

Aktienmarkt der USA: Konintegration der Werte des Aktienindex (S&P500) mit den makroökonomischen Bruttosozialprodukt (GDP), Einkaufsmanagemerindex (PMI) und den Lohnstückkosten (ULC).

1. Das Fehler-Korrektur-Modell

Error Correction Representation for the Selected ARDL Model

ARDL(1,1,0,0) selected based on Schwarz Bayesian Criterion

Dependent variable is dsp500

155 observations used for estimation from 2004M2 to 2016M12

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
dGDP	12.7155	2.8895	4.4006[.000]
dPMI	.18472	.030306	6.0951[.000]
dULC	1.1231	.26655	4.2135[.000]
dTREND	.2702E-4	.1388E-4	1.9471[.053]
ecm(-1)	-.43557	.056218	-7.7480[.000]

List of additional temporary variables created:

dSP500 = SP500-SP500(-1)

dGDP = GDP-GDP(-1)

dPMI = PMI-PMI(-1)

dULC = ULC-ULC(-1)

dTREND = TREND-TREND(-1)

ecm = SP500 -.62174*GDP -.42409*PMI -2.5785*ULC + .016237*INPT -.6202E- 4*TREND

R-Squared .41571 R-Bar-Squared .39202

S.E. of Regression .0072901 F-Stat. F(5,149) 21.0596[.000]

Mean of Dependent Variable -.1222E-3 S.D. of Dependent Variable .0093495

Residual Sum of Squares .0078655 Equation Log-likelihood 546.4388

Akaike Info. Criterion 539.4388 Schwarz Bayesian Criterion 528.7868

DW-statistic 1.9193

R-Squared and R-Bar-Squared measures refer to the dependent variable

dSP500 and in cases where the error correction model is highly

restricted, these measures could become negative.

Testing for existence of a level relationship among the variables in the ARDL model

```
*****
F-statistic 95% Lower Bound 95% Upper Bound 90% Lower Bound 90% Upper Bound
8.2202 4.1056 5.1205 3.5191 4.4777
W-statistic 95% Lower Bound 95% Upper Bound 90% Lower Bound 90% Upper Bound
32.8809 16.4226 20.4820 14.0766 17.9109
*****
```

If the statistic lies between the bounds, the test is inconclusive. If it is above the upper bound, the null hypothesis of no level effect is rejected. If it is below the lower bound, the null hypothesis of no level effect can't be rejected. The critical value bounds are computed by stochastic simulations using 20000 replications.

2. Das Modell ohne Fehler-Korrektur-Term

Autoregressive Distributed Lag Estimates

ARDL(1,1,0,0) selected based on Schwarz Bayesian Criterion

```
*****
Dependent variable is SP500
155 observations used for estimation from 2004M2 to 2016M12
*****
Regressor      Coefficient  Standard Error  T-Ratio[Prob]
SP500(-1)      .56443      .056218         10.0401[.000]
GDP            12.7155     2.8895          4.4006[.000]
GDP(-1)        -10.0074    2.9093          -3.4398[.001]
PMI            .18472      .030306         6.0951[.000]
ULC            1.1231      .26655          4.2135[.000]
INPT           -.0070723   .0017708 m     -3.9939[.000]
TREND          .2702E-4    .1388E-4        1.9471[.053]
*****
R-Squared      .91580  R-Bar-Squared  .91239
S.E. of Regression .0072901  F-Stat.  F(6,148) 268.2950[.000]
Mean of Dependent Variable .0085652  S.D. of Dependent Variable .024629
Residual Sum of Squares .0078655  Equation Log-likelihood 546.4388
Akaike Info. Criterion 539.4388  Schwarz Bayesian Criterion 528.7868
DW-statistic 1.9193  Durbin's h-statistic .70354[.482]
*****
```

Testing for existence of a level relationship among the variables in the ARDL model

F-statistic 95% Lower Bound 95% Upper Bound 90% Lower Bound 90% Upper Bound

8.2202 4.1056 5.1205 3.5191 4.4777

W-statistic 95% Lower Bound 95% Upper Bound 90% Lower Bound 90% Upper Bound

32.8809 16.4226 20.4820 14.0766 17.9109

If the statistic lies between the bounds, the test is inconclusive. If it is above the upper bound, the null hypothesis of no level effect is rejected. If it is below the lower bound, the null hypothesis of no level effect can't be rejected. The critical value bounds are computed by stochastic simulations using 20000 replications.

Diagnostic Tests

* Test Statistics * LM Version * F Version *

* A:Serial Correlation*CHSQ(12) = 49.9292[.000]*F(12,136) = 5.3856[.000]*

* * * *

* B:Functional Form *CHSQ(1) = 1.9552[.162]*F(1,147) = 1.8779[.173]*

* * * *

* C:Normality *CHSQ(2) = 5.1141[.078]* Not applicable *

* * * *

* D:Heteroscedasticity*CHSQ(1) = 8.1644[.004]*F(1,153) = 8.5072[.004]*

A:Lagrange multiplier test of residual serial correlation

B:Ramsey's RESET test using the square of the fitted values

C:Based on a test of skewness and kurtosis of residuals

D:Based on the regression of squared residuals on squared fitted values

3. Berechnung der langfristigen Schätzkoeffizienten, die für die Berechnung des fairen Wertes herangezogen werden:

Estimated Long Run Coefficients using the ARDL Approach

ARDL(1,1,0,0) selected based on Schwarz Bayesian Criterion

Dependent variable is SP500

155 observations used for estimation from 2004M2 to 2016M12

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
GDP	6.2174	.93161	6.6738[.000]
PMI	.42409	.053062	7.9923[.000]
ULC	2.5785	.58957	4.3735[.000]
INPT	-.016237	.0033222	-4.8873[.000]
TREND	.6202E-4	.3060E-4	2.0268[.044]

Testing for existence of a level relationship among the variables in the ARDL model

F-statistic 95% Lower Bound 95% Upper Bound 90% Lower Bound 90% Upper Bound

8.2202 4.1056 5.1205 3.5191 4.4777

W-statistic 95% Lower Bound 95% Upper Bound 90% Lower Bound 90% Upper Bound

32.8809 16.4226 20.4820 14.0766 17.9109

If the statistic lies between the bounds, the test is inconclusive. If it is above the upper bound, the null hypothesis of no level effect is rejected. If it is below the lower bound, the null hypothesis of no level effect can't be rejected. The critical value bounds are computed by stochastic simulations using 20000 replications.