REGRESI DATA PANEL

Pemilihan model terbaik:

Pooled Least Square atau Common Effect (CE)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DER | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 21/01/19 Time: 22:26 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.567750 | 0.110823 | 14.14643 | 0.0000 |
| PROFITABILITAS | -3.368378 | 0.635985 | -5.296318 | 0.0000 |
| NDTS | -0.641746 | 0.331764 | -1.934345 | 0.0535 |
| SALES | 0.001757 | 0.001502 | 1.169445 | 0.2427 |
| TANGIBILITY | -0.412994 | 0.268736 | -1.536802 | 0.1249 |
| SURPLUS | 2.55E-14 | 8.38E-15 | 3.042384 | 0.0024 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.062477 | Mean dependent var | | 1.117267 |
| Adjusted R-squared | 0.054793 | S.D. dependent var | | 1.360805 |
| S.E. of regression | 1.322999 | Akaike info criterion | | 3.407372 |
| Sum squared resid | 1067.699 | Schwarz criterion | | 3.450455 |
| Log likelihood | -1043.471 | Hannan-Quinn criter. | | 3.424124 |
| F-statistic | 8.130158 | Durbin-Watson stat | | 0.279073 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

FE (Fixed Effects)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DER | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 21/01/19 Time: 22:27 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.387481 | 0.129429 | 10.72000 | 0.0000 |
| PROFITABILITAS | -1.264903 | 0.522920 | -2.418922 | 0.0160 |
| NDTS | -0.005283 | 0.347827 | -0.015187 | 0.9879 |
| SALES | 0.000665 | 0.000757 | 0.878306 | 0.3802 |
| TANGIBILITY | -0.903085 | 0.249900 | -3.613784 | 0.0003 |
| SURPLUS | 6.00E-14 | 1.67E-14 | 3.592872 | 0.0004 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.870375 | Mean dependent var | | 1.117267 |
| Adjusted R-squared | 0.825560 | S.D. dependent var | | 1.360805 |
| S.E. of regression | 0.568355 | Akaike info criterion | | 1.925528 |
| Sum squared resid | 147.6234 | Schwarz criterion | | 3.067243 |
| Log likelihood | -434.0627 | Hannan-Quinn criter. | | 2.369450 |
| F-statistic | 19.42126 | Durbin-Watson stat | | 1.895430 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Chow Test

Chow Test digunakan untuk menentukan model yang terbaik antara CE dan CE. Jika P Value terima H1 maka pilhan terbaik adalah FE, sedangkan sebaliknya jika P Value terima H0 maka pilihan terbaik adalah CE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Redundant Fixed Effects Tests | | |  |  |
| Equation: EQ01 | |  |  |  |
| Test cross-section fixed effects | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Effects Test | | Statistic | d.f. | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section F | | 18.616292 | (153,457) | 0.0000 |
| Cross-section Chi-square | | 1218.815696 | 153 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed effects test equation: | | | |  |
| Dependent Variable: DER | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 21/01/19 Time: 22:27 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.567750 | 0.110823 | 14.14643 | 0.0000 |
| PROFITABILITAS | -3.368378 | 0.635985 | -5.296318 | 0.0000 |
| NDTS | -0.641746 | 0.331764 | -1.934345 | 0.0535 |
| SALES | 0.001757 | 0.001502 | 1.169445 | 0.2427 |
| TANGIBILITY | -0.412994 | 0.268736 | -1.536802 | 0.1249 |
| SURPLUS | 2.55E-14 | 8.38E-15 | 3.042384 | 0.0024 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.062477 | Mean dependent var | | 1.117267 |
| Adjusted R-squared | 0.054793 | S.D. dependent var | | 1.360805 |
| S.E. of regression | 1.322999 | Akaike info criterion | | 3.407372 |
| Sum squared resid | 1067.699 | Schwarz criterion | | 3.450455 |
| Log likelihood | -1043.471 | Hannan-Quinn criter. | | 3.424124 |
| F-statistic | 8.130158 | Durbin-Watson stat | | 0.279073 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Nilai Cross-section Chi-square: 1218.815696 dg p value: 0.0000 < 0,05 maka terima H1 atau yang berarti model yang lebih baik adalah FE dari pada CE.

Sehingga selanjutnya adalah uji RE kemudian bandingkan RE atau FE melalui uji hausman.

Pilihan chow test jatuh pada FE, maka dilanjutkan dengan Uji Hausman. Agar dapat melakukan uji hausman, terlebih dahulu melakukan uji Random Effects (RE).

RE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DER | | |  |  |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Date: 21/01/19 Time: 22:27 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
| Swamy and Arora estimator of component variances | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.466234 | 0.142197 | 10.31127 | 0.0000 |
| PROFITABILITAS | -1.633348 | 0.489094 | -3.339541 | 0.0009 |
| NDTS | -0.175653 | 0.297280 | -0.590867 | 0.5548 |
| SALES | 0.000824 | 0.000748 | 1.101712 | 0.2710 |
| TANGIBILITY | -0.816807 | 0.223739 | -3.650717 | 0.0003 |
| SURPLUS | 3.81E-14 | 1.14E-14 | 3.347732 | 0.0009 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  | S.D. | Rho |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | | 1.205077 | 0.8180 |
| Idiosyncratic random | | | 0.568355 | 0.1820 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Weighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.052246 | Mean dependent var | | 0.256436 |
| Adjusted R-squared | 0.044478 | S.D. dependent var | | 0.583310 |
| S.E. of regression | 0.570190 | Sum squared resid | | 198.3213 |
| F-statistic | 6.725398 | Durbin-Watson stat | | 1.421311 |
| Prob(F-statistic) | 0.000004 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Unweighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.038441 | Mean dependent var | | 1.117267 |
| Sum squared resid | 1095.073 | Durbin-Watson stat | | 0.257404 |
|  |  |  |  |  |
|  |  |  |  |  |

Hausman Test: Hausman test untuk menentukan pilihan model estimasi terbaik antara FE ataukah RE. Jika terima H0 maka pilihan terbaik adalah RE, sebaliknya jika terima H1 maka pilihan terbaik adalah FE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlated Random Effects - Hausman Test | | | |  |
| Equation: EQ01 | |  |  |  |
| Test cross-section random effects | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Summary | | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | 8.946356 | 5 | 0.1112 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random effects test comparisons: | | | | |
|  |  |  |  |  |
| Variable | Fixed | Random | Var(Diff.) | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| PROFITABILITAS | -1.264903 | -1.633348 | 0.034233 | 0.0464 |
| NDTS | -0.005283 | -0.175653 | 0.032608 | 0.3454 |
| SALES | 0.000665 | 0.000824 | 0.000000 | 0.1716 |
| TANGIBILITY | -0.903085 | -0.816807 | 0.012391 | 0.4383 |
| SURPLUS | 0.000000 | 0.000000 | 0.000000 | 0.0727 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random effects test equation: | | | |  |
| Dependent Variable: DER | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 21/01/19 Time: 22:28 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.387481 | 0.129429 | 10.72000 | 0.0000 |
| PROFITABILITAS | -1.264903 | 0.522920 | -2.418922 | 0.0160 |
| NDTS | -0.005283 | 0.347827 | -0.015187 | 0.9879 |
| SALES | 0.000665 | 0.000757 | 0.878306 | 0.3802 |
| TANGIBILITY | -0.903085 | 0.249900 | -3.613784 | 0.0003 |
| SURPLUS | 6.00E-14 | 1.67E-14 | 3.592872 | 0.0004 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.870375 | Mean dependent var | | 1.117267 |
| Adjusted R-squared | 0.825560 | S.D. dependent var | | 1.360805 |
| S.E. of regression | 0.568355 | Akaike info criterion | | 1.925528 |
| Sum squared resid | 147.6234 | Schwarz criterion | | 3.067243 |
| Log likelihood | -434.0627 | Hannan-Quinn criter. | | 2.369450 |
| F-statistic | 19.42126 | Durbin-Watson stat | | 1.895430 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Nilai Cross-section random: 8.946356 dg p value: 0.1112 < 0,05 maka terima H1 atau yang berarti model yang lebih baik adalah RE dari pada FE.

Sehingga uji seanjutnya adalah uji LM: Lagrangian Multiplier Test (LM Test) untuk menentukan apakah model terbaik RE ataukah CE.

LM Test

|  |  |  |  |
| --- | --- | --- | --- |
| Lagrange Multiplier Tests for Random Effects | | | |
| Null hypotheses: No effects | | |  |
| Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided | | | |
| (all others) alternatives | | |  |
|  |  |  |  |
|  |  |  |  |
|  | Test Hypothesis | | |
|  | Cross-section | Time | Both |
|  |  |  |  |
|  |  |  |  |
| Breusch-Pagan | 597.0807 | 0.499904 | 597.5806 |
|  | (0.0000) | (0.4795) | (0.0000) |
|  |  |  |  |
| Honda | 24.43524 | -0.707039 | 16.77837 |
|  | (0.0000) | -- | (0.0000) |
|  |  |  |  |
| King-Wu | 24.43524 | -0.707039 | 2.688350 |
|  | (0.0000) | -- | (0.0036) |
|  |  |  |  |
| Standardized Honda | 24.80198 | -0.409641 | 9.845231 |
|  | (0.0000) | -- | (0.0000) |
|  |  |  |  |
| Standardized King-Wu | 24.80198 | -0.409641 | 0.293848 |
|  | (0.0000) | -- | (0.3844) |
|  |  |  |  |
| Gourieroux, et al.\* | -- | -- | 597.0807 |
|  |  |  | (< 0.01) |
|  |  |  |  |
|  |  |  |  |
| \*Asymptotic critical values: | | |  |
| 1% | 7.289 |  |  |
| 5% | 4.231 |  |  |
| 10% | 2.952 |  |  |
|  |  |  |  |
|  |  |  |  |

Nilai Cross-section Breusch-Pagan 597.0807 dg p value 0.0000 < 0,05 maka terima H1 atau yang berarti model RE lebih baik dari pada CE. **(maka model akhir adalah RE yang dipakai).**

Model Akhir: RE (Berdasarkan pemilihan model dengan LM Test)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DER | | |  |  |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Date: 21/01/19 Time: 22:30 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
| Swamy and Arora estimator of component variances | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.466234 | 0.142197 | 10.31127 | 0.0000 |
| PROFITABILITAS | -1.633348 | 0.489094 | -3.339541 | 0.0009 |
| NDTS | -0.175653 | 0.297280 | -0.590867 | 0.5548 |
| SALES | 0.000824 | 0.000748 | 1.101712 | 0.2710 |
| TANGIBILITY | -0.816807 | 0.223739 | -3.650717 | 0.0003 |
| SURPLUS | 3.81E-14 | 1.14E-14 | 3.347732 | 0.0009 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  | S.D. | Rho |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | | 1.205077 | 0.8180 |
| Idiosyncratic random | | | 0.568355 | 0.1820 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Weighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.052246 | Mean dependent var | | 0.256436 |
| Adjusted R-squared | 0.044478 | S.D. dependent var | | 0.583310 |
| S.E. of regression | 0.570190 | Sum squared resid | | 198.3213 |
| F-statistic | 6.725398 | Durbin-Watson stat | | 1.421311 |
| Prob(F-statistic) | 0.000004 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Unweighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.038441 | Mean dependent var | | 1.117267 |
| Sum squared resid | 1095.073 | Durbin-Watson stat | | 0.257404 |
|  |  |  |  |  |
|  |  |  |  |  |

Oleh karena model akhir terpilih adalah RE, sedangkan RE menggunakan estimasi berdasarkan general least square (GLS) maka tidak lagi menggunakan prinsip OLS sehingga tidak perlu melakukan uji asumsi klasik. Sebab GLS sudah kebal atau robust terhadap pelanggaran asumsi klasik seperti normalitas, heteroskedastisitas dan autokorelasi.

Ketergantungan Cross Section

|  |  |  |  |
| --- | --- | --- | --- |
| Residual Cross-Section Dependence Test | | | |
| Null hypothesis: No cross-section dependence (correlation) in residuals | | | |
| Equation: EQ01 | |  |  |
| Periods included: 4 | | |  |
| Cross-sections included: 154 | | |  |
| Total panel observations: 616 | | |  |
| Note: non-zero cross-section means detected in data | | | |
| Cross-section means were removed during computation of correlations | | | |
|  |  |  |  |
|  |  |  |  |
| Test | Statistic | d.f. | Prob. |
|  |  |  |  |
|  |  |  |  |
| Breusch-Pagan LM | 19513.45 | 11781 | 0.0000 |
| Pesaran scaled LM | 50.37453 |  | 0.0000 |
| Pesaran CD | 2.930572 |  | 0.0034 |
|  |  |  |  |
|  |  |  |  |

Nilai p value semua uji cross section dependent test 0,0000 < 0,05 maka terdapat ketergantungan antar cross sectional.

Kesimpulan:

Terdapat masalah ketergantungan antar cross sectional.

Maka solusinya dengan menggunakan koefisien estimasi white cross section. Metode tersebut membuat model menjadi kebal terhadap pelanggaran asumsi antara lain: ketergantungan antar cross sectional. Berikut di bawah ini hasilnya:

RE dengan estimasi White Cross Section:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DER | | |  |  |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Date: 21/01/19 Time: 22:34 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
| Swamy and Arora estimator of component variances | | | | |
| White cross-section standard errors & covariance (d.f. corrected) | | | | |
| WARNING: estimated coefficient covariance matrix is of reduced rank | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.466234 | 0.120026 | 12.21593 | 0.0000 |
| PROFITABILITAS | -1.633348 | 0.319294 | -5.115504 | 0.0000 |
| NDTS | -0.175653 | 0.268914 | -0.653194 | 0.5139 |
| SALES | 0.000824 | 7.45E-05 | 11.06461 | 0.0000 |
| TANGIBILITY | -0.816807 | 0.109187 | -7.480797 | 0.0000 |
| SURPLUS | 3.81E-14 | 2.51E-14 | 1.518609 | 0.1294 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  | S.D. | Rho |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | | 1.205077 | 0.8180 |
| Idiosyncratic random | | | 0.568355 | 0.1820 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Weighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.052246 | Mean dependent var | | 0.256436 |
| Adjusted R-squared | 0.044478 | S.D. dependent var | | 0.583310 |
| S.E. of regression | 0.570190 | Sum squared resid | | 198.3213 |
| F-statistic | 6.725398 | Durbin-Watson stat | | 1.421311 |
| Prob(F-statistic) | 0.000004 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Unweighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.038441 | Mean dependent var | | 1.117267 |
| Sum squared resid | 1095.073 | Durbin-Watson stat | | 0.257404 |
|  |  |  |  |  |
|  |  |  |  |  |

Oleh karena menggunakan RE dimana estimasi menggunakan prinsip GLS serta menggunakan koefisien estimasi white cross section, maka model sudah robust terhadap pelanggaran normalitas, autokorelasi, heteroskedastisitas dan ketergantungan antar cross sectional, maka uji-uji tsb diabaikan.

Deskriptive

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Date: 21/01/19 Time: 22:37 |  |  |  |  |  |  |
| Sample: 2014 2017 | |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  | DER | PROFITABILITAS | NDTS | SALES | TANGIBILITY | SURPLUS |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Mean | 1.117267 | 0.064439 | 0.220688 | -1.273796 | 0.350158 | 2.16E+12 |
| Median | 0.779266 | 0.052806 | 0.171250 | 0.078695 | 0.312374 | 5.45E+11 |
| Maximum | 13.54321 | 0.526237 | 0.986358 | 13.07398 | 0.946774 | 8.24E+13 |
| Minimum | -2.055412 | -0.868179 | 0.000000 | -883.8843 | 0.000455 | 9.27E+08 |
| Std. Dev. | 1.360805 | 0.085443 | 0.191489 | 35.63106 | 0.233825 | 6.56E+12 |
| Skewness | 4.494688 | -0.914999 | 1.247209 | -24.73401 | 0.512857 | 8.678177 |
| Kurtosis | 33.52533 | 28.82911 | 4.565067 | 613.1859 | 2.428980 | 93.09118 |
|  |  |  |  |  |  |  |
| Jarque-Bera | 25990.19 | 17209.29 | 222.5700 | 9619196. | 35.37263 | 216053.4 |
| Probability | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
|  |  |  |  |  |  |  |
| Sum | 688.2362 | 39.69419 | 135.9435 | -784.6581 | 215.6973 | 1.33E+15 |
| Sum Sq. Dev. | 1138.851 | 4.489792 | 22.55086 | 780786.9 | 33.62460 | 2.65E+28 |
|  |  |  |  |  |  |  |
| Observations | 616 | 616 | 616 | 616 | 616 | 616 |

Matrix Korelasi:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | PROFITABILITAS | NDTS | SALES | TANGIBILITY | SURPLUS |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| PROFITABILITAS | 1.000000 | -0.041659 | 0.050955 | -0.112974 | 0.132373 |
| NDTS | -0.041659 | 1.000000 | 0.043979 | 0.518774 | 0.201348 |
| SALES | 0.050955 | 0.043979 | 1.000000 | 0.058029 | 0.013406 |
| TANGIBILITY | -0.112974 | 0.518774 | 0.058029 | 1.000000 | 0.081335 |
| SURPLUS | 0.132373 | 0.201348 | 0.013406 | 0.081335 | 1.000000 |

Tidak ada korelasi > 0,8 atau < -0,8 antar variable bebas maka model bebas masalah multikolinearitas.

CI (Confident Interval)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Coefficient Confidence Intervals | | | | |
| Date: 21/01/19 Time: 22:38 | | | |  |
| Sample: 2014 2017 | | |  |  |
| Included observations: 616 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | 95% CI | |
| Variable | Coefficient |  | Low | High |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.466234 |  | 1.230519 | 1.701949 |
| PROFITABILITAS | -1.633348 |  | -2.260396 | -1.006300 |
| NDTS | -0.175653 |  | -0.703762 | 0.352456 |
| SALES | 0.000824 |  | 0.000678 | 0.000970 |
| TANGIBILITY | -0.816807 |  | -1.031235 | -0.602379 |
| SURPLUS | 3.81E-14 |  | -1.12E-14 | 8.73E-14 |
|  |  |  |  |  |
|  |  |  |  |  |

Efek Cross Sectional:

|  |  |  |
| --- | --- | --- |
|  | KODE | Effect |
| 1 | AALI | -0.512707 |
| 2 | ACES | -0.777023 |
| 3 | ADES | -0.031076 |
| 4 | AGII | 0.614388 |
| 5 | AISA | 0.001116 |
| 6 | AKPI | 0.464540 |
| 7 | ALDO | 0.054868 |
| 8 | ALTO | 0.375081 |
| 9 | AMFG | -0.449724 |
| 10 | AMRT | 1.459606 |
| 11 | ANTM | -0.500602 |
| 12 | APII | -0.188089 |
| 13 | APLI | -0.397358 |
| 14 | ARNA | -0.226394 |
| 15 | ASRI | 0.267255 |
| 16 | BALI | 0.210683 |
| 17 | BEST | -0.853475 |
| 18 | BHIT | -0.116934 |
| 19 | BIMA | -2.743390 |
| 20 | BIPP | -0.891831 |
| 21 | BIRD | -0.023271 |
| 22 | BISI | -0.914945 |
| 23 | BKDP | -0.957751 |
| 24 | BLTZ | -0.501854 |
| 25 | BMTR | -0.505613 |
| 26 | BRNA | 0.273900 |
| 27 | BSDE | -0.782602 |
| 28 | BUVA | -0.317901 |
| 29 | CASS | 0.340289 |
| 30 | CINT | -0.677986 |
| 31 | CPIN | -0.229737 |
| 32 | CSAP | 1.274036 |
| 33 | CTRA | -0.363103 |
| 34 | DSNG | 0.719742 |
| 35 | DVLA | -0.682454 |
| 36 | EKAD | -0.613164 |
| 37 | ELSA | -0.385121 |
| 38 | EXCL | 1.971439 |
| 39 | FAST | -0.116805 |
| 40 | FASW | 1.064847 |
| 41 | FMII | -0.635627 |
| 42 | GGRM | -0.629980 |
| 43 | GOLL | 0.032454 |
| 44 | GPRA | -0.738171 |
| 45 | HERO | -0.511738 |
| 46 | HMSP | -0.769789 |
| 47 | HOME | -0.384971 |
| 48 | IBST | -0.620399 |
| 49 | ICBP | -0.658043 |
| 50 | IDPR | -0.303949 |
| 51 | IMAS | 1.199010 |
| 52 | IMPC | -0.312938 |
| 53 | INCI | -0.781292 |
| 54 | INDF | -0.546012 |
| 55 | INDS | -0.706106 |
| 56 | INPP | -0.597402 |
| 57 | INTA | 6.314193 |
| 58 | INTD | -0.720482 |
| 59 | ISAT | 1.427938 |
| 60 | JKON | -0.263910 |
| 61 | JRPT | -0.336495 |
| 62 | JSMR | 0.490632 |
| 63 | JSPT | -0.604454 |
| 64 | JTPE | 0.125362 |
| 65 | KAEF | -0.484899 |
| 66 | KDSI | 0.683981 |
| 67 | KIJA | -0.339285 |
| 68 | KINO | -0.070171 |
| 69 | KLBF | -0.782936 |
| 70 | KPIG | -0.895896 |
| 71 | LAPD | -0.195138 |
| 72 | LINK | -0.357959 |
| 73 | LSIP | -0.821261 |
| 74 | MAIN | 0.523596 |
| 75 | MAMI | -0.606716 |
| 76 | MAPI | 0.863872 |
| 77 | MDLN | -0.236381 |
| 78 | MERK | -0.800551 |
| 79 | META | -0.429719 |
| 80 | MFMI | -0.423252 |
| 81 | MIDI | 2.347494 |
| 82 | MIKA | -0.730496 |
| 83 | MKPI | -0.054351 |
| 84 | MLBI | 1.541513 |
| 85 | MLPT | 0.194104 |
| 86 | MMLP | -0.860939 |
| 87 | MNCN | -0.581684 |
| 88 | MPMX | 0.298878 |
| 89 | MPPA | 0.666672 |
| 90 | MSKY | 1.640416 |
| 91 | MTLA | -0.612227 |
| 92 | NELY | -0.469023 |
| 93 | NIRO | -0.949978 |
| 94 | NRCA | -0.359250 |
| 95 | PANR | 1.171726 |
| 96 | PGLI | -0.803121 |
| 97 | PICO | 0.334424 |
| 98 | PJAA | -0.075041 |
| 99 | PLIN | 0.446249 |
| 100 | PNSE | -0.104692 |
| 101 | POOL | -1.094439 |
| 102 | PPRO | 0.265592 |
| 103 | PTBA | -0.355230 |
| 104 | PTPP | 1.474070 |
| 105 | PTSP | 0.205244 |
| 106 | PWON | -0.422330 |
| 107 | PYFA | -0.315583 |
| 108 | RALS | -0.661747 |
| 109 | RANC | -0.299203 |
| 110 | RDTX | -0.614630 |
| 111 | RICY | 0.834044 |
| 112 | ROTI | 0.189284 |
| 113 | RUIS | 1.081848 |
| 114 | SAME | 0.198724 |
| 115 | SCBD | -0.069014 |
| 116 | SCMA | -0.495362 |
| 117 | SGRO | -0.140791 |
| 118 | SHID | -0.222237 |
| 119 | SIDO | -0.806594 |
| 120 | SILO | -0.521357 |
| 121 | SIMA | -0.315127 |
| 122 | SIMP | -0.437101 |
| 123 | SKBM | 0.128933 |
| 124 | SKLT | 0.227331 |
| 125 | SMBR | -0.781783 |
| 126 | SMCB | 0.464493 |
| 127 | SMGR | -0.590354 |
| 128 | SMRA | 0.168988 |
| 129 | SMSM | -0.290825 |
| 130 | SONA | -0.426195 |
| 131 | SPMA | 0.485638 |
| 132 | SSTM | 0.729588 |
| 133 | STTP | 0.027794 |
| 134 | SUPR | 2.023671 |
| 135 | TALF | -0.676693 |
| 136 | TARA | -1.089765 |
| 137 | TBIG | 8.927264 |
| 138 | TBLA | 1.439303 |
| 139 | TLKM | -2.627317 |
| 140 | TMAS | 1.017975 |
| 141 | TOTL | 0.859109 |
| 142 | TOTO | -0.260630 |
| 143 | TOWR | 0.476356 |
| 144 | TRIS | -0.438304 |
| 145 | TRST | -0.063687 |
| 146 | TSPC | -0.669267 |
| 147 | TURI | -0.193643 |
| 148 | ULTJ | -0.693248 |
| 149 | UNTR | -1.085752 |
| 150 | UNVR | 1.616492 |
| 151 | WIIM | -0.678315 |
| 152 | WIKA | 0.763730 |
| 153 | WSKT | 1.296173 |
| 154 | WTON | -0.031789 |

Persamaan Regresi:

Estimation Command:

=========================

LS(CX=R, COV=CXWHITE) DER C PROFITABILITAS NDTS SALES TANGIBILITY SURPLUS

Estimation Equation:

=========================

DER = C(1) + C(2)\*PROFITABILITAS + C(3)\*NDTS + C(4)\*SALES + C(5)\*TANGIBILITY + C(6)\*SURPLUS + [CX=R]

Substituted Coefficients:

=========================

DER = 1.46623363387 - 1.63334790178\*PROFITABILITAS - 0.175652792206\*NDTS + 0.00082390592728\*SALES - 0.816806812097\*TANGIBILITY + 3.8050416373e-14\*SURPLUS + [CX=R]

Hasil RE dengan koefisien estimasi white cross scetion:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DER | | |  |  |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Date: 21/01/19 Time: 22:34 | | |  |  |
| Sample: 2014 2017 | | |  |  |
| Periods included: 4 | | |  |  |
| Cross-sections included: 154 | | |  |  |
| Total panel (balanced) observations: 616 | | | |  |
| Swamy and Arora estimator of component variances | | | | |
| White cross-section standard errors & covariance (d.f. corrected) | | | | |
| WARNING: estimated coefficient covariance matrix is of reduced rank | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.466234 | 0.120026 | 12.21593 | 0.0000 |
| PROFITABILITAS | -1.633348 | 0.319294 | -5.115504 | 0.0000 |
| NDTS | -0.175653 | 0.268914 | -0.653194 | 0.5139 |
| SALES | 0.000824 | 7.45E-05 | 11.06461 | 0.0000 |
| TANGIBILITY | -0.816807 | 0.109187 | -7.480797 | 0.0000 |
| SURPLUS | 3.81E-14 | 2.51E-14 | 1.518609 | 0.1294 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  | S.D. | Rho |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | | 1.205077 | 0.8180 |
| Idiosyncratic random | | | 0.568355 | 0.1820 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Weighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.052246 | Mean dependent var | | 0.256436 |
| Adjusted R-squared | 0.044478 | S.D. dependent var | | 0.583310 |
| S.E. of regression | 0.570190 | Sum squared resid | | 198.3213 |
| F-statistic | 6.725398 | Durbin-Watson stat | | 1.421311 |
| Prob(F-statistic) | 0.000004 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Unweighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.038441 | Mean dependent var | | 1.117267 |
| Sum squared resid | 1095.073 | Durbin-Watson stat | | 0.257404 |
|  |  |  |  |  |
|  |  |  |  |  |