

US-Immobilienmarkt: Konintegration der Immobilienpreise bzw. des Case-Shiller-Indexes (CSINDEX) mit den makroökonomischen Variablen Bruttosozialprodukt (GDP), der Abweichung des aktuellen Kreditniveaus von seinem langfristigen Trend (CGAP), Hypothekarzinsen (MGT) und einer Risikoprämie (RPREM), die sich aus der Zins-Differenz der sogenannten Prime Rate gegenüber den Schatzwechseln ergibt.

1. Das Fehler-Korrektur-Modell:

Error Correction Representation for the Selected ARDL Model

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

Dependent variable is dCSINDEX

98 observations used for estimation from 1990Q2 to 2014Q3

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
dGDP	1.9428	.57972	3.3513[.001]
dCGAP	.0013969	.5086E-3	2.7465[.007]
dMGT	-.012254	.0065922	-1.8589[.066]
dRPREM	-.0070590	.0013554	-5.2079[.000]
ecm(-1)	-.61154	.078687	-7.7717[.000]

List of additional temporary variables created:

dCSINDEX = CSINDEX-CSINDEX(-1)

dGDP = GDP-GDP(-1)

dCGAP = CGAP-CGAP(-1)

dMGT = MGT-MGT(-1)

dRPREM = RPREM-RPREM(-1)

ecm = CSINDEX -3.1769*GDP -.0042578*CGAP + .020038*MGT + .011543*RPREM + .

2652E-3*INPT

R-Squared	.58299	R-Bar-Squared	.55550
S.E. of Regression	.0034493	F-Stat.	F(5,92) 25.4445[.000]
Mean of Dependent Variable	.1815E-4	S.D. of Dependent Variable	.0051736
Residual Sum of Squares	.0010827	Equation Log-likelihood	420.1943
Akaike Info. Criterion	413.1943	Schwarz Bayesian Criterion	404.1470
DW-statistic	1.7212		

R-Squared and R-Bar-Squared measures refer to the dependent variable dCSINDEX 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
10.2771	2.9714	4.1746	2.5272	3.6073
W-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
51.3857	14.8569	20.8731	12.6359	18.0365

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

Dependent variable is CSINDEX

98 observations used for estimation from 1990Q2 to 2014Q3

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
CSINDEX(-1)	.38846	.078687	4.9368[.000]
GDP	1.9428	.57972	3.3513[.001]
CGAP	.0013969	.5086E-3	2.7465[.007]
CGAP(-1)	.0012069	.5183E-3	2.3285[.022]
MGT	-.012254	.0065922	-1.8589[.066]
RPREM	-.0070590	.0013554	-5.2079[.000]
INPT	-.1622E-3	.4834E-3	-.33549[.738]

R-Squared	.57395	R-Bar-Squared	.54586
S.E. of Regression	.0034493	F-Stat.	F(6,91) 20.4315[.000]
Mean of Dependent Variable	.0014669	S.D. of Dependent Variable	.0051184
Residual Sum of Squares	.0010827	Equation Log-likelihood	420.1943
Akaike Info. Criterion	413.1943	Schwarz Bayesian Criterion	404.1470
DW-statistic	1.7212	Durbin's h-statistic	2.2010[.028]

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

10.2771 2.9714 4.1746 2.5272 3.6073

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

51.3857 14.8569 20.8731 12.6359 18.0365

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(4) = 23.1515[.000]*F(4,87) = 6.7275[.000]*

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* B:Functional Form *CHSQ(1) = 3.3888[.066]*F(1,90) = 3.2236[.076]*

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* C:Normality *CHSQ(2) = 16.7573[.000]* Not applicable *

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* D:Heteroscedasticity*CHSQ(1) = .074120[.785]*F(1,96) = .072662[.788]*

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

Dependent variable is CSINDEX

98 observations used for estimation from 1990Q2 to 2014Q3

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
GDP	3.1769	.85166	3.7303[.000]
CGAP	.0042578	.0012991	3.2775[.001]
MGT	-.020038	.010701	-1.8724[.064]
RPREM	-.011543	.0028419	-4.0617[.000]
INPT	-.2652E-3	.7877E-3	-.33667[.737]

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

10.2771 2.9714 4.1746 2.5272 3.6073

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

51.3857 14.8569 20.8731 12.6359 18.0365

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.