

1. UJI AKAR UNIT

a. Uji akar unit ULN

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

	t-Statistik	Prob.*
Augmented Dickey-Fuller test statistik	2.159488	0.9999
Test critical values:		
1% level	-3.661661	
5% level	-2.960411	
10% level	-2.619160	

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

First Difference

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

	t-Statistik	Prob.*
Augmented Dickey-Fuller test statistik	-5.528207	0.0001
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

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

b. Uji Akar Unit PDB

Level

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

	t-Statistik	Prob.*
Augmented Dickey-Fuller test statistik	1.031787	0.9959
Test critical values:		
1% level	-3.661661	
5% level	-2.960411	
10% level	-2.619160	

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

First Difference

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

	t-Statistik	Prob.*
Augmented Dickey-Fuller test statistik	-3.570473	0.0127
Test critical values:		
1% level	-3.670170	

5% level	-2.963972
10% level	-2.621007

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

c. Uji akar unit KURS Level

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

	t-Statistik	Prob.*
Augmented Dickey-Fuller test statistik	-0.501402	0.8779
Test critical values:		
1% level	-3.661661	
5% level	-2.960411	
10% level	-2.619160	

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

First Difference

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

	t-Statistik	Prob.*
Augmented Dickey-Fuller test statistik	-5.383689	0.0001
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

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

d. Uji akar unit Impor Level

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

	t-Statistik	Prob.*
Augmented Dickey-Fuller test statistik	-0.910507	0.7713
Test critical values:		
1% level	-3.661661	
5% level	-2.960411	
10% level	-2.619160	

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

First Difference

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

t-Statistik	Prob.*
-------------	--------

Augmented Dickey-Fuller test statistik		-5.330914	0.0001
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

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

2. UJI LAG OPTIMAL

VAR Lag Order Selection Criteria

Endogenous variables: D(ULN) D(PDB) D(KURS) D(IMPOR)

Exogenous variables: C

Date: 04/18/18 Time: 17:09

Sample: 1985 2016

Included observations: 28

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1199.205	NA	2.48e+32	85.94320	86.13352*	86.00139
1	-1180.713	30.37953	2.11e+32	85.76521	86.71679	86.05612
2	-1174.784	8.046757	4.69e+32	86.48456	88.19739	87.00819
3	-1135.116	42.50084*	1.07e+32*	84.79402*	87.26812	85.55038*

3. UJI STABILITAS VAR

Roots of Characteristic Polynomial

Endogenous variables: D(ULN) D(PDB) D(KURS)

D(IMPOR)

Exogenous variables: C

Lag specification: 1 3

Date: 04/18/18 Time: 17:05

Root	Modulus
0.739953 - 0.662129i	0.992948
0.739953 + 0.662129i	0.992948
-0.834164 - 0.383856i	0.918245
-0.834164 + 0.383856i	0.918245
-0.551925 - 0.604018i	0.818205
-0.551925 + 0.604018i	0.818205
0.212684 - 0.784055i	0.812389
0.212684 + 0.784055i	0.812389
0.807463	0.807463
-0.281415 - 0.680101i	0.736025
-0.281415 + 0.680101i	0.736025
0.666911	0.666911

No root lies outside the unit circle.

VAR satisfies the stability condition.

4. UJI KOINTEGRASI

Date: 04/24/18 Time: 07:50

Sample (adjusted): 1989 2016

Included observations: 28 after adjustments

Trend assumption: Linear deterministic trend

Series: ULN PDB KURS IMPOR

Lags interval (in first differences): 1 to 3

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistik	0.05 Critical Value	Prob.**
None *	0.860728	106.5268	47.85613	0.0000
At most 1 *	0.713018	51.32961	29.79707	0.0001
At most 2 *	0.425602	16.37626	15.49471	0.0368
At most 3	0.029975	0.852146	3.841466	0.3559

Trace test indicates 3 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 Statistik	0.05 Critical Value	Prob.**
None *	0.860728	55.19715	27.58434	0.0000
At most 1 *	0.713018	34.95335	21.13162	0.0003
At most 2 *	0.425602	15.52411	14.26460	0.0315
At most 3	0.029975	0.852146	3.841466	0.3559

Max-eigenvalue test indicates 3 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 Cointegrating Coefficients (normalized by b'S11*b=I):

ULN	PDB	KURS	IMPOR
7.76E-05	-5.45E-05	-0.000817	0.000170
0.000140	-4.33E-05	-0.000757	5.48E-05
6.02E-05	1.70E-05	-0.000395	-0.000186
3.14E-05	1.42E-05	-0.000573	-8.00E-05

Unrestricted Adjustment Coefficients (alpha):

	D(ULN)	D(PDB)	D(KURS)	D(IMPOR)
	-8135.161	-1499.720	-1846.137	424.7473
	-4043.873	7408.293	18333.64	-2109.826
	-107.3469	-612.5495	-372.5362	24.42318
	2328.960	-552.8313	2791.922	1261.248

1 Cointegrating Equation(s): Log likelihood -1107.518

Normalized cointegrating coefficients (standard error in parentheses)

ULN	PDB	KURS	IMPOR
1.000000	-0.702079 (0.07281)	-10.53207 (0.69252)	2.189625 (0.36998)

Adjustment coefficients (standard error in parentheses)

D(ULN)	-0.630930 (0.10946)
D(PDB)	-0.313627 (0.66130)
D(KURS)	-0.008325 (0.01938)
D(IMPOR)	0.180625 (0.17672)

2 Cointegrating Equation(s): Log likelihood -1090.041

Normalized cointegrating coefficients (standard error in parentheses)

ULN	PDB	KURS	IMPOR
1.000000	0.000000	-1.368050 (1.21433)	-1.029113 (0.10207)
0.000000	1.000000	13.05269 (2.34515)	-4.584579 (0.19712)

Adjustment coefficients (standard error in parentheses)

D(ULN)	-0.840594 (0.21636)	0.507938 (0.09417)
D(PDB)	0.722068 (1.32594)	-0.100773 (0.57711)
D(KURS)	-0.093961 (0.03018)	0.032384 (0.01314)
D(IMPOR)	0.103338 (0.36352)	-0.102862 (0.15822)

3 Cointegrating Equation(s): Log likelihood -1082.279

Normalized cointegrating coefficients (standard error in parentheses)

ULN	PDB	KURS	IMPOR
1.000000	0.000000	0.000000	-0.910514 (0.12273)
0.000000	1.000000	0.000000	-5.716144 (0.30564)
0.000000	0.000000	1.000000	0.086692 (0.02829)

Adjustment coefficients (standard error in parentheses)

D(ULN)	-0.951640 (0.21525)	0.476531 (0.09027)	8.508552 (1.48873)
D(PDB)	1.824841 (1.14301)	0.211124 (0.47934)	-9.538918 (7.90523)
D(KURS)	-0.116369 (0.02739)	0.026046 (0.01149)	0.698267 (0.18947)
D(IMPOR)	0.271273 (0.36689)	-0.055365 (0.15386)	-2.585879 (2.53750)

5. Uji Kausalitas Granger

Pairwise Granger Causality Tests

Date: 04/24/18 Time: 07:56

Sample: 1985 2016

Lags: 3

Null Hypothesis:	Obs	F-Statistik	Prob.
PDB does not Granger Cause ULN	29	0.97232	0.4236
ULN does not Granger Cause PDB		1.69897	0.1964
KURS does not Granger Cause ULN	29	0.22472	0.8782
ULN does not Granger Cause KURS		0.41481	0.7440
IMPOR does not Granger Cause ULN	29	2.90423	0.0576
ULN does not Granger Cause IMPOR		4.22923	0.0167
KURS does not Granger Cause PDB	29	2.76391	0.0661
PDB does not Granger Cause KURS		0.72121	0.5500
IMPOR does not Granger Cause PDB	29	6.62532	0.0023
PDB does not Granger Cause IMPOR		9.33185	0.0004
IMPOR does not Granger Cause KURS	29	1.22916	0.3228
KURS does not Granger Cause IMPOR		0.84720	0.4829

6. Model VECM

Vector Error Correction Estimates

Date: 04/24/18 Time: 07:58

Sample (adjusted): 1989 2016

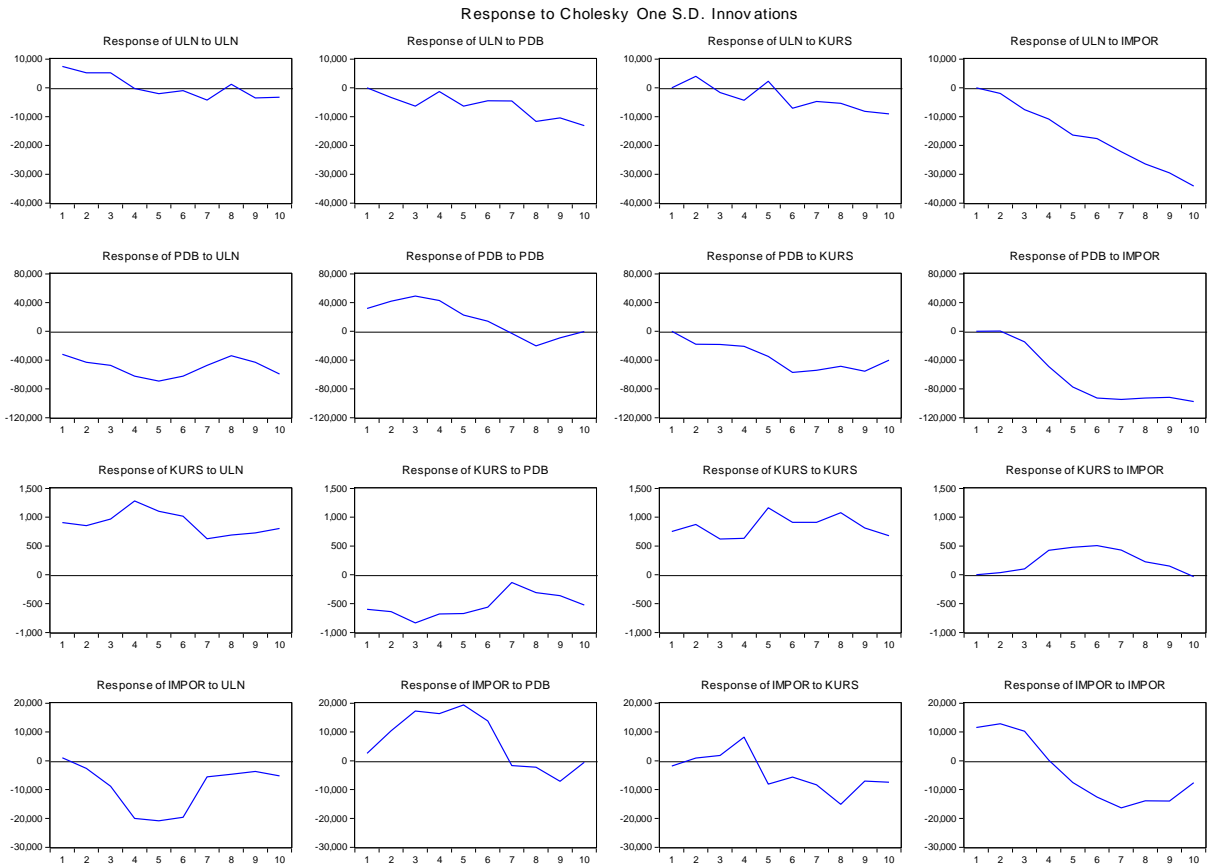
Included observations: 28 after adjustments

Standard errors in () & t-statistiks in []

Cointegrating Eq:	CointEq1			
ULN(-1)	1.000000			
PDB(-1)	-0.702079 (0.07281) [-9.64298]			
KURS(-1)	-10.53207 (0.69252) [-15.2084]			
IMPOR(-1)	2.189625 (0.36998) [5.91816]			
C	90932.79			
Error Correction:	D(ULN)	D(PDB)	D(KURS)	D(IMPOR)
CointEq1	-0.630930 (0.10946) [-5.76380]	-0.313627 (0.66130) [-0.47426]	-0.008325 (0.01938) [-0.42961]	0.180625 (0.17672) [1.02209]
D(ULN(-1))	-0.241435 (0.13988) [-1.72605]	1.171159 (0.84503) [1.38593]	-0.012725 (0.02476) [-0.51388]	0.175895 (0.22582) [0.77892]
D(ULN(-2))	0.211761 (0.15992)	1.834856 (0.96611)	-0.010143 (0.02831)	0.080368 (0.25817)

	[1.32418]	[1.89923]	[-0.35826]	[0.31129]
D(ULN(-3))	0.997342 (0.19610) [5.08590]	0.626656 (1.18468) [0.52896]	0.046787 (0.03472) [1.34769]	-1.884217 (0.31659) [-5.95168]
D(PDB(-1))	-0.443587 (0.12185) [-3.64037]	-0.343087 (0.73614) [-0.46606]	-0.004151 (0.02157) [-0.19241]	0.437735 (0.19672) [2.22517]
D(PDB(-2))	-0.616439 (0.09293) [-6.63340]	0.056417 (0.56141) [0.10049]	-0.019694 (0.01645) [-1.19709]	0.371743 (0.15003) [2.47784]
D(PDB(-3))	-0.244700 (0.07317) [-3.34448]	-0.081040 (0.44201) [-0.18334]	-0.006906 (0.01295) [-0.53313]	0.391311 (0.11812) [3.31285]
D(KURS(-1))	-1.766561 (2.81501) [-0.62755]	-26.86768 (17.0062) [-1.57988]	0.082853 (0.49835) [0.16625]	5.812496 (4.54460) [1.27899]
D(KURS(-2))	-11.15945 (2.72768) [-4.09119]	-10.17909 (16.4786) [-0.61772]	-0.308169 (0.48289) [-0.63817]	7.080562 (4.40361) [1.60790]
D(KURS(-3))	-15.50609 (3.26674) [-4.74665]	-9.964948 (19.7352) [-0.50493]	-0.329723 (0.57832) [-0.57013]	18.07065 (5.27388) [3.42644]
D(IMPOR(-1))	1.215330 (0.17607) [6.90235]	0.719134 (1.06371) [0.67606]	0.021519 (0.03117) [0.69036]	-0.286157 (0.28426) [-1.00668]
D(IMPOR(-2))	0.751150 (0.22697) [3.30954]	-0.396020 (1.37115) [-0.28882]	0.019392 (0.04018) [0.48262]	-0.594830 (0.36642) [-1.62337]
D(IMPOR(-3))	0.631709 (0.13794) [4.57973]	-1.488797 (0.83331) [-1.78662]	0.035533 (0.02442) [1.45510]	-0.640591 (0.22269) [-2.87665]
C	36515.49 (6048.25) [6.03736]	30804.61 (36539.0) [0.84306]	879.7349 (1070.75) [0.82161]	-18529.41 (9764.39) [-1.89765]
R-squared	0.880076	0.648116	0.346198	0.873876
Adj. R-squared	0.768718	0.321367	-0.260904	0.756761
Sum sq. resids	7.81E+08	2.85E+10	24474491	2.04E+09
S.E. equation	7468.546	45119.33	1322.187	12057.33
F-statistik	7.903107	1.983526	0.570247	7.461694
Log likelihood	-279.7430	-330.1041	-231.2634	-293.1542
Akaike AIC	20.98164	24.57886	17.51881	21.93959
Schwarz SC	21.64774	25.24496	18.18492	22.60569
Mean dependent	11095.04	30089.39	418.1071	4371.571
S.D. dependent	15529.76	54770.28	1177.475	24447.52

7. Model IRF



8. Model VD

Variance
Decomposition
of ULN:

Period	S.E.	ULN	PDB	KURS	IMPOR
1	7468.546	100.0000	0.000000	0.000000	0.000000
2	10674.88	72.97595	9.949337	13.81747	3.257242
3	15539.43	45.68921	21.41820	7.567808	25.32478
4	19452.82	29.16955	14.11484	9.669632	47.04597
5	26376.43	16.45696	13.51659	6.032638	63.99382
6	32810.17	10.72667	10.61961	8.546018	70.10770
7	40370.81	8.182614	8.308514	7.014498	76.49437
8	49950.28	5.407028	10.84031	5.732920	78.01974
9	59613.85	4.138127	10.66661	5.890009	79.30525
10	70572.71	3.167295	11.07158	5.851295	79.90983