



ภาคผนวก ก

มูลค่าการส่งออกอัญมณีและเครื่องประดับ

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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ตารางแสดงมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทย

หน่วย: ล้านบาท

| เดือน/ปี | 2538 | 2539 | 2540 | 2541 | 2542 | 2543 | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 |
|------------|----------|----------|-----------|-----------|-----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| มกราคม | 4,078.37 | 4,418.79 | 4,041.83 | 15,203.18 | 3,887.29 | 4,918.64 | 5,970.45 | 5,857.33 | 9,739.16 | 6,340.09 | 8,575.00 | 11,379.94 |
| กุมภาพันธ์ | 3,282.98 | 3,862.43 | 3,789.11 | 8,218.31 | 3,523.34 | 4,617.95 | 5,356.01 | 7,544.21 | 9,914.36 | 6,777.91 | 11,780.77 | 10,120.83 |
| มีนาคม | 5,246.48 | 5,377.12 | 5,333.59 | 5,175.76 | 5,300.72 | 5,581.88 | 7,380.71 | 7,237.83 | 7,956.26 | 9,883.07 | 9,401.88 | 14,275.99 |
| เมษายน | 3,726.37 | 4,408.71 | 3,867.14 | 5,178.60 | 4,878.25 | 5,383.12 | 6,014.91 | 6,784.77 | 6,604.07 | 7,193.85 | 7,470.53 | 15,017.34 |
| พฤษภาคม | 4,138.39 | 4,637.40 | 4,331.13 | 4,519.67 | 4,387.51 | 5,190.34 | 7,062.63 | 8,735.58 | 10,252.73 | 8,814.10 | 9,172.53 | 10,334.92 |
| มิถุนายน | 4,588.04 | 4,430.40 | 3,724.19 | 5,934.34 | 4,668.75 | 4,989.04 | 6,334.92 | 8,255.41 | 7,594.65 | 9,549.56 | 10,790.63 | 9,245.84 |
| กรกฎาคม | 4,379.83 | 4,566.47 | 4,215.15 | 6,665.86 | 4,645.68 | 4,907.68 | 7,304.52 | 6,799.62 | 7,827.19 | 9,124.25 | 10,611.43 | 10,028.85 |
| สิงหาคม | 4,242.27 | 4,730.94 | 4,589.60 | 5,013.76 | 4,826.63 | 5,671.13 | 6,894.78 | 7,589.42 | 7,951.60 | 9,079.93 | 9,827.25 | 10,657.87 |
| กันยายน | 5,127.58 | 5,004.52 | 8,713.20 | 5,903.74 | 5,730.36 | 6,673.74 | 7,491.74 | 8,760.67 | 9,327.27 | 10,097.16 | 13,799.07 | 12,817.43 |
| ตุลาคม | 5,297.09 | 5,102.71 | 9,640.70 | 5,750.14 | 13,156.22 | 6,883.53 | 8,398.97 | 9,965.04 | 9,252.98 | 10,555.40 | 12,616.00 | 12,125.57 |
| พฤศจิกายน | 5,574.20 | 5,050.56 | 9,928.05 | 4,687.40 | 6,533.75 | 7,860.92 | 7,486.94 | 8,171.89 | 9,751.42 | 10,617.28 | 14,669.63 | 13,805.98 |
| ธันวาคม | 4,589.28 | 4,130.26 | 10,644.32 | 4,300.13 | 5,656.55 | 6,608.54 | 5,476.43 | 7,264.56 | 8,273.31 | 8,205.59 | 10,392.87 | 9,162.82 |

ที่มา: ธนาคารแห่งประเทศไทย (2549)

ตารางแสดงมูลค่าการส่งออกอัญมณีและเครื่องประดับของประเทศไทยรูปหล่อการพิมพ์ฐานบรมชาติ(InJEM)

| เดือน/ปี | 2538 | 2539 | 2540 | 2541 | 2542 | 2543 | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| มกราคม | 8.313453 | 8.393621 | 8.304453 | 9.62926 | 8.265468 | 8.500787 | 8.694578 | 8.675449 | 9.18391 | 8.754648 | 9.056606 | 9.339607 |
| กุมภาพันธ์ | 8.096507 | 8.259052 | 8.239886 | 9.01412 | 8.167165 | 8.437706 | 8.585975 | 8.928536 | 9.201739 | 8.821424 | 9.374224 | 9.222351 |
| มีนาคม | 8.565313 | 8.589908 | 8.58178 | 8.551741 | 8.575598 | 8.627281 | 8.906625 | 8.887077 | 8.981714 | 9.198578 | 9.148665 | 9.566334 |
| เมษายน | 8.22319 | 8.391337 | 8.26027 | 8.55229 | 8.492542 | 8.591023 | 8.701997 | 8.822436 | 8.795441 | 8.880982 | 8.918721 | 9.616961 |
| พฤษภาคม | 8.328062 | 8.441909 | 8.373584 | 8.416194 | 8.386517 | 8.554554 | 8.862573 | 9.07516 | 9.235299 | 9.084108 | 9.123968 | 9.243284 |
| มิถุนายน | 8.431208 | 8.396245 | 8.222605 | 8.688511 | 8.448647 | 8.514999 | 8.753832 | 9.018624 | 8.935199 | 9.16425 | 9.286433 | 9.131929 |
| กรกฎาคม | 8.384765 | 8.426496 | 8.34644 | 8.804754 | 8.443693 | 8.498557 | 8.896249 | 8.824622 | 8.965359 | 9.118691 | 9.269687 | 9.213221 |
| สิงหาคม | 8.352854 | 8.461879 | 8.431548 | 8.519941 | 8.481904 | 8.643144 | 8.83852 | 8.93451 | 8.981128 | 9.113822 | 9.192914 | 9.274054 |
| กันยายน | 8.542389 | 8.518097 | 9.072594 | 8.683341 | 8.653534 | 8.805936 | 8.921556 | 9.078028 | 9.140698 | 9.220009 | 9.532356 | 9.458561 |
| ตุลาคม | 8.574913 | 8.537527 | 9.173749 | 8.656979 | 9.48465 | 8.836887 | 9.035864 | 9.206838 | 9.132701 | 9.264393 | 9.442721 | 9.403072 |
| พฤศจิกายน | 8.625904 | 8.527254 | 9.203119 | 8.452633 | 8.784736 | 8.969659 | 8.920915 | 9.008455 | 9.185168 | 9.270238 | 9.593535 | 9.532857 |
| ธันวาคม | 8.431478 | 8.326096 | 9.272782 | 8.366401 | 8.640569 | 8.796118 | 8.608209 | 8.890763 | 9.02079 | 9.012571 | 9.248875 | 9.122909 |

ที่มา: จากการศึกษา



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ตาราง แสดงการทดสอบ Unit Root โดยการทดสอบ Augmented Dickey-Fuller

ที่ระดับ Level without trend and intercept

Null Hypothesis: Y has a unit root

Exogenous: None

Lag Length: 1 (Automatic based on SIC, MAXLAG=13)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | 0.400305 | 0.7978 |
| Test critical values: | | |
| 1% level | -2.581349 | |
| 5% level | -1.943090 | |
| 10% level | -1.615220 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Y)

Method: Least Squares

Date: 05/22/07 Time: 14:32

Sample (adjusted): 3 144

Included observations: 142 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| Y(-1) | 0.000805 | 0.002010 | 0.400305 | 0.6895 |
| D(Y(-1)) | -0.239772 | 0.082960 | -2.890225 | 0.0045 |
| R-squared | 0.055642 | Mean dependent var | | 0.007228 |
| Adjusted R-squared | 0.048897 | S.D. dependent var | | 0.216620 |
| S.E. of regression | 0.211258 | Akaike info criterion | | -0.257491 |
| Sum squared resid | 6.248179 | Schwarz criterion | | -0.215860 |
| Log likelihood | 20.28186 | Durbin-Watson stat | | 2.000597 |

ที่มา: จากการคำนวณ

ตาราง แสดงการทดสอบ Unit Root โดยการทดสอบ Augmented Dickey-Fuller

ที่ระดับ Level with intercept but without trend

Null Hypothesis: Y has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=13)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -3.709075 | 0.0049 |
| Test critical values: | | |
| 1% level | -3.476472 | |
| 5% level | -2.881685 | |
| 10% level | -2.577591 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Y)

Method: Least Squares

Date: 05/22/07 Time: 14:30

Sample (adjusted): 2 144

Included observations: 143 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| Y(-1) | -0.173318 | 0.046728 | -3.709075 | 0.0003 |
| C | 1.534609 | 0.412583 | 3.719512 | 0.0003 |
| R-squared | 0.088896 | Mean dependent var | | 0.005661 |
| Adjusted R-squared | 0.082434 | S.D. dependent var | | 0.216669 |
| S.E. of regression | 0.207546 | Akaike info criterion | | -0.293039 |
| Sum squared resid | 6.073630 | Schwarz criterion | | -0.251601 |
| Log likelihood | 22.95229 | F-statistic | | 13.75724 |
| Durbin-Watson stat | 2.243606 | Prob(F-statistic) | | 0.000298 |

ที่มา: จากการคำนวณ

ตาราง แสดงการทดสอบ Unit Root โดยการทดสอบ Augmented Dickey-Fuller

ที่ระดับ Level with intercept and trend

Null Hypothesis: Y has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=13)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -6.445879 | 0.0000 |
| Test critical values: | | |
| 1% level | -4.023506 | |
| 5% level | -3.441552 | |
| 10% level | -3.145341 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Y)

Method: Least Squares

Date: 05/22/07 Time: 14:31

Sample (adjusted): 2 144

Included observations: 143 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| Y(-1) | -0.460837 | 0.071493 | -6.445879 | 0.0000 |
| C | 3.837405 | 0.594625 | 6.453483 | 0.0000 |
| @TREND(1) | 0.003244 | 0.000643 | 5.043206 | 0.0000 |
| R-squared | 0.228969 | Mean dependent var | | 0.005661 |
| Adjusted R-squared | 0.217955 | S.D. dependent var | | 0.216669 |
| S.E. of regression | 0.191607 | Akaike info criterion | | -0.445982 |
| Sum squared resid | 5.139866 | Schwarz criterion | | -0.383825 |
| Log likelihood | 34.88775 | F-statistic | | 20.78758 |
| Durbin-Watson stat | 1.981028 | Prob(F-statistic) | | 0.000000 |

ที่มา: จากการคำนวณ

ตาราง แสดงการทดสอบ Unit Root โดยการทดสอบ Augmented Dickey-Fuller

ที่ระดับ First difference without intercept and trend

Null Hypothesis: D(Y) has a unit root

Exogenous: None

Lag Length: 0 (Automatic based on SIC, MAXLAG=13)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -14.98863 | 0.0000 |
| Test critical values: | | |
| 1% level | -2.581349 | |
| 5% level | -1.943090 | |
| 10% level | -1.615220 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Y,2)

Method: Least Squares

Date: 05/22/07 Time: 14:36

Sample (adjusted): 3 144

Included observations: 142 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(Y(-1)) | -1.238024 | 0.082598 | -14.98863 | 0.0000 |
| R-squared | 0.614389 | Mean dependent var | | -0.001359 |
| Adjusted R-squared | 0.614389 | S.D. dependent var | | 0.339188 |
| S.E. of regression | 0.210628 | Akaike info criterion | | -0.270431 |
| Sum squared resid | 6.255331 | Schwarz criterion | | -0.249616 |
| Log likelihood | 20.20064 | Durbin-Watson stat | | 1.999509 |

ที่มา: จากการคำนวณ

ตาราง แสดงการทดสอบ Unit Root โดยการทดสอบ Augmented Dickey-Fuller

ที่ระดับ First difference with intercept but without trend

Null Hypothesis: D(Y) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=13)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -14.95898 | 0.0000 |
| Test critical values: | | |
| 1% level | -3.476805 | |
| 5% level | -2.881830 | |
| 10% level | -2.577668 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Y,2)

Method: Least Squares

Date: 05/22/07 Time: 14:33

Sample (adjusted): 3 144

Included observations: 142 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(Y(-1)) | -1.239765 | 0.082878 | -14.95898 | 0.0000 |
| C | 0.009287 | 0.017735 | 0.523648 | 0.6014 |
| R-squared | 0.615142 | Mean dependent var | | -0.001359 |
| Adjusted R-squared | 0.612393 | S.D. dependent var | | 0.339188 |
| S.E. of regression | 0.211172 | Akaike info criterion | | -0.258304 |
| Sum squared resid | 6.243103 | Schwarz criterion | | -0.216672 |
| Log likelihood | 20.33956 | F-statistic | | 223.7710 |
| Durbin-Watson stat | 2.000689 | Prob(F-statistic) | | 0.000000 |

ที่มา: จากการคำนวณ

ตาราง แสดงการทดสอบ Unit Root โดยการทดสอบ Augmented Dickey-Fuller

ที่ระดับ First difference with intercept and trend

Null Hypothesis: D(Y) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=13)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -14.90515 | 0.0000 |
| Test critical values: | | |
| 1% level | -4.023975 | |
| 5% level | -3.441777 | |
| 10% level | -3.145474 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Y,2)

Method: Least Squares

Date: 05/22/07 Time: 14:35

Sample (adjusted): 3 144

Included observations: 142 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(Y(-1)) | -1.239506 | 0.083160 | -14.90515 | 0.0000 |
| C | 0.017682 | 0.036128 | 0.489433 | 0.6253 |
| @TREND(1) | -0.000116 | 0.000434 | -0.267003 | 0.7899 |
| R-squared | 0.615340 | Mean dependent var | | -0.001359 |
| Adjusted R-squared | 0.609805 | S.D. dependent var | | 0.339188 |
| S.E. of regression | 0.211876 | Akaike info criterion | | -0.244732 |
| Sum squared resid | 6.239902 | Schwarz criterion | | -0.182285 |
| Log likelihood | 20.37597 | F-statistic | | 111.1789 |
| Durbin-Watson stat | 2.002092 | Prob(F-statistic) | | 0.000000 |

ที่มา: จากการคำนวณ

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ตาราง แสดงการทดสอบ Seasonal Unit Root ที่ระดับ Level ผลต่างลำดับที่ 12

Dependent Variable: D(Y,0,12)

Method: Least Squares

Date: 05/22/07 Time: 13:39

Sample (adjusted): 13 144

Included observations: 132 after adjustments

$$D(Y,0,12)=C(1)+C(2)*Y1(-1)+C(3)*Y2(-1)+C(4)*Y3(-2)+C(5)*Y3(-1) \\ +C(6)*Y4(-2)+C(7)*Y4(-1)+C(8)*Y5(-2)+C(9)*Y5(-1)+C(10)*Y6(-2) \\ +C(11)*Y6(-1)+C(12)*Y7(-2)+C(13)*Y7(-1)$$

| | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C(1) | 0.504668 | 0.544600 | 0.926677 | 0.3560 |
| C(2) | -0.004554 | 0.005146 | -0.884949 | 0.3780 |
| C(3) | -0.087083 | 0.035327 | -2.465089 | 0.0151 |
| C(4) | -0.152704 | 0.041516 | -3.678202 | 0.0004 |
| C(5) | -0.085891 | 0.041461 | -2.071618 | 0.0405 |
| C(6) | -0.282025 | 0.063502 | -4.441209 | 0.0000 |
| C(7) | -0.260463 | 0.063917 | -4.074991 | 0.0001 |
| C(8) | -0.057729 | 0.023531 | -2.453302 | 0.0156 |
| C(9) | 0.018050 | 0.023578 | 0.765572 | 0.4454 |
| C(10) | -0.180478 | 0.051464 | -3.506871 | 0.0006 |
| C(11) | -0.220622 | 0.051043 | -4.322283 | 0.0000 |
| C(12) | -0.092458 | 0.034446 | -2.684170 | 0.0083 |
| C(13) | -0.028494 | 0.034413 | -0.827979 | 0.4093 |
| R-squared | 0.641466 | Mean dependent var | | 0.085266 |
| Adjusted R-squared | 0.605312 | S.D. dependent var | | 0.325350 |
| S.E. of regression | 0.204399 | Akaike info criterion | | -0.244197 |
| Sum squared resid | 4.971684 | Schwarz criterion | | 0.039716 |
| Log likelihood | 29.11697 | Durbin-Watson stat | | 1.958691 |

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_3 \cap \pi_4$ ที่ระดับ Level ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 9.403916 | (2, 119) | 0.0002 |
| Chi-square | 18.80783 | 2 | 0.0001 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(4) | -0.152704 | 0.041516 |
| C(5) | -0.085891 | 0.041461 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_5 \cap \pi_6$ ที่ระดับ Level ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 10.01550 | (2, 119) | 0.0001 |
| Chi-square | 20.03101 | 2 | 0.0000 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(6) | -0.282025 | 0.063502 |
| C(7) | -0.260463 | 0.063917 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_7 \cap \pi_8$ ที่ระดับ Level ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 8.083473 | (2, 119) | 0.0005 |
| Chi-square | 16.16695 | 2 | 0.0003 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(8) | -0.057729 | 0.023531 |
| C(9) | 0.018050 | 0.023578 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_9 \cap \pi_{10}$ ที่ระดับ Level ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 11.01666 | (2, 119) | 0.0000 |
| Chi-square | 22.03332 | 2 | 0.0000 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(10) | -0.180478 | 0.051464 |
| C(11) | -0.220622 | 0.051043 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_{11} \cap \pi_{12}$ ที่ระดับ Level ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 7.561289 | (2, 119) | 0.0008 |
| Chi-square | 15.12258 | 2 | 0.0005 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(12) | -0.092458 | 0.034446 |
| C(13) | -0.028494 | 0.034413 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

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ตาราง แสดงการทดสอบ Seasonal Unit Root ที่ระดับ 1st Difference ผลต่างลำดับที่ 12

Dependent Variable: D(Y,1,12)

Method: Least Squares

Date: 05/22/07 Time: 14:06

Sample (adjusted): 14 144

Included observations: 131 after adjustments

$$D(Y,1,12)=C(1)+C(2)*YD1(-1)+C(3)*YD2(-1)+C(4)*YD3(-2)+C(5)*YD3(-1)+C(6)*YD4(-2)+C(7)*YD4(-1)+C(8)*YD5(-2)+C(9)*YD5(-1)+C(10)*YD6(-2)+C(11)*YD6(-1)+C(12)*YD7(-2)+C(13)*YD7(-1)$$

| | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C(1) | 0.021366 | 0.018600 | 1.148715 | 0.2530 |
| C(2) | -0.265016 | 0.057902 | -4.576952 | 0.0000 |
| C(3) | -0.038775 | 0.018231 | -2.126852 | 0.0355 |
| C(4) | -0.109114 | 0.030537 | -3.573122 | 0.0005 |
| C(5) | 0.037106 | 0.030539 | 1.215036 | 0.2268 |
| C(6) | -0.130102 | 0.035776 | -3.636613 | 0.0004 |
| C(7) | -0.101701 | 0.035929 | -2.830590 | 0.0055 |
| C(8) | -0.135818 | 0.042889 | -3.166729 | 0.0020 |
| C(9) | 0.156563 | 0.042812 | 3.657026 | 0.0004 |
| C(10) | -0.123868 | 0.031455 | -3.937990 | 0.0001 |
| C(11) | -0.084784 | 0.031457 | -2.695192 | 0.0081 |
| C(12) | -0.108869 | 0.034621 | -3.144586 | 0.0021 |
| C(13) | 0.090086 | 0.034687 | 2.597113 | 0.0106 |
| R-squared | 0.506642 | Mean dependent var | | -0.001574 |
| Adjusted R-squared | 0.456470 | S.D. dependent var | | 0.278042 |
| S.E. of regression | 0.204985 | Akaike info criterion | | -0.237802 |
| Sum squared resid | 4.958213 | Schwarz criterion | | 0.047523 |
| Log likelihood | 28.57600 | Durbin-Watson stat | | 1.966285 |

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_3 \cap \pi_4$ ที่ระดับ 1st Difference ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 7.289254 | (2, 118) | 0.0010 |
| Chi-square | 14.57851 | 2 | 0.0007 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(4) | -0.109114 | 0.030537 |
| C(5) | 0.037106 | 0.030539 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_5 \cap \pi_6$ ที่ระดับ 1st Difference ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 6.868132 | (2, 118) | 0.0015 |
| Chi-square | 13.73626 | 2 | 0.0010 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(6) | -0.130102 | 0.035776 |
| C(7) | -0.101701 | 0.035929 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_7 \cap \pi_8$ ที่ระดับ 1st Difference ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 6.699740 | (2, 118) | 0.0018 |
| Chi-square | 13.39948 | 2 | 0.0012 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(8) | -0.135818 | 0.042889 |
| C(9) | 0.156563 | 0.042812 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_9 \cap \pi_{10}$ ที่ระดับ 1st Difference ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 8.164021 | (2, 118) | 0.0005 |
| Chi-square | 16.32804 | 2 | 0.0003 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(10) | -0.123868 | 0.031455 |
| C(11) | -0.084784 | 0.031457 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

ตาราง แสดงผลทดสอบ Coefficient Test $\pi_{11} \cap \pi_{12}$ ที่ระดับ 1st Difference ผลต่างลำดับที่ 12

Wald Test:

Equation: Untitled

| Test Statistic | Value | df | Probability |
|----------------|----------|----------|-------------|
| F-statistic | 5.769776 | (2, 118) | 0.0041 |
| Chi-square | 11.53955 | 2 | 0.0031 |

Null Hypothesis Summary:

| Normalized Restriction (= 0) | Value | Std. Err. |
|------------------------------|-----------|-----------|
| C(12) | -0.108869 | 0.034621 |
| C(13) | 0.090086 | 0.034687 |

Restrictions are linear in coefficients.

ที่มา: จากการคำนวณ

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การประมาณค่าพารามิเตอร์

แบบจำลอง (lnJEM_t,1,12) C AR(12) MA(1) SMA(21)

Dependent Variable: D(Y,1,12)

Method: Least Squares

Date: 05/23/07 Time: 23:59

Sample (adjusted): 26 144

Included observations: 119 after adjustments

Convergence achieved after 10 iterations

Backcast: 4 25

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C | -0.004408 | 0.010246 | -0.430252 | 0.6678 |
| AR(12) | -0.497577 | 0.071895 | -6.920849 | 0.0000 |
| MA(1) | -0.487982 | 0.067229 | -7.258549 | 0.0000 |
| SMA(21) | 0.888752 | 0.016755 | 53.04545 | 0.0000 |
| R-squared | 0.620745 | Mean dependent var | | -0.000309 |
| Adjusted R-squared | 0.610851 | S.D. dependent var | | 0.290329 |
| S.E. of regression | 0.181112 | Akaike info criterion | | -0.546364 |
| Sum squared resid | 3.772190 | Schwarz criterion | | -0.452948 |
| Log likelihood | 36.50864 | F-statistic | | 62.74199 |
| Durbin-Watson stat | 1.981742 | Prob(F-statistic) | | 0.000000 |
| Inverted AR Roots | .91-.24i | .91+.24i | .67+.67i | .67-.67i |
| | .24-.91i | .24+.91i | -.24-.91i | -.24+.91i |
| | -.67-.67i | -.67+.67i | -.91+.24i | -.91-.24i |
| Inverted MA Roots | .98-.15i | .98+.15i | .90-.43i | .90+.43i |
| | .73-.68i | .73+.68i | .50+.86i | .50-.86i |
| | .49 | .22-.97i | .22+.97i | -.07-.99i |
| | -.07+.99i | -.36-.93i | -.36+.93i | -.62-.78i |
| | -.62+.78i | -.82+.56i | -.82-.56i | -.95+.29i |
| | -.95-.29i | -.99 | | |

ที่มา: จากการคำนวณ

การประมาณค่าพารามิเตอร์

แบบจำลอง (lnJEM,1,12) C AR(1) SAR(21) MA(1) SMA(12)

Dependent Variable: D(Y,1,12)

Method: Least Squares

Date: 05/23/07 Time: 21:36

Sample (adjusted): 36 144

Included observations: 109 after adjustments

Convergence achieved after 23 iterations

Backcast: 23 35

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C | 0.001097 | 0.001547 | 0.709008 | 0.4799 |
| AR(1) | 0.577821 | 0.078557 | 7.355398 | 0.0000 |
| SAR(21) | 0.344731 | 0.065360 | 5.274357 | 0.0000 |
| MA(1) | -0.997385 | 0.045688 | -21.83019 | 0.0000 |
| SMA(12) | -0.894922 | 0.031243 | -28.64379 | 0.0000 |
| R-squared | 0.643949 | Mean dependent var | | -0.007356 |
| Adjusted R-squared | 0.630254 | S.D. dependent var | | 0.297268 |
| S.E. of regression | 0.180759 | Akaike info criterion | | -0.538521 |
| Sum squared resid | 3.398067 | Schwarz criterion | | -0.415065 |
| Log likelihood | 34.34939 | F-statistic | | 47.02318 |
| Durbin-Watson stat | 2.092746 | Prob(F-statistic) | | 0.000000 |
| Inverted AR Roots | .95 | .91-.28i | .91+.28i | .79-.54i |
| | .79+.54i | .59+.74i | .59-.74i | .58 |
| | .35+.88i | .35-.88i | .07-.95i | .07+.95i |
| | -.21-.93i | -.21+.93i | -.48-.82i | -.48+.82i |
| | -.70+.65i | -.70-.65i | -.86+.41i | -.86-.41i |
| | -.94-.14i | -.94+.14i | | |
| Inverted MA Roots | 1.00 | .99 | .86+.50i | .86-.50i |
| | .50-.86i | .50+.86i | .00-.99i | -.00+.99i |
| | -.50-.86i | -.50+.86i | -.86+.50i | -.86-.50i |
| | -.99 | | | |

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การประมาณค่าพารามิเตอร์

แบบจำลอง (lnJEM,_{1,12}) C AR(1) AR(2) SAR(12) MA(2)

Dependent Variable: D(Y,1,12)

Method: Least Squares

Date: 05/23/07 Time: 23:29

Sample (adjusted): 28 144

Included observations: 117 after adjustments

Convergence achieved after 20 iterations

Backcast: 26 27

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C | 0.000175 | 0.000973 | 0.180066 | 0.8574 |
| AR(1) | -0.372998 | 0.079935 | -4.666255 | 0.0000 |
| AR(2) | 0.541229 | 0.081422 | 6.647172 | 0.0000 |
| SAR(12) | -0.589910 | 0.082543 | -7.146743 | 0.0000 |
| MA(2) | -0.976912 | 0.015278 | -63.94113 | 0.0000 |
| R-squared | 0.445888 | Mean dependent var | | -0.001007 |
| Adjusted R-squared | 0.426098 | S.D. dependent var | | 0.292745 |
| S.E. of regression | 0.221773 | Akaike info criterion | | -0.132529 |
| Sum squared resid | 5.508530 | Schwarz criterion | | -0.014487 |
| Log likelihood | 12.75294 | F-statistic | | 22.53129 |
| Durbin-Watson stat | 2.040057 | Prob(F-statistic) | | 0.000000 |
| Inverted AR Roots | .92+.25i | .92-.25i | .68+.68i | .68-.68i |
| | .57 | .25-.92i | .25+.92i | -.25-.92i |
| | -.25+.92i | -.68-.68i | -.68-.68i | -.92+.25i |
| | -.92-.25i | -.95 | | |
| Inverted MA Roots | .99 | -.99 | | |

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การประมาณค่าพารามิเตอร์

แบบจำลอง (lnJEM,1,12) C AR(1) AR(12) AR(24) MA(2) MA(13)

Dependent Variable: D(Y,1,12)

Method: Least Squares

Date: 05/24/07 Time: 01:06

Sample (adjusted): 38 144

Included observations: 107 after adjustments

Convergence achieved after 15 iterations

Backcast: 25 37

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C | 0.001428 | 0.002023 | 0.706022 | 0.4818 |
| AR(1) | -0.444239 | 0.053847 | -8.249961 | 0.0000 |
| AR(12) | -0.739235 | 0.072995 | -10.12718 | 0.0000 |
| AR(24) | -0.352005 | 0.069055 | -5.097470 | 0.0000 |
| MA(2) | -0.372575 | 0.054320 | -6.858909 | 0.0000 |
| MA(13) | -0.605003 | 0.050791 | -11.91156 | 0.0000 |
| R-squared | 0.556559 | Mean dependent var | | -0.013559 |
| Adjusted R-squared | 0.534606 | S.D. dependent var | | 0.296420 |
| S.E. of regression | 0.202217 | Akaike info criterion | | -0.304509 |
| Sum squared resid | 4.130064 | Schwarz criterion | | -0.154631 |
| Log likelihood | 22.29125 | F-statistic | | 25.35282 |
| Durbin-Watson stat | 2.060252 | Prob(F-statistic) | | 0.000000 |
| Inverted AR Roots | .93+.17i | .93-.17i | .89+.33i | .89-.33i |
| | .71-.61i | .71+.61i | .61-.73i | .61+.73i |
| | .30+.89i | .30-.89i | .16-.95i | .16+.95i |
| | -.19-.92i | -.19+.92i | -.34-.91i | -.34+.91i |
| | -.64+.70i | -.64-.70i | -.75-.64i | -.75+.64i |
| | -.92-.29i | -.92+.29i | -.97+.20i | -.97-.20i |
| Inverted MA Roots | 1.00 | .88+.43i | .88-.43i | .56-.77i |
| | .56+.77i | .12+.93i | .12-.93i | -.35-.87i |
| | -.35+.87i | -.74+.61i | -.74-.61i | -.97+.22i |
| | -.97-.22i | | | |

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การประมาณค่าพารามิเตอร์

แบบจำลอง (lnJEM,1,12) C AR(12) MA(24)

Dependent Variable: D(Y,1,12)

Method: Least Squares

Date: 05/23/07 Time: 23:50

Sample (adjusted): 26 144

Included observations: 119 after adjustments

Convergence achieved after 11 iterations

Backcast: 2 25

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C | 0.001217 | 0.007073 | 0.172108 | 0.8637 |
| AR(12) | -0.667089 | 0.066412 | -10.04467 | 0.0000 |
| MA(24) | -0.850745 | 0.030748 | -27.66789 | 0.0000 |
| R-squared | 0.577797 | Mean dependent var | | -0.000309 |
| Adjusted R-squared | 0.570518 | S.D. dependent var | | 0.290329 |
| S.E. of regression | 0.190267 | Akaike info criterion | | -0.455894 |
| Sum squared resid | 4.199359 | Schwarz criterion | | -0.385832 |
| Log likelihood | 30.12571 | F-statistic | | 79.37480 |
| Durbin-Watson stat | 2.455993 | Prob(F-statistic) | | 0.000000 |
| Inverted AR Roots | .93+.25i | .93-.25i | .68-.68i | .68-.68i |
| | .25-.93i | .25+.93i | -.25+.93i | -.25-.93i |
| | -.68+.68i | -.68+.68i | -.93+.25i | -.93-.25i |
| Inverted MA Roots | .99 | .96+.26i | .96-.26i | .86+.50i |
| | .86-.50i | .70+.70i | .70-.70i | .50-.86i |
| | .50+.86i | .26+.96i | .26-.96i | .00-.99i |
| | .00+.99i | -.26-.96i | -.26+.96i | -.50-.86i |
| | -.50+.86i | -.70+.70i | -.70+.70i | -.86-.50i |
| | -.86+.50i | -.96-.26i | -.96+.26i | -.99 |

ที่มา: จากการคำนวณ

การประมาณค่าพารามิเตอร์

แบบจำลอง (lnJEM,1,12) C AR(1) AR(2) SAR(12) MA(21)

Dependent Variable: D(Y,1,12)

Method: Least Squares

Date: 05/24/07 Time: 01:10

Sample (adjusted): 28 144

Included observations: 117 after adjustments

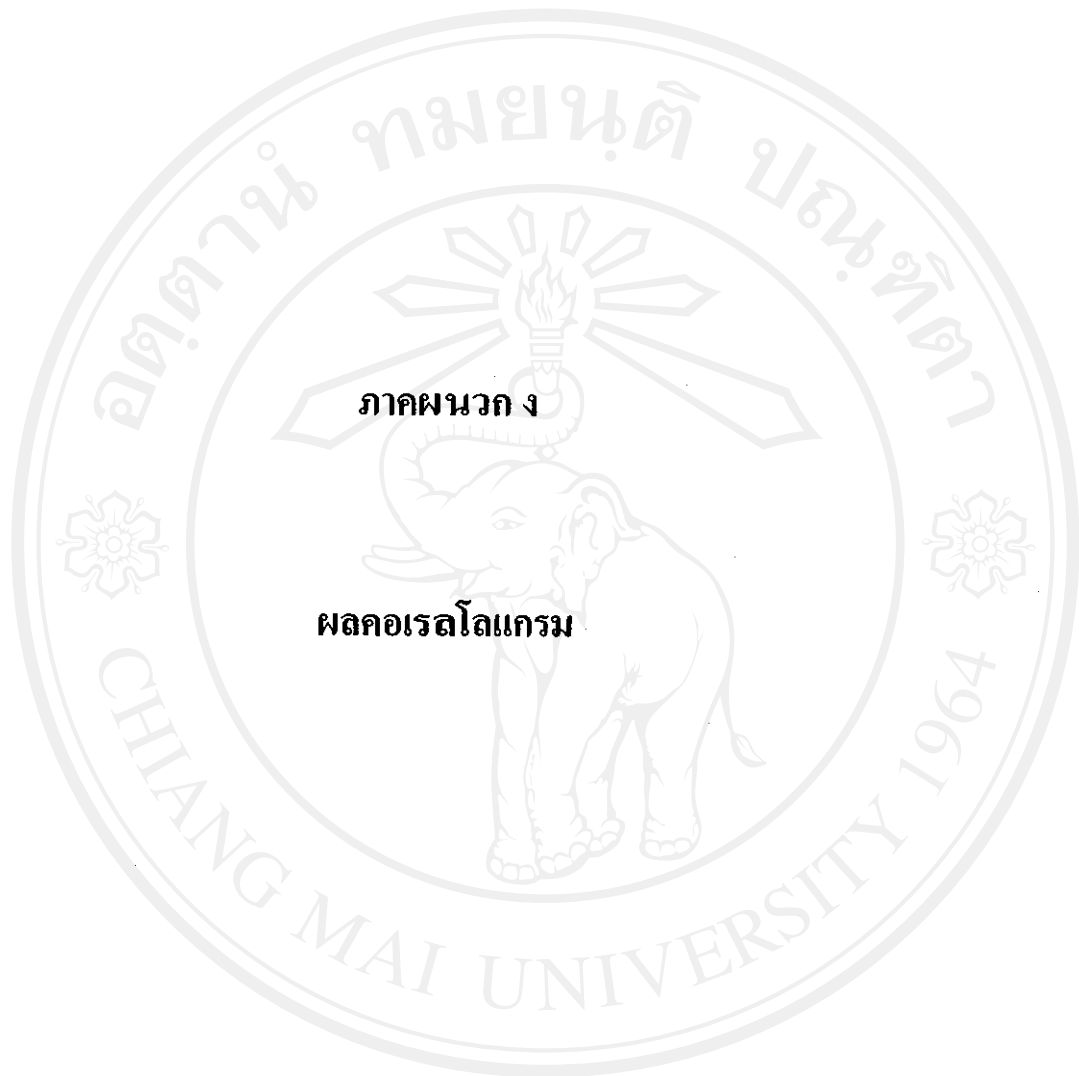
Convergence achieved after 12 iterations

Backcast: 7 27

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| C | 0.000553 | 0.011212 | 0.049323 | 0.9607 |
| AR(1) | -0.428072 | 0.088496 | -4.837192 | 0.0000 |
| AR(2) | -0.337658 | 0.087617 | -3.853786 | 0.0002 |
| SAR(12) | -0.509894 | 0.070606 | -7.221652 | 0.0000 |
| MA(21) | 0.889323 | 0.017313 | 51.36743 | 0.0000 |
| R-squared | 0.638748 | Mean dependent var | | -0.001007 |
| Adjusted R-squared | 0.625846 | S.D. dependent var | | 0.292745 |
| S.E. of regression | 0.179067 | Akaike info criterion | | -0.560320 |
| Sum squared resid | 3.591272 | Schwarz criterion | | -0.442279 |
| Log likelihood | 37.77874 | F-statistic | | 49.50823 |
| Durbin-Watson stat | 2.061942 | Prob(F-statistic) | | 0.000000 |
| Inverted AR Roots | .91+.24i | .91-.24i | .67-.67i | .67+.67i |
| | .24-.91i | .24+.91i | -.21+.54i | -.21-.54i |
| | -.24+.91i | -.24-.91i | -.67-.67i | -.67-.67i |
| | -.91-.24i | -.91+.24i | | |
| Inverted MA Roots | .98-.15i | .98+.15i | .90+.43i | .90-.43i |
| | .73+.68i | .73-.68i | .50+.86i | .50-.86i |
| | .22+.97i | .22-.97i | -.07+.99i | -.07-.99i |
| | -.36+.93i | -.36-.93i | -.62-.78i | -.62+.78i |
| | -.82-.56i | -.82+.56i | -.95-.29i | -.95+.29i |
| | -.99 | | | |

ที่มา: จากการคำนวณ

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ภาคผนวก ง

ผลคอเรลโตแกรม

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ผลคอเรลโลแกรม ของอนุกรมเวลามูลค่าการส่งออกอัญมณีและเครื่องประดับ ณ ระดับ Level (nJEM_t)

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob | |
|-----------------|---------------------|----|-------|--------|--------|-------|
| | | 1 | 0.823 | 0.823 | 99.549 | 0.000 |
| | | 2 | 0.712 | 0.108 | 174.62 | 0.000 |
| | | 3 | 0.650 | 0.120 | 237.59 | 0.000 |
| | | 4 | 0.611 | 0.094 | 293.66 | 0.000 |
| | | 5 | 0.552 | -0.025 | 339.77 | 0.000 |
| | | 6 | 0.546 | 0.153 | 385.18 | 0.000 |
| | | 7 | 0.520 | -0.002 | 426.67 | 0.000 |
| | | 8 | 0.496 | 0.032 | 464.67 | 0.000 |
| | | 9 | 0.466 | 0.005 | 498.53 | 0.000 |
| | | 10 | 0.470 | 0.088 | 533.13 | 0.000 |
| | | 11 | 0.466 | 0.048 | 567.38 | 0.000 |
| | | 12 | 0.476 | 0.083 | 603.53 | 0.000 |
| | | 13 | 0.430 | -0.119 | 633.23 | 0.000 |
| | | 14 | 0.408 | 0.023 | 660.20 | 0.000 |
| | | 15 | 0.384 | -0.010 | 684.26 | 0.000 |
| | | 16 | 0.362 | -0.020 | 705.81 | 0.000 |
| | | 17 | 0.350 | 0.050 | 726.13 | 0.000 |
| | | 18 | 0.351 | 0.003 | 746.67 | 0.000 |
| | | 19 | 0.320 | -0.050 | 763.94 | 0.000 |
| | | 20 | 0.335 | 0.123 | 782.99 | 0.000 |
| | | 21 | 0.370 | 0.117 | 806.37 | 0.000 |
| | | 22 | 0.369 | -0.039 | 829.82 | 0.000 |
| | | 23 | 0.353 | -0.003 | 851.48 | 0.000 |
| | | 24 | 0.382 | 0.100 | 877.09 | 0.000 |
| | | 25 | 0.338 | -0.147 | 897.25 | 0.000 |
| | | 26 | 0.261 | -0.157 | 909.41 | 0.000 |
| | | 27 | 0.213 | -0.059 | 917.53 | 0.000 |
| | | 28 | 0.214 | 0.057 | 925.85 | 0.000 |
| | | 29 | 0.179 | -0.072 | 931.69 | 0.000 |
| | | 30 | 0.157 | -0.017 | 936.25 | 0.000 |
| | | 31 | 0.145 | 0.011 | 940.16 | 0.000 |
| | | 32 | 0.137 | -0.031 | 943.70 | 0.000 |
| | | 33 | 0.135 | 0.045 | 947.15 | 0.000 |
| | | 34 | 0.178 | 0.169 | 953.23 | 0.000 |
| | | 35 | 0.210 | 0.058 | 961.77 | 0.000 |
| | | 36 | 0.242 | 0.056 | 973.19 | 0.000 |

ที่มา: จากการคำนวณ

ผลคอเรลโลแกรม ของอนุกรมเวลามูลค่าการส่งออกอัญมณีและเครื่องประดับ ณ ระดับ First
Difference

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob | |
|-----------------|---------------------|----|--------|--------|--------|-------|
| | | 1 | -0.233 | -0.233 | 7.9553 | 0.005 |
| | | 2 | -0.104 | -0.167 | 9.5319 | 0.009 |
| | | 3 | -0.099 | -0.181 | 10.990 | 0.012 |
| | | 4 | 0.075 | -0.022 | 11.836 | 0.019 |
| | | 5 | -0.147 | -0.192 | 15.082 | 0.010 |
| | | 6 | 0.058 | -0.051 | 15.598 | 0.016 |
| | | 7 | -0.014 | -0.068 | 15.626 | 0.029 |
| | | 8 | 0.013 | -0.058 | 15.650 | 0.048 |
| | | 9 | -0.094 | -0.128 | 17.007 | 0.049 |
| | | 10 | 0.041 | -0.075 | 17.266 | 0.069 |
| | | 11 | -0.065 | -0.141 | 17.938 | 0.083 |
| | | 12 | 0.170 | 0.077 | 22.511 | 0.032 |
| | | 13 | -0.099 | -0.084 | 24.084 | 0.030 |
| | | 14 | 0.038 | -0.021 | 24.319 | 0.042 |
| | | 15 | -0.027 | -0.023 | 24.435 | 0.058 |
| | | 16 | -0.012 | -0.086 | 24.458 | 0.080 |
| | | 17 | -0.044 | -0.053 | 24.782 | 0.100 |
| | | 18 | 0.093 | 0.008 | 26.207 | 0.095 |
| | | 19 | -0.125 | -0.152 | 28.829 | 0.069 |
| | | 20 | -0.046 | -0.168 | 29.181 | 0.084 |
| | | 21 | 0.096 | -0.010 | 30.754 | 0.078 |
| | | 22 | 0.033 | -0.068 | 30.936 | 0.097 |
| | | 23 | -0.136 | -0.173 | 34.132 | 0.063 |
| | | 24 | 0.219 | 0.085 | 42.488 | 0.011 |
| | | 25 | 0.077 | 0.126 | 43.542 | 0.012 |
| | | 26 | -0.057 | 0.043 | 44.110 | 0.015 |
| | | 27 | -0.174 | -0.110 | 49.504 | 0.005 |
| | | 28 | 0.123 | 0.041 | 52.238 | 0.004 |
| | | 29 | -0.054 | -0.018 | 52.766 | 0.004 |
| | | 30 | -0.021 | -0.064 | 52.848 | 0.006 |
| | | 31 | -0.004 | 0.003 | 52.861 | 0.009 |
| | | 32 | 0.043 | -0.004 | 53.193 | 0.011 |
| | | 33 | -0.143 | -0.180 | 57.067 | 0.006 |
| | | 34 | 0.053 | -0.051 | 57.609 | 0.007 |
| | | 35 | 0.009 | -0.028 | 57.626 | 0.009 |
| | | 36 | 0.141 | 0.012 | 61.505 | 0.005 |

ที่มา: จากการคำนวณ

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(12) MA(1) SMA(21)

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob | |
|-----------------|---------------------|----|--------|--------|--------|-------|
| | | 1 | 0.003 | 0.003 | 0.0012 | |
| | | 2 | -0.186 | -0.186 | 4.2393 | |
| | | 3 | 0.033 | 0.036 | 4.3780 | |
| | | 4 | -0.106 | -0.146 | 5.7758 | 0.016 |
| | | 5 | -0.071 | -0.059 | 6.4194 | 0.040 |
| | | 6 | 0.027 | -0.023 | 6.5148 | 0.089 |
| | | 7 | -0.034 | -0.055 | 6.6606 | 0.155 |
| | | 8 | -0.001 | -0.012 | 6.6608 | 0.247 |
| | | 9 | 0.018 | -0.018 | 6.7030 | 0.349 |
| | | 10 | 0.002 | -0.002 | 6.7038 | 0.460 |
| | | 11 | 0.055 | 0.048 | 7.1115 | 0.525 |
| | | 12 | -0.082 | -0.096 | 8.0220 | 0.532 |
| | | 13 | -0.088 | -0.069 | 9.0697 | 0.526 |
| | | 14 | 0.056 | 0.017 | 9.4962 | 0.576 |
| | | 15 | 0.042 | 0.027 | 9.7456 | 0.638 |
| | | 16 | -0.025 | -0.023 | 9.8352 | 0.707 |
| | | 17 | 0.120 | 0.110 | 11.884 | 0.616 |
| | | 18 | 0.020 | 0.013 | 11.941 | 0.683 |
| | | 19 | -0.004 | 0.058 | 11.943 | 0.748 |
| | | 20 | 0.059 | 0.059 | 12.450 | 0.772 |
| | | 21 | -0.130 | -0.102 | 14.918 | 0.668 |
| | | 22 | -0.013 | 0.038 | 14.945 | 0.726 |
| | | 23 | -0.003 | -0.043 | 14.946 | 0.779 |
| | | 24 | -0.175 | -0.158 | 19.571 | 0.549 |
| | | 25 | 0.094 | 0.067 | 20.929 | 0.525 |
| | | 26 | -0.038 | -0.144 | 21.152 | 0.572 |
| | | 27 | -0.062 | -0.009 | 21.748 | 0.594 |
| | | 28 | 0.120 | 0.035 | 24.039 | 0.517 |
| | | 29 | -0.018 | -0.046 | 24.089 | 0.571 |
| | | 30 | -0.047 | 0.004 | 24.440 | 0.606 |
| | | 31 | -0.113 | -0.192 | 26.522 | 0.544 |
| | | 32 | -0.045 | -0.035 | 26.854 | 0.580 |
| | | 33 | -0.007 | -0.087 | 26.862 | 0.630 |
| | | 34 | 0.118 | 0.061 | 29.231 | 0.557 |
| | | 35 | 0.036 | 0.001 | 29.458 | 0.596 |
| | | 36 | -0.049 | -0.084 | 29.866 | 0.624 |

ผลคอเรลโทแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(12) MA(1) SMA(21) (ต่อ)

| | | | | | | | | |
|--|--|--|--|----|--------|--------|--------|-------|
| | | | | 37 | -0.018 | -0.040 | 29.921 | 0.668 |
| | | | | 38 | -0.012 | -0.007 | 29.948 | 0.711 |
| | | | | 39 | -0.018 | -0.031 | 30.007 | 0.749 |
| | | | | 40 | 0.053 | 0.059 | 30.513 | 0.766 |
| | | | | 41 | -0.142 | -0.127 | 34.229 | 0.644 |
| | | | | 42 | -0.046 | -0.043 | 34.618 | 0.670 |
| | | | | 43 | 0.130 | 0.068 | 37.810 | 0.569 |
| | | | | 44 | -0.026 | -0.048 | 37.937 | 0.608 |
| | | | | 45 | 0.050 | 0.019 | 38.427 | 0.629 |
| | | | | 46 | 0.023 | -0.032 | 38.534 | 0.665 |
| | | | | 47 | -0.037 | -0.018 | 38.806 | 0.693 |
| | | | | 48 | -0.062 | -0.078 | 39.578 | 0.700 |
| | | | | 49 | -0.004 | 0.017 | 39.581 | 0.737 |
| | | | | 50 | -0.031 | -0.106 | 39.786 | 0.763 |
| | | | | 51 | -0.047 | -0.056 | 40.260 | 0.779 |
| | | | | 52 | 0.003 | -0.050 | 40.261 | 0.809 |
| | | | | 53 | 0.098 | 0.024 | 42.347 | 0.771 |
| | | | | 54 | 0.074 | 0.034 | 43.565 | 0.761 |
| | | | | 55 | 0.078 | 0.069 | 44.942 | 0.745 |
| | | | | 56 | 0.006 | 0.050 | 44.950 | 0.776 |
| | | | | 57 | -0.012 | -0.026 | 44.981 | 0.804 |
| | | | | 58 | -0.042 | 0.017 | 45.393 | 0.819 |
| | | | | 59 | -0.031 | 0.014 | 45.628 | 0.837 |
| | | | | 60 | 0.079 | 0.030 | 47.146 | 0.821 |
| | | | | 61 | -0.079 | -0.060 | 48.697 | 0.803 |
| | | | | 62 | 0.048 | 0.015 | 49.287 | 0.812 |
| | | | | 63 | 0.139 | 0.071 | 54.222 | 0.686 |
| | | | | 64 | 0.030 | 0.121 | 54.451 | 0.710 |
| | | | | 65 | -0.041 | -0.015 | 54.902 | 0.727 |
| | | | | 66 | -0.018 | 0.060 | 54.992 | 0.754 |
| | | | | 67 | -0.038 | 0.032 | 55.389 | 0.770 |
| | | | | 68 | 0.014 | -0.014 | 55.444 | 0.795 |
| | | | | 69 | -0.054 | -0.039 | 56.281 | 0.797 |
| | | | | 70 | -0.018 | -0.041 | 56.380 | 0.819 |
| | | | | 71 | 0.140 | 0.124 | 62.254 | 0.674 |
| | | | | 72 | -0.039 | -0.136 | 62.715 | 0.690 |
| | | | | 73 | -0.027 | -0.008 | 62.944 | 0.713 |
| | | | | 74 | -0.021 | -0.120 | 63.087 | 0.737 |
| | | | | 75 | -0.118 | -0.125 | 67.615 | 0.624 |

ที่มา: จากการคำนวณ

ผลคูณเรขาคณิต ของแบบจำลอง (lnJEM_t,1,12) C AR(1) SAR(21) MA(1) SMA(12)

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob |
|-----------------|---------------------|-----------|--------|--------|-------|
| | | 1 -0.077 | -0.077 | 0.6651 | |
| | | 2 -0.084 | -0.090 | 1.4610 | |
| | | 3 -0.001 | -0.016 | 1.4613 | |
| | | 4 0.004 | -0.005 | 1.4635 | |
| | | 5 0.027 | 0.026 | 1.5498 | 0.213 |
| | | 6 0.142 | 0.148 | 3.9044 | 0.142 |
| | | 7 0.054 | 0.087 | 4.2455 | 0.236 |
| | | 8 -0.034 | 0.006 | 4.3810 | 0.357 |
| | | 9 0.095 | 0.110 | 5.4643 | 0.362 |
| | | 10 0.005 | 0.021 | 5.4676 | 0.485 |
| | | 11 -0.032 | -0.024 | 5.5975 | 0.587 |
| | | 12 -0.058 | -0.090 | 6.0104 | 0.646 |
| | | 13 -0.115 | -0.169 | 7.6781 | 0.567 |
| | | 14 0.039 | -0.020 | 7.8690 | 0.642 |
| | | 15 0.134 | 0.086 | 10.167 | 0.515 |
| | | 16 -0.071 | -0.065 | 10.826 | 0.544 |
| | | 17 -0.057 | -0.031 | 11.249 | 0.590 |
| | | 18 0.026 | 0.045 | 11.339 | 0.659 |
| | | 19 -0.106 | -0.065 | 12.863 | 0.613 |
| | | 20 -0.074 | -0.081 | 13.608 | 0.628 |
| | | 21 0.020 | -0.032 | 13.666 | 0.691 |
| | | 22 0.014 | 0.029 | 13.694 | 0.749 |
| | | 23 -0.104 | -0.091 | 15.207 | 0.709 |
| | | 24 0.020 | -0.030 | 15.262 | 0.761 |
| | | 25 0.027 | 0.039 | 15.366 | 0.804 |
| | | 26 -0.012 | 0.044 | 15.387 | 0.845 |
| | | 27 -0.151 | -0.130 | 18.742 | 0.716 |
| | | 28 0.098 | 0.120 | 20.176 | 0.687 |
| | | 29 -0.063 | -0.052 | 20.772 | 0.705 |
| | | 30 0.001 | -0.010 | 20.772 | 0.754 |
| | | 31 -0.047 | -0.076 | 21.112 | 0.781 |
| | | 32 -0.011 | -0.041 | 21.132 | 0.820 |
| | | 33 -0.021 | -0.035 | 21.200 | 0.852 |
| | | 34 0.046 | 0.056 | 21.539 | 0.870 |
| | | 35 0.040 | 0.048 | 21.805 | 0.889 |
| | | 36 -0.049 | -0.026 | 22.205 | 0.902 |
| | | 37 -0.027 | -0.020 | 22.323 | 0.920 |

ผลคอเรลโทแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(1) SAR(21) MA(1) SMA(12)

(ต่อ)

| | | | | | | | |
|--|--|--|----|--------|--------|--------|-------|
| | | | 38 | 0.010 | 0.054 | 22.339 | 0.938 |
| | | | 39 | 0.048 | 0.016 | 22.731 | 0.945 |
| | | | 40 | 0.015 | -0.040 | 22.771 | 0.958 |
| | | | 41 | -0.087 | -0.075 | 24.112 | 0.949 |
| | | | 42 | -0.103 | -0.136 | 26.015 | 0.930 |
| | | | 43 | 0.092 | -0.010 | 27.566 | 0.915 |
| | | | 44 | -0.070 | -0.117 | 28.475 | 0.913 |
| | | | 45 | 0.031 | 0.043 | 28.659 | 0.927 |
| | | | 46 | 0.044 | 0.036 | 29.029 | 0.936 |
| | | | 47 | -0.036 | 0.036 | 29.280 | 0.945 |
| | | | 48 | -0.108 | -0.075 | 31.584 | 0.919 |
| | | | 49 | 0.014 | -0.018 | 31.624 | 0.934 |
| | | | 50 | 0.059 | 0.020 | 32.331 | 0.936 |
| | | | 51 | -0.068 | -0.018 | 33.301 | 0.934 |
| | | | 52 | -0.009 | -0.073 | 33.320 | 0.947 |
| | | | 53 | 0.073 | 0.068 | 34.482 | 0.943 |
| | | | 54 | 0.011 | 0.001 | 34.487 | 0.954 |
| | | | 55 | 0.022 | 0.067 | 34.598 | 0.962 |
| | | | 56 | 0.034 | 0.042 | 34.869 | 0.967 |
| | | | 57 | -0.056 | 0.015 | 35.586 | 0.968 |
| | | | 58 | -0.021 | -0.026 | 35.689 | 0.974 |
| | | | 59 | 0.016 | -0.013 | 35.749 | 0.979 |
| | | | 60 | 0.061 | -0.033 | 36.659 | 0.979 |
| | | | 61 | 0.103 | 0.049 | 39.357 | 0.964 |
| | | | 62 | -0.024 | -0.025 | 39.507 | 0.970 |
| | | | 63 | -0.057 | -0.054 | 40.368 | 0.970 |
| | | | 64 | 0.081 | 0.065 | 42.147 | 0.961 |
| | | | 65 | 0.034 | 0.038 | 42.468 | 0.966 |
| | | | 66 | -0.085 | -0.014 | 44.498 | 0.954 |
| | | | 67 | -0.052 | -0.130 | 45.278 | 0.955 |
| | | | 68 | 0.055 | -0.019 | 46.159 | 0.955 |
| | | | 69 | -0.012 | -0.039 | 46.201 | 0.963 |
| | | | 70 | -0.048 | -0.098 | 46.920 | 0.964 |
| | | | 71 | 0.125 | 0.020 | 51.885 | 0.913 |
| | | | 72 | -0.156 | -0.082 | 59.820 | 0.750 |
| | | | 73 | -0.021 | -0.006 | 59.970 | 0.773 |
| | | | 74 | -0.026 | -0.025 | 60.195 | 0.792 |
| | | | 75 | -0.021 | -0.045 | 60.352 | 0.812 |

ที่มา: จากการคำนวณ

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(1) AR(2) SAR(12) MA(2)

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob |
|-----------------|---------------------|-----------|--------|--------|-------|
| | | 1 -0.024 | -0.024 | 0.0706 | |
| | | 2 -0.001 | -0.001 | 0.0707 | |
| | | 3 0.008 | 0.008 | 0.0783 | |
| | | 4 0.117 | 0.118 | 1.7718 | |
| | | 5 -0.071 | -0.066 | 2.3972 | 0.122 |
| | | 6 0.031 | 0.029 | 2.5190 | 0.284 |
| | | 7 0.026 | 0.025 | 2.6045 | 0.457 |
| | | 8 -0.012 | -0.024 | 2.6229 | 0.623 |
| | | 9 -0.045 | -0.031 | 2.8856 | 0.718 |
| | | 10 0.013 | -0.001 | 2.9070 | 0.820 |
| | | 11 -0.024 | -0.026 | 2.9846 | 0.886 |
| | | 12 -0.160 | -0.158 | 6.3976 | 0.603 |
| | | 13 -0.093 | -0.099 | 7.5525 | 0.580 |
| | | 14 0.022 | 0.011 | 7.6156 | 0.666 |
| | | 15 0.051 | 0.066 | 7.9656 | 0.716 |
| | | 16 -0.100 | -0.065 | 9.3357 | 0.674 |
| | | 17 0.016 | 0.013 | 9.3704 | 0.744 |
| | | 18 0.064 | 0.064 | 9.9475 | 0.766 |
| | | 19 -0.092 | -0.091 | 11.154 | 0.742 |
| | | 20 -0.077 | -0.066 | 12.013 | 0.743 |
| | | 21 0.189 | 0.170 | 17.198 | 0.441 |
| | | 22 0.022 | 0.023 | 17.269 | 0.505 |
| | | 23 -0.107 | -0.102 | 18.959 | 0.459 |
| | | 24 -0.252 | -0.322 | 28.450 | 0.099 |
| | | 25 0.112 | 0.034 | 30.344 | 0.085 |
| | | 26 -0.102 | -0.061 | 31.946 | 0.078 |
| | | 27 -0.126 | -0.135 | 34.405 | 0.060 |
| | | 28 0.027 | 0.044 | 34.523 | 0.076 |
| | | 29 -0.001 | -0.026 | 34.523 | 0.097 |
| | | 30 -0.100 | -0.054 | 36.117 | 0.090 |
| | | 31 -0.006 | -0.038 | 36.123 | 0.113 |
| | | 32 0.006 | -0.046 | 36.128 | 0.139 |
| | | 33 -0.087 | -0.025 | 37.369 | 0.137 |
| | | 34 0.040 | 0.114 | 37.632 | 0.159 |
| | | 35 0.079 | 0.010 | 38.686 | 0.161 |
| | | 36 0.020 | -0.141 | 38.755 | 0.191 |

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM_{t-1,12}) C AR(1) AR(2) SAR(12) MA(2) (ต่อ)

| | | | | | | | |
|--|--|--|----|--------|--------|--------|-------|
| | | | 37 | -0.042 | -0.058 | 39.064 | 0.216 |
| | | | 38 | 0.043 | 0.013 | 39.387 | 0.241 |
| | | | 39 | 0.073 | 0.008 | 40.328 | 0.246 |
| | | | 40 | 0.004 | -0.042 | 40.331 | 0.285 |
| | | | 41 | -0.084 | -0.055 | 41.633 | 0.276 |
| | | | 42 | 0.001 | -0.062 | 41.633 | 0.316 |
| | | | 43 | 0.184 | 0.072 | 47.982 | 0.153 |
| | | | 44 | -0.069 | -0.064 | 48.893 | 0.158 |
| | | | 45 | -0.051 | 0.043 | 49.398 | 0.173 |
| | | | 46 | 0.030 | -0.001 | 49.573 | 0.197 |
| | | | 47 | -0.050 | -0.106 | 50.070 | 0.213 |
| | | | 48 | -0.079 | -0.129 | 51.339 | 0.208 |
| | | | 49 | -0.003 | -0.081 | 51.340 | 0.239 |
| | | | 50 | 0.058 | 0.002 | 52.034 | 0.251 |
| | | | 51 | -0.062 | -0.060 | 52.850 | 0.258 |
| | | | 52 | 0.014 | 0.002 | 52.890 | 0.291 |
| | | | 53 | 0.098 | 0.027 | 54.975 | 0.259 |
| | | | 54 | -0.012 | -0.054 | 55.004 | 0.291 |
| | | | 55 | 0.027 | 0.046 | 55.172 | 0.320 |
| | | | 56 | 0.076 | 0.015 | 56.480 | 0.311 |
| | | | 57 | 0.046 | 0.003 | 56.962 | 0.330 |
| | | | 58 | -0.053 | 0.006 | 57.621 | 0.343 |
| | | | 59 | -0.006 | -0.073 | 57.629 | 0.378 |
| | | | 60 | 0.075 | -0.084 | 59.009 | 0.366 |
| | | | 61 | 0.072 | 0.040 | 60.292 | 0.358 |
| | | | 62 | -0.029 | 0.067 | 60.509 | 0.385 |
| | | | 63 | 0.004 | -0.009 | 60.514 | 0.421 |
| | | | 64 | 0.116 | 0.050 | 64.060 | 0.336 |
| | | | 65 | 0.002 | 0.009 | 64.061 | 0.370 |
| | | | 66 | -0.092 | -0.103 | 66.348 | 0.330 |
| | | | 67 | -0.080 | -0.057 | 68.133 | 0.307 |
| | | | 68 | 0.062 | 0.036 | 69.224 | 0.306 |
| | | | 69 | -0.068 | 0.033 | 70.573 | 0.297 |
| | | | 70 | -0.032 | -0.046 | 70.886 | 0.318 |
| | | | 71 | 0.101 | -0.009 | 73.969 | 0.261 |
| | | | 72 | -0.086 | -0.141 | 76.255 | 0.230 |
| | | | 73 | -0.036 | -0.041 | 76.669 | 0.246 |
| | | | 74 | -0.005 | -0.031 | 76.676 | 0.273 |
| | | | 75 | -0.011 | -0.037 | 76.715 | 0.301 |

ที่มา: จากการคำนวณ

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(1) AR(12) AR(24) MA(2) MA(13)

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob | |
|-----------------|---------------------|----|--------|--------|--------|-------|
| | | 1 | -0.035 | -0.035 | 0.1320 | |
| | | 2 | -0.093 | -0.094 | 1.0935 | |
| | | 3 | -0.160 | -0.169 | 3.9698 | |
| | | 4 | -0.023 | -0.049 | 4.0308 | |
| | | 5 | -0.112 | -0.154 | 5.4595 | |
| | | 6 | 0.067 | 0.017 | 5.9849 | 0.014 |
| | | 7 | 0.053 | 0.017 | 6.3142 | 0.043 |
| | | 8 | 0.067 | 0.038 | 6.8379 | 0.077 |
| | | 9 | -0.077 | -0.060 | 7.5507 | 0.109 |
| | | 10 | 0.000 | 0.004 | 7.5507 | 0.183 |
| | | 11 | -0.138 | -0.130 | 9.8553 | 0.131 |
| | | 12 | -0.015 | -0.046 | 9.8835 | 0.195 |
| | | 13 | 0.084 | 0.058 | 10.757 | 0.216 |
| | | 14 | 0.137 | 0.081 | 13.103 | 0.158 |
| | | 15 | 0.076 | 0.101 | 13.836 | 0.181 |
| | | 16 | -0.067 | -0.041 | 14.416 | 0.211 |
| | | 17 | -0.071 | -0.011 | 15.072 | 0.238 |
| | | 18 | -0.004 | 0.036 | 15.074 | 0.303 |
| | | 19 | -0.139 | -0.137 | 17.622 | 0.225 |
| | | 20 | -0.033 | -0.079 | 17.765 | 0.275 |
| | | 21 | 0.200 | 0.149 | 23.167 | 0.109 |
| | | 22 | 0.068 | 0.018 | 23.801 | 0.125 |
| | | 23 | -0.076 | -0.054 | 24.610 | 0.136 |
| | | 24 | -0.110 | -0.067 | 26.312 | 0.122 |
| | | 25 | 0.144 | 0.184 | 29.248 | 0.083 |
| | | 26 | -0.038 | 0.008 | 29.459 | 0.103 |
| | | 27 | -0.059 | -0.098 | 29.970 | 0.119 |
| | | 28 | 0.077 | 0.046 | 30.843 | 0.127 |
| | | 29 | -0.008 | -0.041 | 30.851 | 0.158 |
| | | 30 | -0.048 | -0.032 | 31.201 | 0.182 |
| | | 31 | 0.001 | -0.013 | 31.202 | 0.221 |
| | | 32 | -0.061 | -0.036 | 31.787 | 0.240 |
| | | 33 | 0.025 | 0.067 | 31.886 | 0.279 |
| | | 34 | 0.054 | 0.064 | 32.351 | 0.305 |
| | | 35 | 0.061 | -0.025 | 32.959 | 0.324 |
| | | 36 | -0.147 | -0.175 | 36.513 | 0.228 |

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM,_{1,12}) C AR(1) AR(12) AR(24) MA(2) MA(13) (ต่อ)

| | | | | | | | |
|--|--|--|----|--------|--------|--------|-------|
| | | | 37 | -0.019 | 0.031 | 36.574 | 0.265 |
| | | | 38 | -0.004 | -0.023 | 36.576 | 0.306 |
| | | | 39 | 0.116 | 0.051 | 38.865 | 0.260 |
| | | | 40 | 0.010 | 0.028 | 38.884 | 0.299 |
| | | | 41 | -0.099 | -0.102 | 40.603 | 0.275 |
| | | | 42 | -0.072 | -0.068 | 41.523 | 0.280 |
| | | | 43 | 0.165 | 0.124 | 46.477 | 0.163 |
| | | | 44 | -0.085 | -0.024 | 47.813 | 0.157 |
| | | | 45 | -0.013 | 0.021 | 47.845 | 0.184 |
| | | | 46 | 0.065 | 0.019 | 48.659 | 0.192 |
| | | | 47 | 0.022 | -0.056 | 48.749 | 0.220 |
| | | | 48 | -0.067 | -0.023 | 49.629 | 0.226 |
| | | | 49 | -0.091 | -0.121 | 51.295 | 0.209 |
| | | | 50 | 0.072 | 0.100 | 52.368 | 0.210 |
| | | | 51 | -0.104 | -0.109 | 54.614 | 0.180 |
| | | | 52 | -0.046 | -0.094 | 55.066 | 0.196 |
| | | | 53 | 0.038 | -0.043 | 55.370 | 0.216 |
| | | | 54 | -0.014 | -0.051 | 55.414 | 0.246 |
| | | | 55 | 0.057 | 0.058 | 56.134 | 0.256 |
| | | | 56 | 0.061 | 0.018 | 56.975 | 0.263 |
| | | | 57 | -0.037 | 0.024 | 57.290 | 0.285 |
| | | | 58 | -0.056 | -0.051 | 58.031 | 0.295 |
| | | | 59 | -0.035 | -0.051 | 58.331 | 0.319 |
| | | | 60 | 0.021 | -0.112 | 58.445 | 0.350 |
| | | | 61 | 0.049 | 0.065 | 59.056 | 0.365 |
| | | | 62 | -0.072 | -0.022 | 60.407 | 0.354 |
| | | | 63 | 0.019 | 0.033 | 60.504 | 0.386 |
| | | | 64 | 0.093 | 0.079 | 62.831 | 0.342 |
| | | | 65 | 0.034 | 0.017 | 63.154 | 0.366 |
| | | | 66 | -0.097 | -0.001 | 65.847 | 0.313 |
| | | | 67 | -0.085 | -0.085 | 67.951 | 0.281 |
| | | | 68 | 0.079 | -0.039 | 69.839 | 0.259 |
| | | | 69 | -0.023 | -0.002 | 70.006 | 0.283 |
| | | | 70 | -0.013 | 0.004 | 70.064 | 0.312 |
| | | | 71 | 0.098 | -0.025 | 73.171 | 0.254 |
| | | | 72 | -0.058 | -0.043 | 74.283 | 0.253 |
| | | | 73 | 0.010 | 0.080 | 74.321 | 0.280 |
| | | | 74 | -0.048 | 0.005 | 75.129 | 0.287 |
| | | | 75 | -0.029 | 0.000 | 75.432 | 0.307 |

ที่มา: จากการคำนวณ

ผลคอเรลโลแกรม ของแบบจำลอง (InJEM_t,1,12) C AR(12) MA(24)

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob |
|-----------------|---------------------|-----------|--------|--------|-------|
| | | 1 -0.234 | -0.234 | 6.6561 | |
| | | 2 -0.229 | -0.300 | 13.099 | |
| | | 3 -0.039 | -0.208 | 13.289 | 0.000 |
| | | 4 0.088 | -0.070 | 14.266 | 0.001 |
| | | 5 -0.081 | -0.161 | 15.097 | 0.002 |
| | | 6 0.008 | -0.082 | 15.104 | 0.004 |
| | | 7 0.039 | -0.044 | 15.303 | 0.009 |
| | | 8 -0.073 | -0.133 | 15.988 | 0.014 |
| | | 9 0.036 | -0.035 | 16.153 | 0.024 |
| | | 10 0.091 | 0.046 | 17.253 | 0.028 |
| | | 11 -0.025 | 0.014 | 17.336 | 0.044 |
| | | 12 -0.136 | -0.102 | 19.839 | 0.031 |
| | | 13 -0.089 | -0.216 | 20.917 | 0.034 |
| | | 14 0.111 | -0.103 | 22.613 | 0.031 |
| | | 15 0.157 | 0.077 | 26.022 | 0.017 |
| | | 16 -0.153 | -0.118 | 29.296 | 0.010 |
| | | 17 0.007 | -0.027 | 29.302 | 0.015 |
| | | 18 0.059 | -0.004 | 29.800 | 0.019 |
| | | 19 -0.044 | -0.081 | 30.077 | 0.026 |
| | | 20 -0.142 | -0.215 | 32.992 | 0.017 |
| | | 21 0.262 | 0.125 | 43.047 | 0.001 |
| | | 22 -0.010 | 0.071 | 43.061 | 0.002 |
| | | 23 -0.153 | -0.039 | 46.561 | 0.001 |
| | | 24 0.059 | 0.003 | 47.087 | 0.001 |
| | | 25 0.158 | 0.109 | 50.894 | 0.001 |
| | | 26 -0.094 | 0.066 | 52.273 | 0.001 |
| | | 27 -0.179 | -0.103 | 57.309 | 0.000 |
| | | 28 0.154 | 0.089 | 61.069 | 0.000 |
| | | 29 -0.017 | 0.004 | 61.115 | 0.000 |
| | | 30 -0.042 | -0.037 | 61.395 | 0.000 |
| | | 31 -0.019 | -0.088 | 61.454 | 0.000 |
| | | 32 0.034 | -0.082 | 61.643 | 0.001 |
| | | 33 -0.050 | -0.062 | 62.064 | 0.001 |
| | | 34 0.037 | 0.040 | 62.293 | 0.001 |
| | | 35 0.065 | 0.049 | 63.022 | 0.001 |
| | | 36 -0.025 | -0.048 | 63.134 | 0.002 |

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(12) MA(24) (ต่อ)

| | | | | | | | |
|--|--|--|----|--------|--------|--------|-------|
| | | | 37 | -0.094 | -0.021 | 64.689 | 0.002 |
| | | | 38 | 0.019 | -0.018 | 64.754 | 0.002 |
| | | | 39 | 0.107 | 0.000 | 66.798 | 0.002 |
| | | | 40 | 0.032 | 0.060 | 66.981 | 0.003 |
| | | | 41 | -0.129 | 0.052 | 70.049 | 0.002 |
| | | | 42 | -0.012 | -0.068 | 70.078 | 0.002 |
| | | | 43 | 0.156 | 0.021 | 74.689 | 0.001 |
| | | | 44 | -0.095 | -0.025 | 76.430 | 0.001 |
| | | | 45 | 0.009 | 0.056 | 76.445 | 0.001 |
| | | | 46 | 0.063 | 0.063 | 77.229 | 0.001 |
| | | | 47 | -0.004 | 0.078 | 77.232 | 0.002 |
| | | | 48 | -0.152 | -0.003 | 81.890 | 0.001 |
| | | | 49 | 0.068 | -0.097 | 82.839 | 0.001 |
| | | | 50 | 0.081 | 0.010 | 84.216 | 0.001 |
| | | | 51 | -0.140 | -0.055 | 88.394 | 0.000 |
| | | | 52 | -0.011 | -0.004 | 88.422 | 0.001 |
| | | | 53 | 0.095 | 0.008 | 90.396 | 0.001 |
| | | | 54 | -0.035 | -0.072 | 90.661 | 0.001 |
| | | | 55 | 0.018 | 0.008 | 90.733 | 0.001 |
| | | | 56 | 0.057 | 0.047 | 91.475 | 0.001 |
| | | | 57 | -0.035 | 0.032 | 91.757 | 0.001 |
| | | | 58 | -0.060 | 0.007 | 92.594 | 0.002 |
| | | | 59 | -0.003 | -0.009 | 92.596 | 0.002 |
| | | | 60 | 0.034 | -0.097 | 92.885 | 0.002 |
| | | | 61 | 0.063 | 0.002 | 93.868 | 0.003 |
| | | | 62 | -0.063 | -0.043 | 94.876 | 0.003 |
| | | | 63 | -0.054 | -0.043 | 95.618 | 0.003 |
| | | | 64 | 0.151 | 0.061 | 101.60 | 0.001 |
| | | | 65 | -0.006 | 0.056 | 101.61 | 0.001 |
| | | | 66 | -0.083 | 0.044 | 103.49 | 0.001 |
| | | | 67 | -0.056 | -0.100 | 104.37 | 0.001 |
| | | | 68 | 0.079 | -0.031 | 106.12 | 0.001 |
| | | | 69 | -0.032 | 0.043 | 106.42 | 0.002 |
| | | | 70 | 0.019 | 0.054 | 106.52 | 0.002 |
| | | | 71 | 0.100 | 0.078 | 109.52 | 0.001 |
| | | | 72 | -0.167 | -0.055 | 118.04 | 0.000 |
| | | | 73 | 0.034 | 0.050 | 118.41 | 0.000 |
| | | | 74 | 0.021 | -0.049 | 118.55 | 0.000 |
| | | | 75 | -0.040 | -0.098 | 119.07 | 0.001 |

ที่มา: จากการคำนวณ

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(1) AR(2) SAR(12) MA(21)

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob | |
|-----------------|---------------------|----|--------|--------|--------|-------|
| | | 1 | -0.033 | -0.033 | 0.1324 | |
| | | 2 | -0.096 | -0.097 | 1.2428 | |
| | | 3 | -0.081 | -0.089 | 2.0518 | |
| | | 4 | -0.097 | -0.115 | 3.2067 | |
| | | 5 | -0.060 | -0.090 | 3.6577 | 0.056 |
| | | 6 | 0.001 | -0.039 | 3.6578 | 0.161 |
| | | 7 | 0.010 | -0.029 | 3.6715 | 0.299 |
| | | 8 | 0.063 | 0.033 | 4.1786 | 0.382 |
| | | 9 | 0.036 | 0.022 | 4.3486 | 0.500 |
| | | 10 | 0.055 | 0.063 | 4.7411 | 0.577 |
| | | 11 | 0.031 | 0.055 | 4.8656 | 0.676 |
| | | 12 | -0.162 | -0.132 | 8.3605 | 0.399 |
| | | 13 | -0.125 | -0.117 | 10.454 | 0.315 |
| | | 14 | 0.030 | 0.005 | 10.578 | 0.391 |
| | | 15 | 0.094 | 0.064 | 11.772 | 0.381 |
| | | 16 | -0.031 | -0.068 | 11.906 | 0.453 |
| | | 17 | 0.119 | 0.094 | 13.882 | 0.382 |
| | | 18 | 0.001 | -0.000 | 13.882 | 0.459 |
| | | 19 | -0.035 | -0.014 | 14.053 | 0.521 |
| | | 20 | 0.022 | 0.050 | 14.120 | 0.590 |
| | | 21 | -0.125 | -0.104 | 16.397 | 0.496 |
| | | 22 | -0.076 | -0.064 | 17.237 | 0.507 |
| | | 23 | 0.026 | 0.012 | 17.336 | 0.567 |
| | | 24 | -0.157 | -0.223 | 21.031 | 0.395 |
| | | 25 | 0.104 | 0.004 | 22.678 | 0.361 |
| | | 26 | -0.007 | -0.086 | 22.685 | 0.420 |
| | | 27 | -0.014 | -0.037 | 22.717 | 0.477 |
| | | 28 | 0.074 | 0.043 | 23.576 | 0.486 |
| | | 29 | -0.080 | -0.085 | 24.577 | 0.486 |
| | | 30 | -0.023 | 0.000 | 24.659 | 0.538 |
| | | 31 | -0.143 | -0.181 | 27.982 | 0.412 |
| | | 32 | -0.029 | -0.066 | 28.122 | 0.458 |
| | | 33 | 0.016 | -0.062 | 28.166 | 0.509 |
| | | 34 | 0.121 | 0.022 | 30.608 | 0.435 |
| | | 35 | 0.027 | -0.011 | 30.736 | 0.480 |
| | | 36 | -0.019 | -0.076 | 30.797 | 0.527 |

ผลคอเรลโลแกรม ของแบบจำลอง (lnJEM_t,1,12) C AR(1) AR(2) SAR(12) MA(21) (ต่อ)

| | | | | | | | |
|--|--|--|----|--------|--------|--------|-------|
| | | | 37 | 0.010 | -0.014 | 30.815 | 0.576 |
| | | | 38 | 0.033 | 0.060 | 31.003 | 0.615 |
| | | | 39 | -0.039 | 0.010 | 31.279 | 0.648 |
| | | | 40 | 0.029 | 0.034 | 31.427 | 0.686 |
| | | | 41 | -0.094 | -0.049 | 33.062 | 0.654 |
| | | | 42 | -0.036 | -0.092 | 33.308 | 0.686 |
| | | | 43 | 0.125 | 0.038 | 36.243 | 0.596 |
| | | | 44 | 0.008 | -0.039 | 36.256 | 0.640 |
| | | | 45 | 0.109 | 0.047 | 38.565 | 0.579 |
| | | | 46 | 0.009 | 0.075 | 38.579 | 0.622 |
| | | | 47 | -0.052 | -0.005 | 39.115 | 0.640 |
| | | | 48 | -0.074 | -0.110 | 40.219 | 0.634 |
| | | | 49 | 0.035 | 0.068 | 40.469 | 0.664 |
| | | | 50 | -0.008 | -0.039 | 40.483 | 0.702 |
| | | | 51 | -0.041 | -0.083 | 40.829 | 0.725 |
| | | | 52 | 0.001 | -0.036 | 40.829 | 0.759 |
| | | | 53 | 0.117 | -0.003 | 43.824 | 0.682 |
| | | | 54 | 0.036 | -0.009 | 44.117 | 0.707 |
| | | | 55 | 0.063 | 0.024 | 45.022 | 0.709 |
| | | | 56 | -0.016 | 0.053 | 45.082 | 0.740 |
| | | | 57 | -0.061 | -0.039 | 45.934 | 0.743 |
| | | | 58 | -0.062 | 0.005 | 46.833 | 0.745 |
| | | | 59 | -0.022 | 0.014 | 46.952 | 0.772 |
| | | | 60 | 0.097 | -0.011 | 49.262 | 0.726 |
| | | | 61 | -0.075 | -0.094 | 50.656 | 0.710 |
| | | | 62 | 0.062 | 0.052 | 51.625 | 0.710 |
| | | | 63 | 0.144 | 0.098 | 56.970 | 0.551 |
| | | | 64 | 0.037 | 0.103 | 57.336 | 0.574 |
| | | | 65 | -0.092 | 0.005 | 59.585 | 0.527 |
| | | | 66 | -0.041 | 0.024 | 60.041 | 0.547 |
| | | | 67 | -0.060 | 0.050 | 61.059 | 0.546 |
| | | | 68 | 0.015 | 0.026 | 61.124 | 0.579 |
| | | | 69 | -0.028 | 0.006 | 61.359 | 0.605 |
| | | | 70 | -0.024 | -0.091 | 61.532 | 0.633 |
| | | | 71 | 0.141 | 0.147 | 67.565 | 0.458 |
| | | | 72 | -0.051 | -0.114 | 68.379 | 0.464 |
| | | | 73 | -0.042 | -0.063 | 68.938 | 0.479 |
| | | | 74 | -0.076 | -0.073 | 70.789 | 0.451 |
| | | | 75 | -0.087 | -0.057 | 73.314 | 0.402 |

ที่มา: จากการคำนวณ



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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ตารางแสดงค่า Critical values สำหรับการทดสอบ T-test สำหรับ π_1

| Model | Years | S = 2 | | | | | S = 4 | | | | | S = 6 | | | | | S = 12 | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|--|
| | | 0.01 | 0.025 | 0.05 | 0.10 | 0.10 | 0.01 | 0.025 | 0.05 | 0.10 | 0.10 | 0.01 | 0.025 | 0.05 | 0.10 | 0.10 | 0.01 | 0.025 | 0.05 | 0.10 | |
| nc,nd,nt | 10 | -2.66 | -2.38 | -1.97 | -1.59 | -1.59 | -2.52 | -2.15 | -1.86 | -1.55 | -1.55 | -2.51 | -2.15 | -1.86 | -1.53 | -1.53 | -2.44 | -2.14 | -1.85 | -1.53 | |
| | 20 | -2.60 | -2.24 | -1.93 | -1.59 | -1.56 | -2.51 | -2.19 | -1.90 | -1.56 | -2.53 | -2.20 | -1.91 | -1.58 | -1.59 | -1.59 | -2.54 | -2.21 | -1.91 | -1.59 | |
| | 30 | -2.62 | -2.24 | -1.93 | -1.60 | -1.60 | -2.58 | -2.22 | -1.93 | -1.60 | -2.60 | -2.22 | -1.92 | -1.59 | -1.58 | -1.58 | -2.46 | -2.15 | -1.87 | -1.58 | |
| | 40 | -2.62 | -2.25 | -1.96 | -1.64 | -1.64 | -2.54 | -2.21 | -1.91 | -1.59 | -2.54 | -2.23 | -1.92 | -1.61 | -1.59 | -1.59 | -2.51 | -2.19 | -1.93 | -1.59 | |
| c,nd,nt | 10 | -3.73 | -3.31 | -2.96 | -2.59 | -2.47 | -3.43 | -3.09 | -2.79 | -2.47 | -3.39 | -3.04 | -2.75 | -2.45 | -2.45 | -3.28 | -2.99 | -2.72 | -2.43 | | |
| | 20 | -3.59 | -3.23 | -2.91 | -2.58 | -2.52 | -3.46 | -3.11 | -2.83 | -2.52 | -3.40 | -3.08 | -2.82 | -2.52 | -2.50 | -3.34 | -3.05 | -2.79 | -2.50 | | |
| | 30 | -3.51 | -3.17 | -2.88 | -2.58 | -2.54 | -3.45 | -3.12 | -2.84 | -2.54 | -3.41 | -3.09 | -2.83 | -2.54 | -2.50 | -3.34 | -3.05 | -2.78 | -2.50 | | |
| | 40 | -3.46 | -3.15 | -2.87 | -2.56 | -2.55 | -3.42 | -3.13 | -2.85 | -2.55 | -3.43 | -3.10 | -2.85 | -2.54 | -2.52 | -3.40 | -3.09 | -2.82 | -2.52 | | |
| c,nd,t | 10 | -4.44 | -3.92 | -3.56 | -3.18 | -3.03 | -4.02 | -3.65 | -3.34 | -3.03 | -3.91 | -3.56 | -3.29 | -2.99 | -2.99 | -3.82 | -3.50 | -3.24 | -2.95 | | |
| | 20 | -4.17 | -3.79 | -3.48 | -3.15 | -3.07 | -3.99 | -3.66 | -3.38 | -3.07 | -3.92 | -3.61 | -3.36 | -3.06 | -3.04 | -3.88 | -3.58 | -3.32 | -3.04 | | |
| | 30 | -4.08 | -3.74 | -3.46 | -3.15 | -3.11 | -3.98 | -3.67 | -3.41 | -3.11 | -3.93 | -3.63 | -3.37 | -3.08 | -3.06 | -3.90 | -3.61 | -3.35 | -3.06 | | |
| | 40 | -4.05 | -3.73 | -3.46 | -3.15 | -3.11 | -3.98 | -3.67 | -3.40 | -3.11 | -3.96 | -3.65 | -3.39 | -3.10 | -3.09 | -3.93 | -3.61 | -3.37 | -3.09 | | |
| c,d,nt | 10 | -3.76 | -3.33 | -2.97 | -2.60 | -2.44 | -3.42 | -3.06 | -2.77 | -2.44 | -3.32 | -2.99 | -2.71 | -2.41 | -2.41 | -3.20 | -2.91 | -2.67 | -2.38 | | |
| | 20 | -3.60 | -3.23 | -2.91 | -2.57 | -2.51 | -3.43 | -3.09 | -2.81 | -2.51 | -3.36 | -3.05 | -2.79 | -2.49 | -2.47 | -3.28 | -3.00 | -2.76 | -2.47 | | |
| | 30 | -3.49 | -3.17 | -2.88 | -2.57 | -2.53 | -3.43 | -3.10 | -2.83 | -2.53 | -3.37 | -3.07 | -2.81 | -2.52 | -2.48 | -3.33 | -3.02 | -2.76 | -2.48 | | |
| | 40 | -3.47 | -3.15 | -2.87 | -2.56 | -2.54 | -3.41 | -3.11 | -2.84 | -2.54 | -3.40 | -3.09 | -2.83 | -2.53 | -2.51 | -3.40 | -3.07 | -2.81 | -2.51 | | |
| c,d,t | 10 | -4.48 | -3.99 | -3.61 | -3.23 | -3.02 | -4.02 | -3.64 | -3.34 | -3.02 | -3.88 | -3.53 | -3.25 | -2.95 | -2.91 | -3.73 | -3.44 | -3.19 | -2.91 | | |
| | 20 | -4.21 | -3.80 | -3.50 | -3.16 | -3.06 | -3.97 | -3.66 | -3.37 | -3.06 | -3.90 | -3.59 | -3.34 | -3.05 | -3.01 | -3.83 | -3.54 | -3.29 | -3.01 | | |
| | 30 | -4.08 | -3.74 | -3.47 | -3.15 | -3.09 | -3.96 | -3.65 | -3.40 | -3.09 | -3.91 | -3.60 | -3.36 | -3.06 | -3.05 | -3.89 | -3.57 | -3.32 | -3.05 | | |
| | 40 | -4.07 | -3.73 | -3.46 | -3.14 | -3.10 | -3.96 | -3.65 | -3.39 | -3.10 | -3.96 | -3.65 | -3.38 | -3.09 | -3.08 | -3.91 | -3.60 | -3.35 | -3.08 | | |

ที่มา : Franes (1990)

ตารางแสดงค่า Critical values สำหรับการทดสอบ T-test สำหรับ π_2

| Model | Years | S=2 | | | | | S=4 | | | | | S=6 | | | | | S=12 | | | | |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | | 0.01 | 0.025 | 0.05 | 0.10 | 0.10 | 0.01 | 0.025 | 0.05 | 0.10 | 0.10 | 0.01 | 0.025 | 0.05 | 0.10 | 0.10 | 0.01 | 0.025 | 0.05 | 0.10 | |
| nc, nd, nt | 10 | -2.68 | -2.25 | -1.91 | -1.57 | -1.57 | -2.55 | -2.18 | -1.89 | -1.55 | -1.55 | -2.55 | -2.19 | -1.90 | -1.56 | -1.56 | -2.49 | -2.14 | -1.84 | -1.52 | |
| | 20 | -2.60 | -2.23 | -1.93 | -1.60 | -1.60 | -2.55 | -2.19 | -1.90 | -1.57 | -1.57 | -2.54 | -2.20 | -1.90 | -1.58 | -1.58 | -2.53 | -2.20 | -1.88 | -1.58 | |
| | 30 | -2.59 | -2.23 | -1.95 | -1.63 | -1.63 | -2.54 | -2.23 | -1.92 | -1.59 | -1.59 | -2.59 | -2.22 | -1.90 | -1.58 | -1.58 | -2.53 | -2.16 | -1.89 | -1.58 | |
| | 40 | -2.57 | -2.20 | -1.92 | -1.61 | -1.61 | -2.53 | -2.20 | -1.93 | -1.61 | -1.61 | -2.59 | -2.22 | -1.94 | -1.62 | -1.62 | -2.53 | -2.21 | -1.94 | -1.60 | |
| c, nd, t | 10 | -2.64 | -2.21 | -1.89 | -1.55 | -1.55 | -2.52 | -2.16 | -1.86 | -1.54 | -1.54 | -2.52 | -2.17 | -1.89 | -1.54 | -1.54 | -2.48 | -2.13 | -1.84 | -1.52 | |
| | 20 | -2.60 | -2.22 | -1.92 | -1.59 | -1.59 | -2.53 | -2.19 | -1.89 | -1.57 | -1.57 | -2.53 | -2.19 | -1.90 | -1.58 | -1.58 | -2.52 | -2.19 | -1.88 | -1.58 | |
| | 30 | -2.59 | -2.22 | -1.94 | -1.62 | -1.62 | -2.53 | -2.22 | -1.91 | -1.59 | -1.59 | -2.58 | -2.22 | -1.90 | -1.58 | -1.58 | -2.53 | -2.16 | -1.89 | -1.58 | |
| | 40 | -2.56 | -2.20 | -1.92 | -1.61 | -1.61 | -2.53 | -2.20 | -1.93 | -1.61 | -1.61 | -2.59 | -2.22 | -1.93 | -1.62 | -1.62 | -2.54 | -2.21 | -1.94 | -1.60 | |
| c, nd, t | 10 | -2.61 | -2.19 | -1.87 | -1.53 | -1.53 | -2.49 | -2.13 | -1.85 | -1.53 | -1.53 | -2.50 | -2.16 | -1.88 | -1.53 | -1.53 | -2.47 | -2.12 | -1.83 | -1.51 | |
| | 20 | -2.59 | -2.21 | -1.92 | -1.59 | -1.59 | -2.52 | -2.18 | -1.88 | -1.56 | -1.56 | -2.53 | -2.19 | -1.89 | -1.57 | -1.57 | -2.52 | -2.19 | -1.88 | -1.58 | |
| | 30 | -2.57 | -2.23 | -1.87 | -1.56 | -1.56 | -2.52 | -2.21 | -1.91 | -1.59 | -1.59 | -2.59 | -2.22 | -1.90 | -1.58 | -1.58 | -2.54 | -2.17 | -1.88 | -1.59 | |
| | 40 | -2.57 | -2.20 | -1.92 | -1.61 | -1.61 | -2.53 | -2.19 | -1.93 | -1.61 | -1.61 | -2.58 | -2.22 | -1.94 | -1.62 | -1.62 | -2.54 | -2.21 | -1.94 | -1.59 | |
| c, d, nt | 10 | -3.74 | -3.29 | -2.94 | -2.57 | -2.57 | -3.40 | -3.07 | -2.77 | -2.45 | -2.45 | -3.33 | -3.00 | -2.71 | -2.42 | -2.42 | -3.20 | -2.90 | -2.64 | -2.37 | |
| | 20 | -3.55 | -3.20 | -2.90 | -2.57 | -2.57 | -3.40 | -3.07 | -2.80 | -2.51 | -2.51 | -3.36 | -3.04 | -2.78 | -2.50 | -2.50 | -3.34 | -3.02 | -2.76 | -2.47 | |
| | 30 | -3.48 | -3.15 | -2.87 | -2.56 | -2.56 | -3.41 | -3.10 | -2.82 | -2.53 | -2.53 | -3.40 | -3.07 | -2.81 | -2.52 | -2.52 | -3.37 | -3.05 | -2.79 | -2.50 | |
| | 40 | -3.51 | -3.15 | -2.87 | -2.56 | -2.56 | -3.41 | -3.09 | -2.83 | -2.53 | -2.53 | -3.42 | -3.09 | -2.84 | -2.53 | -2.53 | -3.34 | -3.07 | -2.81 | -2.51 | |
| c, d, t | 10 | -3.75 | -3.30 | -2.95 | -2.59 | -2.59 | -3.40 | -3.06 | -2.77 | -2.45 | -2.45 | -3.32 | -2.99 | -2.70 | -2.42 | -2.42 | -3.21 | -2.90 | -2.65 | -2.36 | |
| | 20 | -3.59 | -3.21 | -2.90 | -2.57 | -2.57 | -3.41 | -3.08 | -2.81 | -2.51 | -2.51 | -3.36 | -3.03 | -2.78 | -2.50 | -2.50 | -3.33 | -3.02 | -2.76 | -2.47 | |
| | 30 | -3.49 | -3.14 | -2.87 | -2.57 | -2.57 | -3.40 | -3.10 | -2.83 | -2.53 | -2.53 | -3.39 | -3.07 | -2.81 | -2.52 | -2.52 | -3.37 | -3.04 | -2.79 | -2.50 | |
| | 40 | -3.50 | -3.16 | -2.87 | -2.57 | -2.57 | -3.41 | -3.10 | -2.82 | -2.53 | -2.53 | -3.42 | -3.09 | -2.84 | -2.53 | -2.53 | -3.34 | -3.07 | -2.81 | -2.51 | |

ที่มา : Franses (1990)

ตารางแสดงค่า Critical values สำหรับการทดสอบ F-test สำหรับ π_3 and π_4 ของข้อมูลแบบปรายเคียม

| Model | Years | S = 4 | | | | | S = 12 | | | | |
|------------|-------|-------|------|-------|------|------|--------|------|-------|------|--|
| | | 0.10 | 0.05 | 0.025 | 0.01 | 0.01 | 0.10 | 0.05 | 0.025 | 0.01 | |
| nc, nd, nt | 10 | 2.44 | 3.21 | 3.99 | 5.09 | 2.33 | 3.06 | 3.76 | 4.75 | | |
| | 20 | 2.41 | 3.15 | 3.90 | 4.91 | 2.37 | 3.05 | 3.76 | 4.64 | | |
| | 30 | 2.38 | 3.06 | 3.75 | 4.69 | 2.38 | 3.05 | 3.74 | 4.53 | | |
| | 40 | 2.39 | 3.11 | 3.86 | 4.85 | 2.36 | 3.07 | 3.74 | 4.74 | | |
| cn, nd, nt | 10 | 2.35 | 3.06 | 3.80 | 4.95 | 2.29 | 3.01 | 3.70 | 4.66 | | |
| | 20 | 2.37 | 3.09 | 3.81 | 4.83 | 2.36 | 3.03 | 3.72 | 4.60 | | |
| | 30 | 2.35 | 3.01 | 3.71 | 4.61 | 2.37 | 3.05 | 3.73 | 4.51 | | |
| | 40 | 2.37 | 3.08 | 3.82 | 4.83 | 2.36 | 3.07 | 3.73 | 4.72 | | |
| c, nd, t | 10 | 2.25 | 2.94 | 3.69 | 4.70 | 2.26 | 2.97 | 3.64 | 4.55 | | |
| | 20 | 2.32 | 3.04 | 3.73 | 4.70 | 2.34 | 3.01 | 3.69 | 4.59 | | |
| | 30 | 2.30 | 2.98 | 3.65 | 4.57 | 2.36 | 3.04 | 3.72 | 4.45 | | |
| | 40 | 2.35 | 3.05 | 3.79 | 4.76 | 2.35 | 3.05 | 3.72 | 4.71 | | |
| c, d, nt | 10 | 5.44 | 6.63 | 7.80 | 9.32 | 4.88 | 5.82 | 6.71 | 7.91 | | |
| | 20 | 5.47 | 6.62 | 7.65 | 8.94 | 5.28 | 6.27 | 7.12 | 8.35 | | |
| | 30 | 5.62 | 6.70 | 7.72 | 8.97 | 5.33 | 6.35 | 7.19 | 8.40 | | |
| | 40 | 5.52 | 6.57 | 7.57 | 8.79 | 5.45 | 6.35 | 7.36 | 8.40 | | |
| c, d, t | 10 | 5.38 | 6.56 | 7.77 | 9.30 | 4.86 | 5.77 | 6.66 | 7.86 | | |
| | 20 | 5.44 | 6.57 | 7.58 | 8.86 | 5.26 | 6.24 | 7.10 | 8.30 | | |
| | 30 | 5.59 | 6.66 | 7.67 | 8.91 | 5.33 | 6.35 | 7.18 | 8.39 | | |
| | 40 | 5.48 | 6.55 | 7.54 | 8.79 | 5.45 | 6.35 | 7.35 | 8.38 | | |

ที่มา : Franses (1990)

ตารางแสดงค่า Critical values สำหรับการทดสอบ F-test สำหรับการจัดอันดับแบบเวียน

| Model | Years | F (n ₁ , n ₂) | | | | | F (n ₁ , n ₁₀) | | | | | F (n ₁ , n ₂₀) | | | | | |
|----------|-------|--------------------------------------|------|-------|------|------|---------------------------------------|-------|------|------|------|---------------------------------------|------|------|------|-------|------|
| | | 0.10 | 0.05 | 0.025 | 0.01 | 0.10 | 0.05 | 0.025 | 0.01 | 0.10 | 0.05 | 0.025 | 0.01 | 0.10 | 0.05 | 0.025 | 0.01 |
| nc,nd,nt | 10 | 2.32 | 3.02 | 3.75 | 4.70 | 2.32 | 3.02 | 3.68 | 4.57 | 2.30 | 3.04 | 3.85 | 4.78 | 2.35 | 3.06 | 3.78 | 4.74 |
| | 20 | 2.34 | 3.01 | 3.70 | 4.64 | 2.35 | 3.05 | 3.77 | 4.69 | 2.38 | 3.06 | 3.78 | 4.65 | 2.36 | 3.09 | 3.81 | 4.75 |
| | 30 | 2.41 | 3.11 | 3.86 | 4.90 | 2.41 | 3.16 | 3.83 | 4.79 | 2.37 | 3.07 | 3.75 | 4.73 | 2.41 | 3.08 | 3.74 | 4.69 |
| | 40 | 2.58 | 3.06 | 3.78 | 4.61 | 2.40 | 3.10 | 3.75 | 4.69 | 2.35 | 3.11 | 3.86 | 4.75 | 2.41 | 3.11 | 3.78 | 4.65 |
| c,nd,nt | 10 | 2.38 | 2.97 | 3.66 | 4.62 | 2.31 | 3.00 | 3.66 | 4.53 | 2.26 | 2.98 | 3.77 | 4.72 | 2.29 | 3.03 | 3.71 | 4.68 |
| | 20 | 2.32 | 2.99 | 3.68 | 4.62 | 2.35 | 3.02 | 3.75 | 4.69 | 2.36 | 3.04 | 3.74 | 4.63 | 2.35 | 3.06 | 3.79 | 4.68 |
| | 30 | 2.40 | 3.08 | 3.86 | 4.90 | 2.40 | 3.14 | 3.83 | 4.77 | 2.35 | 3.05 | 3.72 | 4.69 | 2.40 | 3.07 | 3.73 | 4.67 |
| | 40 | 2.38 | 3.05 | 3.75 | 4.63 | 2.39 | 3.09 | 3.74 | 4.70 | 2.34 | 3.09 | 3.85 | 4.73 | 2.40 | 3.10 | 3.76 | 4.65 |
| c,nd,t | 10 | 2.24 | 2.92 | 3.59 | 4.56 | 2.31 | 3.00 | 3.64 | 4.56 | 2.23 | 2.93 | 3.69 | 4.60 | 2.25 | 2.99 | 3.67 | 4.64 |
| | 20 | 2.50 | 2.96 | 3.64 | 4.57 | 2.32 | 3.02 | 3.76 | 4.69 | 2.34 | 3.02 | 3.72 | 4.59 | 2.33 | 3.03 | 3.76 | 4.68 |
| | 30 | 2.39 | 3.08 | 3.83 | 4.82 | 2.39 | 3.12 | 3.82 | 4.73 | 2.34 | 3.04 | 3.68 | 4.67 | 2.38 | 3.05 | 3.72 | 4.64 |
| | 40 | 2.38 | 3.05 | 3.75 | 4.60 | 2.39 | 3.08 | 3.74 | 4.69 | 2.34 | 3.08 | 3.85 | 4.73 | 2.39 | 3.09 | 3.76 | 4.65 |
| c,d,nt | 10 | 4.90 | 5.80 | 6.75 | 7.92 | 4.85 | 5.78 | 6.75 | 7.81 | 4.94 | 5.86 | 6.76 | 7.98 | 4.94 | 5.86 | 6.81 | 7.97 |
| | 20 | 5.22 | 6.28 | 7.22 | 8.40 | 5.21 | 6.21 | 7.15 | 8.52 | 5.23 | 6.22 | 7.14 | 8.34 | 5.26 | 6.21 | 7.14 | 8.37 |
| | 30 | 5.46 | 6.37 | 7.36 | 8.42 | 5.31 | 6.29 | 7.28 | 8.59 | 5.39 | 6.36 | 7.35 | 8.55 | 5.36 | 6.31 | 7.19 | 8.43 |
| | 40 | 5.46 | 6.48 | 7.46 | 8.58 | 5.32 | 6.33 | 7.13 | 8.39 | 5.46 | 6.41 | 7.31 | 8.56 | 5.36 | 6.47 | 7.45 | 8.76 |
| c,d,t | 10 | 4.86 | 5.77 | 6.69 | 7.88 | 4.86 | 5.77 | 6.70 | 7.86 | 4.90 | 5.84 | 6.68 | 7.87 | 4.90 | 5.82 | 6.74 | 7.92 |
| | 20 | 5.21 | 6.26 | 7.20 | 8.38 | 5.22 | 6.18 | 7.14 | 8.31 | 5.31 | 6.20 | 7.11 | 8.30 | 5.23 | 6.20 | 7.08 | 8.29 |
| | 30 | 5.46 | 6.34 | 7.24 | 8.40 | 5.30 | 6.30 | 7.21 | 8.55 | 5.36 | 6.37 | 7.33 | 8.53 | 5.34 | 6.31 | 7.17 | 8.44 |
| | 40 | 5.46 | 6.48 | 7.44 | 8.55 | 5.33 | 6.30 | 7.15 | 8.39 | 5.47 | 6.40 | 7.29 | 8.50 | 5.36 | 6.46 | 7.45 | 8.75 |

ที่มา : Franses (1990)

ประวัติผู้เขียน

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