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一~二、繪製交易量、大盤指數的時間趨勢圖&相關係數

* 繪製每家公司的股價&交易量、股價&大盤指數的時間趨勢圖（左軸顯示股價，右軸顯示交易量/大盤指數）
* 分別顯示出「價量關係」、「系統風險」。

|  |  |
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| 時報 | |
| C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\時報_交易量趨勢.png | C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\時報_大盤趨勢.png |
| corr(y1, x1\_1) = 0.00084324 | corr(y1, x9) = 0.58507126 |
| 橘子 | |
| C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\橘子_交易量趨勢.png | C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\橘子_大盤趨勢.png |
| corr(y2, x2\_1) = 0.25791137 | corr(y2, x9) = 0.53680968 |
| 智冠 | |
| C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\智冠_交易量趨勢.png | C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\智冠_大盤趨勢.png |
| corr(y3, x3\_1) = 0.33000515 | corr(y3, x9) = 0.18275787 |
| 寬魚國際 | |
| C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\寬魚國際_交易量趨勢.png | C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\寬魚國際_大盤趨勢.png |
| corr(y4, x4\_1) = 0.08377580 | corr(y4, x9) = 0.57072061 |
| 大宇資 | |
| C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\大宇資_成交量趨勢.png | C:\Users\88691\AppData\Local\Microsoft\Windows\INetCache\Content.Word\大宇資_大盤趨勢.png |
| corr(y5, x5\_1) = 0.42848507 | corr(y5, x9) = 0.48217544 |

三、計算敘述統計量（平均數、標準差、偏態、峰度）

y –> 收盤價

x()\_1~4 –> 成交量、本益比(PEratio)、單月營收成長率、每股盈餘(EPS)

x6~9–> 經濟成長率、定存利率、通貨膨脹、大盤指數

時報

敘述統計, 所使用的樣本為 2002:05 - 2024:09

(排除遺漏值之變數 (missing values))

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 變數 | Mean | Median | Minimum | Maximum |
| y1 | 15.950 | 15.875 | 8.3900 | 22.350 |
| x1\_1 | 331.07 | 137.00 | 0.00000 | 7392.0 |
| x1\_2 | 16.379 | 15.185 | 8.5300 | 36.780 |
| x1\_3 | 4.9913 | -1.0200 | -54.750 | 196.46 |
| x1\_4 | 0.64323 | 0.60667 | 0.010000 | 1.5000 |
| 變數 | Std. Dev. | C.V. | Skewness | Ex. kurtosis |
| y1 | 2.6398 | 0.16550 | -0.12569 | -0.049834 |
| x1\_1 | 755.29 | 2.2814 | 6.3372 | 47.403 |
| x1\_2 | 5.7893 | 0.35347 | 1.8576 | 3.4868 |
| x1\_3 | 34.988 | 7.0098 | 2.1667 | 8.3719 |
| x1\_4 | 0.29444 | 0.45775 | 0.51386 | -0.18563 |
| 變數 | 5% Perc. | 95% Perc. | IQ range | Missing obs. |
| y1 | 12.145 | 20.432 | 3.7750 | 1 |
| x1\_1 | 15.500 | 1089.5 | 232.50 | 0 |
| x1\_2 | 10.486 | 30.653 | 4.8750 | 1 |
| x1\_3 | -38.435 | 65.255 | 36.910 | 0 |
| x1\_4 | 0.20167 | 1.1833 | 0.40167 | 0 |

橘子

敘述統計, 所使用的樣本為 2002:05 - 2024:09

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 變數 | Mean | Median | Minimum | Maximum |
| y2 | 45.549 | 38.350 | 13.050 | 174.00 |
| x2\_1 | 47524. | 27000. | 2000.0 | 3.9100e+005 |
| x2\_2 | 36.241 | 21.150 | 5.1700 | 258.29 |
| X2\_3 | 9.8748 | 3.1700 | -52.690 | 174.69 |
| x2\_4 | 1.9000 | 1.3833 | -2.4500 | 11.100 |
| 變數 | Std. Dev. | C.V. | Skewness | Ex. kurtosis |
| y2 | 23.708 | 0.52049 | 1.2936 | 3.8314 |
| x2\_1 | 55459. | 1.1670 | 2.8895 | 10.517 |
| x2\_2 | 39.739 | 1.0965 | 2.7230 | 9.6557 |
| X2\_3 | 35.231 | 3.5678 | 1.5995 | 3.6395 |
| x2\_4 | 2.3938 | 1.2599 | 1.0743 | 1.4087 |
| 變數 | 5% Perc. | 95% Perc. | IQ range | Missing obs. |
| y2 | 15.550 | 79.850 | 35.600 | 0 |
| x2\_1 | 6000.0 | 1.5150e+005 | 43500. | 0 |
| x2\_2 | 7.1400 | 101.98 | 41.010 | 0 |
| X2\_3 | -31.750 | 91.675 | 34.935 | 0 |
| x2\_4 | -1.2867 | 7.2067 | 2.6033 | 0 |

智冠

敘述統計, 所使用的樣本為 2002:05 - 2024:09

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 變數 | Mean | Median | Minimum | Maximum |
| y3 | 89.109 | 81.200 | 24.850 | 203.50 |
| x3\_1 | 23948. | 15000. | 1000.0 | 1.6700e+005 |
| x3\_2 | 21.181 | 19.220 | 6.9200 | 57.770 |
| x3\_3 | 11.753 | 9.1800 | -75.070 | 197.76 |
| x3\_4 | 3.6191 | 3.0833 | 0.17000 | 12.020 |
| 變數 | Std. Dev. | C.V. | Skewness | Ex. kurtosis |
| y3 | 34.373 | 0.38574 | 0.83851 | 0.52129 |
| x3\_1 | 25264. | 1.0549 | 2.1969 | 6.2057 |
| x3\_2 | 9.3028 | 0.43921 | 1.1834 | 1.4175 |
| x3\_3 | 34.427 | 2.9292 | 1.1627 | 5.3548 |
| x3\_4 | 2.1617 | 0.59729 | 0.93196 | 0.53088 |
| 變數 | 5% Perc. | 95% Perc. | IQ range | Missing obs. |
| y3 | 41.975 | 156.00 | 38.850 | 0 |
| x3\_1 | 2000.0 | 79000. | 22500. | 0 |
| x3\_2 | 10.155 | 42.750 | 11.810 | 0 |
| x3\_3 | -40.890 | 66.205 | 29.430 | 0 |
| x3\_4 | 0.85833 | 7.9217 | 2.8667 | 0 |

寬魚國際

敘述統計, 所使用的樣本為 2002:05 - 2024:09

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 變數 | Mean | Median | Minimum | Maximum |
| y4 | 21.224 | 17.500 | 1.0900 | 81.100 |
| x4\_1 | 4903.3 | 2000.0 | 0.00000 | 1.1400e+005 |
| x4\_2 | 146.33 | 86.453 | 6.0300 | 973.81 |
| x4\_3 | 5662.9 | -5.4200 | -100.00 | 9.5042e+005 |
| x4\_4 | -0.36764 | -0.14333 | -4.6900 | 1.3100 |
| 變數 | Std. Dev. | C.V. | Skewness | Ex. kurtosis |
| y4 | 15.429 | 0.72694 | 1.1204 | 0.91727 |
| x4\_1 | 9704.1 | 1.9791 | 6.8002 | 63.662 |
| x4\_2 | 152.71 | 1.0436 | 2.2626 | 6.3852 |
| x4\_3 | 59115. | 10.439 | 15.316 | 241.43 |
| x4\_4 | 0.96503 | 2.6249 | -1.4548 | 2.6599 |
| 變數 | 5% Perc. | 95% Perc. | IQ range | Missing obs. |
| y4 | 2.4550 | 52.500 | 18.975 | 0 |
| x4\_1 | 0.00000 | 16500. | 5000.0 | 0 |
| x4\_2 | 9.4900 | 472.62 | 151.75 | 0 |
| x4\_3 | -97.415 | 5943.1 | 114.85 | 0 |
| x4\_4 | -2.3567 | 0.76333 | 0.96000 | 0 |

大宇資

敘述統計, 所使用的樣本為 2002:05 - 2024:09

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 變數 | Mean | Median | Minimum | Maximum |
| y5 | 52.771 | 40.550 | 6.0100 | 235.50 |
| x5\_1 | 11901. | 3794.0 | 23.000 | 1.6762e+005 |
| x5\_2 | 125.55 | 9.7300 | -0.76533 | 984.51 |
| x5\_3 | 44.588 | 4.3900 | -82.360 | 1260.9 |
| x5\_4 | 0.10141 | -0.010000 | -6.4900 | 11.320 |
| 變數 | Std. Dev. | C.V. | Skewness | Ex. kurtosis |
| y5 | 37.402 | 0.70877 | 0.81014 | 0.84023 |
| x5\_1 | 21111. | 1.7739 | 4.2805 | 24.244 |
| x5\_2 | 172.99 | 1.3778 | 1.4702 | 2.3766 |
| x5\_3 | 135.79 | 3.0454 | 3.7774 | 24.402 |
| x5\_4 | 2.8433 | 28.037 | 0.83820 | 1.5482 |
| 變數 | 5% Perc. | 95% Perc. | IQ range | Missing obs. |
| y5 | 9.6800 | 119.50 | 61.225 | 0 |
| x5\_1 | 64.500 | 46919. | 14227. | 0 |
| x5\_2 | -0.41176 | 378.49 | 320.24 | 0 |
| x5\_3 | -60.790 | 317.72 | 96.770 | 0 |
| x5\_4 | -4.1267 | 5.3417 | 3.1200 | 0 |

外部環境

敘述統計, 所使用的樣本為 2002:05 - 2024:09

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 變數 | Mean | Median | Minimum | Maximum |
| x6 | 3.9112 | 3.9800 | -7.8800 | 12.020 |
| x7 | 0.92532 | 0.87000 | 0.29000 | 2.1900 |
| x8 | 0.10651 | 0.14000 | -1.8300 | 2.1300 |
| x9 | 9721.8 | 8611.5 | 4148.1 | 23032. |
| 變數 | Std. Dev. | C.V. | Skewness | Ex. kurtosis |
| x6 | 3.5550 | 0.90893 | -0.67879 | 1.8195 |
| x7 | 0.46740 | 0.50513 | 0.93243 | 0.29794 |
| x8 | 0.61976 | 5.8190 | -0.085341 | 0.86744 |
| x9 | 4063.7 | 0.41800 | 1.2539 | 1.0608 |
| 變數 | 5% Perc. | 95% Perc. | IQ range | Missing obs. |
| x6 | -1.3900 | 9.5700 | 3.9000 | 0 |
| x7 | 0.34000 | 2.0000 | 0.50000 | 0 |
| x8 | -1.0250 | 1.1450 | 0.69500 | 0 |
| x9 | 4817.8 | 17724. | 3781.0 | 0 |

四、計算投資報酬率

五、計算CAPM

時報

Model 1: OLS, 使用中之子樣本範圍: 2002:05-2024:09 (T = 266)

Missing or incomplete observations dropped: 3

應變數 (Dependent variable): CAPM\_y1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *Coefficient* | *Std. Error* | *t-值* | *p-value* |  |
| const | -0.0154430 | 0.00927835 | -1.664 | 0.0972 | \* |
| CAPM\_x | 0.988652 | 0.00896467 | 110.3 | <0.0001 | \*\*\* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mean dependent var | −0.923255 |  | S.D. dependent var | 0.478129 |
| Sum squared resid | 1.287048 |  | S.E. of regression | 0.069822 |
| R-squared | 0.978755 |  | Adjusted R-squared | 0.978674 |
| F(1, 264) | 12162.38 |  | P-value(F) | 7.8e-223 |
| Log-likelihood | 331.6047 |  | Akaike criterion | −659.2093 |
| Schwarz criterion | −652.0423 |  | Hannan-Quinn | −656.3301 |

橘子

Model 2: OLS, 使用中之子樣本範圍: 2002:06-2024:09 (T = 268)

應變數 (Dependent variable): CAPM\_y2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *Coefficient* | *Std. Error* | *t-值* | *p-value* |  |
| const | -0.00811351 | 0.0186148 | -0.4359 | 0.6633 |  |
| CAPM\_x | 1.00049 | 0.0180275 | 55.50 | <0.0001 | \*\*\* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mean dependent var | −0.924673 |  | S.D. dependent var | 0.497711 |
| Sum squared resid | 5.258001 |  | S.E. of regression | 0.140595 |
| R-squared | 0.920502 |  | Adjusted R-squared | 0.920203 |
| F(1, 266) | 3080.001 |  | P-value(F) | 2.8e-148 |
| Log-likelihood | 146.5101 |  | Akaike criterion | −289.0202 |
| Schwarz criterion | −281.8382 |  | Hannan-Quinn | −286.1356 |
| rho | −0.235641 |  | Durbin-Watson | 2.470775 |

智冠

Model 3: OLS, 使用中之子樣本範圍: 2002:06-2024:09 (T = 268)

應變數 (Dependent variable): CAPM\_y3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *Coefficient* | *Std. Error* | *t-值* | *p-value* |  |
| const | -0.0300399 | 0.0170725 | -1.760 | 0.0796 | \* |
| CAPM\_x | 0.973805 | 0.0165338 | 58.90 | <0.0001 | \*\*\* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mean dependent var | −0.922156 |  | S.D. dependent var | 0.482274 |
| Sum squared resid | 4.422788 |  | S.E. of regression | 0.128946 |
| R-squared | 0.928781 |  | Adjusted R-squared | 0.928513 |
| F(1, 266) | 3468.942 |  | P-value(F) | 1.3e-154 |
| Log-likelihood | 169.6895 |  | Akaike criterion | −335.3790 |
| Schwarz criterion | −328.1971 |  | Hannan-Quinn | −332.4944 |
| rho | −0.137879 |  | Durbin-Watson | 2.275600 |

寬魚國際

Model 4: OLS, 使用中之子樣本範圍: 2002:06-2024:09 (T = 268)

應變數 (Dependent variable): CAPM\_y4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *Coefficient* | *Std. Error* | *t-值* | *p-value* |  |
| const | 0.0174855 | 0.0270800 | 0.6457 | 0.5190 |  |
| CAPM\_x | 1.02383 | 0.0262256 | 39.04 | <0.0001 | \*\*\* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mean dependent var | −0.920464 |  | S.D. dependent var | 0.529591 |
| Sum squared resid | 11.12759 |  | S.E. of regression | 0.204531 |
| R-squared | 0.851403 |  | Adjusted R-squared | 0.850845 |
| F(1, 266) | 1524.080 |  | P-value(F) | 4.0e-112 |
| Log-likelihood | 46.05344 |  | Akaike criterion | −88.10689 |
| Schwarz criterion | −80.92491 |  | Hannan-Quinn | −85.22227 |
| rho | −0.106874 |  | Durbin-Watson | 2.211739 |

大宇資

Model 6: OLS, 使用中之子樣本範圍: 2002:06-2024:09 (T = 268)

應變數 (Dependent variable): ld\_y5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *Coefficient* | *Std. Error* | *t-值* | *p-value* |  |
| const | 0.00780615 | 0.0261466 | 0.2986 | 0.7655 |  |
| CAPM\_x | 0.00595337 | 0.0253217 | 0.2351 | 0.8143 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mean dependent var | 0.002352 |  | S.D. dependent var | 0.197132 |
| Sum squared resid | 10.37371 |  | S.E. of regression | 0.197481 |
| R-squared | 0.000208 |  | Adjusted R-squared | -0.003551 |
| F(1, 266) | 0.055276 |  | P-value(F) | 0.814305 |
| Log-likelihood | 55.45386 |  | Akaike criterion | −106.9077 |
| Schwarz criterion | −99.72576 |  | Hannan-Quinn | −104.0231 |
| rho | −0.176562 |  | Durbin-Watson | 2.352296 |

六、計算顯著變數

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