ADF Fisher Unit Root Test on UNTITLED

Null Hypothesis: Unit root (individual unit root process)
Series: LIKUID, GROWTH, INF, UNCERTAINTY, CAR, ROA
Date: 11/20/21 Time: 20:12
Sample: 2015Q1 2021Q2
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Total number of observations: 146
Cross-sections included: 6

Method	Statistic	Prob.**
ADF - Fisher Chi-square	38.4409	0.0001
ADF - Choi Z-stat	-2.31046	0.0104

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results UNTITLED

Series	Prob.	Lag	Max Lag	Obs
LIKUID	0.0490	0	5	25
GROWTH	0.0000	1	5	24
INF	0.3064	0	5	25
UNCERTAINTY	0.0856	0	5	25
CAR	0.9376	0	5	25
ROA	0.7765	3	5	22

ADF Fisher Unit Root Test on D(UNTITLED)

Null Hypothesis: Unit root (individual unit root process)
Series: LIKUID, GROWTH, INF, UNCERTAINTY, CAR, ROA
Date: 11/20/21 Time: 20:13
Sample: 2015Q1 2021Q2
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Total number of observations: 140
Cross-sections included: 6

Method	Statistic	Prob.**
ADF - Fisher Chi-square	131.950	0.0000
ADF - Choi Z-stat	-10.0998	0.0000

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results D(UNTITLED)

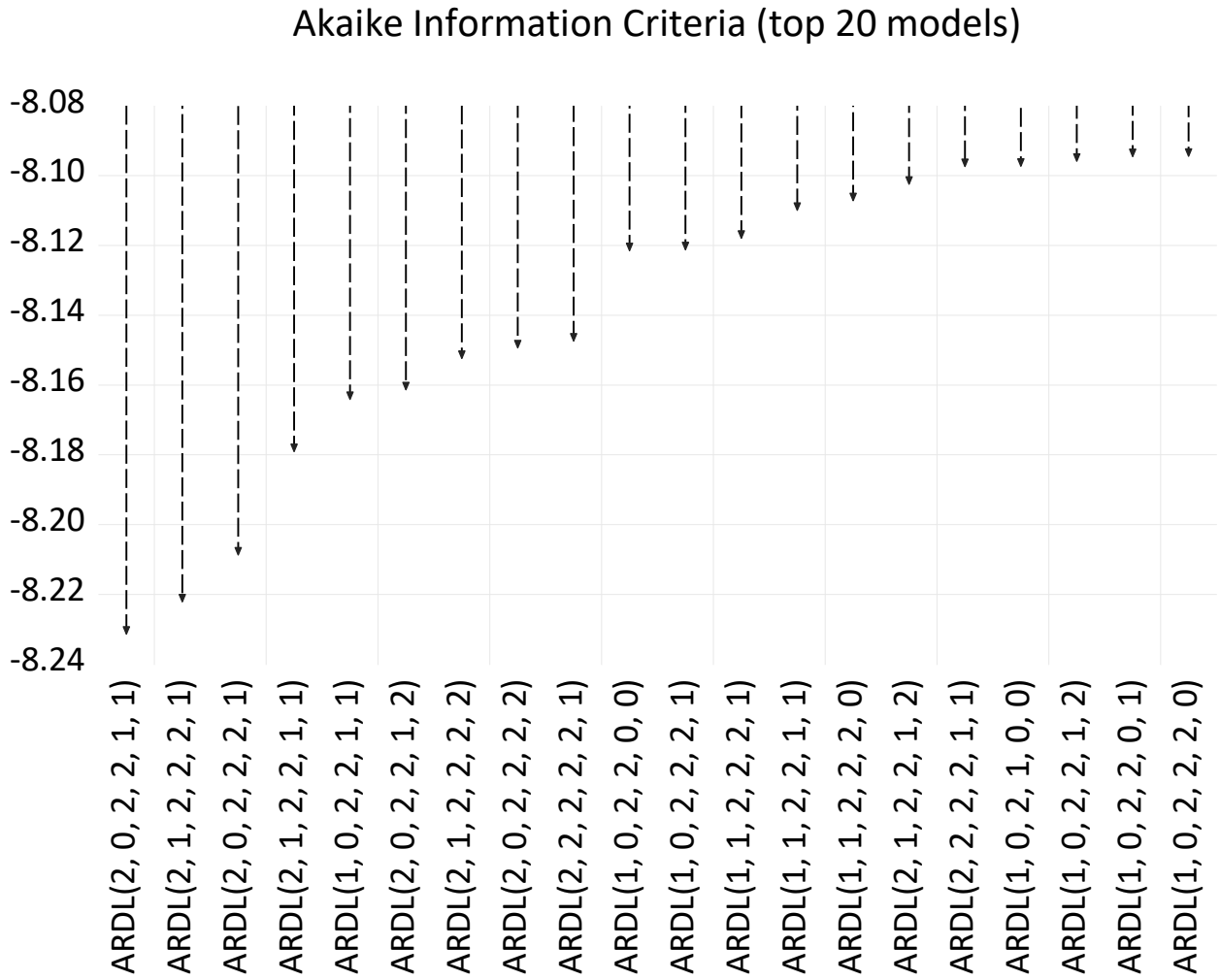
Series	Prob.	Lag	Max Lag	Obs
D(LIKUID)	0.0000	0	4	24
D(GROWTH)	0.0000	2	4	22
D(INF)	0.0000	0	4	24
D(UNCERTAINT	0.0000	0	4	24
D(CAR)	0.0009	0	4	24
D(ROA)	0.0000	2	4	22

Dependent Variable: LIKUID
Method: ARDL
Date: 11/20/21 Time: 17:17
Sample (adjusted): 2015Q4 2021Q2
Included observations: 23 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): GROWTH D(ROA) D(UNCERTAINTY) D(CAR) D(INF)
Fixed regressors: C
Number of models evalulated: 486
Selected Model: ARDL(2, 0, 1, 2, 1, 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LIKUID(-1)	0.113469	0.192775	0.588608	0.5706
LIKUID(-2)	0.196988	0.160816	1.224928	0.2517
GROWTH	0.000413	0.000345	1.198278	0.2614
D(ROA)	-0.005578	0.003546	-1.573183	0.1501
D(ROA(-1))	-0.006721	0.003912	-1.717938	0.1199
D(UNCERTAINTY)	0.006319	0.002495	2.532303	0.0321
D(UNCERTAINTY(-1))	0.006233	0.002690	2.317020	0.0457
D(UNCERTAINTY(-2))	0.004997	0.002775	1.800801	0.1053
D(CAR)	0.001565	0.000921	1.699256	0.1235
D(CAR(-1))	0.001752	0.001017	1.722807	0.1190
D(INF)	-0.004937	0.001156	-4.270104	0.0021
D(INF(-1))	-0.004288	0.001411	-3.038256	0.0141
D(INF(-2))	-0.004520	0.001134	-3.984424	0.0032
C	0.021442	0.005512	3.889906	0.0037

R-squared	0.901513	Mean dependent var	0.036870
Adjusted R-squared	0.759253	S.D. dependent var	0.007002
S.E. of regression	0.003436	Akaike info criterion	-8.230138
Sum squared resid	0.000106	Schwarz criterion	-7.538967
Log likelihood	108.6466	Hannan-Quinn criter.	-8.056310
F-statistic	6.337110	Durbin-Watson stat	2.208662
Prob(F-statistic)	0.004494		

*Note: p-values and any subsequent tests do not account for model selection.


Akaike Information Criteria (top 20 models)
-8.08
-8.10
-8.12
-8.14
-8.16
-8.18
-8.20
-8.22
-8.24
ARDL(2, 0, 2, 2, 1, 1)
ARDL(2, 1, 2, 2, 2, 1)
ARDL(2, 0, 2, 2, 2, 1)
ARDL(2, 1, 2, 2, 1, 1)
ARDL(1, 0, 2, 2, 1, 1)
ARDL(2, 0, 2, 2, 1, 2)
ARDL(2, 1, 2, 2, 2, 2)
ARDL(2, 0, 2, 2, 2, 2)
ARDL(2, 2, 2, 2, 2, 1)
ARDL(1, 0, 2, 2, 0, 0)
ARDL(1, 0, 2, 2, 2, 1)
ARDL(1, 1, 2, 2, 2, 1)
ARDL(1, 1, 2, 2, 1, 1)
ARDL(1, 1, 2, 2, 2, 0)
ARDL(2, 1, 2, 2, 1, 2)
ARDL(2, 2, 2, 2, 1, 1)
ARDL(1, 0, 2, 1, 0, 0)
ARDL(1, 0, 2, 2, 1, 2)
ARDL(1, 0, 2, 2, 0, 1)
ARDL(1, 0, 2, 2, 2, 0)

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LIKUID)
Selected Model: ARDL(2, 0, 1, 2, 1, 2)
Case 2: Restricted Constant and No Trend
Date: 11/20/21 Time: 17:22
Sample: 2015Q1 2021Q2
Included observations: 23

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.021442	0.005512	3.889906	0.0037
LIKUID(-1)*	-0.689543	0.152739	-4.514507	0.0015
GROWTH**	0.000413	0.000345	1.198278	0.2614
D(ROA(-1))	-0.012298	0.006134	-2.005000	0.0759
D(UNCERTAINTY(-1))	0.017549	0.005546	3.164186	0.0115
D(CAR(-1))	0.003317	0.001476	2.246687	0.0513
D(INF(-1))	-0.013745	0.002447	-5.617443	0.0003
D(LIKUID(-1))	-0.196988	0.160816	-1.224928	0.2517
D(ROA,2)	-0.005578	0.003546	-1.573183	0.1501
D(UNCERTAINTY,2)	0.006319	0.002495	2.532303	0.0321
D(UNCERTAINTY(-1),2)	-0.004997	0.002775	-1.800801	0.1053
D(CAR,2)	0.001565	0.000921	1.699256	0.1235
D(INF,2)	-0.004937	0.001156	-4.270104	0.0021
D(INF(-1),2)	0.004520	0.001134	3.984424	0.0032

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GROWTH	0.000599	0.000503	1.190873	0.2642
D(ROA)	-0.017836	0.010293	-1.732818	0.1172
D(UNCERTAINTY)	0.025450	0.008397	3.030732	0.0142
D(CAR)	0.004810	0.002534	1.898155	0.0902
D(INF)	-0.019933	0.004001	-4.982208	0.0008
C	0.031096	0.001876	16.57562	0.0000

EC = LIKUID - (0.0006*GROWTH -0.0178*D(ROA) + 0.0255
*D(UNCERTAINTY) + 0.0048*D(CAR) -0.0199*D(INF) + 0.0311)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	6.185067	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15
Actual Sample Size	23		Finite Sample: n=35	
		10%	2.331	3.417
		5%	2.804	4.013
		1%	3.9	5.419
			Finite Sample: n=30	
		10%	2.407	3.517

	5%	2.91	4.193
	1%	4.134	5.761

ARDL Error Correction Regression
Dependent Variable: D(LIKUID)
Selected Model: ARDL(2, 0, 1, 2, 1, 2)
Case 2: Restricted Constant and No Trend
Date: 11/20/21 Time: 17:25
Sample: 2015Q1 2021Q2
Included observations: 23

ECM Regression
Case 2: Restricted Constant and No Trend

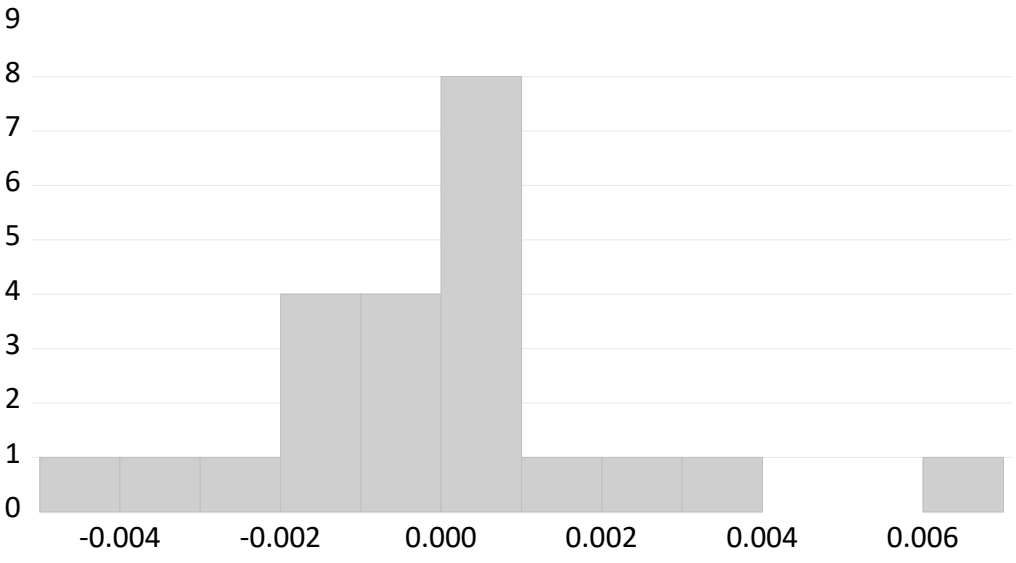
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LIKUID(-1))	-0.196988	0.101699	-1.936966	0.0847
D(ROA,2)	-0.005578	0.001744	-3.198196	0.0109
D(UNCERTAINTY,2)	0.006319	0.001473	4.289283	0.0020
D(UNCERTAINTY(-1),2)	-0.004997	0.001757	-2.843233	0.0193
D(CAR,2)	0.001565	0.000463	3.376749	0.0082
D(INF,2)	-0.004937	0.000617	-7.996682	0.0000
D(INF(-1),2)	0.004520	0.000836	5.408848	0.0004
CointEq(-1)*	-0.689543	0.081174	-8.494652	0.0000

R-squared	0.900250	Mean dependent var	-4.35E-05
Adjusted R-squared	0.853700	S.D. dependent var	0.006958
S.E. of regression	0.002661	Akaike info criterion	-8.751877
Sum squared resid	0.000106	Schwarz criterion	-8.356922
Log likelihood	108.6466	Hannan-Quinn criter.	-8.652547
Durbin-Watson stat	2.208662		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	6.185067	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15



Series: Residuals	
Sample 2015Q4 2021Q2	
Observations 23	
Mean	-8.28e-18
Median	0.000169
Maximum	0.006387
Minimum	-0.004182
Std. Dev.	0.002197
Skewness	0.767976
Kurtosis	4.678078
Jarque-Bera	4.959463
Probability	0.083766

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.219984	Prob. F(2,7)	0.8079
Obs*R-squared	1.360120	Prob. Chi-Square(2)	0.5066

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 11/20/21 Time: 17:26
Sample: 2015Q4 2021Q2
Included observations: 23
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIKUID(-1)	0.126560	0.325783	0.388480	0.7092
LIKUID(-2)	-0.072133	0.242123	-0.297917	0.7744
GROWTH	-0.000142	0.000436	-0.325676	0.7542
D(ROA)	0.001047	0.004260	0.245689	0.8130
D(ROA(-1))	0.001349	0.004770	0.282901	0.7854
D(UNCERTAINTY)	-0.000499	0.003034	-0.164652	0.8739
D(UNCERTAINTY(-1))	-0.000986	0.003318	-0.297079	0.7750
D(UNCERTAINTY(-2))	-0.001179	0.003607	-0.326963	0.7533
D(CAR)	-0.000429	0.001204	-0.356239	0.7322
D(CAR(-1))	-0.000244	0.001180	-0.206887	0.8420
D(INF)	-0.000102	0.001281	-0.079354	0.9390
D(INF(-1))	0.000662	0.001963	0.337399	0.7457
D(INF(-2))	0.000282	0.001358	0.207912	0.8412
C	-0.001615	0.006587	-0.245150	0.8134
RESID(-1)	-0.394800	0.604357	-0.653257	0.5345
RESID(-2)	-0.017565	0.516041	-0.034038	0.9738

R-squared	0.059136	Mean dependent var	-8.28E-18
Adjusted R-squared	-1.957002	S.D. dependent var	0.002197
S.E. of regression	0.003779	Akaike info criterion	-8.117181
Sum squared resid	9.99E-05	Schwarz criterion	-7.327272
Log likelihood	109.3476	Hannan-Quinn criter.	-7.918521
F-statistic	0.029331	Durbin-Watson stat	1.817169
Prob(F-statistic)	1.000000		

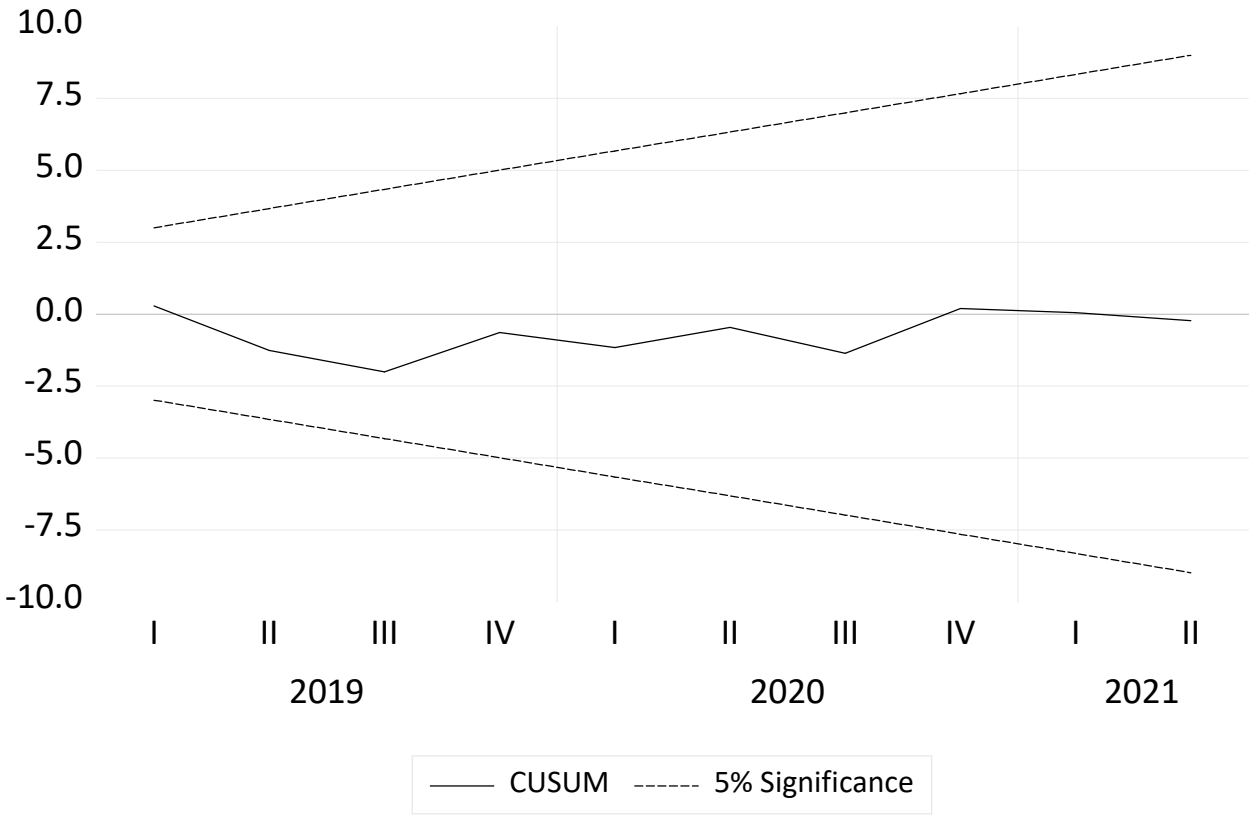
Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	0.579007	Prob. F(13,9)	0.8206
Obs*R-squared	10.47511	Prob. Chi-Square(13)	0.6547
Scaled explained SS	2.949706	Prob. Chi-Square(13)	0.9981

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 11/20/21 Time: 17:27
Sample: 2015Q4 2021Q2
Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.68E-05	1.68E-05	1.000486	0.3432
LIKUID(-1)	-0.000833	0.000586	-1.420724	0.1891
LIKUID(-2)	0.000430	0.000489	0.879973	0.4018
GROWTH	1.05E-06	1.05E-06	1.004393	0.3414
D(ROA)	-5.21E-07	1.08E-05	-0.048325	0.9625
D(ROA(-1))	-1.32E-06	1.19E-05	-0.111036	0.9140
D(UNCERTAINTY)	3.81E-06	7.59E-06	0.502425	0.6274
D(UNCERTAINTY(-1))	6.27E-06	8.18E-06	0.765948	0.4633
D(UNCERTAINTY(-2))	1.54E-05	8.44E-06	1.818914	0.1023
D(CAR)	3.10E-06	2.80E-06	1.106544	0.2972
D(CAR(-1))	6.41E-07	3.09E-06	0.207214	0.8405
D(INF)	1.22E-06	3.52E-06	0.346631	0.7368
D(INF(-1))	-2.10E-06	4.29E-06	-0.490154	0.6358
D(INF(-2))	-1.57E-06	3.45E-06	-0.455706	0.6594

R-squared	0.455439	Mean dependent var	4.62E-06
Adjusted R-squared	-0.331148	S.D. dependent var	9.06E-06
S.E. of regression	1.04E-05	Akaike info criterion	-19.82093
Sum squared resid	9.83E-10	Schwarz criterion	-19.12976
Log likelihood	241.9407	Hannan-Quinn criter.	-19.64710
F-statistic	0.579007	Durbin-Watson stat	2.234563
Prob(F-statistic)	0.820575		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2.5
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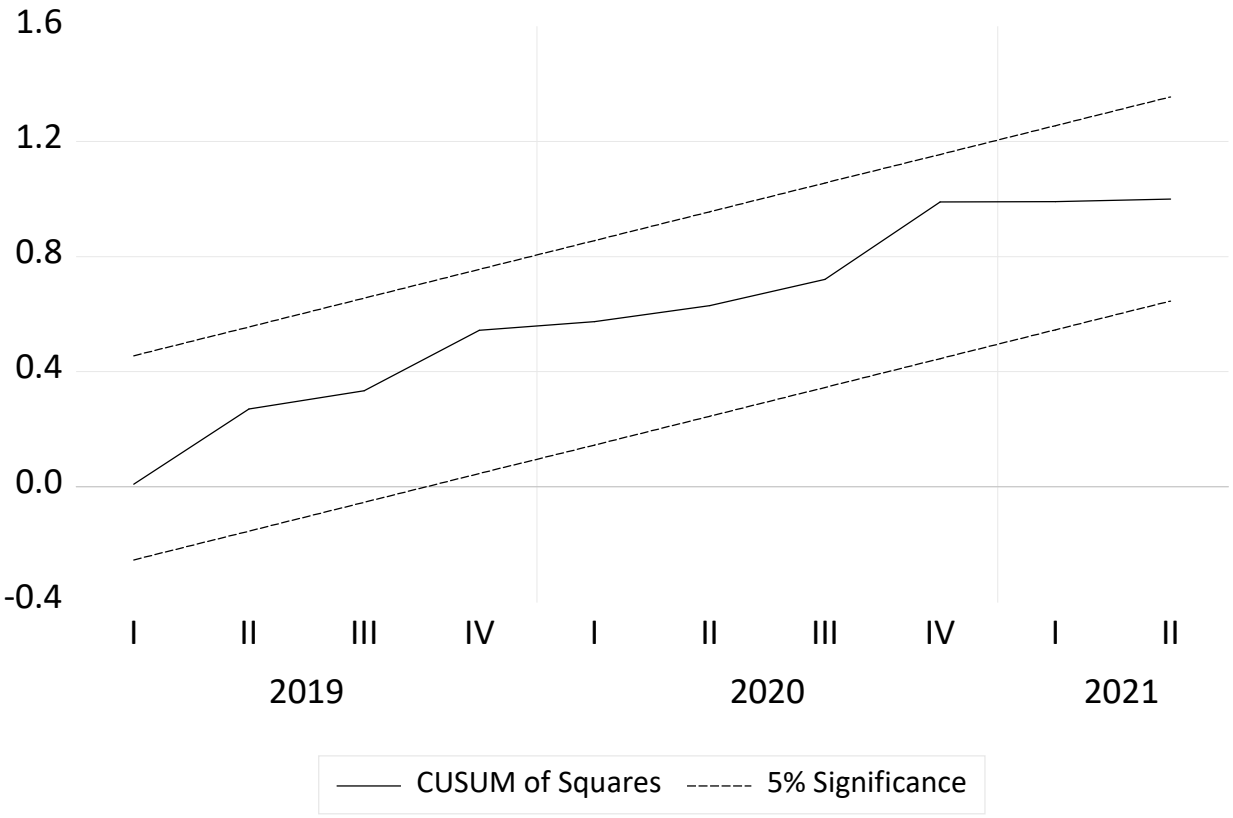
-2.5
-5.0
-7.5
-10.0
I
II
III
IV
I
II
III
IV
I
II
2019
2020
2021
CUSUM
5% Significance


1.6
1.2
0.8
0.4
0.0
-0.4
I
II
III
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I
II
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2019
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2021
CUSUM of Squares
5% Significance