

ภาคผนวก ก

ข้อมูลราคาทองคำภายในประเทศ ดัชนีราคาผู้บริโภคเปรียบเทียบระหว่างไทยกับสหรัฐฯ อัตราแลกเปลี่ยนสกุลเงินบาทกับดอลลาร์สหรัฐฯ อัตราดอกเบี้ยเปรียบเทียบระหว่างไทยกับสหรัฐฯ และราคาน้ำมันโลกตลาด NYMEX ที่นำมาศึกษา

| Obs. | Month | Average | CPI | FX | INT | NYMEX |
|------|----------|------------|----------|---------|---------|-----------|
| | | Gold price | Thai/USA | THB/USD | BOT/FED | Oil price |
| 1 | ม.ค.-45 | 5,935.00 | 1.79 | 44.02 | 0.87 | 19.48 |
| 2 | ก.พ.-45 | 6,178.57 | 1.79 | 43.82 | 0.87 | 21.74 |
| 3 | มี.ค.-45 | 6,115.00 | 1.80 | 43.39 | 0.87 | 26.31 |
| 4 | เม.ย.-45 | 6,290.00 | 1.80 | 43.42 | 0.88 | 27.29 |
| 5 | พ.ค.-45 | 6,400.00 | 1.80 | 42.79 | 0.88 | 25.31 |
| 6 | มิ.ย.-45 | 6,444.44 | 1.80 | 42.15 | 0.88 | 26.86 |
| 7 | ก.ค.-45 | 6,171.43 | 1.80 | 41.20 | 0.87 | 27.02 |
| 8 | ส.ค.-45 | 6,230.00 | 1.81 | 42.18 | 0.87 | 28.98 |
| 9 | ก.ย.-45 | 6,522.73 | 1.80 | 42.82 | 0.88 | 30.45 |
| 10 | ต.ค.-45 | 6,952.86 | 1.80 | 43.66 | 0.88 | 27.22 |
| 11 | พ.ย.-45 | 6,604.55 | 1.81 | 43.32 | 0.77 | 26.89 |
| 12 | ธ.ค.-45 | 6,921.88 | 1.80 | 43.28 | 0.71 | 31.20 |
| 13 | ม.ค.-46 | 7,215.63 | 1.79 | 42.77 | 0.71 | 33.51 |
| 14 | ก.พ.-46 | 7,304.76 | 1.81 | 42.88 | 0.72 | 36.60 |
| 15 | มี.ค.-46 | 6,933.33 | 1.82 | 42.75 | 0.71 | 31.04 |
| 16 | เม.ย.-46 | 6,740.00 | 1.81 | 42.88 | 0.72 | 25.80 |
| 17 | พ.ค.-46 | 7,120.59 | 1.80 | 42.15 | 0.72 | 29.55 |
| 18 | มิ.ย.-46 | 7,076.00 | 1.81 | 41.65 | 0.70 | 30.00 |
| 19 | ก.ค.-46 | 6,983.93 | 1.81 | 41.78 | 0.58 | 30.55 |

| Obs. | Month | Average Gold price | CPI Thai/USA | FX THB/USD | INT BOT/FED | NYMEX Oil price |
|-------------|--------------|-------------------------------|-------------------------|-----------------------|------------------------|----------------------------|
| 20 | ธ.ค.-46 | 7,114.58 | 1.81 | 41.67 | 0.59 | 31.53 |
| 21 | ก.ย.-46 | 7,275.00 | 1.82 | 40.50 | 0.81 | 29.18 |
| 22 | ต.ค.-46 | 7,173.91 | 1.81 | 39.73 | 0.81 | 29.11 |
| 23 | พ.ย.-46 | 7,355.00 | 1.81 | 39.90 | 0.80 | 31.61 |
| 24 | ธ.ค.-46 | 7,672.00 | 1.80 | 39.71 | 0.78 | 32.82 |
| 25 | ม.ค.-47 | 7,728.95 | 1.81 | 39.09 | 0.80 | 33.05 |
| 26 | ก.พ.-47 | 7,534.78 | 1.80 | 39.10 | 0.81 | 36.16 |
| 27 | มี.ค.-47 | 7,632.00 | 1.81 | 39.45 | 0.80 | 35.76 |
| 28 | เม.ย.-47 | 7,630.95 | 1.81 | 39.44 | 0.80 | 36.96 |
| 29 | พ.ค.-47 | 7,458.33 | 1.81 | 40.57 | 0.80 | 39.17 |
| 30 | มิ.ย.-47 | 7,575.93 | 1.81 | 40.80 | 0.82 | 36.99 |
| 31 | ก.ค.-47 | 7,716.67 | 1.81 | 40.94 | 1.01 | 43.80 |
| 32 | ธ.ค.-47 | 7,892.50 | 1.80 | 41.50 | 0.95 | 42.26 |
| 33 | ก.ย.-47 | 7,991.67 | 1.80 | 41.47 | 1.07 | 49.46 |
| 34 | ต.ค.-47 | 8,269.00 | 1.81 | 41.31 | 1.01 | 51.76 |
| 35 | พ.ย.-47 | 8,427.27 | 1.81 | 40.34 | 1.10 | 49.05 |
| 36 | ธ.ค.-47 | 8,326.67 | 1.81 | 39.22 | 1.08 | 43.67 |
| 37 | ม.ค.-48 | 7,905.00 | 1.81 | 38.75 | 1.14 | 47.18 |
| 38 | ก.พ.-48 | 7,857.50 | 1.81 | 38.48 | 1.25 | 51.75 |
| 39 | มี.ค.-48 | 8,016.67 | 1.81 | 38.61 | 1.17 | 55.40 |
| 40 | เม.ย.-48 | 8,094.74 | 1.81 | 39.53 | 1.24 | 49.72 |
| 41 | พ.ค.-48 | 8,040.74 | 1.79 | 39.84 | 1.33 | 51.97 |
| 42 | มิ.ย.-48 | 8,340.39 | 1.79 | 40.92 | 1.22 | 56.50 |
| 43 | ก.ค.-48 | 8,438.46 | 1.77 | 41.76 | 1.19 | 56.72 |
| 44 | ธ.ค.-48 | 8,605.36 | 1.77 | 41.19 | 1.27 | 68.94 |
| 45 | ก.ย.-48 | 8,925.68 | 1.78 | 41.05 | 1.11 | 66.24 |

| Obs. | Month | Average | CPI | FX | INT | NYMEX |
|------|----------|------------|----------|---------|---------|-----------|
| | | Gold price | Thai/USA | THB/USD | BOT/FED | Oil price |
| 46 | ต.ค.-48 | 9,195.16 | 1.77 | 40.91 | 1.01 | 59.76 |
| 47 | พ.ย.-48 | 9,332.35 | 1.77 | 41.12 | 1.07 | 57.32 |
| 48 | ธ.ค.-48 | 9,981.40 | 1.77 | 41.07 | 1.04 | 61.04 |
| 49 | ม.ค.-49 | 10,291.67 | 1.78 | 39.62 | 1.01 | 67.92 |
| 50 | ก.พ.-49 | 10,396.67 | 1.78 | 39.41 | 1.06 | 61.41 |
| 51 | มี.ค.-49 | 10,345.16 | 1.77 | 38.98 | 1.02 | 66.63 |
| 52 | เม.ย.-49 | 11,097.22 | 1.76 | 37.99 | 1.01 | 66.35 |
| 53 | พ.ค.-49 | 12,251.64 | 1.76 | 38.01 | 1.04 | 50.92 |
| 54 | มิ.ย.-49 | 10,774.45 | 1.76 | 38.35 | 1.00 | 73.93 |
| 55 | ก.ค.-49 | 11,388.24 | 1.76 | 38.00 | 1.04 | 74.40 |
| 56 | ส.ค.-49 | 11,278.33 | 1.77 | 37.64 | 1.05 | 70.26 |
| 57 | ก.ย.-49 | 10,781.11 | 1.76 | 37.43 | 1.05 | 62.91 |
| 58 | ต.ค.-49 | 10,400.00 | 1.75 | 37.34 | 1.05 | 58.73 |
| 59 | พ.ย.-49 | 10,825.71 | 1.75 | 36.54 | 1.05 | 63.13 |
| 60 | ธ.ค.-49 | 10,645.59 | 1.75 | 35.83 | 1.05 | 61.05 |
| 61 | ม.ค.-50 | 10,770.00 | 1.76 | 35.97 | 1.11 | 58.14 |
| 62 | ก.พ.-50 | 11,219.23 | 1.78 | 35.74 | 1.17 | 61.79 |
| 63 | มี.ค.-50 | 10,986.36 | 1.78 | 35.06 | 1.17 | 65.87 |
| 64 | เม.ย.-50 | 11,225.00 | 1.78 | 34.87 | 1.31 | 65.71 |
| 65 | พ.ค.-50 | 11,031.82 | 1.77 | 34.62 | 1.50 | 64.01 |
| 66 | มิ.ย.-50 | 10,800.00 | 1.78 | 34.58 | 1.50 | 70.68 |
| 67 | ก.ค.-50 | 10,690.91 | 1.78 | 33.71 | 1.62 | 78.21 |
| 68 | ส.ค.-50 | 10,776.00 | 1.78 | 34.20 | 1.54 | 74.04 |
| 69 | ก.ย.-50 | 11,509.38 | 1.78 | 34.26 | 1.52 | 81.66 |
| 70 | ต.ค.-50 | 12,204.65 | 1.76 | 34.17 | 1.46 | 90.38 |

| Obs. | Month | Average Gold price | CPI Thai/USA | FX THB/USD | INT BOT/FED | NYMEX Oil price |
|-------------|--------------|-------------------------------|-------------------------|-----------------------|------------------------|----------------------------|
| 71 | พ.ย.-50 | 12,956.25 | 1.77 | 33.88 | 1.38 | 88.70 |
| 72 | ธ.ค.-50 | 12,835.29 | 1.77 | 33.70 | 1.30 | 96.96 |
| 73 | ม.ค.-51 | 13,915.25 | 1.76 | 33.18 | 1.21 | 92.33 |
| 74 | ก.พ.-51 | 14,256.41 | 1.75 | 32.60 | 0.92 | 102.59 |
| 75 | มี.ค.-51 | 14,409.68 | 1.76 | 31.46 | 0.80 | 105.62 |
| 76 | เม.ย.-51 | 13,762.26 | 1.74 | 31.59 | 0.70 | 114.70 |
| 77 | พ.ค.-51 | 13,609.84 | 1.72 | 32.11 | 0.61 | 127.74 |
| 78 | มิ.ย.-51 | 13,997.41 | 1.71 | 33.20 | 0.62 | 140.51 |

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ข้อมูลที่ได้จากการคำนวณ (LN)

| Obs. | Month | LN(GP) | LN(CPI) | LN(FX) | LN(INT) | LN(OIL) |
|------|----------|--------|---------|--------|---------|---------|
| 1 | ม.ค.-45 | 8.689 | 0.581 | 3.785 | -0.145 | 2.969 |
| 2 | ก.พ.-45 | 8.729 | 0.584 | 3.780 | -0.139 | 3.079 |
| 3 | มี.ค.-45 | 8.719 | 0.586 | 3.770 | -0.145 | 3.270 |
| 4 | เม.ย.-45 | 8.747 | 0.587 | 3.771 | -0.134 | 3.307 |
| 5 | พ.ค.-45 | 8.764 | 0.586 | 3.756 | -0.134 | 3.231 |
| 6 | มิ.ย.-45 | 8.771 | 0.588 | 3.741 | -0.134 | 3.291 |
| 7 | ก.ค.-45 | 8.728 | 0.590 | 3.719 | -0.145 | 3.297 |
| 8 | ส.ค.-45 | 8.737 | 0.593 | 3.742 | -0.139 | 3.367 |
| 9 | ก.ย.-45 | 8.783 | 0.590 | 3.757 | -0.134 | 3.416 |
| 10 | ต.ค.-45 | 8.847 | 0.586 | 3.776 | -0.134 | 3.304 |
| 11 | พ.ย.-45 | 8.796 | 0.591 | 3.769 | -0.267 | 3.292 |
| 12 | ธ.ค.-45 | 8.842 | 0.588 | 3.768 | -0.345 | 3.440 |
| 13 | ม.ค.-46 | 8.884 | 0.584 | 3.756 | -0.345 | 3.512 |
| 14 | ก.พ.-46 | 8.896 | 0.593 | 3.758 | -0.329 | 3.600 |
| 15 | มี.ค.-46 | 8.844 | 0.599 | 3.755 | -0.336 | 3.435 |
| 16 | เม.ย.-46 | 8.816 | 0.593 | 3.758 | -0.329 | 3.250 |
| 17 | พ.ค.-46 | 8.871 | 0.587 | 3.741 | -0.329 | 3.386 |
| 18 | มิ.ย.-46 | 8.864 | 0.592 | 3.729 | -0.361 | 3.401 |
| 19 | ก.ค.-46 | 8.851 | 0.593 | 3.732 | -0.550 | 3.419 |
| 20 | ส.ค.-46 | 8.870 | 0.592 | 3.730 | -0.530 | 3.451 |
| 21 | ก.ย.-46 | 8.892 | 0.596 | 3.701 | -0.213 | 3.373 |
| 22 | ต.ค.-46 | 8.878 | 0.594 | 3.682 | -0.213 | 3.371 |
| 23 | พ.ย.-46 | 8.903 | 0.591 | 3.686 | -0.223 | 3.453 |
| 24 | ธ.ค.-46 | 8.945 | 0.589 | 3.682 | -0.243 | 3.491 |
| 25 | ม.ค.-47 | 8.953 | 0.591 | 3.666 | -0.223 | 3.498 |

| Obs. | Month | LN(GP) | LN(CPI) | LN(FX) | LN(INT) | LN(OIL) |
|------|----------|--------|---------|--------|---------|---------|
| 26 | ก.พ.-47 | 8.927 | 0.588 | 3.666 | -0.213 | 3.588 |
| 27 | มี.ค.-47 | 8.940 | 0.593 | 3.675 | -0.223 | 3.577 |
| 28 | เม.ย.-47 | 8.940 | 0.591 | 3.675 | -0.223 | 3.610 |
| 29 | พ.ค.-47 | 8.917 | 0.593 | 3.703 | -0.223 | 3.668 |
| 30 | มิ.ย.-47 | 8.933 | 0.594 | 3.709 | -0.194 | 3.611 |
| 31 | ก.ค.-47 | 8.951 | 0.592 | 3.712 | 0.008 | 3.780 |
| 32 | ส.ค.-47 | 8.974 | 0.588 | 3.726 | -0.048 | 3.744 |
| 33 | ก.ย.-47 | 8.986 | 0.586 | 3.725 | 0.071 | 3.901 |
| 34 | ต.ค.-47 | 9.020 | 0.591 | 3.721 | 0.006 | 3.947 |
| 35 | พ.ย.-47 | 9.039 | 0.595 | 3.697 | 0.098 | 3.893 |
| 36 | ธ.ค.-47 | 9.027 | 0.592 | 3.669 | 0.077 | 3.777 |
| 37 | ม.ค.-48 | 8.975 | 0.593 | 3.657 | 0.131 | 3.854 |
| 38 | ก.พ.-48 | 8.969 | 0.593 | 3.650 | 0.223 | 3.946 |
| 39 | มี.ค.-48 | 8.989 | 0.592 | 3.653 | 0.156 | 4.015 |
| 40 | เม.ย.-48 | 8.999 | 0.591 | 3.677 | 0.215 | 3.906 |
| 41 | พ.ค.-48 | 8.992 | 0.584 | 3.685 | 0.288 | 3.951 |
| 42 | มิ.ย.-48 | 9.029 | 0.582 | 3.712 | 0.196 | 4.034 |
| 43 | ก.ค.-48 | 9.041 | 0.571 | 3.732 | 0.170 | 4.038 |
| 44 | ส.ค.-48 | 9.060 | 0.569 | 3.718 | 0.241 | 4.233 |
| 45 | ก.ย.-48 | 9.097 | 0.574 | 3.715 | 0.108 | 4.193 |
| 46 | ต.ค.-48 | 9.126 | 0.573 | 3.711 | 0.008 | 4.090 |
| 47 | พ.ย.-48 | 9.141 | 0.572 | 3.717 | 0.065 | 4.049 |
| 48 | ธ.ค.-48 | 9.208 | 0.569 | 3.715 | 0.039 | 4.112 |
| 49 | ม.ค.-49 | 9.239 | 0.575 | 3.679 | 0.009 | 4.218 |
| 50 | ก.พ.-49 | 9.249 | 0.574 | 3.674 | 0.055 | 4.118 |
| 51 | มี.ค.-49 | 9.244 | 0.570 | 3.663 | 0.020 | 4.199 |
| 52 | เม.ย.-49 | 9.314 | 0.567 | 3.637 | 0.008 | 4.195 |

| Obs. | Month | LN(GP) | LN(CPI) | LN(FX) | LN(INT) | LN(OIL) |
|------|----------|--------|---------|--------|---------|---------|
| 53 | พ.ค.-49 | 9.413 | 0.565 | 3.638 | 0.039 | 3.930 |
| 54 | มี.ย.-49 | 9.285 | 0.567 | 3.647 | -0.002 | 4.303 |
| 55 | ก.ค.-49 | 9.340 | 0.568 | 3.638 | 0.041 | 4.309 |
| 56 | ส.ค.-49 | 9.331 | 0.569 | 3.628 | 0.049 | 4.252 |
| 57 | ก.ย.-49 | 9.286 | 0.568 | 3.622 | 0.049 | 4.142 |
| 58 | ต.ค.-49 | 9.250 | 0.558 | 3.620 | 0.049 | 4.073 |
| 59 | พ.ย.-49 | 9.290 | 0.557 | 3.599 | 0.049 | 4.145 |
| 60 | ธ.ค.-49 | 9.273 | 0.560 | 3.579 | 0.047 | 4.112 |
| 61 | ม.ค.-50 | 9.285 | 0.565 | 3.583 | 0.100 | 4.063 |
| 62 | ก.พ.-50 | 9.325 | 0.575 | 3.576 | 0.156 | 4.124 |
| 63 | มี.ค.-50 | 9.304 | 0.577 | 3.557 | 0.156 | 4.188 |
| 64 | เม.ย.-50 | 9.326 | 0.574 | 3.552 | 0.272 | 4.185 |
| 65 | พ.ค.-50 | 9.309 | 0.573 | 3.544 | 0.405 | 4.159 |
| 66 | มี.ย.-50 | 9.287 | 0.574 | 3.543 | 0.405 | 4.258 |
| 67 | ก.ค.-50 | 9.277 | 0.574 | 3.518 | 0.481 | 4.359 |
| 68 | ส.ค.-50 | 9.285 | 0.578 | 3.532 | 0.435 | 4.305 |
| 69 | ก.ย.-50 | 9.351 | 0.574 | 3.534 | 0.419 | 4.403 |
| 70 | ต.ค.-50 | 9.410 | 0.568 | 3.531 | 0.382 | 4.504 |
| 71 | พ.ย.-50 | 9.469 | 0.570 | 3.523 | 0.323 | 4.485 |
| 72 | ธ.ค.-50 | 9.460 | 0.568 | 3.518 | 0.266 | 4.574 |
| 73 | ม.ค.-51 | 9.541 | 0.566 | 3.502 | 0.193 | 4.525 |
| 74 | ก.พ.-51 | 9.565 | 0.562 | 3.484 | -0.087 | 4.631 |
| 75 | มี.ค.-51 | 9.576 | 0.565 | 3.449 | -0.219 | 4.660 |
| 76 | เม.ย.-51 | 9.530 | 0.553 | 3.453 | -0.354 | 4.742 |
| 77 | พ.ค.-51 | 9.519 | 0.540 | 3.469 | -0.496 | 4.850 |
| 78 | มี.ย.-51 | 9.547 | 0.539 | 3.503 | -0.486 | 4.945 |

ภาคผนวก ข

ตารางค่าสถิติ Durbin-Watson

ค่าของ d_L และ d_U ที่ระดับนัยสำคัญ 5% k คือ จำนวนตัวแปรอิสระ (ไม่รวมพจน์จุดตัดแกน Y)

| n | k=1 | | k=2 | | k=3 | | k=4 | | k=5 | | k=6 | | k=7 | |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU |
| 6 | 0.610 | 1.400 | | | | | | | | | | | | |
| 7 | 0.700 | 1.356 | 0.467 | 1.896 | | | | | | | | | | |
| 8 | 0.763 | 1.332 | 0.559 | 1.777 | 0.368 | 2.287 | | | | | | | | |
| 9 | 0.824 | 1.320 | 0.629 | 1.699 | 0.455 | 2.128 | 0.296 | 2.588 | | | | | | |
| 10 | 0.879 | 1.320 | 0.697 | 1.641 | 0.525 | 2.016 | 0.376 | 2.414 | 0.243 | 2.822 | | | | |
| 11 | 0.927 | 1.324 | 0.758 | 1.604 | 0.595 | 1.928 | 0.444 | 2.283 | 0.316 | 2.645 | 0.203 | 3.005 | | |
| 12 | 0.971 | 1.331 | 0.812 | 1.579 | 0.658 | 1.864 | 0.512 | 2.177 | 0.379 | 2.506 | 0.268 | 2.832 | 0.171 | 3.149 |
| 13 | 1.010 | 1.340 | 0.861 | 1.562 | 0.715 | 1.816 | 0.574 | 2.094 | 0.445 | 2.390 | 0.328 | 2.692 | 0.230 | 2.985 |
| 14 | 1.045 | 1.350 | 0.905 | 1.551 | 0.767 | 1.779 | 0.632 | 2.030 | 0.505 | 2.296 | 0.389 | 2.572 | 0.286 | 2.848 |
| 15 | 1.077 | 1.361 | 0.946 | 1.543 | 0.814 | 1.750 | 0.685 | 1.977 | 0.562 | 2.220 | 0.447 | 2.472 | 0.343 | 2.727 |
| 16 | 1.106 | 1.371 | 0.982 | 1.539 | 0.857 | 1.728 | 0.734 | 1.935 | 0.615 | 2.157 | 0.502 | 2.388 | 0.398 | 2.624 |
| 17 | 1.133 | 1.381 | 1.015 | 1.536 | 0.897 | 1.710 | 0.779 | 1.900 | 0.664 | 2.104 | 0.554 | 2.318 | 0.451 | 2.537 |
| 18 | 1.158 | 1.391 | 1.046 | 1.535 | 0.933 | 1.696 | 0.820 | 1.872 | 0.710 | 2.060 | 0.603 | 2.257 | 0.502 | 2.461 |
| 19 | 1.180 | 1.401 | 1.074 | 1.536 | 0.967 | 1.685 | 0.859 | 1.848 | 0.752 | 2.023 | 0.649 | 2.206 | 0.549 | 2.396 |
| 20 | 1.201 | 1.411 | 1.100 | 1.537 | 0.998 | 1.676 | 0.894 | 1.828 | 0.792 | 1.991 | 0.692 | 2.162 | 0.595 | 2.339 |
| 21 | 1.221 | 1.420 | 1.125 | 1.538 | 1.026 | 1.669 | 0.927 | 1.812 | 0.829 | 1.964 | 0.732 | 2.124 | 0.637 | 2.290 |
| 22 | 1.239 | 1.429 | 1.147 | 1.541 | 1.053 | 1.664 | 0.958 | 1.797 | 0.863 | 1.940 | 0.769 | 2.090 | 0.677 | 2.246 |
| 23 | 1.257 | 1.437 | 1.168 | 1.543 | 1.078 | 1.660 | 0.986 | 1.785 | 0.895 | 1.920 | 0.804 | 2.061 | 0.715 | 2.208 |
| 24 | 1.273 | 1.446 | 1.188 | 1.546 | 1.101 | 1.656 | 1.013 | 1.775 | 0.925 | 1.902 | 0.837 | 2.035 | 0.751 | 2.174 |
| 25 | 1.288 | 1.454 | 1.206 | 1.550 | 1.123 | 1.654 | 1.038 | 1.767 | 0.953 | 1.886 | 0.868 | 2.012 | 0.784 | 2.144 |
| 26 | 1.302 | 1.461 | 1.224 | 1.553 | 1.143 | 1.652 | 1.062 | 1.759 | 0.979 | 1.873 | 0.897 | 1.992 | 0.816 | 2.117 |
| 27 | 1.316 | 1.469 | 1.240 | 1.556 | 1.162 | 1.651 | 1.084 | 1.753 | 1.004 | 1.861 | 0.925 | 1.974 | 0.845 | 2.093 |
| 28 | 1.328 | 1.476 | 1.255 | 1.560 | 1.181 | 1.650 | 1.104 | 1.747 | 1.028 | 1.850 | 0.951 | 1.958 | 0.874 | 2.071 |
| 29 | 1.341 | 1.483 | 1.270 | 1.563 | 1.198 | 1.650 | 1.124 | 1.743 | 1.050 | 1.841 | 0.975 | 1.944 | 0.900 | 2.052 |
| 30 | 1.352 | 1.489 | 1.284 | 1.567 | 1.214 | 1.650 | 1.143 | 1.739 | 1.071 | 1.833 | 0.998 | 1.931 | 0.926 | 2.034 |
| 31 | 1.363 | 1.496 | 1.297 | 1.570 | 1.229 | 1.650 | 1.160 | 1.735 | 1.090 | 1.825 | 1.020 | 1.920 | 0.950 | 2.018 |
| 32 | 1.373 | 1.502 | 1.309 | 1.574 | 1.244 | 1.650 | 1.177 | 1.732 | 1.109 | 1.819 | 1.041 | 1.909 | 0.972 | 2.004 |
| 33 | 1.383 | 1.508 | 1.321 | 1.577 | 1.258 | 1.651 | 1.193 | 1.730 | 1.127 | 1.813 | 1.061 | 1.900 | 0.994 | 1.991 |
| 34 | 1.393 | 1.514 | 1.333 | 1.580 | 1.271 | 1.652 | 1.208 | 1.728 | 1.144 | 1.808 | 1.080 | 1.891 | 1.015 | 1.979 |
| 35 | 1.402 | 1.519 | 1.343 | 1.584 | 1.283 | 1.652 | 1.222 | 1.726 | 1.160 | 1.803 | 1.097 | 1.884 | 1.034 | 1.967 |
| 36 | 1.411 | 1.525 | 1.354 | 1.587 | 1.295 | 1.654 | 1.236 | 1.724 | 1.175 | 1.799 | 1.114 | 1.877 | 1.053 | 1.957 |
| 37 | 1.419 | 1.530 | 1.364 | 1.590 | 1.307 | 1.655 | 1.249 | 1.723 | 1.190 | 1.795 | 1.131 | 1.870 | 1.071 | 1.948 |
| 38 | 1.427 | 1.535 | 1.373 | 1.594 | 1.318 | 1.656 | 1.261 | 1.722 | 1.204 | 1.792 | 1.146 | 1.864 | 1.088 | 1.939 |
| 39 | 1.435 | 1.540 | 1.382 | 1.597 | 1.328 | 1.658 | 1.273 | 1.722 | 1.218 | 1.789 | 1.161 | 1.859 | 1.104 | 1.932 |
| 40 | 1.442 | 1.544 | 1.391 | 1.600 | 1.338 | 1.659 | 1.285 | 1.721 | 1.230 | 1.786 | 1.175 | 1.854 | 1.120 | 1.924 |
| 45 | 1.475 | 1.566 | 1.430 | 1.615 | 1.383 | 1.666 | 1.336 | 1.720 | 1.287 | 1.776 | 1.238 | 1.835 | 1.189 | 1.895 |
| 50 | 1.503 | 1.585 | 1.462 | 1.628 | 1.421 | 1.674 | 1.378 | 1.721 | 1.335 | 1.771 | 1.291 | 1.822 | 1.246 | 1.875 |
| 55 | 1.528 | 1.601 | 1.490 | 1.641 | 1.452 | 1.681 | 1.414 | 1.724 | 1.374 | 1.768 | 1.334 | 1.814 | 1.294 | 1.861 |
| 60 | 1.549 | 1.616 | 1.514 | 1.652 | 1.480 | 1.689 | 1.444 | 1.727 | 1.408 | 1.767 | 1.372 | 1.808 | 1.335 | 1.850 |
| 65 | 1.567 | 1.629 | 1.536 | 1.662 | 1.503 | 1.696 | 1.471 | 1.731 | 1.438 | 1.767 | 1.404 | 1.805 | 1.370 | 1.843 |
| 70 | 1.583 | 1.641 | 1.554 | 1.672 | 1.525 | 1.703 | 1.494 | 1.735 | 1.464 | 1.768 | 1.433 | 1.802 | 1.401 | 1.837 |
| 75 | 1.598 | 1.652 | 1.571 | 1.680 | 1.543 | 1.709 | 1.515 | 1.739 | 1.487 | 1.770 | 1.458 | 1.801 | 1.428 | 1.834 |
| 80 | 1.611 | 1.662 | 1.586 | 1.688 | 1.560 | 1.715 | 1.534 | 1.743 | 1.507 | 1.772 | 1.480 | 1.801 | 1.453 | 1.831 |
| 85 | 1.624 | 1.671 | 1.600 | 1.696 | 1.575 | 1.721 | 1.550 | 1.747 | 1.525 | 1.774 | 1.500 | 1.801 | 1.474 | 1.829 |
| 90 | 1.635 | 1.679 | 1.612 | 1.703 | 1.589 | 1.726 | 1.566 | 1.751 | 1.542 | 1.776 | 1.518 | 1.801 | 1.494 | 1.827 |
| 95 | 1.645 | 1.687 | 1.623 | 1.709 | 1.602 | 1.732 | 1.579 | 1.755 | 1.557 | 1.778 | 1.535 | 1.802 | 1.512 | 1.827 |
| 100 | 1.654 | 1.694 | 1.634 | 1.715 | 1.613 | 1.736 | 1.592 | 1.758 | 1.571 | 1.780 | 1.550 | 1.803 | 1.528 | 1.826 |
| 150 | 1.720 | 1.746 | 1.706 | 1.760 | 1.693 | 1.774 | 1.679 | 1.788 | 1.665 | 1.802 | 1.651 | 1.817 | 1.637 | 1.832 |
| 200 | 1.758 | 1.778 | 1.748 | 1.789 | 1.738 | 1.799 | 1.728 | 1.810 | 1.718 | 1.820 | 1.707 | 1.831 | 1.697 | 1.841 |

แหล่งที่มา: N.E.Savin and Kenneth J. White, "The Durbin-Watson Test for Serial Correlation with Extreme Sample Sizes or Many Regressors", *Econometrica*, 45 (8), Nov. 1977, pp. 1989-1996.

ค่าของ d_L และ d_U ที่ระดับนัยสำคัญ 1% k คือ จำนวนตัวแปรอิสระ (ไม่รวมพจน์จุดตัดแกน Y)

| n | k=1 | | k=2 | | k=3 | | k=4 | | k=5 | | k=6 | | k=7 | |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU |
| 6 | 0.610 | 1.400 | | | | | | | | | | | | |
| 7 | 0.700 | 1.356 | 0.467 | 1.896 | | | | | | | | | | |
| 8 | 0.763 | 1.332 | 0.559 | 1.777 | 0.368 | 2.287 | | | | | | | | |
| 9 | 0.824 | 1.320 | 0.629 | 1.699 | 0.455 | 2.128 | 0.296 | 2.588 | | | | | | |
| 10 | 0.879 | 1.320 | 0.697 | 1.641 | 0.525 | 2.016 | 0.376 | 2.414 | 0.243 | 2.822 | | | | |
| 11 | 0.927 | 1.324 | 0.758 | 1.604 | 0.595 | 1.928 | 0.444 | 2.283 | 0.316 | 2.645 | 0.203 | 3.005 | | |
| 12 | 0.971 | 1.331 | 0.812 | 1.579 | 0.658 | 1.864 | 0.512 | 2.177 | 0.379 | 2.506 | 0.268 | 2.832 | 0.171 | 3.149 |
| 13 | 1.010 | 1.340 | 0.861 | 1.562 | 0.715 | 1.816 | 0.574 | 2.094 | 0.445 | 2.390 | 0.328 | 2.692 | 0.230 | 2.985 |
| 14 | 1.045 | 1.350 | 0.905 | 1.551 | 0.767 | 1.779 | 0.632 | 2.030 | 0.505 | 2.296 | 0.389 | 2.572 | 0.286 | 2.848 |
| 15 | 1.077 | 1.361 | 0.946 | 1.543 | 0.814 | 1.750 | 0.685 | 1.977 | 0.562 | 2.220 | 0.447 | 2.472 | 0.343 | 2.727 |
| 16 | 1.106 | 1.371 | 0.982 | 1.539 | 0.857 | 1.728 | 0.734 | 1.935 | 0.615 | 2.157 | 0.502 | 2.388 | 0.398 | 2.624 |
| 17 | 1.133 | 1.381 | 1.015 | 1.536 | 0.897 | 1.710 | 0.779 | 1.900 | 0.664 | 2.104 | 0.554 | 2.318 | 0.451 | 2.537 |
| 18 | 1.158 | 1.391 | 1.046 | 1.535 | 0.933 | 1.696 | 0.820 | 1.872 | 0.710 | 2.060 | 0.603 | 2.257 | 0.502 | 2.461 |
| 19 | 1.180 | 1.401 | 1.074 | 1.536 | 0.967 | 1.685 | 0.859 | 1.848 | 0.752 | 2.023 | 0.649 | 2.206 | 0.549 | 2.396 |
| 20 | 1.201 | 1.411 | 1.100 | 1.537 | 0.998 | 1.676 | 0.894 | 1.828 | 0.792 | 1.991 | 0.692 | 2.162 | 0.595 | 2.339 |
| 21 | 1.221 | 1.420 | 1.125 | 1.538 | 1.026 | 1.669 | 0.927 | 1.812 | 0.829 | 1.964 | 0.732 | 2.124 | 0.637 | 2.290 |
| 22 | 1.239 | 1.429 | 1.147 | 1.541 | 1.053 | 1.664 | 0.958 | 1.797 | 0.863 | 1.940 | 0.769 | 2.090 | 0.677 | 2.246 |
| 23 | 1.257 | 1.437 | 1.168 | 1.543 | 1.078 | 1.660 | 0.986 | 1.785 | 0.895 | 1.920 | 0.804 | 2.061 | 0.715 | 2.208 |
| 24 | 1.273 | 1.446 | 1.188 | 1.546 | 1.101 | 1.656 | 1.013 | 1.775 | 0.925 | 1.902 | 0.837 | 2.035 | 0.751 | 2.174 |
| 25 | 1.288 | 1.454 | 1.206 | 1.550 | 1.123 | 1.654 | 1.038 | 1.767 | 0.953 | 1.886 | 0.868 | 2.012 | 0.784 | 2.144 |
| 26 | 1.302 | 1.461 | 1.224 | 1.553 | 1.143 | 1.652 | 1.062 | 1.759 | 0.979 | 1.873 | 0.897 | 1.992 | 0.816 | 2.117 |
| 27 | 1.316 | 1.469 | 1.240 | 1.556 | 1.162 | 1.651 | 1.084 | 1.753 | 1.004 | 1.861 | 0.925 | 1.974 | 0.845 | 2.093 |
| 28 | 1.328 | 1.476 | 1.255 | 1.560 | 1.181 | 1.650 | 1.104 | 1.747 | 1.028 | 1.850 | 0.951 | 1.958 | 0.874 | 2.071 |
| 29 | 1.341 | 1.483 | 1.270 | 1.563 | 1.198 | 1.650 | 1.124 | 1.743 | 1.050 | 1.841 | 0.975 | 1.944 | 0.900 | 2.052 |
| 30 | 1.352 | 1.489 | 1.284 | 1.567 | 1.214 | 1.650 | 1.143 | 1.739 | 1.071 | 1.833 | 0.998 | 1.931 | 0.926 | 2.034 |
| 31 | 1.363 | 1.496 | 1.297 | 1.570 | 1.229 | 1.650 | 1.160 | 1.735 | 1.090 | 1.825 | 1.020 | 1.920 | 0.950 | 2.018 |
| 32 | 1.373 | 1.502 | 1.309 | 1.574 | 1.244 | 1.650 | 1.177 | 1.732 | 1.109 | 1.819 | 1.041 | 1.909 | 0.972 | 2.004 |
| 33 | 1.383 | 1.508 | 1.321 | 1.577 | 1.258 | 1.651 | 1.193 | 1.730 | 1.127 | 1.813 | 1.061 | 1.900 | 0.994 | 1.991 |
| 34 | 1.393 | 1.514 | 1.333 | 1.580 | 1.271 | 1.652 | 1.208 | 1.728 | 1.144 | 1.808 | 1.080 | 1.891 | 1.015 | 1.979 |
| 35 | 1.402 | 1.519 | 1.343 | 1.584 | 1.283 | 1.652 | 1.222 | 1.726 | 1.160 | 1.803 | 1.097 | 1.884 | 1.034 | 1.967 |
| 36 | 1.411 | 1.525 | 1.354 | 1.587 | 1.295 | 1.654 | 1.236 | 1.724 | 1.175 | 1.799 | 1.114 | 1.877 | 1.053 | 1.957 |
| 37 | 1.419 | 1.530 | 1.364 | 1.590 | 1.307 | 1.655 | 1.249 | 1.723 | 1.190 | 1.795 | 1.131 | 1.870 | 1.071 | 1.948 |
| 38 | 1.427 | 1.535 | 1.373 | 1.594 | 1.318 | 1.656 | 1.261 | 1.722 | 1.204 | 1.792 | 1.146 | 1.864 | 1.088 | 1.939 |
| 39 | 1.435 | 1.540 | 1.382 | 1.597 | 1.328 | 1.658 | 1.273 | 1.722 | 1.218 | 1.789 | 1.161 | 1.859 | 1.104 | 1.932 |
| 40 | 1.442 | 1.544 | 1.391 | 1.600 | 1.338 | 1.659 | 1.285 | 1.721 | 1.230 | 1.786 | 1.175 | 1.854 | 1.120 | 1.924 |
| 45 | 1.475 | 1.566 | 1.430 | 1.615 | 1.383 | 1.666 | 1.336 | 1.720 | 1.287 | 1.776 | 1.238 | 1.835 | 1.189 | 1.895 |
| 50 | 1.503 | 1.585 | 1.462 | 1.628 | 1.421 | 1.674 | 1.378 | 1.721 | 1.335 | 1.771 | 1.291 | 1.822 | 1.246 | 1.875 |
| 55 | 1.528 | 1.601 | 1.490 | 1.641 | 1.452 | 1.681 | 1.414 | 1.724 | 1.374 | 1.768 | 1.334 | 1.814 | 1.294 | 1.861 |
| 60 | 1.549 | 1.616 | 1.514 | 1.652 | 1.480 | 1.689 | 1.444 | 1.727 | 1.408 | 1.767 | 1.372 | 1.808 | 1.335 | 1.850 |
| 65 | 1.567 | 1.629 | 1.536 | 1.662 | 1.503 | 1.696 | 1.471 | 1.731 | 1.438 | 1.767 | 1.404 | 1.805 | 1.370 | 1.843 |
| 70 | 1.583 | 1.641 | 1.554 | 1.672 | 1.525 | 1.703 | 1.494 | 1.735 | 1.464 | 1.768 | 1.433 | 1.802 | 1.401 | 1.837 |
| 75 | 1.598 | 1.652 | 1.571 | 1.680 | 1.543 | 1.709 | 1.515 | 1.739 | 1.487 | 1.770 | 1.458 | 1.801 | 1.428 | 1.834 |
| 80 | 1.611 | 1.662 | 1.586 | 1.688 | 1.560 | 1.715 | 1.534 | 1.743 | 1.507 | 1.772 | 1.480 | 1.801 | 1.453 | 1.831 |
| 85 | 1.624 | 1.671 | 1.600 | 1.696 | 1.575 | 1.721 | 1.550 | 1.747 | 1.525 | 1.774 | 1.500 | 1.801 | 1.474 | 1.829 |
| 90 | 1.635 | 1.679 | 1.612 | 1.703 | 1.589 | 1.726 | 1.566 | 1.751 | 1.542 | 1.776 | 1.518 | 1.801 | 1.494 | 1.827 |
| 95 | 1.645 | 1.687 | 1.623 | 1.709 | 1.602 | 1.732 | 1.579 | 1.755 | 1.557 | 1.778 | 1.535 | 1.802 | 1.512 | 1.827 |
| 100 | 1.654 | 1.694 | 1.634 | 1.715 | 1.613 | 1.736 | 1.592 | 1.758 | 1.571 | 1.780 | 1.550 | 1.803 | 1.528 | 1.826 |
| 150 | 1.720 | 1.746 | 1.706 | 1.760 | 1.693 | 1.774 | 1.679 | 1.788 | 1.665 | 1.802 | 1.651 | 1.817 | 1.637 | 1.832 |
| 200 | 1.758 | 1.778 | 1.748 | 1.789 | 1.738 | 1.799 | 1.728 | 1.810 | 1.718 | 1.820 | 1.707 | 1.831 | 1.697 | 1.841 |

แหล่งที่มา: N.E.Savin and Kenneth J. White, "The Durbin-Watson Test for Serial Correlation with Extreme Sample Sizes or Many Regressors", *Econometrica*, 45 (8), Nov. 1977, pp. 1989-1996.

ภาคผนวก ค
ตารางผลการคำนวณจากโปรแกรม Eviews 5.1

ผลการทดสอบความนิ่งของข้อมูลหรือยูนิทรุต (Unit Root Test)

ราคาทองคำภายในประเทศไทย

Null Hypothesis: D(GP) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=12)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -9.287172 | 0.0000 |
| Test critical values: | | |
| 1% level | -3.519050 | |
| 5% level | -2.900137 | |
| 10% level | -2.587409 | |

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(GP,2)

Method: Least Squares

Date: 09/27/08 Time: 23:17

Sample (adjusted): 3 78

Included observations: 76 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(GP(-1)) | -1.079236 | 0.116207 | -9.287172 | 0.0000 |
| C | -0.011774 | 0.004388 | -2.683237 | 0.0090 |
| R-squared | 0.538226 | Mean dependent var | | -0.000158 |
| Adjusted R-squared | 0.531986 | S.D. dependent var | | 0.053597 |
| S.E. of regression | 0.036666 | Akaike info criterion | | -3.747958 |
| Sum squared resid | 0.099486 | Schwarz criterion | | -3.686623 |
| Log likelihood | 144.4224 | F-statistic | | 86.25157 |
| Durbin-Watson stat | 2.004209 | Prob(F-statistic) | | 0.000000 |

ที่มา : จากการคำนวณ

ดัชนีราคาผู้บริโภคเปรียบเทียบระหว่างไทยกับสหรัฐฯ

Null Hypothesis: D(CPI) has a unit root

Exogenous: None

Lag Length: 0 (Fixed)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -7.323718 | 0.0000 |
| Test critical values: | | |
| 1% level | -2.595745 | |
| 5% level | -1.945139 | |
| 10% level | -1.613983 | |

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CPI,2)

Method: Least Squares

Date: 10/05/08 Time: 17:24

Sample (adjusted): 3 78

Included observations: 76 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(CPI(-1)) | -0.836720 | 0.114248 | -7.323718 | 0.0000 |
| R-squared | 0.416912 | Mean dependent var | | -5.26E-05 |
| Adjusted R-squared | 0.416912 | S.D. dependent var | | 0.005652 |
| S.E. of regression | 0.004316 | Akaike info criterion | | -8.040000 |
| Sum squared resid | 0.001397 | Schwarz criterion | | -8.009333 |
| Log likelihood | 306.5200 | Durbin-Watson stat | | 1.825394 |

ที่มา : จากการคำนวณ

อัตราแลกเปลี่ยนสกุลเงินบาทต่อดอลลาร์สหรัฐฯ

Null Hypothesis: D(FX) has a unit root

Exogenous: None

Lag Length: 0 (Automatic based on SIC, MAXLAG=12)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -6.278317 | 0.0000 |
| Test critical values: | | |
| 1% level | -2.595745 | |
| 5% level | -1.945139 | |
| 10% level | -1.613983 | |

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FX,2)

Method: Least Squares

Date: 09/29/08 Time: 15:47

Sample (adjusted): 3 78

Included observations: 76 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(FX(-1)) | -0.655362 | 0.104385 | -6.278317 | 0.0000 |
| R-squared | 0.343919 | Mean dependent var | | 0.000499 |
| Adjusted R-squared | 0.343919 | S.D. dependent var | | 0.016800 |
| S.E. of regression | 0.013608 | Akaike info criterion | | -5.743307 |
| Sum squared resid | 0.013887 | Schwarz criterion | | -5.712640 |
| Log likelihood | 219.2457 | Durbin-Watson stat | | 2.015761 |

ที่มา : จากการคำนวณ

อัตราดอกเบี้ยนโยบายเปรียบเทียบระหว่างไทยกับสหรัฐฯ

Null Hypothesis: D(INT) has a unit root

Exogenous: None

Lag Length: 0 (Automatic based on SIC, MAXLAG=12)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -7.184726 | 0.0000 |
| Test critical values: | | |
| 1% level | -2.595745 | |
| 5% level | -1.945139 | |
| 10% level | -1.613983 | |

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(INT,2)

Method: Least Squares

Date: 09/29/08 Time: 16:10

Sample (adjusted): 3 78

Included observations: 76 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(INT(-1)) | -0.815289 | 0.113475 | -7.184726 | 0.0000 |
| R-squared | 0.407678 | Mean dependent var | | 5.63E-05 |
| Adjusted R-squared | 0.407678 | S.D. dependent var | | 0.104995 |
| S.E. of regression | 0.080807 | Akaike info criterion | | -2.180441 |
| Sum squared resid | 0.489730 | Schwarz criterion | | -2.149774 |
| Log likelihood | 83.85677 | Durbin-Watson stat | | 1.978900 |

ที่มา : จากการคำนวณ

ราคาน้ำมันดิบในตลาด NYMEX

Null Hypothesis: D(OIL) has a unit root

Exogenous: Constant

Lag Length: 1 (Fixed)

| | t-Statistic | Prob.* |
|--|-------------|--------|
| Augmented Dickey-Fuller test statistic | -8.375549 | 0.0000 |
| Test critical values: | | |
| 1% level | -3.520307 | |
| 5% level | -2.900670 | |
| 10% level | -2.587691 | |

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(OIL,2)

Method: Least Squares

Date: 09/29/08 Time: 16:24

Sample (adjusted): 4 78

Included observations: 75 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|-----------|
| D(OIL(-1)) | -1.485657 | 0.177380 | -8.375549 | 0.0000 |
| D(OIL(-1),2) | 0.264880 | 0.116075 | 2.281969 | 0.0254 |
| C | -0.034769 | 0.011570 | -3.005085 | 0.0037 |
| R-squared | 0.613821 | Mean dependent var | | -2.79E-05 |
| Adjusted R-squared | 0.603093 | S.D. dependent var | | 0.148855 |
| S.E. of regression | 0.093779 | Akaike info criterion | | -1.856566 |
| Sum squared resid | 0.633209 | Schwarz criterion | | -1.763866 |
| Log likelihood | 72.62121 | F-statistic | | 57.22094 |
| Durbin-Watson stat | 2.054666 | Prob(F-statistic) | | 0.000000 |

ที่มา : จากการศึกษา

ผลการวิเคราะห์ความสัมพันธ์เชิงดุลยภาพในระยะยาว (Cointegration)

ดัชนีราคาผู้บริโภคเป็นตัวแปรอิสระ และราคาทองคำเป็นตัวแปรตาม

| | | | | |
|----------------------------|-------------|-----------------------|-------------|-------|
| Dependent Variable: GP | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 13:53 | | | | |
| Sample: 1 78 | | | | |
| Included observations: 78 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 18.15982 | 0.685507 | 26.49107 | 0 |
| CPI | -15.65575 | 1.182573 | 13.23872 | 0 |
| R-squared | 0.697529 | Mean dependent var | 9.08691 | |
| Adjusted R-squared | 0.693549 | S.D. dependent var | 0.247871 | |
| S.E. of regression | 0.137216 | Akaike info criterion | -1.109209 | |
| Sum squared resid | 1.430953 | Schwarz criterion | -1.04878 | |
| Log likelihood | 45.25914 | F-statistic | 175.2637 | |
| Durbin-Watson stat | 0.29629 | Prob(F-statistic) | 0 | |

ที่มา : จากการคำนวณ

อัตราแลกเปลี่ยนเป็นตัวแปรอิสระ และราคาทองคำเป็นตัวแปรตาม

| | | | | |
|----------------------------|-------------|-----------------------|-------------|-------|
| Dependent Variable: GP | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:19 | | | | |
| Sample: 1 78 | | | | |
| Included observations: 78 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 18.13277 | 0.505491 | 35.87162 | 0 |
| FX | -2.471136 | 0.138048 | 17.90057 | 0 |
| R-squared | 0.808289 | Mean dependent var | 9.08691 | |
| Adjusted R-squared | 0.805767 | S.D. dependent var | 0.247871 | |
| S.E. of regression | 0.109241 | Akaike info criterion | -1.565206 | |
| Sum squared resid | 0.906961 | Schwarz criterion | -1.504778 | |
| Log likelihood | 63.04304 | F-statistic | 320.4303 | |
| Durbin-Watson stat | 0.216502 | Prob(F-statistic) | 0 | |

ที่มา : จากการคำนวณ

อัตราดอกเบี้ยนโยบายเป็นตัวแปรอิสระ และราคาทองคำเป็นตัวแปรตาม

| | | | | |
|----------------------------|-------------|-----------------------|-------------|-----------|
| Dependent Variable: GP | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:42 | | | | |
| Sample: 1 78 | | | | |
| Included observations: 78 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 9.100532 | 0.025857 | 351.9522 | 0 |
| INT | 0.429045 | 0.106309 | 4.035812 | 0.0001 |
| R-squared | 0.176489 | Mean dependent var | | 9.08691 |
| Adjusted R-squared | 0.165653 | S.D. dependent var | | 0.247871 |
| S.E. of regression | 0.226412 | Akaike info criterion | | -0.107618 |
| Sum squared resid | 3.895929 | Schwarz criterion | | -0.047189 |
| Log likelihood | 6.197088 | F-statistic | | 16.28778 |
| Durbin-Watson stat | 0.051862 | Prob(F-statistic) | | 0.000129 |

ที่มา : จากการคำนวณ

ราคาน้ำมันดิบ NYMEXเป็นตัวแปรอิสระ และราคาทองคำเป็นตัวแปรตาม

| | | | | |
|----------------------------|-------------|-----------------------|-------------|-----------|
| Dependent Variable: GP | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 15:03 | | | | |
| Sample: 1 78 | | | | |
| Included observations: 78 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 7.090649 | 0.079024 | 89.72827 | 0 |
| OIL | 0.513251 | 0.02018 | 25.43303 | 0 |
| R-squared | 0.894859 | Mean dependent var | | 9.08691 |
| Adjusted R-squared | 0.893476 | S.D. dependent var | | 0.247871 |
| S.E. of regression | 0.0809 | Akaike info criterion | | -2.165893 |
| Sum squared resid | 0.497409 | Schwarz criterion | | -2.105464 |
| Log likelihood | 86.46981 | F-statistic | | 646.8391 |
| Durbin-Watson stat | 0.666852 | Prob(F-statistic) | | 0 |

ที่มา : จากการคำนวณ

ผลการทดสอบความนิ่งของส่วนที่เหลือ (Residual) จากสมการถดถอยในการทดสอบ
Cointegration โดยการทดสอบ Unit Root ด้วยวิธีการ ADF

ดัชนีราคาผู้บริโภคเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|-----------|
| Null Hypothesis: ERROR has a unit root | | | | |
| Exogenous: None | | | | |
| Lag Length: 0 (Automatic based on SIC, MAXLAG=12) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | | |
| Test critical values: | | | 1% level | -2.59534 |
| | | | 5% level | -1.945081 |
| | | | 10% level | -1.614017 |
| *MacKinnon (1996) one-sided p-values. | | | | |
| Augmented Dickey-Fuller Test Equation | | | | |
| Dependent Variable: D(ERROR) | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:00 | | | | |
| Sample (adjusted): 2 78 | | | | |
| Included observations: 77 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ERROR(-1) | -0.121618 | 0.064253 | -1.892815 | 0.0622 |
| R-squared | 0.043842 | Mean dependent var | -0.002603 | |
| Adjusted R-squared | 0.043842 | S.D. dependent var | 0.074644 | |
| S.E. of regression | 0.07299 | Akaike info criterion | -2.384093 | |
| Sum squared resid | 0.40489 | Schwarz criterion | -2.353654 | |
| Log likelihood | 92.78759 | Durbin-Watson stat | 1.692024 | |

ที่มา : จากกรคำนวณ

อัตราแลกเปลี่ยนเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|-----------|
| Null Hypothesis: ERRORFX has a unit root | | | | |
| Exogenous: None | | | | |
| Lag Length: 1 (Fixed) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -2.262091 | 0.0238 |
| Test critical values: | 1% level | | -2.595745 | |
| | 5% level | | -1.945139 | |
| | 10% level | | -1.613983 | |
| *MacKinnon (1996) one-sided p-values. | | | | |
| Augmented Dickey-Fuller Test Equation | | | | |
| Dependent Variable: D(ERRORFX) | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:28 | | | | |
| Sample (adjusted): 3 78 | | | | |
| Included observations: 76 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ERRORFX(-1) | -0.117915 | 0.052127 | -2.262091 | 0.0266 |
| D(ERRORFX(-1)) | 0.170912 | 0.111445 | 1.533609 | 0.1294 |
| R-squared | 0.077016 | Mean dependent var | | -0.000666 |
| Adjusted R-squared | 0.064543 | S.D. dependent var | | 0.049553 |
| S.E. of regression | 0.047927 | Akaike info criterion | | -3.212311 |
| Sum squared resid | 0.169978 | Schwarz criterion | | -3.150976 |
| Log likelihood | 124.0678 | Durbin-Watson stat | | 2.035051 |

ที่มา : จากการคำนวณ

อัตราดอกเบี้ยเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|-----------|
| Null Hypothesis: ERRORINT has a unit root | | | | |
| Exogenous: None | | | | |
| Lag Length: 1 (Fixed) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -2.516806 | 0.0124 |
| Test critical values: | 1% level | | -2.595745 | |
| | 5% level | | -1.945139 | |
| | 10% level | | -1.613983 | |
| *MacKinnon (1996) one-sided p-values. | | | | |
| Augmented Dickey-Fuller Test Equation | | | | |
| Dependent Variable: D(ERRORINT) | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:48 | | | | |
| Sample (adjusted): 3 78 | | | | |
| Included observations: 76 after adjustments | | | | |
| | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ERRORINT(-1) | -0.067003 | 0.026622 | -2.516806 | 0.014 |
| D(ERRORINT(-1)) | 0.225166 | 0.108703 | 2.071386 | 0.0418 |
| | | | | |
| R-squared | 0.076878 | Mean dependent var | | -0.0129 |
| Adjusted R-squared | 0.064403 | S.D. dependent var | | 0.050179 |
| S.E. of regression | 0.048536 | Akaike info criterion | | -3.187066 |
| Sum squared resid | 0.174324 | Schwarz criterion | | -3.125731 |
| Log likelihood | 123.1085 | Durbin-Watson stat | | 2.014248 |

ที่มา : จากการคำนวณ

ราคาน้ำมันเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|-----------|
| Null Hypothesis: ERROROIL has a unit root | | | | |
| Exogenous: None | | | | |
| Lag Length: 0 (Automatic based on SIC, MAXLAG=12) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -3.942305 | 0.0001 |
| Test critical values: | 1% level | | -2.59534 | |
| | 5% level | | -1.945081 | |
| | 10% level | | -1.614017 | |
| *MacKinnon (1996) one-sided p-values. | | | | |
| Augmented Dickey-Fuller Test Equation | | | | |
| Dependent Variable: D(ERROROIL) | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 15:04 | | | | |
| Sample (adjusted): 2 78 | | | | |
| Included observations: 77 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ERROROIL(-1) | -0.33836 | 0.085828 | -3.942305 | 0.0002 |
| R-squared | 0.168985 | Mean dependent var | | 0.002028 |
| Adjusted R-squared | 0.168985 | S.D. dependent var | | 0.066032 |
| S.E. of regression | 0.060195 | Akaike info criterion | | -2.769546 |
| Sum squared resid | 0.275383 | Schwarz criterion | | -2.739107 |
| Log likelihood | 107.6275 | Durbin-Watson stat | | 2.178049 |

ที่มา : จากการคำนวณ

ผลการประมาณค่าสัมประสิทธิ์ โดยใช้ Error Correction Model (ECM)

ดัชนีราคาผู้บริโภคเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|--------|
| Dependent Variable: D(GP) | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:58 | | | | |
| Sample (adjusted): 2 78 | | | | |
| Included observations: 77 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.010659 | 0.004216 | -2.528146 | 0.0136 |
| D(CPI) | -0.669886 | 0.993364 | -0.674362 | 0.5022 |
| ERRORCPI(-1) | -0.024377 | 0.032895 | -0.741066 | 0.461 |
| R-squared | 0.01124 | Mean dependent var | -0.011143 | |
| Adjusted R-squared | -0.015484 | S.D. dependent var | 0.036346 | |
| S.E. of regression | 0.036626 | Akaike info criterion | -3.737908 | |
| Sum squared resid | 0.099271 | Schwarz criterion | -3.646591 | |
| Log likelihood | 146.9095 | F-statistic | 0.42059 | |
| Durbin-Watson stat | 2.132502 | Prob(F-statistic) | 0.658219 | |

ที่มา : จากการคำนวณ

อัตราแลกเปลี่ยนเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|--------|
| Dependent Variable: D(GP) | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:33 | | | | |
| Sample (adjusted): 2 78 | | | | |
| Included observations: 77 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.010903 | 0.004116 | -2.649137 | 0.0099 |
| D(FX) | -0.031884 | 0.276845 | -0.115168 | 0.9086 |
| ERRORFX(-1) | -0.104213 | 0.036921 | -2.822565 | 0.0061 |
| R-squared | 0.097285 | Mean dependent var | -0.011143 | |
| Adjusted R-squared | 0.072888 | S.D. dependent var | 0.036346 | |
| S.E. of regression | 0.034997 | Akaike info criterion | -3.828954 | |
| Sum squared resid | 0.090632 | Schwarz criterion | -3.737637 | |
| Log likelihood | 150.4147 | F-statistic | 3.987483 | |
| Durbin-Watson stat | 2.113876 | Prob(F-statistic) | 0.022666 | |

ที่มา : จากการคำนวณ

อัตราดอกเบี้ยเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|-----------|
| Dependent Variable: D(GP) | | | | |
| Method: Least Squares | | | | |
| Date: 10/01/08 Time: 14:50 | | | | |
| Sample (adjusted): 2 78 | | | | |
| Included observations: 77 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.011184 | 0.004188 | -2.670489 | 0.0093 |
| D(INT) | 0.024251 | 0.055066 | 0.440402 | 0.6609 |
| ERRORINT(-1) | -0.014519 | 0.02016 | -0.720172 | 0.4737 |
| R-squared | 0.007502 | Mean dependent var | | -0.011143 |
| Adjusted R-squared | -0.019322 | S.D. dependent var | | 0.036346 |
| S.E. of regression | 0.036696 | Akaike info criterion | | -3.734136 |
| Sum squared resid | 0.099646 | Schwarz criterion | | -3.642819 |
| Log likelihood | 146.7642 | F-statistic | | 0.279688 |
| Durbin-Watson stat | 2.103478 | Prob(F-statistic) | | 0.756815 |

ที่มา : จากการคำนวณ

ราคาน้ำมันเป็นตัวแปรอิสระและราคาทองคำเป็นตัวแปรตาม

| | | | | |
|---|-------------|-----------------------|-------------|-----------|
| Dependent Variable: D(GP) | | | | |
| Method: Least Squares | | | | |
| Date: 10/22/08 Time: 11:49 | | | | |
| Sample (adjusted): 6 78 | | | | |
| Included observations: 73 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.009708 | 0.005377 | -1.805457 | 0.0756 |
| D(OIL) | -0.032152 | 0.050043 | -0.642491 | 0.5228 |
| ERROROIL(-1) | -0.11035 | 0.062681 | -1.760505 | 0.083 |
| D(GP(-1)) | 0.015563 | 0.130756 | 0.119019 | 0.9056 |
| D(GP(-2)) | -0.079714 | 0.119631 | -0.666332 | 0.5075 |
| D(GP(-3)) | 0.118451 | 0.120239 | 0.985129 | 0.3282 |
| D(GP(-4)) | 0.235174 | 0.119775 | 1.963467 | 0.0538 |
| R-squared | 0.124583 | Mean dependent var | | -0.012 |
| Adjusted R-squared | 0.044999 | S.D. dependent var | | 0.036573 |
| S.E. of regression | 0.035741 | Akaike info criterion | | -3.734081 |
| Sum squared resid | 0.084308 | Schwarz criterion | | -3.514448 |
| Log likelihood | 143.2939 | F-statistic | | 1.565436 |
| Durbin-Watson stat | 1.887695 | Prob(F-statistic) | | 0.171221 |

ที่มา : จากการคำนวณ

ผลการทดสอบการหาช่วงเวลาที่เหมาะสม

ระหว่างราคาทองคำและดัชนีราคาผู้บริโภค

| VAR Lag Order Selection Criteria | | | | | | |
|---|----------|-----------|-----------|------------|------------|------------|
| Endogenous variables: GP CPI | | | | | | |
| Exogenous variables: C | | | | | | |
| Date: 10/22/08 Time: 11:58 | | | | | | |
| Sample: 1 78 | | | | | | |
| Included observations: 75 | | | | | | |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | 274.9377 | NA | 2.37E-06 | -7.278338 | -7.216539 | -7.253662 |
| 1 | 453.342 | 342.5362* | 2.26E-08 | -11.92912 | -11.74372* | -11.85509* |
| 2 | 458.1709 | 9.013941 | 2.21e-08* | -11.95122* | -11.64222 | -11.82784 |
| 3 | 460.0812 | 3.464086 | 2.34E-08 | -11.8955 | -11.4629 | -11.72277 |
| * indicates lag order selected by the criterion | | | | | | |
| LR: sequential modified LR test statistic (each test at 5% level) | | | | | | |
| FPE: Final prediction error | | | | | | |
| AIC: Akaike information criterion | | | | | | |
| SC: Schwarz information criterion | | | | | | |
| HQ: Hannan-Quinn information criterion | | | | | | |

ที่มา : จากการคำนวณ

ระหว่างราคาทองคำและอัตราแลกเปลี่ยน

| VAR Lag Order Selection Criteria | | | | | | |
|---|----------|-----------|-----------|------------|------------|------------|
| Endogenous variables: GP FX | | | | | | |
| Exogenous variables: C | | | | | | |
| Date: 10/22/08 Time: 12:02 | | | | | | |
| Sample: 1 78 | | | | | | |
| Included observations: 75 | | | | | | |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | 139.8336 | NA | 8.69E-05 | -3.675564 | -3.613764 | -3.650888 |
| 1 | 363.3944 | 429.2368 | 2.49E-07 | -9.530519 | -9.345120* | -9.456491* |
| 2 | 368.4872 | 9.506552* | 2.42e-07* | -9.559660* | -9.250661 | -9.43628 |
| 3 | 370.9313 | 4.431887 | 2.52E-07 | -9.518168 | -9.08557 | -9.345436 |
| * indicates lag order selected by the criterion | | | | | | |
| LR: sequential modified LR test statistic (each test at 5% level) | | | | | | |
| FPE: Final prediction error | | | | | | |
| AIC: Akaike information criterion | | | | | | |
| SC: Schwarz information criterion | | | | | | |
| HQ: Hannan-Quinn information criterion | | | | | | |

ที่มา : จากการคำนวณ

ระหว่างราคาทองคำและอัตราดอกเบี้ย

| VAR Lag Order Selection Criteria | | | | | | |
|---|----------|-----------|-----------|------------|------------|------------|
| Endogenous variables: GP INT | | | | | | |
| Exogenous variables: C | | | | | | |
| Date: 10/22/08 Time: 12:04 | | | | | | |
| Sample: 1 78 | | | | | | |
| Included observations: 75 | | | | | | |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | 24.41119 | NA | 0.001886 | -0.597632 | -0.535832 | -0.572956 |
| 1 | 232.8472 | 400.1971* | 8.09e-06* | -6.049258* | -5.863859* | -5.975230* |
| 2 | 236.7244 | 7.23752 | 8.12E-06 | -6.045984 | -5.736986 | -5.922605 |
| 3 | 239.6137 | 5.23923 | 8.37E-06 | -6.016365 | -5.583767 | -5.843633 |
| * indicates lag order selected by the criterion | | | | | | |
| LR: sequential modified LR test statistic (each test at 5% level) | | | | | | |
| FPE: Final prediction error | | | | | | |
| AIC: Akaike information criterion | | | | | | |
| SC: Schwarz information criterion | | | | | | |
| HQ: Hannan-Quinn information criterion | | | | | | |

ที่มา : จากการคำนวณ

ระหว่างราคาทองคำและราคาน้ำมัน

| VAR Lag Order Selection Criteria | | | | | | |
|---|----------|-----------|-----------|------------|------------|------------|
| Endogenous variables: GP OIL | | | | | | |
| Exogenous variables: C | | | | | | |
| Date: 10/22/08 Time: 12:06 | | | | | | |
| Sample: 1 78 | | | | | | |
| Included observations: 75 | | | | | | |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | 41.34961 | NA | 0.0012 | -1.049323 | -0.987523 | -1.024647 |
| 1 | 219.9981 | 343.0050* | 1.14e-05* | -5.706615* | -5.521216* | -5.632587* |
| 2 | 222.4601 | 4.595861 | 1.19E-05 | -5.665604 | -5.356605 | -5.542224 |
| 3 | 226.6146 | 7.533484 | 1.18E-05 | -5.669724 | -5.237126 | -5.496992 |
| * indicates lag order selected by the criterion | | | | | | |
| LR: sequential modified LR test statistic (each test at 5% level) | | | | | | |
| FPE: Final prediction error | | | | | | |
| AIC: Akaike information criterion | | | | | | |
| SC: Schwarz information criterion | | | | | | |
| HQ: Hannan-Quinn information criterion | | | | | | |

ที่มา : จากการคำนวณ

ผลการทดสอบ Granger Causality

ระหว่างราคาทองคำและดัชนีราคาผู้บริโภค

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|-------------|
| Date: 10/22/08 Time: 11:59 | | | |
| Sample: 1 78 | | | |
| Lags: 1 | | | |
| Null Hypothesis: | Obs | F-Statistic | Probability |
| CPI does not Granger Cause GP | 77 | 0.01431 | 0.90511 |
| GP does not Granger Cause CPI | | 3.29707 | 0.07345 |

ที่มา : จากการคำนวณ

ระหว่างราคาทองคำและอัตราแลกเปลี่ยน

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|-------------|
| Date: 10/22/08 Time: 16:25 | | | |
| Sample: 1 78 | | | |
| Lags: 2 | | | |
| Null Hypothesis: | Obs | F-Statistic | Probability |
| FX does not Granger Cause GP | 76 | 3.63469 | 0.03142 |
| GP does not Granger Cause FX | | 1.93929 | 0.15135 |

ที่มา : จากการคำนวณ

ระหว่างราคาทองคำและอัตราดอกเบี้ย

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|-------------|
| Date: 10/22/08 Time: 12:05 | | | |
| Sample: 1 78 | | | |
| Lags: 1 | | | |
| Null Hypothesis: | Obs | F-Statistic | Probability |
| INT does not Granger Cause GP | 77 | 0.45333 | 0.50285 |
| GP does not Granger Cause INT | | 10.7659 | 0.00158 |

ที่มา : จากการคำนวณ

ระหว่างราคาทองคำและราคาน้ำมัน

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|-------------|
| Date: 10/22/08 Time: 12:07 | | | |
| Sample: 1 78 | | | |
| Lags: 1 | | | |
| Null Hypothesis: | Obs | F-Statistic | Probability |
| OIL does not Granger Cause GP | 77 | 2.21973 | 0.14051 |
| GP does not Granger Cause OIL | | 15.0132 | 0.00023 |

ที่มา : จากการคำนวณ

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ประวัติผู้เขียน

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| ชื่อ-สกุล | นายกิติวัฒน์ ตูลสงวน |
| วัน เดือน ปีเกิด | 28 สิงหาคม 2520 |
| ประวัติการศึกษา | <ul style="list-style-type: none"> - พ.ศ.2536 สำเร็จการศึกษาระดับมัธยมศึกษาตอนต้น โรงเรียนมัธยมวิทยา จังหวัดลำปาง - พ.ศ.2538 สำเร็จการศึกษาระดับมัธยมศึกษาตอนปลาย โรงเรียนบุญวาทย์วิทยาลัย จังหวัดลำปาง - พ.ศ.2542 สำเร็จการศึกษาระดับปริญญาตรี คณะบริหารธุรกิจ สาขาเอก การจัดการธุรกิจระหว่างประเทศ มหาวิทยาลัยอัสสัมชัญ |
| ประสบการณ์ในการทำงาน | <ul style="list-style-type: none"> - พ.ศ. 2543 บริษัท ซีจี ปิโตรเคมีคอล จำกัด ตำแหน่งเจ้าหน้าที่ ประสานงานขายระหว่างประเทศ - พ.ศ. 2545 บริษัท บางกอกพีวีซี จำกัด มหาชน ตำแหน่งเจ้าหน้าที่ ฝ่ายขายต่างประเทศ - พ.ศ. 2547 บริษัท อุตสาหกรรมพรมไทย จำกัด มหาชน ตำแหน่ง เจ้าหน้าที่ฝ่ายขายต่างประเทศ - ปัจจุบัน ร้านทองเพชรสุวรรณ ลำปาง |