Deutscher Immobilienmarkt: Konintegration der realen Immobilienpreise (RHPR) mit den makroökonomischen Variablen Produktion im Bausektor (NPBAU), dem TED-Spread (RTED) und den langfristigen realen Zinssätzen für Staatsanleihen.

1. Das Fehler-Korrektur-Modell:

Error Correction Representation for the Selected ARDL Model

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

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Dependent variable is dRHPR

102 observations used for estimation from 1991Q3 to 2016Q4

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Regressor	Coefficient	Standard Error	T-Ratio[Prob]
dNPBAU	.21462	.096407	2.2262[.028]
dRTED	-.3411E-4	.2378E-4	-1.4342[.155]
dR10Y	-.4179E-3	.1717E-3	-2.4339[.017]
dTREND	.1420E-4	.8951E-5	1.5867[.116]
ecm(-1)	-.70648	.096183	-7.3452[.000]

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List of additional temporary variables created:

dRHPR = RHPR-RHPR(-1)

dNPBAU = NPBAU-NPBAU(-1)

dRTED = RTED-RTED(-1)

dR10Y = R10Y-R10Y(-1)

dTREND = TREND-TREND(-1)

ecm = RHPR -.30379*NPBAU + .4828E-4*RTED + .5916E-3*R10Y + .5666E-3*INPT -.2

010E-4*TREND

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R-Squared .40396 R-Bar-Squared .37292

S.E. of Regression .0025175 F-Stat. F(5,96) 13.0128[.000]

Mean of Dependent Variable -.4230E-5 S.D. of Dependent Variable .0031791

Residual Sum of Squares .6084E-3 Equation Log-likelihood 468.7792

Akaike Info. Criterion 462.7792 Schwarz Bayesian Criterion 454.9043

DW-statistic 1.9064

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

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F-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
12.4323	4.1701	5.2137	3.5599	4.5317
W-statistic	**95% Lower Bound**	**95% Upper Bound**	**90% Lower Bound**	**90% Upper Bound**
49.7294	16.6804	20.8549	14.2395	18.1267

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

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Dependent variable is RHPR

102 observations used for estimation from 1991Q3 to 2016Q4

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Regressor	Coefficient	Standard Error	T-Ratio[Prob]
RHPR(-1)	.29352	.096183	3.0516[.003]
NPBAU	.21462	.096407	2.2262[.028]
RTED	-.3411E-4	.2378E-4	-1.4342[.155]
R10Y	-.4179E-3	.1717E-3	-2.4339[.017]
INPT	-.4003E-3	.5181E-3	-.77265[.442]
TREND	.1420E-4	.8951E-5	1.5867[.116]

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R-Squared	.28037	R-Bar-Squared	.24289
S.E. of Regression	.0025175	F-Stat. F(5,96)	7.4804[.000]
Mean of Dependent Variable	.5216E-3	S.D. of Dependent Variable	.0028932
Residual Sum of Squares	.6084E-3	Equation Log-likelihood	468.7792
Akaike Info. Criterion	462.7792	Schwarz Bayesian Criterion	454.9043
DW-statistic	1.9064	Durbin's h-statistic	1.9906[.047]

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

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F-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
12.4323	4.1701	5.2137	3.5599	4.5317

W-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
49.7294	16.6804	20.8549	14.2395	18.1267

****

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

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* Test Statistics *	LM Version	*	F Version	*
* A:Serial Correlation*	CHSQ(4) = 16.6398[.002]*		F(4,92) = 4.4835[.002]*	
* B:Functional Form *	CHSQ(1) = .14680[.702]*		F(1,95) = .13692[.712]*	
* C:Normality *	CHSQ(2) = 24.1222[.000]*		Not applicable	*
* D:Heteroscedasticity*	CHSQ(1) = .29302[.588]*		F(1,100) = .28810[.593]*	

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

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Dependent variable is RHPR

102 observations used for estimation from 1991Q3 to 2016Q4

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Regressor	Coefficient	Standard Error	T-Ratio[Prob]
NPBAU	.30379	.13387	2.2693[.025]
RTED	-.4828E-4	.3258E-4	-1.4817[.142]
R10Y	-.5916E-3	.2641E-3	-2.2403[.027]
INPT	-.5666E-3	.7255E-3	-.78100[.437]
TREND	.2010E-4	.1215E-4	1.6541[.101]

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

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F-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
12.4323	4.1701	5.2137	3.5599	4.5317
W-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
49.7294	16.6804	20.8549	14.2395	18.1267

****

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.