

Year	Month	M2	INFLASI	IPI	EXRATE	EKUIVALENT RATE	INTRATE	DPK
2009	JANUARI	1,874,145	9.17	91,77	10,950	8.03	8.75	2.14
	FEBUARI	1,900,208	8.6	93,52	11,700	7.73	8.25	2.14
	MARET	1,916,752	7.92	97,93	12,023	8.49	7.75	2.09
	APRIL	1,912,623	7.31	97,72	11,620	8.32	7.50	2.15
	MEI	1,927,070	6.04	96,95	10,655	8.45	7.25	2.21
	JUNI	1,977,532	3.65	99,72	10,263	10.77	7.00	2.26
	JULI	1,960,950	2.71	95,67	10,255	10.26	6.75	2.33
	AGUSTUS	1,995,294	2.75	96,61	9,890	9.24	6.50	2.33
	SEPTEMBER	2,018,510	2.83	91,58	10,120	9.2	6.50	2.39
	OKTOBER	2,021,517	2.57	96,09	9,625	9.38	6.50	2.43
	NOVEMBER	2,062,206	2.41	97,17	9,610	9.09	6.50	2.46
	DESEMBER	2,141,384	2.78	94,35	9,845	9.06	6.50	2.58
2010	JANUARI	2,073,860	3.72	96,59	9,330	7.68	6.50	2.66
	FEBUARI	2,066,481	3.81	97,28	9,042	7.51	6.50	2.68
	MARET	2,112,083	3.43	101,37	9,313	8.64	6.50	2.60
	APRIL	2,116,024	3.91	101,44	9,075	8.31	6.50	2.66
	MEI	2,143,234	4.16	100,90	9,030	7.49	6.50	2.66
	JUNI	2,231,144	5.05	104,72	9,210	6.89	6.50	2.70
	JULI	2,217,589	6.22	100,93	9,094	7	6.50	2.82
	AGUSTUS	2,236,459	6.44	101,12	8,938	8.39	6.50	2.83
	SEPTEMBER	2,274,955	5.8	92,32	9,034	7.26	6.50	2.89
	OKTOBER	2,308,175	5.67	100,77	8,921	6.71	6.50	2.97
	NOVEMBER	2,346,801	6.33	101,72	8,921	7.31	6.50	3.03
	DESEMBER	2,469,399	6.96	100,83	9,032	7.32	6.50	3.15
2011	JANUARI	2,346,679	7.02	101,66	8,976	6.98	6.50	3.19
	FEBUARI	2,420,191	6.84	98,06	9,042	6.67	6.75	3.18
	MARET	2,451,357	6.65	105,86	8,812	6.84	6.75	3.28
	APRIL	2,434,478	6.16	102,19	8,699	6.97	6.75	3.29
	MEI	2,475,286	5.98	105,63	8,551	7.16	6.75	3.34
	JUNI	2,522,784	5.54	107,23	8,540	6.59	6.75	3.45
	JULI	2,564,556	4.61	109,45	8,563	6.5	6.75	3.53
	AGUSTUS	2,621,346	4.79	103,10	8,481	6.54	6.75	3.61
	SEPTEMBER	2,643,331	4.61	104,12	8,539	7.34	6.75	3.70
	OKTOBER	2,677,787	4.42	107,59	8,925	6.88	6.50	3.79
	NOVEMBER	2,729,538	4.15	101,35	8,893	6.88	6.00	3.83

	DESEMBER	2,877,220	3.79	102,89	9,085	6.30	6.00	3.98
2012	JANUARI	2,854,978	3.65	102,76	9,125	6.48	6.00	4.08
	FEBUARI	2,849,796	3.56	105,63	9,022	7.79	5.75	3.98
	MARET	2,911,920	3.97	102,46	9,098	6.40	5.75	4.06
	APRIL	2,927,259	4.5	103,38	9,163	6.36	5.75	3.86
	MEI	2,992,057	4.45	108,31	9,577	6.51	5.75	3.81
	JUNI	3,050,355	4.53	109,79	9,029	6.45	5.75	3.88
	JULI	3,054,836	4.56	111,41	9,606	6.45	5.75	3.93
	AGUSTUS	3,089,011	4.58	100,78	9,924	6.27	5.75	3.98
	SEPTEMBER	3,125,533	4.31	109,61	9,821	6.28	5.75	4.02
	OKTOBER	3,164,443	4.61	118,17	9,920	6.15	5.75	4.20
	NOVEMBER	3,207,908	4.32	114,13	9,983	6.17	5.75	4.24
	DESEMBER	3,307,508	4.3	114,12	9,992	6.27	5.75	4.37
2013	JANUARI	3,268,789	4.57	113,91	9,685	6.29	5.75	4.43
	FEBUARI	3,280,420	5.31	112,31	9,700	6.61	5.75	4.49
	MARET	3,322,529	5.9	112,58	9,678	6.39	5.75	4.62
	APRIL	3,360,928	5.57	114,12	9,735	5.24	5.75	4.58
	MEI	3,426,305	5.47	115,78	9,730	6.12	5.75	4.66
	JUNI	3,413,379	5.9	113,34	9,811	6.16	6.00	4.63
	JULI	3,506,574	8.61	115,28	9,934	5.72	6.50	4.68
	AGUSTUS	3,502,420	8.79	113,37	10,288	5.73	6.50	4.71
	SEPTEMBER	3,584,081	8.4	116,36	10,922	5.67	7.25	4.63
	OKTOBER	3,576,869	8.32	118,05	11,593	3.7	7.25	4.71
	NOVEMBER	3,615,973	8.37	116,20	11,354	5.37	7.50	4.71
	DESEMBER	3,730,197	8.38	117,36	11,946	4.79	7.50	4.71
2014	JANUARI	3,652,145	8.22	117,32	12,242	5.94	7.50	4.72
	FEBUARI	3,642,809	7.75	116,60	12,251	6.06	7.50	4.71
	MARET	3,660,298	7.32	116,80	11,596	4.89	7.50	4.76
	APRIL	3,730,101	7.25	117,25	11,271	6.65	7.50	4.78
	MEI	3,789,058	7.32	120,16	11,537	6.96	7.50	4.82
	JUNI	3,865,758	6.7	120,22	11,740	7.32	7.50	4.76
	JULI	3,895,835	4.53	117,05	11,798	6.86	7.50	4.88
	AGUSTUS	3,895,116	3.99	120,13	11,591	7.32	7.50	4.84
	SEPTEMBER	4,009,857	4.53	127,74	11,710	7.47	7.50	4.7
	OKTOBER	4,024,153	4.83	124,37	12,188	7.45	7.50	4.91
	NOVEMBER	4,076,294	6.23	121,73	12,105	6.94	7.50	4.92

	DESEMBER	4,173,327	8.36	124,94	12,264	7.18	7.75	5.03
2015	JANUARI	4,174,826	6.96	123,33	12,474	6.83	7.75	4.88
	FEBUARI	4,218,123	6.29	119,67	12,700	7.05	7.50	4.82
	MARET	4,246,361	6.38	125,46	12,993	7.05	7.50	4.83
	APRIL	4,275,711	6.79	127,11	13,047	6.88	7.50	4.83
	MEI	4,288,369	7.15	123,03	13,021	7.05	7.50	6.23
	JUNI	4,358,802	7.26	126,26	13,320	6.65	7.50	4.90
	JULI	4,373,208	7.26	122,21	13,331	6.56	7.50	4.75
	AGUSTUS	4,404,085	7.18	127,01	13,492	6.48	7.50	4.72
	SEPTEMBER	4,508,603	6.83	130,31	14,081	6.44	7.50	4.68
	OKTOBER	4,443,078	6.25	132,07	14,426	6.32	7.50	4.78
	NOVEMBER	4,452,325	4.89	129,77	13,682	7.02	7.50	4.81
	DESEMBER	4,548,800	3.35	126,84	13,808	6.51	7.50	4.98
2016	JANUARI	4,498,361	4.14	126,50	13,898	6.37	7.25	4.97
	FEBUARI	4,521,951	4.42	128,50	13,699	6.25	7.00	4.96
	MARET	4,561,873	4.45	128,67	13,367	6.27	6.75	4.95
	APRIL	4,581,878	3.6	127,28	13,200	6.29	6.75	4.96
	MEI	4,614,062	3.33	131,69	13,192	6.05	6.75	5.02
	JUNI	4,737,451	3.45	136,30	13,671	6.14	6.50	5.01
	JULI	4,730,380	3.21	132,93	13,172	5.85	6.50	5.04
	AGUSTUS	4,746,027	2.79	134,72	13,080	5.72	5.25	5.04
	SEPTEMBER	4,737,631	3.07	130,37	13,269	5.54	5.00	5.41
	OKTOBER	4,778,479	3.31	132,15	13,010	5.06	4.75	5.38
	NOVEMBER	4,868,651	3.58	139,15	13,036	5.57	4.75	5.40
	DESEMBER	5,004,977	3.02	132,27	13,582	5.75	4.75	5.46
2017	JANUARI	4,936,882	3.49	130,86	13,485	5.55	4.75	5.44
	FEBUARI	4,942,920	3.83	133,35	13,349	5.51	4.75	5.48
	MARET	5,017,644	3.61	136,57	13,361	5.64	4.75	5.50
	APRIL	5,033,780	4.17	135,43	13,324	5.82	4.75	5.50
	MEI	5,126,370	4.33	140,43	13,316	5.96	4.75	5.57
	JUNI	5,225,493	4.37	134,78	13,311	5.97	4.75	5.65
	JULI	5,178,079	3.88	138,09	13,325	5.88	4.75	5.75
	AGUSTUS	5,218,477	3.82	141,22	13,318	5.66	4.50	5.76
	SEPTEMBER	5,253,720	3.72	140,43	13,345	5.87	4.25	5.83
	OKTOBER	5,284,325	3.58	140,60	13,499	5.68	4.25	5.81
	NOVEMBER	5,321,432	3.3	139,15	13,592	5.57	4.25	5.84

	DESEMBER	5,422,324	3.61	134,48	13,527	5.91	4.25	5.95
2018	JANUARI	5.351.684	3.25	142,00	13,406	5.51	4.25	6.02
	FEBUARI	5.351.650	3.18	140,75	13,402	5.51	4.25	5.94
	MARET	5.395.826	3.4	139,50	13,793	5.45	4.25	6.03
	APRIL	5.409.088	3.41	144,21	13,750	4.85	4.25	6.01
	MEI	5.435.082	3.23	143,14	13,936	4.94	4.50	5.99
	JUNI	5.534.149	3.12	125,18	13,872	5.15	5.25	5.94
	JULI	5.507.791	3.18	144,27	14,331	4.99	5.25	5.93
	AGUSTUS	5.529.451	3.2	146,79	14,442	5.12	5.50	5.97
	SEPTEMBER	5.606.779	2.88	144,81	14,767	5.13	5.75	6.09
	OKTOBER	5.667.512	3.16	148,05	14,905	4.76	5.75	6.02
	NOVEMBER	5.670.975	3.23	146,26	15,295	5.08	6.00	5.98
	DESEMBER	5.760.046	3.13	145,04	14,252	5.32	6.00	6.19



Appendix 1 Data descriptive

	M2	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
Mean	3828860.	4.865000	6.166667	117.0893	7.010083	11648.99	4.537417
Median	3880797.	4.435000	6.500000	114.7050	6.835000	11984.50	4.940000
Maximum	6730197.	8.790000	8.750000	148.0500	10.77000	15295.00	6.640000
Minimum	1089011.	2.170000	4.250000	91.58000	4.760000	8481.000	2.130000
Std. Dev.	1300141.	1.718723	1.185227	15.69564	1.482975	2009.099	1.228318
Skewness	-0.043612	0.546282	-0.192509	0.275699	0.652547	-0.155452	-0.461644
Kurtosis	1.819228	2.168135	2.064070	1.916502	2.773071	1.519772	2.049984
Jarque-Bera	7.009152	9.428478	5.121024	7.390032	8.773839	11.43869	8.774960
Probability	0.030060	0.008967	0.077265	0.024847	0.012439	0.003282	0.012432
Sum	4.59E+08	583.8000	740.0000	14050.71	841.2100	1397879.	544.4900
Sum Sq. Dev.	2.01E+14	351.5272	167.1667	29316.02	261.7065	4.80E+08	179.5431
Observations	120	120	120	120	120	120	120



Appendix 2 stasionarity test (at level)

Null Hypothesis: M2 has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.056199	0.9506
Test critical values:		
1% level	-3.486064	
5% level	-2.885863	
10% level	-2.579818	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(M2)

Method: Least Squares

Date: 11/07/19 Time: 05:32

Sample (adjusted): 2009M02 2018M12

Included observations: 119 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2(-1)	-0.000387	0.006882	-0.056199	0.9553
C	48876.37	27608.14	1.770361	0.0793
R-squared	0.000027	Mean dependent var		47404.92
Adjusted R-squared	-0.008520	S.D. dependent var		95121.09
S.E. of regression	95525.43	Akaike info criterion		25.78884
Sum squared resid	1.07E+12	Schwarz criterion		25.83554
Log likelihood	-1532.436	Hannan-Quinn criter.		25.80780
F-statistic	0.003158	Durbin-Watson stat		1.129308
Prob(F-statistic)	0.955279			

Null Hypothesis: INF has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	2.126552	0.9999
Test critical values:		
1% level	-3.486551	
5% level	-2.886074	
10% level	-2.579931	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(INF)
 Method: Least Squares
 Date: 11/07/19 Time: 05:33
 Sample (adjusted): 2009M03 2018M12
 Included observations: 118 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	0.007986	0.003755	2.126552	0.0356
D(INF(-1))	0.319520	0.089826	3.557114	0.0005
C	-0.000782	0.018483	-0.042284	0.9663
R-squared	0.168902	Mean dependent var		0.055424
Adjusted R-squared	0.154448	S.D. dependent var		0.070996
S.E. of regression	0.065283	Akaike info criterion		-2.595060
Sum squared resid	0.490123	Schwarz criterion		-2.524619
Log likelihood	156.1085	Hannan-Quinn criter.		-2.566459
F-statistic	11.68557	Durbin-Watson stat		1.996530
Prob(F-statistic)	0.000024			

Null Hypothesis: IPI has a unit root
 Exogenous: Constant
 Lag Length: 4 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.195938	0.9347
Test critical values:	1% level	-3.488063	
	5% level	-2.886732	
	10% level	-2.580281	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(IPI)
 Method: Least Squares
 Date: 11/07/19 Time: 05:33
 Sample (adjusted): 2009M06 2018M12
 Included observations: 115 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IPI(-1)	-0.010654	0.054373	-0.195938	0.8450
D(IPI(-1))	-0.838086	0.100573	-8.333110	0.0000
D(IPI(-2))	-0.733091	0.113235	-6.474084	0.0000
D(IPI(-3))	-0.574196	0.109601	-5.238989	0.0000
D(IPI(-4))	-0.380179	0.089527	-4.246510	0.0000
C	2.782357	6.381949	0.435973	0.6637
R-squared	0.465743	Mean dependent var	0.418174	
Adjusted R-squared	0.441236	S.D. dependent var	10.42204	
S.E. of regression	7.790530	Akaike info criterion	6.994459	
Sum squared resid	6615.467	Schwarz criterion	7.137672	
Log likelihood	-396.1814	Hannan-Quinn criter.	7.052588	
F-statistic	19.00434	Durbin-Watson stat	2.079366	
Prob(F-statistic)	0.000000			

Null Hypothesis: INTRATE has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.703877	0.4267
Test critical values:	1% level	-3.486064	
	5% level	-2.885863	
	10% level	-2.579818	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(SBI)
 Method: Least Squares
 Date: 11/07/19 Time: 05:34
 Sample (adjusted): 2009M02 2018M12
 Included observations: 119 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTRATE(-1)	-0.044229	0.025958	-1.703877	0.0911
C	0.269775	0.162407	1.661112	0.0994
R-squared	0.024213	Mean dependent var		-0.002101
Adjusted R-squared	0.015873	S.D. dependent var		0.332708
S.E. of regression	0.330057	Akaike info criterion		0.637562
Sum squared resid	12.74571	Schwarz criterion		0.684270
Log likelihood	-35.93491	Hannan-Quinn criter.		0.656528
F-statistic	2.903197	Durbin-Watson stat		1.838336
Prob(F-statistic)	0.091059			

Null Hypothesis: EXRATE has a unit root
 Exogenous: Constant
 Lag Length: 2 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.070144	0.2571
Test critical values:		
1% level	-3.487046	
5% level	-2.886290	
10% level	-2.580046	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(KURS)
 Method: Least Squares
 Date: 11/07/19 Time: 05:37
 Sample (adjusted): 2009M04 2018M12
 Included observations: 117 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXRATE(-1)	-0.162770	0.078627	-2.070144	0.0407
D(EXRATE(-1))	-0.556452	0.105688	-5.265069	0.0000
D(EXRATE(-2))	-0.184027	0.093931	-1.959173	0.0526
C	1935.757	921.7542	2.100079	0.0379
R-squared	0.358300	Mean dependent var		19.05128
Adjusted R-squared	0.341264	S.D. dependent var		1786.497
S.E. of regression	1449.967	Akaike info criterion		17.43006
Sum squared resid	2.38E+08	Schwarz criterion		17.52449
Log likelihood	-1015.658	Hannan-Quinn criter.		17.46840
F-statistic	21.03162	Durbin-Watson stat		2.045755
Prob(F-statistic)	0.000000			

Null Hypothesis: EQRATE has a unit root
 Exogenous: Constant
 Lag Length: 4 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.207590	0.2048
Test critical values:	1% level	-3.488063	
	5% level	-2.886732	
	10% level	-2.580281	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(ER)
 Method: Least Squares
 Date: 11/07/19 Time: 05:35
 Sample (adjusted): 2009M06 2018M12
 Included observations: 115 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EQRATE(-1)	-0.285191	0.129186	-2.207590	0.0294
D(EQRATE(-1))	-0.534875	0.132756	-4.029001	0.0001
D(EQRATE(-2))	-0.262301	0.123395	-2.125693	0.0358
D(EQRATE(-3))	-0.430826	0.113643	-3.791036	0.0002
D(EQRATE(-4))	-0.325324	0.090855	-3.580681	0.0005
C	1.913556	0.917099	2.086531	0.0393
R-squared	0.484717	Mean dependent var	-0.027217	
Adjusted R-squared	0.461080	S.D. dependent var	1.752639	
S.E. of regression	1.286633	Akaike info criterion	3.392699	
Sum squared resid	180.4414	Schwarz criterion	3.535913	
Log likelihood	-189.0802	Hannan-Quinn criter.	3.450829	
F-statistic	20.50681	Durbin-Watson stat	1.949551	
Prob(F-statistic)	0.000000			

Null Hypothesis: DPK has a unit root
 Exogenous: Constant
 Lag Length: 10 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.089332	0.9636
Test critical values:		
1% level	-3.491345	
5% level	-2.888157	
10% level	-2.581041	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(DPK)
 Method: Least Squares
 Date: 11/07/19 Time: 05:38
 Sample (adjusted): 2009M12 2018M12
 Included observations: 109 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DPK(-1)	0.003337	0.037356	0.089332	0.9290
D(DPK(-1))	-0.629410	0.106377	-5.916762	0.0000
D(DPK(-2))	-0.540546	0.123030	-4.393597	0.0000
D(DPK(-3))	-0.004499	0.130076	-0.034587	0.9725
D(DPK(-4))	0.160408	0.123859	1.295091	0.1984
D(DPK(-5))	0.187815	0.114384	1.641971	0.1038
D(DPK(-6))	-0.010752	0.089823	-0.119704	0.9050
D(DPK(-7))	-0.134237	0.085583	-1.568501	0.1200
D(DPK(-8))	-0.244762	0.086166	-2.840598	0.0055
D(DPK(-9))	0.021479	0.085167	0.252198	0.8014
D(DPK(-10))	-0.111703	0.078716	-1.419062	0.1591
C	0.026070	0.172438	0.151185	0.8801
R-squared	0.460539	Mean dependent var		0.015046
Adjusted R-squared	0.399363	S.D. dependent var		0.517524
S.E. of regression	0.401085	Akaike info criterion		1.114260
Sum squared resid	15.60431	Schwarz criterion		1.410555
Log likelihood	-48.72717	Hannan-Quinn criter.		1.234418
F-statistic	7.528089	Durbin-Watson stat		1.979740
Prob(F-statistic)	0.000000			

Appendix 3 Stasionarity test (first difference)

Null Hypothesis: D(M2) has a unit root
 Exogenous: Constant
 Lag Length: 3 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-8.956735	0.0000
Test critical values:		
1% level	-3.488063	
5% level	-2.886732	
10% level	-2.580281	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(M2,2)
 Method: Least Squares
 Date: 10/07/19 Time: 05:39
 Sample (adjusted): 2009M06 2018M12
 Included observations: 115 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2(-1))	-2.972382	0.331860	-8.956735	0.0000
D(M2(-1),2)	1.101521	0.276997	3.976648	0.0001
D(M2(-2),2)	0.581066	0.190721	3.046681	0.0029
D(M2(-3),2)	0.217087	0.091776	2.365390	0.0198
C	84023.79	118821.2	0.707145	0.4810
R-squared	0.833543	Mean dependent var		1569.661
Adjusted R-squared	0.827490	S.D. dependent var		3060939.
S.E. of regression	1271342.	Akaike info criterion		30.99155
Sum squared resid	1.78E+14	Schwarz criterion		31.11089
Log likelihood	-1777.014	Hannan-Quinn criter.		31.03999
F-statistic	137.7073	Durbin-Watson stat		2.011412
Prob(F-statistic)	0.000000			

Null Hypothesis: D(INF) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-15.29296	0.0000
Test critical values:	1% level	-3.486551	
	5% level	-2.886074	
	10% level	-2.579931	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(INF,2)
 Method: Least Squares
 Date: 11/07/19 Time: 05:39
 Sample (adjusted): 2009M03 2018M12
 Included observations: 118 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-1.336655	0.087403	-15.29296	0.0000
C	0.007516	0.147207	0.051055	0.9594
R-squared	0.668453	Mean dependent var		-0.004492
Adjusted R-squared	0.665595	S.D. dependent var		2.765202
S.E. of regression	1.599056	Akaike info criterion		3.793508
Sum squared resid	296.6096	Schwarz criterion		3.840468
Log likelihood	-221.8169	Hannan-Quinn criter.		3.812575
F-statistic	233.8747	Durbin-Watson stat		2.152915
Prob(F-statistic)	0.000000			

Null Hypothesis: D(IPI) has a unit root
 Exogenous: Constant
 Lag Length: 3 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-11.40974	0.0000
Test critical values:		
1% level	-3.488063	
5% level	-2.886732	
10% level	-2.580281	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(IPI,2)
 Method: Least Squares
 Date: 11/07/19 Time: 05:40
 Sample (adjusted): 2009M06 2018M12
 Included observations: 115 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IPI(-1))	-3.550497	0.311181	-11.40974	0.0000
D(IPI(-1),2)	1.703045	0.254455	6.692902	0.0000
D(IPI(-2),2)	0.962378	0.174002	5.530851	0.0000
D(IPI(-3),2)	0.382953	0.088014	4.351024	0.0000
C	1.540316	0.736417	2.091637	0.0388
R-squared	0.817767	Mean dependent var	-0.003913	
Adjusted R-squared	0.811141	S.D. dependent var	17.84807	
S.E. of regression	7.756404	Akaike info criterion	6.977419	
Sum squared resid	6617.798	Schwarz criterion	7.096764	
Log likelihood	-396.2016	Hannan-Quinn criter.	7.025861	
F-statistic	123.4061	Durbin-Watson stat	2.081817	
Prob(F-statistic)	0.000000			

Null Hypothesis: D(INTRATE) has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-11.43494	0.0000
Test critical values:		
1% level	-3.487046	
5% level	-2.886290	
10% level	-2.580046	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(INTRATE,2)
 Method: Least Squares
 Date: 11/07/19 Time: 05:45
 Sample (adjusted): 2009M04 2018M12
 Included observations: 117 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NTRATEI(-1))	-1.511168	0.132154	-11.43494	0.0000
D(INTRATE(-1),2)	0.302956	0.087037	3.480769	0.0007
C	-0.016046	0.070666	-0.227064	0.8208
R-squared	0.630191	Mean dependent var		0.014957
Adjusted R-squared	0.623703	S.D. dependent var		1.244943
S.E. of regression	0.763686	Akaike info criterion		2.323985
Sum squared resid	66.48658	Schwarz criterion		2.394810
Log likelihood	-132.9531	Hannan-Quinn criter.		2.352739
F-statistic	97.13366	Durbin-Watson stat		1.959183
Prob(F-statistic)	0.000000			

Null Hypothesis: D(EXRATE) has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-12.00616	0.0000
Test critical values:		
1% level	-3.487046	
5% level	-2.886290	
10% level	-2.580046	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(EXRATE,2)
 Method: Least Squares
 Date: 11/07/19 Time: 05:49
 Sample (adjusted): 2009M04 2018M12
 Included observations: 117 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXRATE(-1))	-1.914869	0.159490	-12.00616	0.0000
D(EXRATE(-1),2)	0.242489	0.090867	2.668621	0.0087
C	47.90811	136.0648	0.352098	0.7254
R-squared	0.783545	Mean dependent var	-11.67521	
Adjusted R-squared	0.779748	S.D. dependent var	3133.775	
S.E. of regression	1470.712	Akaike info criterion	17.45019	
Sum squared resid	2.47E+08	Schwarz criterion	17.52101	
Log likelihood	-1017.836	Hannan-Quinn criter.	17.47894	
F-statistic	206.3347	Durbin-Watson stat	2.079966	
Prob(F-statistic)	0.000000			

Null Hypothesis: D(EQRATE) has a unit root
 Exogenous: Constant
 Lag Length: 3 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-11.08068	0.0000
Test critical values:		
1% level	-3.488063	
5% level	-2.886732	
10% level	-2.580281	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(EQRATE,2)
 Method: Least Squares
 Date: 11/07/19 Time: 05:54
 Sample (adjusted): 2009M06 2018M12
 Included observations: 115 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EQRATE(-1))	-3.134842	0.282911	-11.08068	0.0000
D(EQRATE(-1),2)	1.376965	0.230405	5.976284	0.0000
D(EQRATE(-2),2)	0.950261	0.164775	5.767024	0.0000
D(EQRATE(-3),2)	0.392013	0.087182	4.496499	0.0000
C	-0.093533	0.122388	-0.764236	0.4464
R-squared	0.824527	Mean dependent var		0.008609
Adjusted R-squared	0.818146	S.D. dependent var		3.069790
S.E. of regression	1.309091	Akaike info criterion		3.419047
Sum squared resid	188.5090	Schwarz criterion		3.538392
Log likelihood	-191.5952	Hannan-Quinn criter.		3.467489
F-statistic	129.2194	Durbin-Watson stat		1.989202
Prob(F-statistic)	0.000000			

Null Hypothesis: D(DPK) has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-11.11692	0.0000
Test critical values:		
1% level	-3.487046	
5% level	-2.886290	
10% level	-2.580046	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(DPK,2)
 Method: Least Squares
 Date: 11/07/19 Time: 06:05
 Sample (adjusted): 2009M04 2018M12
 Included observations: 117 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DPK(-1))	-1.655763	0.148941	-11.11692	0.0000
D(DPK(-1),2)	0.236395	0.091012	2.597413	0.0106
C	0.056080	0.089735	0.624947	0.5333
R-squared	0.688021	Mean dependent var		0.002222
Adjusted R-squared	0.682547	S.D. dependent var		1.720201
S.E. of regression	0.969211	Akaike info criterion		2.800638
Sum squared resid	107.0882	Schwarz criterion		2.871463
Log likelihood	-160.8373	Hannan-Quinn criter.		2.829392
F-statistic	125.7045	Durbin-Watson stat		2.063718
Prob(F-statistic)	0.000000			

Appendix 4 cointegration test

Date: 11/07/19 Time: 08:43

Sample (adjusted): 2009M06 2018M12

Included observations: 115 after adjustments

Trend assumption: Linear deterministic trend

Series: M2 INF INTRATE IPI EQRATE EXRATE
DPK

Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.322720	129.9645	125.6154	0.0265
At most 1	0.268438	85.15237	95.75366	0.2141
At most 2	0.134332	49.20650	69.81889	0.6719
At most 3	0.122956	32.61735	47.85613	0.5780
At most 4	0.079994	17.52955	29.79707	0.6009
At most 5	0.066707	7.941377	15.49471	0.4717
At most 6	1.99E-05	0.002287	3.841466	0.9599

Trace test indicates 1 cointegrating eqn(s) 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	0.322720	44.81211	46.23142	0.0705
At most 1	0.268438	35.94587	40.07757	0.1358
At most 2	0.134332	16.58915	33.87687	0.9365
At most 3	0.122956	15.08780	27.58434	0.7412
At most 4	0.079994	9.588174	21.13162	0.7823
At most 5	0.066707	7.939090	14.26460	0.3849

At most 6 1.99E-05 0.002287 3.841466 0.9599

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

Unrestricted Cointegrating Coefficients (normalized by b*S11*b=l):

M2	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
1.42E-06	0.462355	0.292454	-0.086797	-0.358742	-0.000124	1.007853
-3.74E-07	0.225920	-1.119938	-0.142622	-0.987801	0.001175	-0.638341
-1.12E-06	-0.312447	0.028978	-0.102859	-0.803519	0.000283	1.550414
-5.70E-07	-0.129966	0.081205	-0.030923	0.865182	0.000414	0.438262
-7.61E-07	0.402736	0.776541	0.004122	-0.476327	0.000445	0.157867
-1.73E-06	0.582361	-0.858779	-0.003775	0.048729	0.000341	0.563350
-2.73E-07	0.281520	-0.245195	-0.058883	-0.169643	-0.000110	-0.064999

Unrestricted Adjustment Coefficients (alpha):

D(M2)	-409674.9	-88342.69	118204.6	-27408.31	74306.97	141419.8	1833.031
D(INF)	-0.464890	-0.039457	0.289851	-0.082519	-0.091253	-0.025330	-0.001505
D(INTRATE)	0.156128	0.224738	-0.043182	-0.103347	-0.078220	0.063996	-0.000345
D(IPI)	-0.512216	0.177658	1.686835	-0.369965	0.011629	-0.275225	0.020657
D(EQRATE)	-0.118178	0.056248	0.128229	-0.215840	0.238808	0.013493	-0.000532
D(EXRATE)	-203.6920	-370.6318	-112.4490	-242.8010	0.827098	40.77550	2.247555
D(DPK)	-0.387912	0.131841	-0.059445	-0.026096	0.035805	-0.040067	0.001499

1 Cointegrating Equation(s): Log likelihood -3655.809

Normalized cointegrating coefficients (standard error in parentheses)

M2	INF	INRATE	IPI	EQRATE	EXRATE	DPK
1.000000	326055.3	206240.0	-61209.40	-252986.8	-87.16831	710742.5
	(107363.)	(169823.)	(22706.9)	(182400.)	(130.912)	(224461.)

Adjustment coefficients (standard error in parentheses)

D(M2)	-0.580930
	(0.15604)
D(INF)	-6.59E-07
	(1.8E-07)
D(INTRATE)	2.21E-07

	(1.1E-07)
D(IPI)	-7.26E-07
	(1.0E-06)
D(EQRATE)	-1.68E-07
	(1.7E-07)
D(EXRATE)	-0.000289
	(0.00019)
D(DPK)	-5.50E-07
	(1.2E-07)

2 Cointegrating Equation(s): Log likelihood -3637.836

Normalized cointegrating coefficients (standard error in parentheses)

M2	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
1.000000	0.000000	1184052. (274106.)	93958.26 (36279.2)	761817.5 (289549.)	-1158.604 (208.135)	1060256. (369724.)
0.000000	1.000000	-2.998915 (0.79303)	-0.475894 (0.10496)	-3.112369 (0.83771)	0.003286 (0.00060)	-1.071944 (1.06966)

Adjustment coefficients (standard error in parentheses)

D(M2)	-0.547921 (0.16075)	-209373.8 (56410.3)
D(INF)	-6.44E-07 (1.9E-07)	-0.223858 (0.06524)
D(INTRATE)	1.37E-07 (1.0E-07)	0.122959 (0.03675)
D(IPI)	-7.93E-07 (1.1E-06)	-0.196689 (0.37660)
D(EQRATE)	-1.89E-07 (1.8E-07)	-0.041933 (0.06288)
D(EXRATE)	-0.000150 (0.00018)	-177.9112 (63.9809)
D(DPK)	-5.99E-07 (1.2E-07)	-0.149568 (0.04132)

3 Cointegrating Equation(s): Log likelihood -3629.541

Normalized cointegrating coefficients (standard error in parentheses)

M2	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
1.000000	0.000000	0.000000	512559.2	3403093.	-1202.189	-5792691.

			(152915.)	(1303534)	(878.672)	(1575492)
0.000000	1.000000	0.000000	-1.536108	-9.802075	0.003396	16.28490
			(0.41018)	(3.49662)	(0.00236)	(4.22612)
0.000000	0.000000	1.000000	-0.353532	-2.230709	3.68E-05	5.787707
			(0.13285)	(1.13252)	(0.00076)	(1.36879)

Adjustment coefficients (standard error in parentheses)

D(M2)	-0.679964	-246306.5	-17447.40
	(0.20069)	(65541.1)	(126053.)
D(INF)	-9.68E-07	-0.314422	-0.083370
	(2.3E-07)	(0.07394)	(0.14221)
D(INTRATE)	1.86E-07	0.136452	-0.207284
	(1.3E-07)	(0.04290)	(0.08250)
D(IPI)	-2.68E-06	-0.723737	-0.299885
	(1.3E-06)	(0.42659)	(0.82045)
D(EQRATE)	-3.32E-07	-0.081998	-0.093841
	(2.2E-07)	(0.07308)	(0.14056)
D(EXRATE)	-2.47E-05	-142.7768	352.2557
	(0.00023)	(74.4898)	(143.264)
D(DPK)	-5.33E-07	-0.130994	-0.262822
	(1.5E-07)	(0.04819)	(0.09268)

4 Cointegrating Equation(s): Log likelihood -3621.997

Normalized cointegrating coefficients (standard error in parentheses)

M2	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
1.000000	0.000000	0.000000	0.000000	-6304867.	-2149.691	1113634.
				(2072507)	(1443.30)	(2668953)
0.000000	1.000000	0.000000	0.000000	19.29207	0.006236	-4.412926
				(6.37646)	(0.00444)	(8.21154)
0.000000	0.000000	1.000000	0.000000	4.465258	0.000690	1.024139
				(1.39465)	(0.00097)	(1.79601)
0.000000	0.000000	0.000000	1.000000	18.94017	0.001849	-13.47420
				(5.00363)	(0.00348)	(6.44362)

Adjustment coefficients (standard error in parentheses)

D(M2)	-0.664334	-242744.4	-19673.08	36847.11
	(0.21000)	(67025.9)	(126315.)	(21604.5)
D(INF)	-9.21E-07	-0.303697	-0.090071	0.018716
	(2.4E-07)	(0.07544)	(0.14218)	(0.02432)
D(INTRATE)	2.45E-07	0.149883	-0.215676	-0.037967

	(1.4E-07)	(0.04334)	(0.08167)	(0.01397)
D(IPI)	-2.47E-06	-0.675654	-0.329927	-0.142945
	(1.4E-06)	(0.43572)	(0.82115)	(0.14045)
D(EQRATE)	-2.09E-07	-0.053946	-0.111368	-0.004280
	(2.3E-07)	(0.07336)	(0.13826)	(0.02365)
D(EXRATE)	0.000114	-111.2209	332.5392	89.61427
	(0.00023)	(74.4597)	(140.325)	(24.0006)
D(DPK)	-5.18E-07	-0.127603	-0.264941	0.021787
	(1.5E-07)	(0.04927)	(0.09285)	(0.01588)

5 Cointegrating Equation(s): Log likelihood -3617.203

Normalized cointegrating coefficients (standard error in parentheses)

M2	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
1.000000	0.000000	0.000000	0.000000	0.000000	-536.0547 (141.446)	337281.5 (254377.)
0.000000	1.000000	0.000000	0.000000	0.000000	0.001299 (0.00048)	-2.037388 (0.85962)
0.000000	0.000000	1.000000	0.000000	0.000000	-0.000452 (0.00017)	1.573971 (0.30307)
0.000000	0.000000	0.000000	1.000000	0.000000	-0.002999 (0.00160)	-11.14199 (2.87790)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000256 (0.00022)	-0.123135 (0.39491)

Adjustment coefficients (standard error in parentheses)

D(M2)	-0.720862 (0.22511)	-212818.3 (79863.8)	38029.36 (151561.)	37153.38 (21549.8)	80145.43 (179170.)
D(INF)	-8.52E-07 (2.5E-07)	-0.340448 (0.08985)	-0.160932 (0.17051)	0.018340 (0.02424)	-0.055077 (0.20157)
D(INTRATE)	3.04E-07 (1.4E-07)	0.118381 (0.05140)	-0.276417 (0.09755)	-0.038289 (0.01387)	-0.295465 (0.11532)
D(IPI)	-2.47E-06 (1.5E-06)	-0.670971 (0.52061)	-0.320897 (0.98797)	-0.142897 (0.14048)	-1.672768 (1.16795)
D(EQRATE)	-3.90E-07 (2.4E-07)	0.042231 (0.08556)	0.074077 (0.16237)	-0.003296 (0.02309)	-0.416693 (0.19195)
D(EXRATE)	0.000113 (0.00025)	-110.8878 (88.9657)	333.1814 (168.833)	89.61768 (24.0057)	319.0772 (199.590)
D(DPK)	-5.45E-07 (1.7E-07)	-0.113183 (0.05880)	-0.237137 (0.11158)	0.021935 (0.01586)	0.017061 (0.13191)

6 Cointegrating Equation(s): Log likelihood -3613.234

Normalized cointegrating coefficients (standard error in parentheses)

M2	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-778278.8 (183562.)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.664932 (0.41306)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.632343 (0.28402)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-17.38284 (2.81757)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.409480 (0.28318)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-2081.057 (478.391)

Adjustment coefficients (standard error in parentheses)

D(M2)	-0.965117 (0.28999)	-130460.9 (100825.)	-83419.01 (176138.)	36619.54 (21337.3)	87036.69 (177449.)	50.24715 (150.530)
D(INF)	-8.08E-07 (3.3E-07)	-0.355199 (0.11455)	-0.139180 (0.20011)	0.018436 (0.02424)	-0.056312 (0.20160)	9.60E-06 (0.00017)
D(INTRATE)	1.94E-07 (1.9E-07)	0.155650 (0.06523)	-0.331375 (0.11395)	-0.038531 (0.01380)	-0.292346 (0.11480)	0.000177 (9.7E-05)
D(IPI)	-2.00E-06 (1.9E-06)	-0.831251 (0.66332)	-0.084540 (1.15880)	-0.141858 (0.14038)	-1.686179 (1.16742)	0.000507 (0.00099)
D(EQRATE)	-4.14E-07 (3.1E-07)	0.050089 (0.10910)	0.062489 (0.19060)	-0.003347 (0.02309)	-0.416035 (0.19202)	0.000138 (0.00016)
D(EXRATE)	4.27E-05 (0.00033)	-87.14175 (113.378)	298.1643 (198.069)	89.46376 (23.9940)	321.0641 (199.543)	-0.528540 (0.16927)
D(DPK)	-4.76E-07 (2.2E-07)	-0.136516 (0.07487)	-0.202729 (0.13079)	0.022086 (0.01584)	0.015108 (0.13177)	0.000178 (0.00011)

Appendix 5 cointegration residual based test

Null Hypothesis: D(RESID) has a unit root
 Exogenous: Constant
 Lag Length: 3 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-8.921561	0.0000
Test critical values:		
1% level	-3.488063	
5% level	-2.886732	
10% level	-2.580281	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(RESID,2)
 Method: Least Squares
 Date: 11/07/19 Time: 09:46
 Sample (adjusted): 2009M06 2018M12
 Included observations: 115 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RESID(-1))	-2.909822	0.326156	-8.921561	0.0000
D(RESID(-1),2)	1.030111	0.273284	3.769376	0.0003
D(RESID(-2),2)	0.533040	0.188520	2.827500	0.0056
D(RESID(-3),2)	0.213822	0.090340	2.366870	0.0197
C	29211.24	77979.72	0.374601	0.7087
R-squared	0.839950	Mean dependent var		3182.449
Adjusted R-squared	0.834130	S.D. dependent var		2052948.
S.E. of regression	836106.7	Akaike info criterion		30.15340
Sum squared resid	7.69E+13	Schwarz criterion		30.27275
Log likelihood	-1728.821	Hannan-Quinn criter.		30.20185
F-statistic	144.3214	Durbin-Watson stat		2.015724
Prob(F-statistic)	0.000000			

Appendix 6 short term estimation

Dependent Variable: D(M2)
 Method: Least Squares
 Date: 11/07/19 Time: 10:29
 Sample (adjusted): 2009M02 2018M12
 Included observations: 119 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6208.743	75976.76	-0.081719	0.9350
D(INF)	118728.6	52367.80	2.267207	0.0253
D(INTRATE)	-163257.1	96143.07	-1.698064	0.0923
D(IPI)	38875.36	9067.596	4.287284	0.0000
D(EXRATE)	222.2542	47.37450	4.691431	0.0000
D(EQRATE)	213272.7	49298.35	4.326163	0.0730
D(DPK)	262532.0	86037.01	3.051385	0.0029
ECT(-1)	-0.842784	0.093887	-8.976616	0.0000
R-squared	0.775855	Mean dependent var	32654.63	
Adjusted R-squared	0.761720	S.D. dependent var	1694414.	
S.E. of regression	827110.9	Akaike info criterion	30.15413	
Sum squared resid	7.59E+13	Schwarz criterion	30.34096	
Log likelihood	-1786.170	Hannan-Quinn criter.	30.22999	
F-statistic	54.88783	Durbin-Watson stat	2.059876	
Prob(F-statistic)	0.000000			

Appendix 7 long term estimation

Dependent Variable: M2
 Method: Least Squares
 Date: 11/07/19 Time: 11:02
 Sample: 2009M01 2018M12
 Included observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3016843.	1142156.	-2.641358	0.0094
INF	135694.5	49056.19	2.766103	0.0066
INTRATE	-118967.1	78957.09	-2.506731	0.0047
IPI	19622.26	8279.294	2.370040	0.0195
EXRATE	199.0961	53.26432	3.737889	0.0003
EQRATE	161818.4	58622.44	2.760350	0.1670
DPK	257414.1	91518.98	2.812686	0.0058
R-squared	0.580696	Mean dependent var		3828860.
Adjusted R-squared	0.558432	S.D. dependent var		1300141.
S.E. of regression	863951.2	Akaike info criterion		30.23298
Sum squared resid	8.43E+13	Schwarz criterion		30.39559
Log likelihood	-1806.979	Hannan-Quinn criter.		30.29902
F-statistic	26.08240	Durbin-Watson stat		1.810147
Prob(F-statistic)	0.000000			

Appendix 8 classic assumption test model (short term)

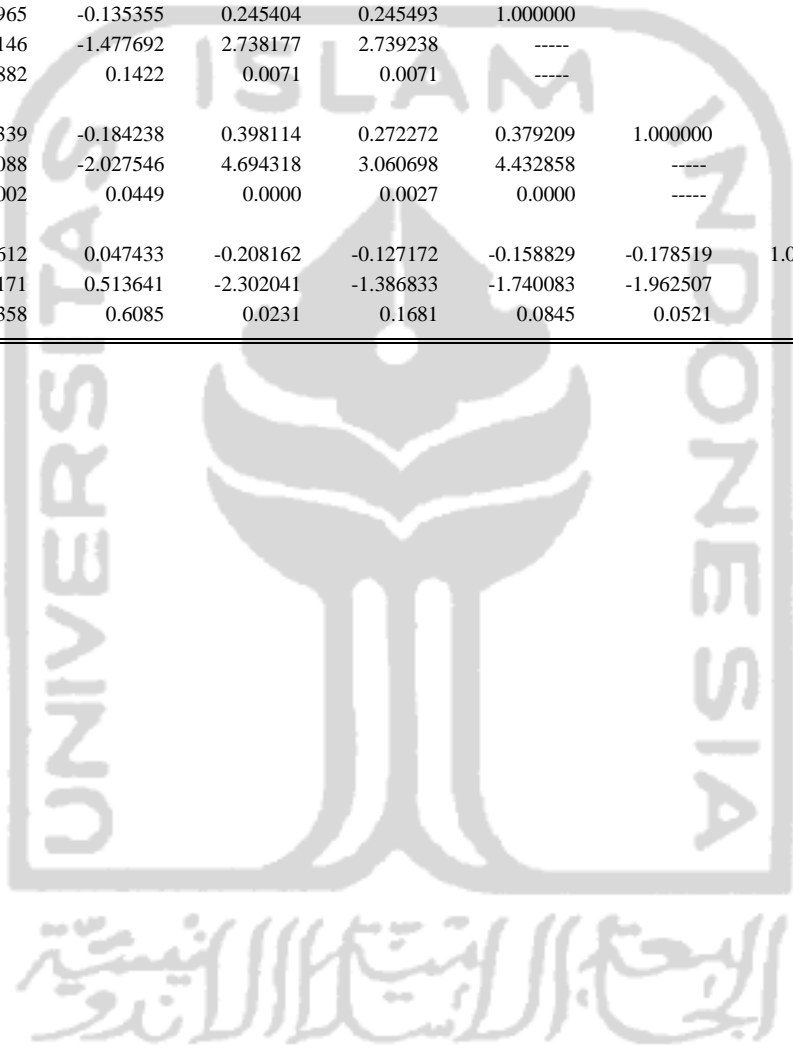
1. Multicollinearity test

Covariance Analysis: Ordinary
 Date: 11/07/19 Time: 12:53
 Sample: 2009M02 2018M12
 Included observations: 119
 Balanced sample (listwise missing value deletion)

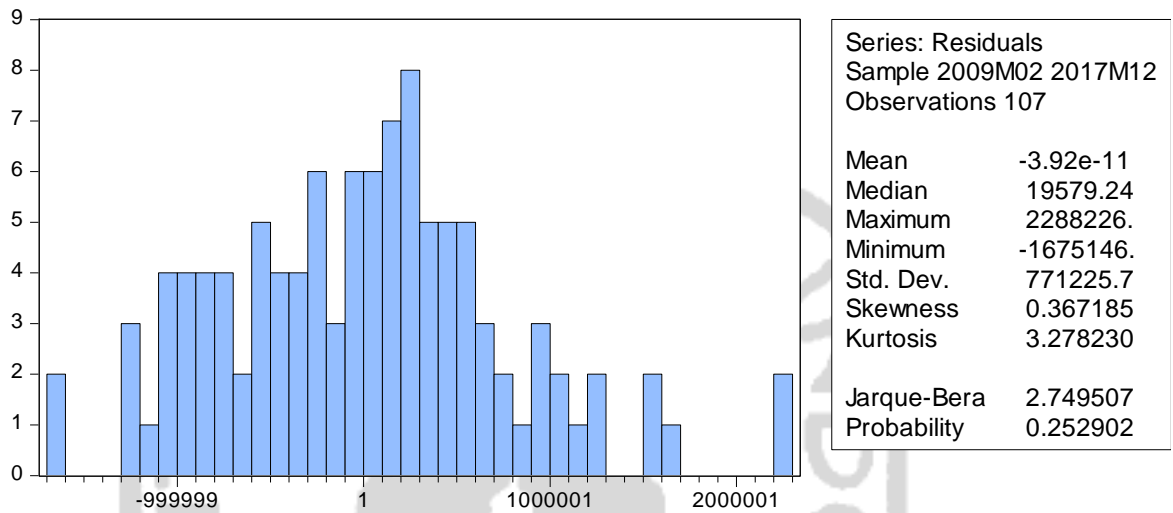
	Correlation							
	t-Statistic							
Probability	D(M2)	D(INF)	D(INTRATE)	D(IPI)	D(EQRATE)	D(EXRATE)	D(DPK)	ECT(-1)
D(M2)	1.000000							

D(INF)	0.475625	1.000000						
	5.848551	-----						
	0.0000	-----						
D(INTRATE)	-0.255167	-0.166726	1.000000					
	-2.854547	-1.829019	-----					
	0.0051	0.0699	-----					
D(IPI)	0.596726	0.442563	-0.200917	1.000000				
	8.043647	5.338295	-2.218486	-----				
	0.0000	0.0000	0.0285	-----				
D(EQRATE)	0.511415	0.316092	-0.130384	0.390465	1.000000			
	6.437305	3.603826	-1.422458	4.587707	-----			
	0.0000	0.0005	0.1576	0.0000	-----			

D(EXRATE)	0.500577	0.156965	-0.135355	0.245404	0.245493	1.000000		
	6.254608	1.719146	-1.477692	2.738177	2.739238	----		
	0.0000	0.0882	0.1422	0.0071	0.0071	----		
D(DPK)	0.531596	0.337339	-0.184238	0.398114	0.272272	0.379209	1.000000	
	6.788793	3.876088	-2.027546	4.694318	3.060698	4.432858	----	
	0.0000	0.0002	0.0449	0.0000	0.0027	0.0000	----	
ECT(-1)	-0.587228	-0.192612	0.047433	-0.208162	-0.127172	-0.158829	-0.178519	1.000000
	-7.847376	-2.123171	0.513641	-2.302041	-1.386833	-1.740083	-1.962507	----
	0.0000	0.0358	0.6085	0.0231	0.1681	0.0845	0.0521	----



2. Normality test



3. Autocorrelation test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.215255	Prob. F(12,99)	0.2835
Obs*R-squared	15.27855	Prob. Chi-Square(12)	0.2266

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 11/07/19 Time: 13:55

Sample: 2009M02 2018M12

Included observations: 119

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF)	-3508.141	54172.26	-0.064759	0.9485
D(INTRATE)	-10495.10	101095.3	-0.103814	0.9175
D(IPI)	-3166.533	9757.962	-0.324508	0.7462
D(EQRATE)	5652.666	50764.98	0.111350	0.9116
D(EXRATE)	1.523234	49.40619	0.030831	0.9755
D(DPK)	-19250.36	85775.36	-0.224428	0.8229
ECT(-1)	-0.121811	0.384141	-0.317099	0.7518
C	18361.04	76032.57	0.241489	0.8097
RESID(-1)	0.050342	0.387095	0.130050	0.8968
RESID(-2)	0.232676	0.116194	2.002485	0.0480
RESID(-3)	0.126093	0.107293	1.175215	0.2427
RESID(-4)	0.062081	0.104015	0.596848	0.5520
RESID(-5)	0.139428	0.106710	1.306615	0.1944
RESID(-6)	0.027669	0.105111	0.263236	0.7929
RESID(-7)	0.007188	0.104907	0.068523	0.9455
RESID(-8)	-0.135214	0.107257	-1.260657	0.2104
RESID(-9)	0.010180	0.105802	0.096221	0.9235
RESID(-10)	-0.009128	0.111283	-0.082028	0.9348
RESID(-11)	0.058170	0.105204	0.552923	0.5816
RESID(-12)	0.134347	0.104521	1.285363	0.2017

R-squared	0.128391	Mean dependent var	-5.09E-11
Adjusted R-squared	-0.038887	S.D. dependent var	802202.9
S.E. of regression	817651.9	Akaike info criterion	30.21839
Sum squared resid	6.62E+13	Schwarz criterion	30.68547
Log likelihood	-1777.994	Hannan-Quinn criter.	30.40806
F-statistic	0.767529	Durbin-Watson stat	1.997731
Prob(F-statistic)	0.738995		

4. Heteroscedasticity test

Heteroskedasticity Test: White

F-statistic	1.126062	Prob. F(7,111)	0.3520
Obs*R-squared	7.890228	Prob. Chi-Square(7)	0.3424
Scaled explained SS	11.33769	Prob. Chi-Square(7)	0.1246

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 11/07/19 Time: 14:24

Sample: 2009M02 2018M12

Included observations: 119

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.79E+11	1.52E+11	3.801818	0.0002
D(INF)^2	-6.41E+09	2.09E+10	-0.307037	0.7594
D(INTRATE)^2	1.39E+10	5.25E+10	0.263864	0.7924
D(IPI)^2	-1.86E+08	6.03E+08	-0.309337	0.7576
D(EQRATE)^2	7.75E+09	1.88E+10	0.411929	0.6812
D(EXRATE)^2	39259.30	16099.09	2.438603	0.0163
D(DPK)^2	1.24E+09	4.20E+10	0.029584	0.9765
ECT(-1)^2	-0.085028	0.093361	-0.910745	0.3644
R-squared	0.066304	Mean dependent var	6.38E+11	
Adjusted R-squared	0.007423	S.D. dependent var	1.16E+12	
S.E. of regression	1.16E+12	Akaike info criterion	58.46216	
Sum squared resid	1.49E+26	Schwarz criterion	58.64899	
Log likelihood	-3470.498	Hannan-Quinn criter	58.53802	
F-statistic	1.126062	Durbin-Watson stat	2.014996	
Prob(F-statistic)	0.351976			

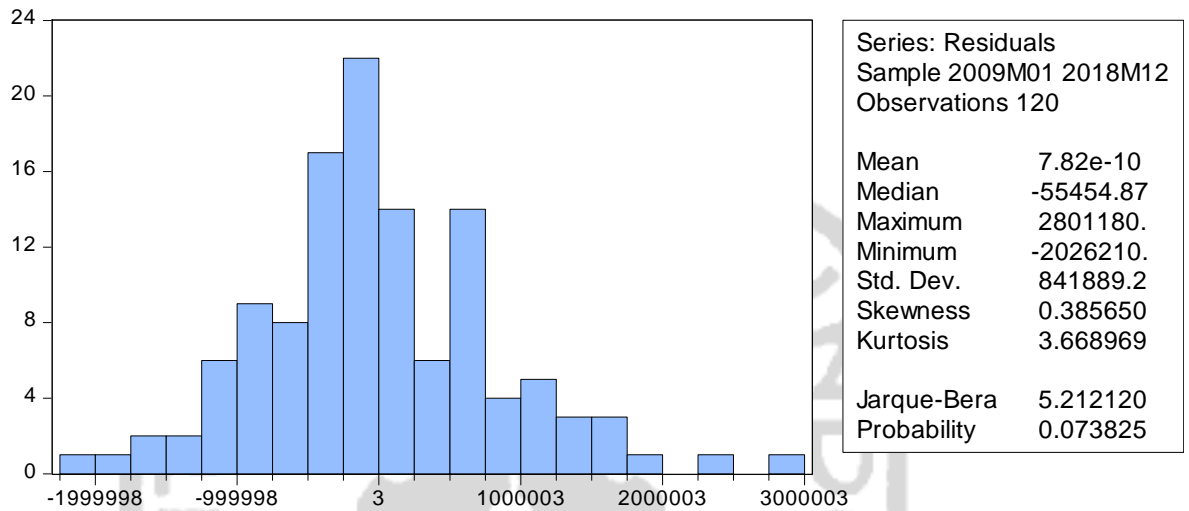
Appendix 9 classic assumption test model (long term)

1. Multicollinearity test

Covariance Analysis: Ordinary
 Date: 11/07/19 Time: 15:48
 Sample: 2009M01 2018M12
 Included observations: 120

Correlation t-Statistic Probability	INF	INTRATE	IPI	EQRATE	EXRATE	DPK
INF	1.000000 ----- -----					
INTRATE	-0.002939 -0.031928 0.9746	1.000000 ----- -----				
IPI	0.045678 0.496713 0.6203	-0.488340 -6.078853 0.0000	1.000000 ----- -----			
EQRATE	0.220887 2.460213 0.0153	0.111461 1.218366 0.2255	-0.246542 -2.763435 0.0066	1.000000 ----- -----		
EXRATE	-0.100992 -1.102694 0.2724	-0.235481 -2.631991 0.0096	0.607699 8.312227 0.0000	-0.008069 -0.087657 0.9303	1.000000 ----- -----	
DPK	0.102763 1.122236 0.2640	-0.451636 -5.498772 0.0000	0.664916 9.670189 0.0000	-0.051081 -0.555604 0.5795	0.521499 6.639221 0.0000	1.000000 ----- -----

2. Normality test



3. Autocorrelation test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.612066	Prob. F(12,101)	0.0999
Obs*R-squared	19.28937	Prob. Chi-Square(12)	0.0818

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 11/07/19 Time: 16:49

Sample: 2009M01 2018M12

Included observations: 120

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	19262.01	50436.18	0.381909	0.7033
INTRATE	-7385.287	79117.36	-0.093346	0.9258
IPI	4516.991	8468.790	0.533369	0.5949
EQRATE	22475.90	58054.03	0.387155	0.6995
EXRATE	20.17048	56.80797	0.355064	0.7233
DPK	20253.65	89980.99	0.225088	0.8224
C	-1035340.	1204356.	-0.859663	0.3920
RESID(-1)	0.059404	0.100828	0.589164	0.5571
RESID(-2)	0.258555	0.099023	2.611050	0.0104
RESID(-3)	0.111710	0.103591	1.078375	0.2834
RESID(-4)	0.035381	0.103557	0.341661	0.7333
RESID(-5)	0.137269	0.103142	1.330875	0.1862
RESID(-6)	0.039750	0.102896	0.386315	0.7001
RESID(-7)	-0.004629	0.103977	-0.044516	0.9646
RESID(-8)	-0.119573	0.104391	-1.145435	0.2547
RESID(-9)	0.084383	0.104836	0.804908	0.4228
RESID(-10)	0.004389	0.105738	0.041513	0.9670
RESID(-11)	0.091774	0.103694	0.885051	0.3782
RESID(-12)	0.122243	0.107035	1.142076	0.2561

R-squared	0.160745	Mean dependent var	7.82E-10
Adjusted R-squared	0.011175	S.D. dependent var	841889.2
S.E. of regression	837172.1	Akaike info criterion	30.25774
Sum squared resid	7.08E+13	Schwarz criterion	30.69910
Log likelihood	-1796.465	Hannan-Quinn criter.	30.43698
F-statistic	1.074711	Durbin-Watson stat	1.959827
Prob(F-statistic)	0.388182		

4. Heteroscedasticity test

Heteroskedasticity Test: White

F-statistic	0.300576	Prob. F(6,113)	0.9354
Obs*R-squared	1.885089	Prob. Chi-Square(6)	0.9300
Scaled explained SS	2.230692	Prob. Chi-Square(6)	0.8973

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 11/07/19 Time: 17:45

Sample: 2009M01 2018M12

Included observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.46E+12	7.68E+11	1.896052	0.0605
INF^2	1.02E+09	6.12E+09	0.166772	0.8678
INTRATE^2	-4.11E+09	8.81E+09	-0.466595	0.6417
IPI^2	-50463338	48130184	-1.048476	0.2967
EQRATE^2	-4.51E+08	5.21E+09	-0.086447	0.9313
EXRATE^2	-533.7618	3204.963	-0.166542	0.8680
DPK^2	8.27E+09	1.56E+10	0.529962	0.5972
R-squared	0.015709	Mean dependent var	7.03E+11	
Adjusted R-squared	-0.036554	S.D. dependent var	1.15E+12	
S.E. of regression	1.17E+12	Akaike info criterion	58.47728	
Sum squared resid	1.56E+26	Schwarz criterion	58.63988	
Log likelihood	-3501.637	Hannan-Quinn criter.	58.54331	
F-statistic	0.300576	Durbin-Watson stat	2.201550	
Prob(F-statistic)	0.935432			