	0.021128	1.608262	16.43939	81.74267	0.209681
10	0.021961	1.882144	16.79630	81.11442	0.207137

Variance Decomposition of RS:

Period	S.E.	LOG(M1ISL)	LOG(EXC...	INF	RS
1	1.169396	2.432792	0.518526	0.368007	96.68068
2	1.730315	1.634769	1.770522	0.242917	96.35179
3	2.151027	1.255539	1.641848	1.051921	96.05069
4	2.518246	1.012613	2.001177	0.821798	96.16441
5	2.838131	0.826939	1.998405	0.792303	96.38235
6	3.133813	0.746715	1.926891	1.014879	96.31152
7	3.406717	0.784470	1.920710	1.402939	95.89188
8	3.663704	0.931997	1.877146	1.946776	95.24408
9	3.910307	1.113147	1.830259	2.619483	94.43711
10	4.147455	1.335217	1.784461	3.346041	93.53428

Cholesky Ordering: LOG(M1ISL) LOG(EXCHRTE) INF RS

Variance Decomposition



M2ISL :

Lag Length Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LOG(M2ISL) LOG(EXCHRTE) INF RS
Exogenous variables: C
Date: 11/19/18 Time: 10:55
Sample: 1 63
Included observations: 57

Lag	LogL	LR	FPE	AIC	SC	HQ
0	147.0763	NA	7.76e-08	-5.020222	-4.876850	-4.964503
1	325.7214	325.9488	2.58e-10	-10.72707	-10.01021*	-10.44847*
2	341.9781	27.37982*	2.58e-10*	-10.73607*	-9.445727	-10.23460
3	349.1013	10.99718	3.61e-10	-10.42461	-8.560771	-9.700257
4	357.1249	11.26120	4.97e-10	-10.14473	-7.707409	-9.197506
5	376.8573	24.92515	4.68e-10	-10.27570	-7.264883	-9.105591

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

VAR Stability

Roots of Characteristic Polynomial
Endogenous variables: LOG(M2ISL) LOG(EXCHRTE...
Exogenous variables: C
Lag specification: 1 2
Date: 11/19/18 Time: 10:56

Root	Modulus
0.959608	0.959608
0.834482 - 0.080382i	0.838344
0.834482 + 0.080382i	0.838344
-0.439298	0.439298
0.403586	0.403586
0.257718 - 0.206690i	0.330363
0.257718 + 0.206690i	0.330363
-0.219804	0.219804

No root lies outside the unit circle.
VAR satisfies the stability condition.

Granger's Casuality Test

Pairwise Granger Causality Tests
Date: 11/19/18 Time: 11:05
Sample: 1 63
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INF does not Granger Cause EXCHRTE	60	1.11592	0.3349
EXCHRTE does not Granger Cause INF		4.33778	0.0178
RS does not Granger Cause EXCHRTE	60	1.05226	0.3561
EXCHRTE does not Granger Cause RS		2.50710	0.0908
M2ISL does not Granger Cause EXCHRTE	60	0.66622	0.5177
EXCHRTE does not Granger Cause M2ISL		1.81898	0.1718
RS does not Granger Cause INF	60	0.31949	0.7279
INF does not Granger Cause RS		1.85863	0.1655
M2ISL does not Granger Cause INF	60	5.46006	0.0069
INF does not Granger Cause M2ISL		0.33036	0.7201
M2ISL does not Granger Cause RS	60	0.80264	0.4533
RS does not Granger Cause M2ISL		0.25405	0.7766

Cointegration Test

Date: 11/19/18 Time: 10:58
Sample (adjusted): 4 62
Included observations: 59 after adjustments
Trend assumption: Linear deterministic trend
Series: LOG(M2ISL) LOG(EXCHRTE) INF RS
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.234326	38.95958	47.85613	0.2619
At most 1	0.182319	23.20668	29.79707	0.2361
At most 2	0.104712	11.33099	15.49471	0.1919
At most 3 *	0.078213	4.805035	3.841466	0.0284

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.234326	15.75290	27.58434	0.6866
At most 1	0.182319	11.87569	21.13162	0.5600
At most 2	0.104712	6.525953	14.26460	0.5467
At most 3 *	0.078213	4.805035	3.841466	0.0284

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

VECM Model

Vector Error Correction Estimates
Date: 11/19/18 Time: 10:58
Sample (adjusted): 4 62
Included observations: 59 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
LOG(M2ISL(-1))	1.000000
LOG(EXCHRTE(-1))	-2.180438 (0.46329) [-4.70645]
INF(-1)	13.60104 (2.80482) [4.84917]
RS(-1)	0.030268 (0.01643) [1.84226]
C	6.529107

Error Correction:	D(LOG(M2ISL))	D(LOG(EXC...	D(INF)	D(RS)
CointEq1	0.006397 (0.05747) [0.11131]	0.065102 (0.02149) [3.02977]	-0.005156 (0.00780) [-0.66128]	-1.793948 (1.04695) [-1.71351]
D(LOG(M2ISL(-1)))	-0.338979 (0.15858) [-2.13753]	-0.065395 (0.05930) [-1.10282]	0.004251 (0.02152) [0.19755]	0.788614 (2.88920) [0.27295]
D(LOG(M2ISL(-2)))	-0.276512 (0.16080) [-1.71961]	0.068470 (0.06013) [1.13877]	0.011244 (0.02182) [0.51531]	1.582735 (2.92956) [0.54026]
D(LOG(EXCHRTE(-1)))	0.300807 (0.33768) [0.89082]	-0.495963 (0.12626) [-3.92800]	-0.004579 (0.04582) [-0.09994]	7.428452 (6.15201) [1.20748]
D(LOG(EXCHRTE(-2)))	0.011168 (0.34849) [0.03205]	-0.064450 (0.13031) [-0.49460]	0.008908 (0.04729) [0.18838]	-2.020298 (6.34899) [-0.31821]
D(INF(-1))	-0.294742 (1.11971) [-0.26323]	0.210467 (0.41868) [0.50269]	0.112284 (0.15194) [0.73903]	39.35595 (20.3997) [1.92924]
D(INF(-2))	-0.900987 (1.14889) [-0.78422]	0.200861 (0.42959) [0.46756]	-0.208120 (0.15590) [-1.33500]	28.88840 (20.9314) [1.38015]
D(RS(-1))	-0.002128 (0.00775) [-0.27467]	0.001471 (0.00290) [0.50789]	-0.000372 (0.00105) [-0.35409]	0.117025 (0.14115) [0.82909]
D(RS(-2))	-0.006994 (0.00762) [-0.91772]	0.006332 (0.00285) [2.22223]	0.000898 (0.00103) [0.86865]	0.014002 (0.13884) [0.10085]
C	0.017622 (0.00988) [1.78306]	0.008962 (0.00370) [2.42513]	-0.000758 (0.00134) [-0.56535]	-0.047788 (0.18006) [-0.26541]
R-squared	0.142511	0.428172	0.100417	0.164912
Adj. R-squared	-0.014987	0.323142	-0.064812	0.011529
Sum sq. resids	0.199573	0.027904	0.003675	66.24250
S.E. equation	0.063819	0.023863	0.008660	1.162707
F-statistic	0.904842	4.076676	0.607745	1.075161
Log likelihood	84.11146	142.1506	201.9564	-87.13302
Akaike AIC	-2.512253	-4.479680	-6.506998	3.292645
Schwarz SC	-2.160128	-4.127555	-6.154873	3.644770
Mean dependent	0.010892	0.005827	-0.000508	-0.003255
S.D. dependent	0.063346	0.029006	0.008392	1.169468

Determinant resid covariance (dof adj.)	2.00E-10
Determinant resid covariance	9.52E-11
Log likelihood	345.8369
Akaike information criterion	-10.23176
Schwarz criterion	-8.682410

Impulse Response

Response of LOG(M2ISL):

Period	LOG(M2ISL)	LOG(EXC...	INF	RS
1	0.063819	0.000000	0.000000	0.000000
2	0.043172	0.006394	-0.001552	-0.002202
3	0.033729	-0.001810	-0.004988	-0.008101
4	0.045287	-0.001025	-0.002667	-0.003616
5	0.043138	0.001902	1.18E-05	-0.004791
6	0.042106	-0.000118	0.001073	-0.005343
7	0.044554	0.000433	0.001582	-0.004023
8	0.044217	0.000803	0.002602	-0.004128
9	0.044452	0.000533	0.003523	-0.003987
10	0.045081	0.000753	0.004101	-0.003675

Response of LOG(EXCHRTE):

Period	LOG(M2ISL)	LOG(EXC...	INF	RS
1	0.000914	0.023846	0.000000	0.000000
2	7.18E-05	0.011498	0.008691	0.003919
3	0.007560	0.018331	0.012222	0.010459
4	0.004005	0.018398	0.014434	0.008243
5	0.005908	0.017030	0.015728	0.009842
6	0.006985	0.018387	0.016435	0.010498
7	0.006451	0.018015	0.017445	0.010285
8	0.007217	0.018051	0.018125	0.010723
9	0.007457	0.018268	0.018628	0.010850
10	0.007547	0.018202	0.019090	0.010939

Response of INF:

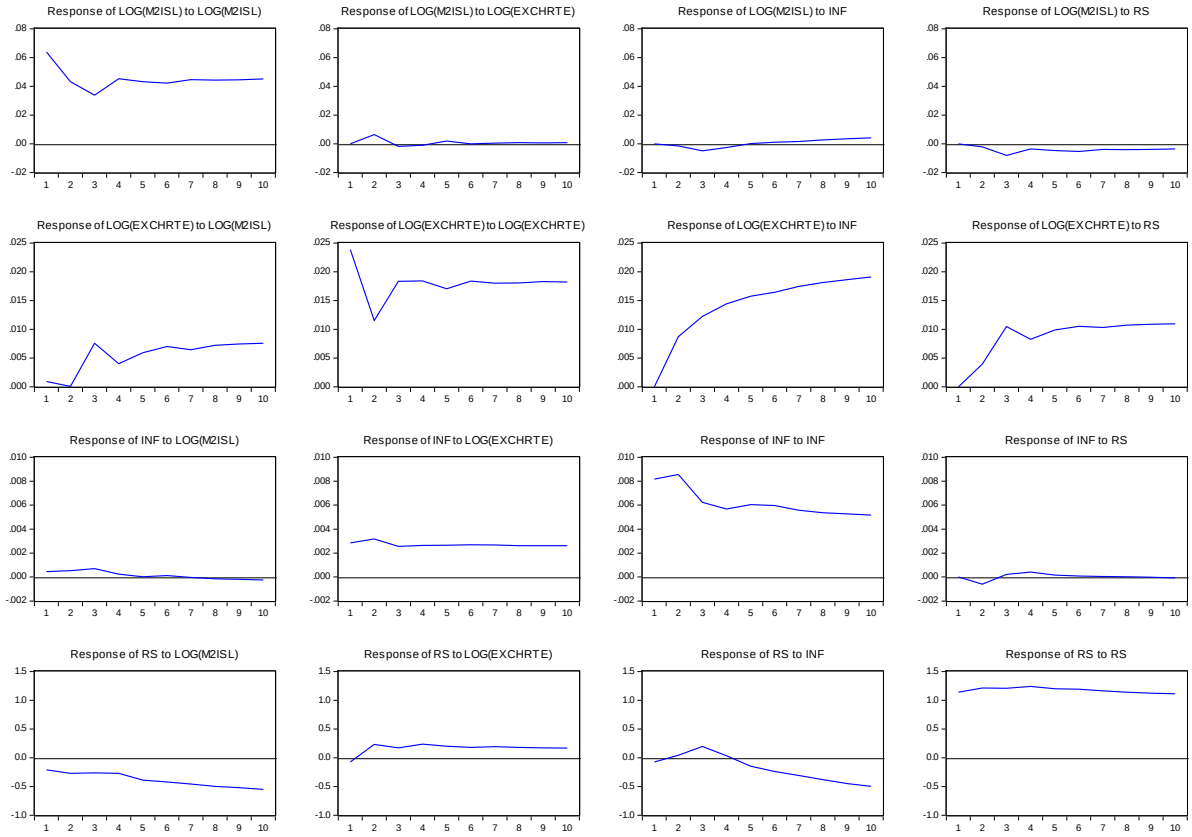
Period	LOG(M2ISL)	LOG(EXC...	INF	RS
1	0.000442	0.002850	0.008165	0.000000
2	0.000521	0.003169	0.008549	-0.000602
3	0.000696	0.002563	0.006235	0.000208
4	0.000232	0.002633	0.005668	0.000402
5	1.61E-05	0.002650	0.006050	0.000150
6	0.000110	0.002702	0.005958	8.16E-05
7	-2.61E-05	0.002674	0.005583	4.35E-05
8	-0.000149	0.002614	0.005363	1.50E-05
9	-0.000192	0.002621	0.005272	-2.19E-05
10	-0.000247	0.002619	0.005178	-6.78E-05

Response of RS:

Period	LOG(M2ISL)	LOG(EXC...	INF	RS
1	-0.210651	-0.075445	-0.074741	1.138523
2	-0.271048	0.232860	0.042695	1.209938
3	-0.263733	0.171446	0.195585	1.206194
4	-0.270947	0.236408	0.032637	1.238649
5	-0.388778	0.199450	-0.146577	1.199599
6	-0.420222	0.179695	-0.238413	1.191984
7	-0.456235	0.191740	-0.306615	1.163859
8	-0.498658	0.179049	-0.379330	1.137419
9	-0.522901	0.172418	-0.447701	1.124621
10	-0.549178	0.169082	-0.499736	1.109542

Cholesky Ordering: LOG(M2ISL) LOG(EXCHRTE) INF RS

Response to Cholesky One S.D. Innovations



Variance Decomposition

Variance Decomposition of LOG(M2ISL):

Period	S.E.	LOG(M2ISL)	LOG(EXC...	INF	RS
1	0.063819	100.0000	0.000000	0.000000	0.000000
2	0.077362	99.19555	0.683175	0.040232	0.081041
3	0.084949	98.03333	0.611999	0.378086	0.976589
4	0.096377	98.24344	0.486775	0.370325	0.899459
5	0.105716	98.30231	0.436943	0.307782	0.952964
6	0.113924	98.30913	0.376361	0.273910	1.040595
7	0.122403	98.40933	0.327274	0.253974	1.009420
8	0.130239	98.45079	0.292880	0.264241	0.992084
9	0.137720	98.46380	0.263424	0.301739	0.971040
10	0.145017	98.46761	0.240275	0.352120	0.939995

Variance Decomposition of LOG(EXCHRTE):

Period	S.E.	LOG(M2ISL)	LOG(EXC...	INF	RS
1	0.023863	0.146619	99.85338	0.000000	0.000000
2	0.028152	0.105998	88.42541	9.531140	1.937453
3	0.038007	4.014938	71.77919	15.57009	8.635780
4	0.045556	3.567371	66.27078	20.87676	9.285095
5	0.052388	3.969357	60.68033	24.79970	10.55061
6	0.059259	4.491656	57.05079	27.07366	11.38389
7	0.065482	4.649181	54.29119	29.26978	11.78984
8	0.071480	4.921113	51.94061	30.99358	12.14469
9	0.077223	5.148886	50.09801	32.37374	12.37937
10	0.082678	5.325108	48.55126	33.57354	12.55010

Variance Decomposition of INF:

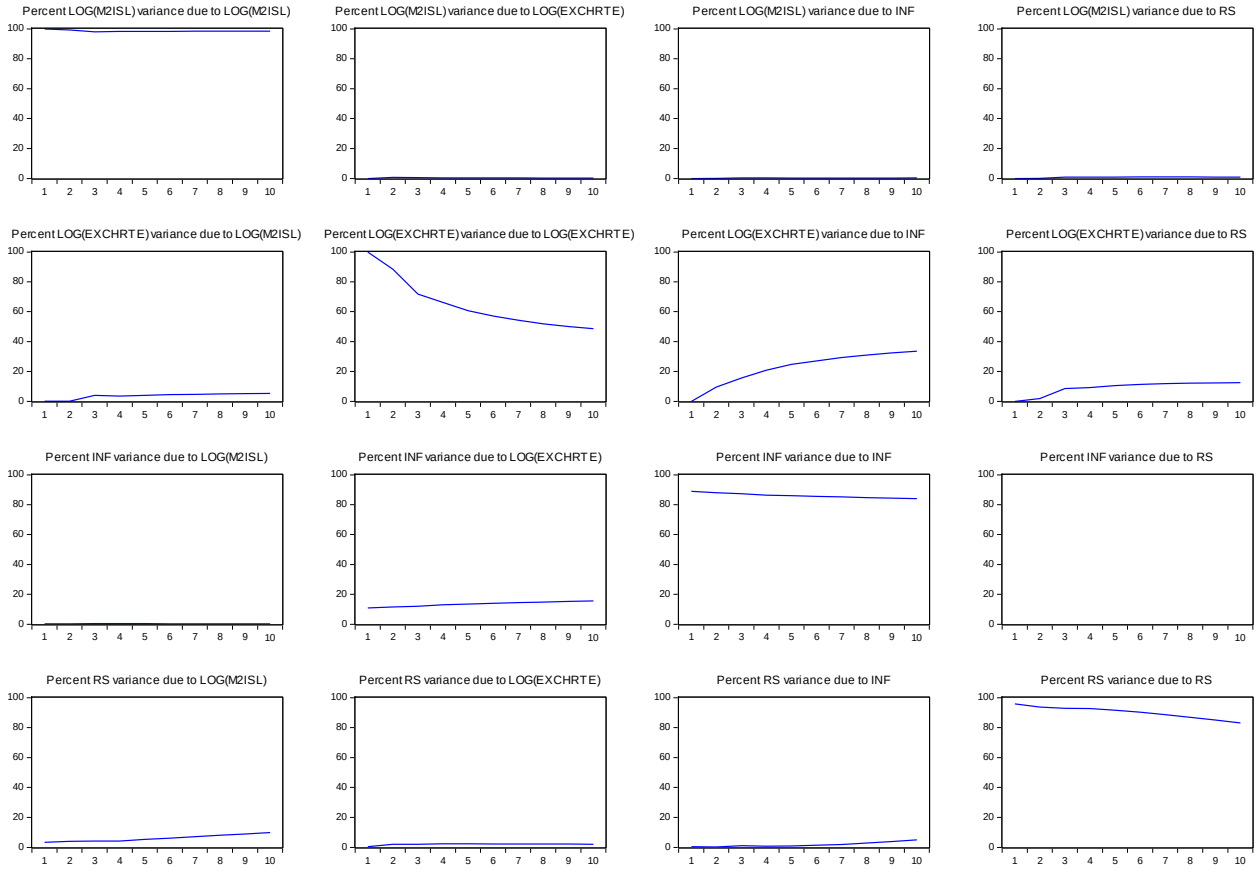
Period	S.E.	LOG(M2ISL)	LOG(EXC...	INF	RS
1	0.008660	0.260831	10.83070	88.90847	0.000000
2	0.012600	0.293874	11.44144	88.03678	0.227909
3	0.014308	0.464710	12.08049	87.25684	0.197959
4	0.015621	0.411982	12.97681	86.37896	0.232242
5	0.016960	0.349555	13.44848	85.99710	0.204865
6	0.018179	0.307914	13.91523	85.59652	0.180337
7	0.019204	0.276101	14.40838	85.15341	0.162109
8	0.020110	0.257271	14.82932	84.76553	0.147887
9	0.020955	0.245323	15.22169	84.39668	0.136311
10	0.021745	0.240774	15.58654	84.04513	0.127559

Variance Decomposition of RS:

Period	S.E.	LOG(M2ISL)	LOG(EXC...	INF	RS
1	1.162707	3.282365	0.421036	0.413221	95.88338
2	1.716203	4.000902	2.034251	0.251554	93.71329
3	2.130131	4.129971	1.968275	1.006350	92.89540
4	2.490396	4.205176	2.341129	0.753423	92.70027
5	2.802414	5.245496	2.355360	0.868560	91.53058
6	3.088700	6.169169	2.277438	1.310822	90.24257
7	3.351651	7.092078	2.261380	1.950105	88.69644
8	3.598874	8.071043	2.208882	2.802353	86.91772
9	3.836699	8.958935	2.145480	3.827338	85.06825
10	4.065865	9.801884	2.083380	4.918740	83.19600

Cholesky Ordering: LOG(M2ISL) LOG(EXCHRTE) INF RS

Variance Decomposition



VAR Stability Condition Check

Roots of Characteristic Polynomial
Endogenous variables: LOG(M1) LOG(EXCHRTE) I...
Exogenous variables: C
Lag specification: 1 2
Date: 11/20/18 Time: 14:43

Root	Modulus
0.960471 - 0.038613i	0.961247
0.960471 + 0.038613i	0.961247
0.740530 - 0.161240i	0.757881
0.740530 + 0.161240i	0.757881
-0.363254 - 0.070754i	0.370080
-0.363254 + 0.070754i	0.370080
0.198985 - 0.152311i	0.250587
0.198985 + 0.152311i	0.250587

No root lies outside the unit circle.
VAR satisfies the stability condition.

Roots of Characteristic Polynomial
Endogenous variables: LOG(M2) LOG(EXCHRTE) S...
Exogenous variables: C
Lag specification: 1 2
Date: 11/20/18 Time: 15:02

Root	Modulus
0.949497 - 0.034809i	0.950135
0.949497 + 0.034809i	0.950135
0.767610 - 0.129410i	0.778442
0.767610 + 0.129410i	0.778442
-0.463092	0.463092
0.156507 - 0.197643i	0.252105
0.156507 + 0.197643i	0.252105
-0.071407	0.071407

No root lies outside the unit circle.
VAR satisfies the stability condition.

T(Mudharabah)	D(Mudharabah)	Tahun	RS	M Kartal
561.011	411.86	2013M01	6.72	326828.94
582.024	424.399	2013M02	6.65	321483.32
602.692	426.417	2013M03	6.39	331168.76
600.052	435.14	2013M04	5.82	324333.2
598.632	439.067	2013M05	6.01	334033.38
561.467	444.026	2013M06	6.04	347146.05
556.026	450.975	2013M07	6.32	383931.57
581.131	458.861	2013M08	6.38	359417.43
610.393	462.227	2013M09	6.08	360078.55
627.072	465.2	2013M10	6.06	363797.12
649.281	474.634	2013M11	5.93	375784.44
700.863	471.094	2013M12	5.25	399606.17
44,992	6,601	2014M01	5.84%	380070.16
45,013	5,794	2014M02	5.97%	367651.74
44,827	5,751	2014M03	5.43%	377437.65
45,073	4,845	2014M04	5.80%	372341.57
44,253	8,278	2014M05	7.03%	380473.75
44,137	10,218	2014M06	7.06%	381637.54
45,603	9,988	2014M07	6.96%	452787.99
46,095	10,594	2014M08	7.57%	399270.22
46,298	11,277	2014M09	8.03%	395229.5
		2014M10	7.97%	396112.97

47,126	14,321			
47,708	21,406	2014M11	7.47%	405694.05
51,020	19,324	2014M12	7.34%	419261.84
65	99	2015M01	7.06	471,904
51	103	2015M02	7.47	465,610
61	14	2015M03	7.56	462,613
69	19	2015M04	7.30	480,271
65	32	2015M05	7.87	484,846
53	127	2015M06	7.44	506,587
50	112	2015M07	7.36	539,166
41	98	2015M08	7.17	514,011
44	10	2015M09	7.02	518,300
41	10	2015M10	6.71	520,170
40	35	2015M11	6.59	526,603
50	109	2015M12	6.82	586,763
52,234	5,903	2016M01	7.10	528,534
52,983	6,961	2016M02	6.77	511,210
51,668	6,704	2016M03	6.73	508,550
52,253	7,425	2016M04	6.68	520,020
51,760	6,915	2016M05	6.27	534,715
53,155	7,016	2016M06	6.46	641,998
54,344	6,789	2016M07	6.21	567,894

54,879	6,424	2016M08	6.19	555,521
60,396	8,882	2016M09	6.29	563,207
60,846	7,554	2016M10	6.04	559,049
61,908	8,711	2016M11	6.47	567,396
66,088	9,531	2016M12	6.54	612,545
65,283	8,368	2017M01	6.38	564,296
65,523	8,279	2017M02	6.45	553,178
65,873	7,734	2017M03	6.35	562,749
65,206	10,424	2017M04	6.46	571,097
64,537	10,745	2017M05	6.45	589,354
65,930	12,401	2017M06	6.69	719,512
68,073	10,307	2017M07	6.30	617,487
68,311	11,194	2017M08	6.63	625,081
68,989	12,197	2017M09	6.72	614,409
69,317	13,987	2017M10	6.51	612,225
70,318	12,858	2017M11	6.39	635,174
75,416	9,709	2017M12	6.46	694,830
74,940	11,539	2018M01	5.91	622,303
74,937	12,038	2018M02	6.20	531209

SUKU BUNGA	**Demand**	**Saving**	**Time deposit**

5.75	539,847	990,399	125,572
5.75	529,177	982,631	117,111
5.75	545,965	974,296	119,350
5.75	582,871	984,782	122,912
5.75	563,069	986,939	124,969
6	597,833	990,719	132,897
6.5	577,112	1,019,789	126,440
7	575,270	1,019,866	134,489
7.25	586,301	1,041,941	134,133
7.25	570,582	1,036,545	132,242
7.5	579,604	1,051,840	126,958
7.5	569,927	1,123,696	120,795
7.5	542,201	1,086,970	1,344,758
7.5	550,023	1,085,697	1,360,153
7.5	554,551	1,067,542	1,402,701
7.5	585,962	1,076,271	1,435,252
7.5	603,925	1,064,749	1,453,015
7.5	650,249	1,077,892	1,475,053
7.5	541,366	1,110,904	1,510,504
7.5			

	580,871	1,100,033	1,543,256
7.5	644,197	1,112,257	1,578,958
7.5	632,860	1,110,386	1,610,035
7.75	647,165	1,122,466	1,623,140
7.75	605,276	1,187,559	1,641,743
7.75	158,808	21.79	35.45
7.5	158,898	21.41	35.75
7.5	164,600	20.78	35.35
7.5	164,706	20.78	35.56
7.5	166,654	20.54	35.29
7.5	178,108	20.56	34.44
7.5	171,007	21.06	34.90
7.5	173,280	20.67	34.64
7.5	178,783	20.86	33.88
7.5	171,857	21.21	34.48
7.5	172,078	21.55	33.75
7.5	161,030	22.76	33.09
7.25	164,597	21.93	33.54
7	165,976	21.85	34.07
6.75	168,917	21.50	34.06

6.75	168,308	21.68	33.95
6.75	169,990	21.56	33.66
6.5	168,525	22.30	32.74
6.5	166,905	22.17	33.36
5.25	166,190	22.31	33.30
5	165,390	22.12	32.56
4.75	167,343	22.12	33.17
4.75	170,525	22.18	32.70
4.75	167,053	23.06	32.11
4.75	168,046	22.31	32.82
4.75	167,037	22.10	33.05
4.75	167,802	21.81	33.40
4.75	168,803	21.65	33.58
4.75	174,604	21.61	33.45
4.75	169,885	22.12	32.71
4.75	168,097	22.17	33.28
4.5	163,893	21.97	33.52
4.25	167,736	22.02	33.13
4.25	169,652	21.91	32.98
4.25		22.33	32.75

	169,063		
4.25	166,957	23.03	31.88
5.9	924,355	1,525	231.065
5.77	949,960	1,525.12	225.644