a)

mean excess return :

MSFT	0.008139487500000
AAPL	0.024927150000000
200040	3.500717499999999e-04
200041	8.420377916666673e-04
200042	0.001427185000000
200043	0.001986703333333
200044	0.002406108916667
S&P 500	0.004552520833333

standard deviations of the excess return is below

MSFT	0.083784697939440
AAPL	0.116376953341279
200040	9.265095452460656e-04
200041	0.003086405847659
200042	0.005669493453322
200043	0.008281589772066
200044	0.010883526501931
S&P 500	0.041934564745281

实际的 matlab 计算结果：图

M_017	0.0081
M_593	0.0249
M_bond0	3.5007e-04
M_bond1	8.4204e-04
M_bond2	0.0014
M_bond3	0.0020
M_bond4	0.0024
M_SP500	0.0046
n	240
r	*240x1 double*
rint	*240x2 double*
s	[0.1203,32.5516,3.4323e-08,1.0...
S_017	0.0838
S_593	0.1164
S_bond0	9.2651e-04
S_bond1	0.0031
S_bond2	0.0057
S_bond3	0.0083
S_bond4	0.0109
S_SP500	0.0419

b)

estimated coefficients (α and β) as well as the regression $\boldsymbol{R}$^2 are below

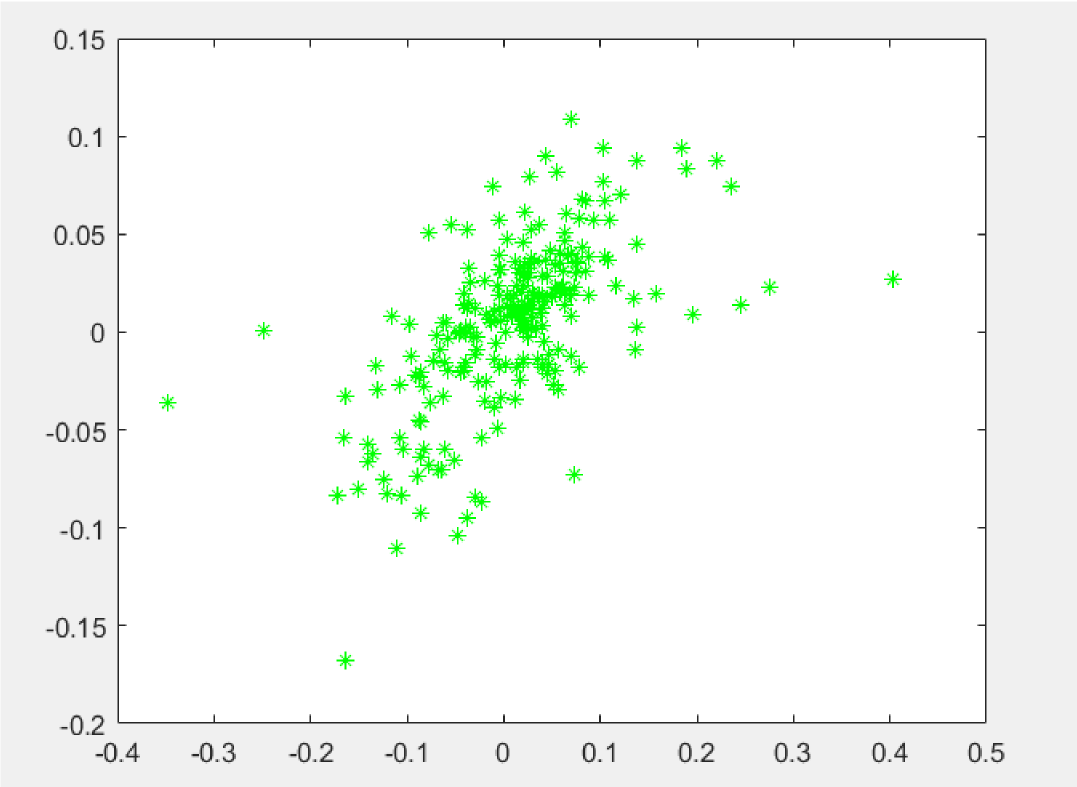
MSFT

α : 0.0026

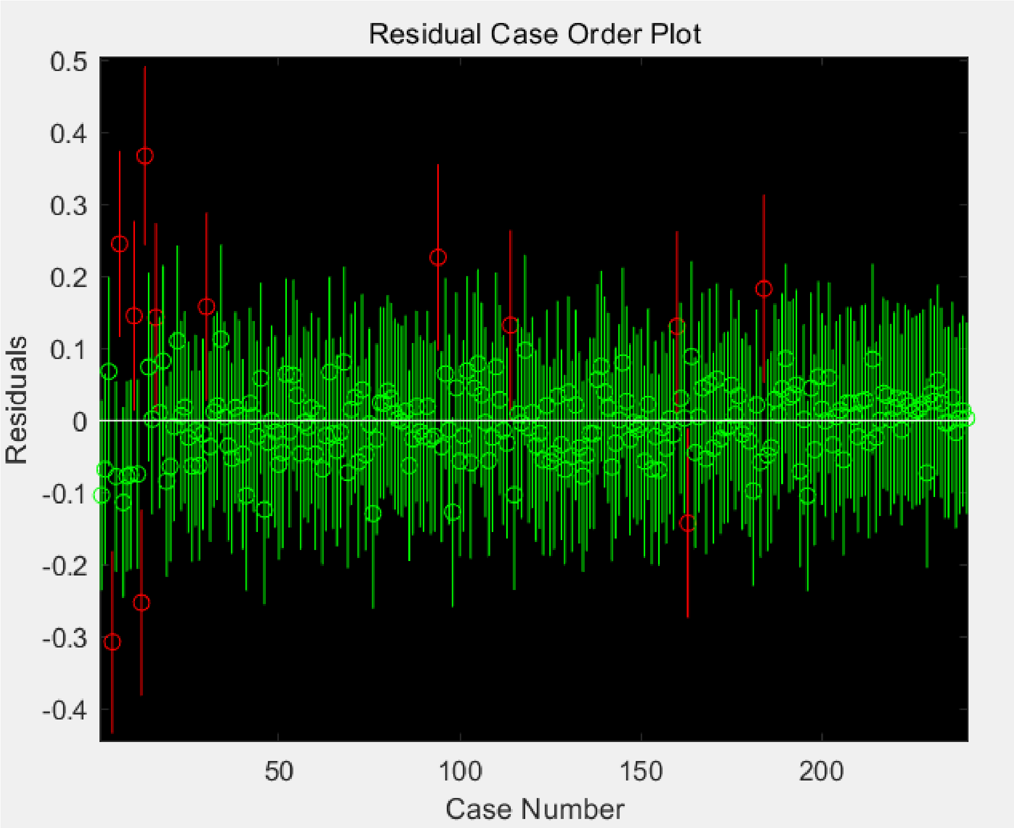
β : 1.2075

$\boldsymbol{R}$^2 : 0.3652

散点图

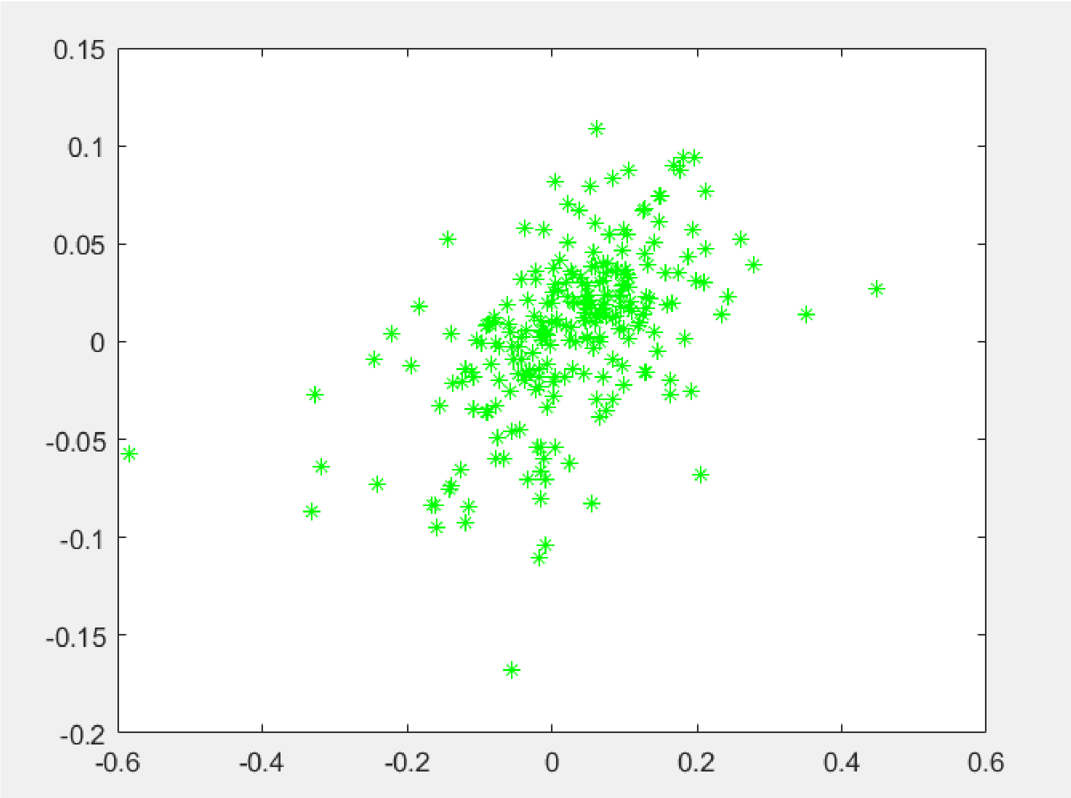


残差图



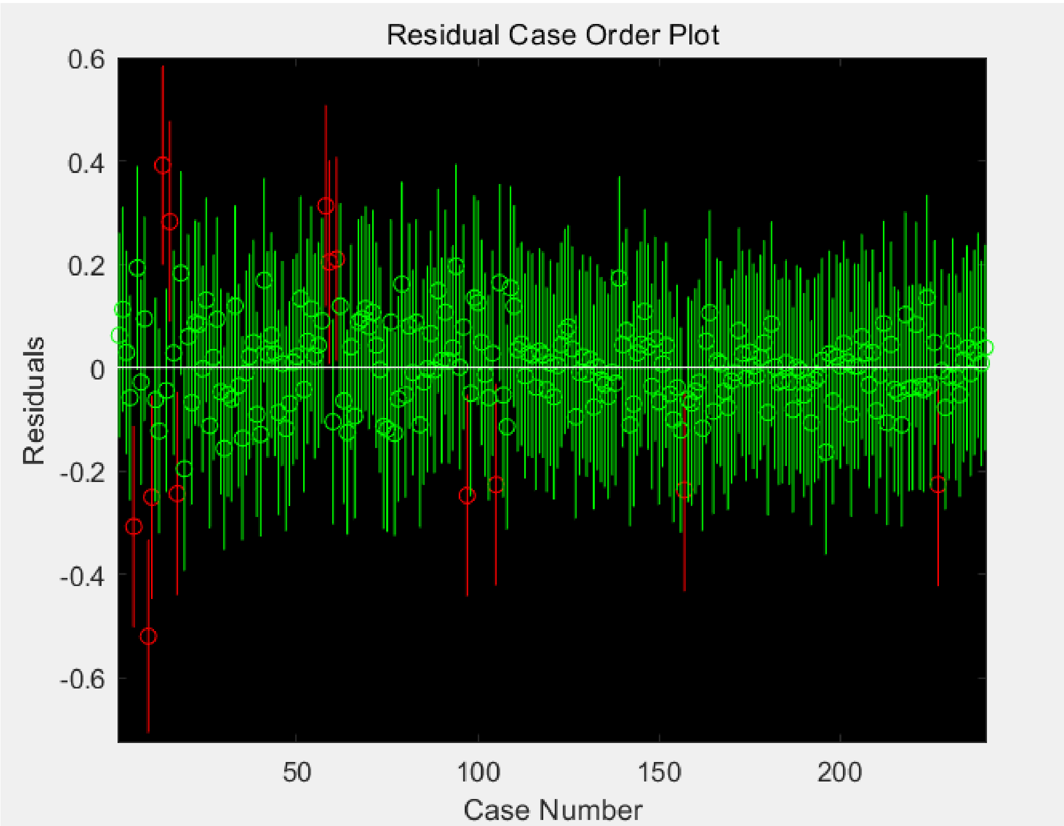
AAPL

α : 0.0185
β : 1.4130
$\boldsymbol{R}$^2 : 0.2592
散点图



0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.6
-0.4
-0.2
0
0.2
0.4
0.6

残差图

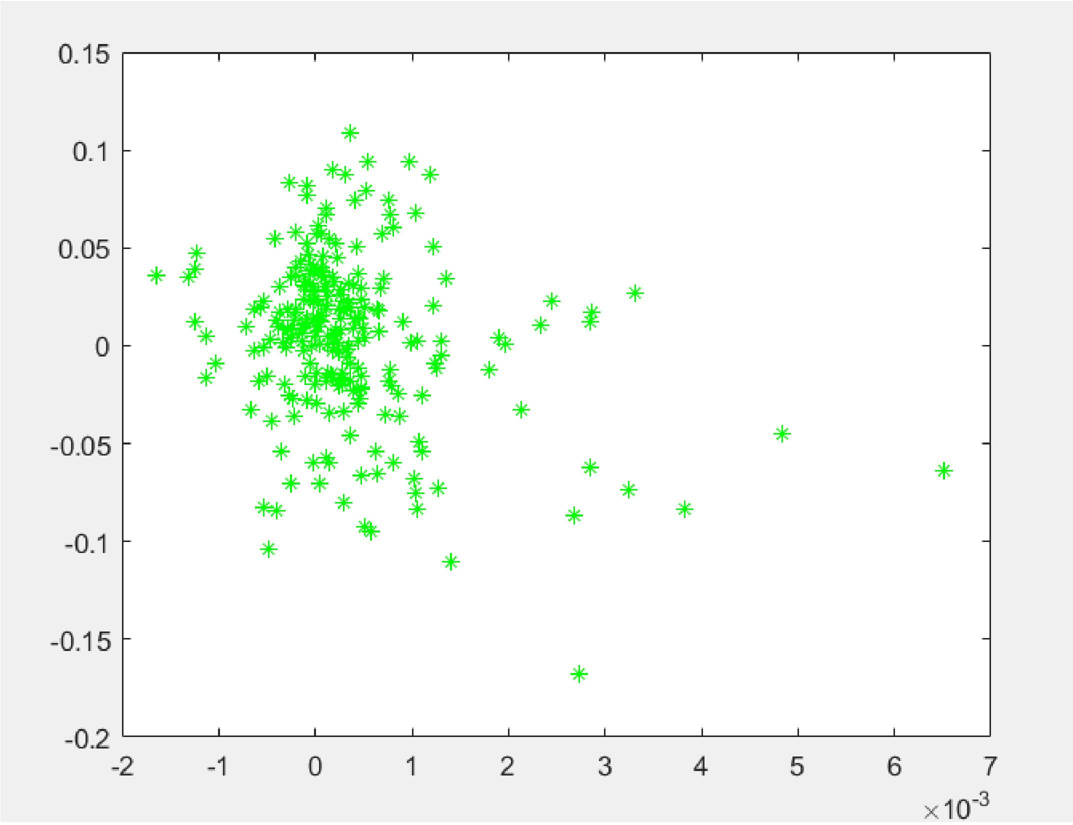


Residual Case Order Plot
Residuals
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
50
100
150
200
Case Number

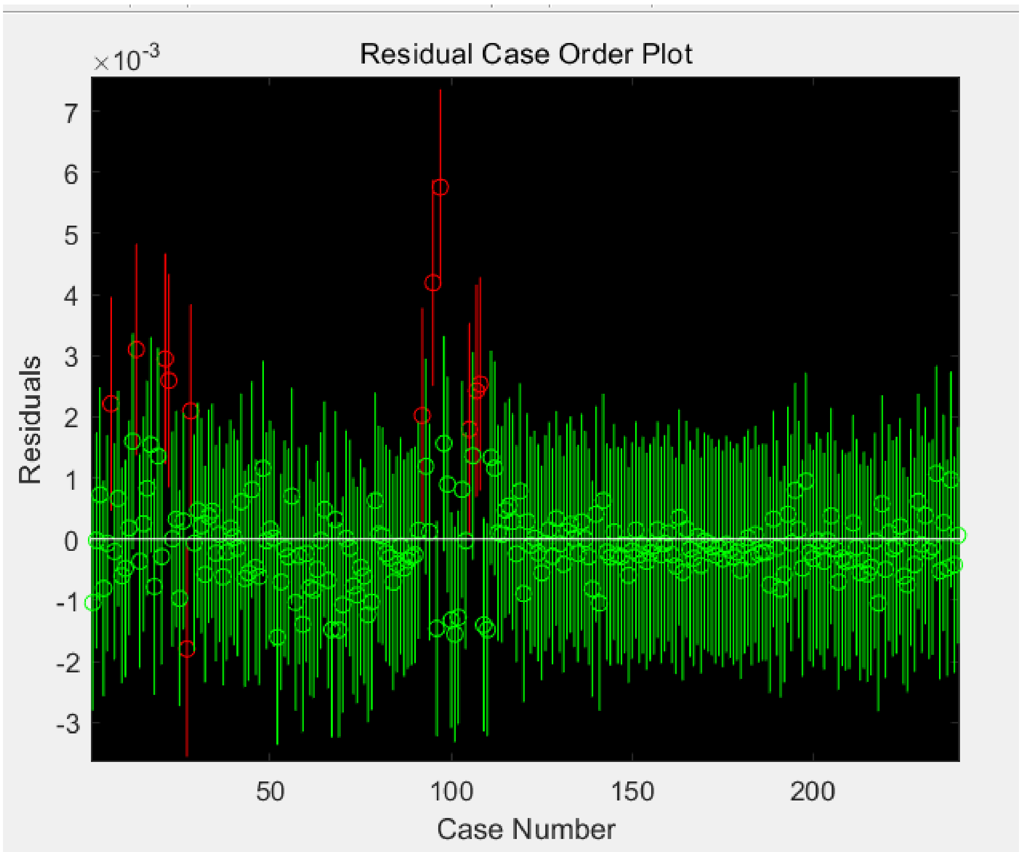
200040

α : 0.0004
β : -0.0059
$\boldsymbol{R}$^2 : 0.0725

散点图



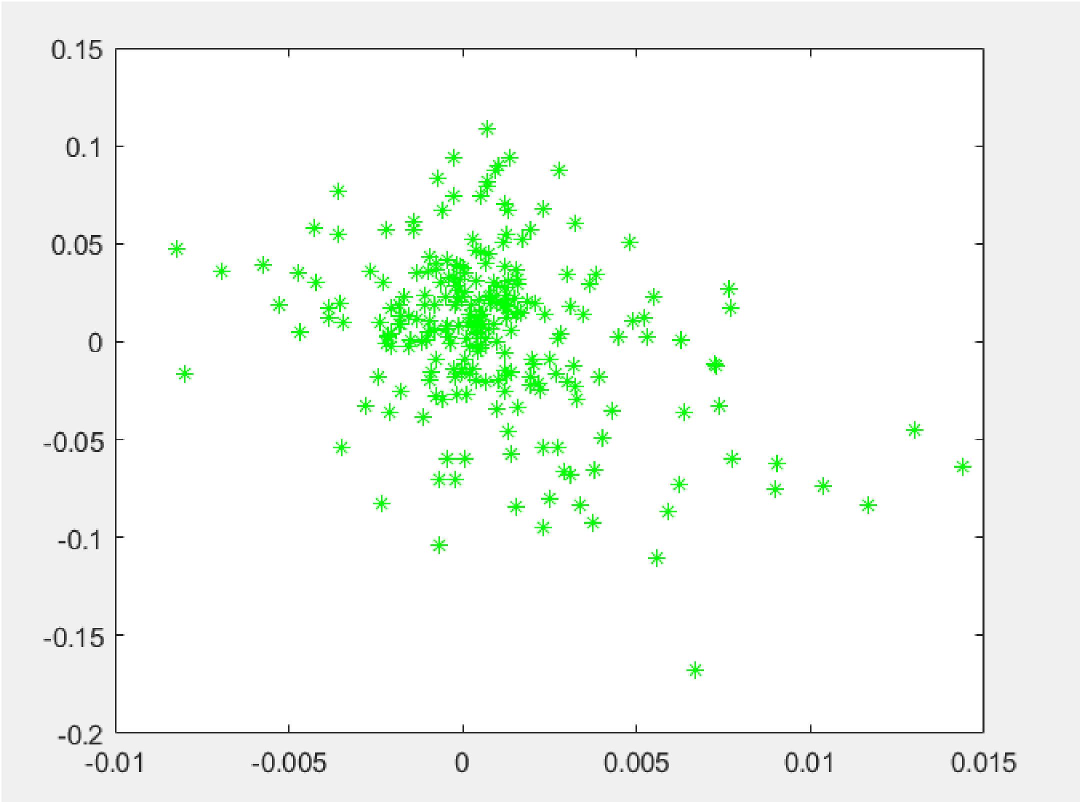
残差图



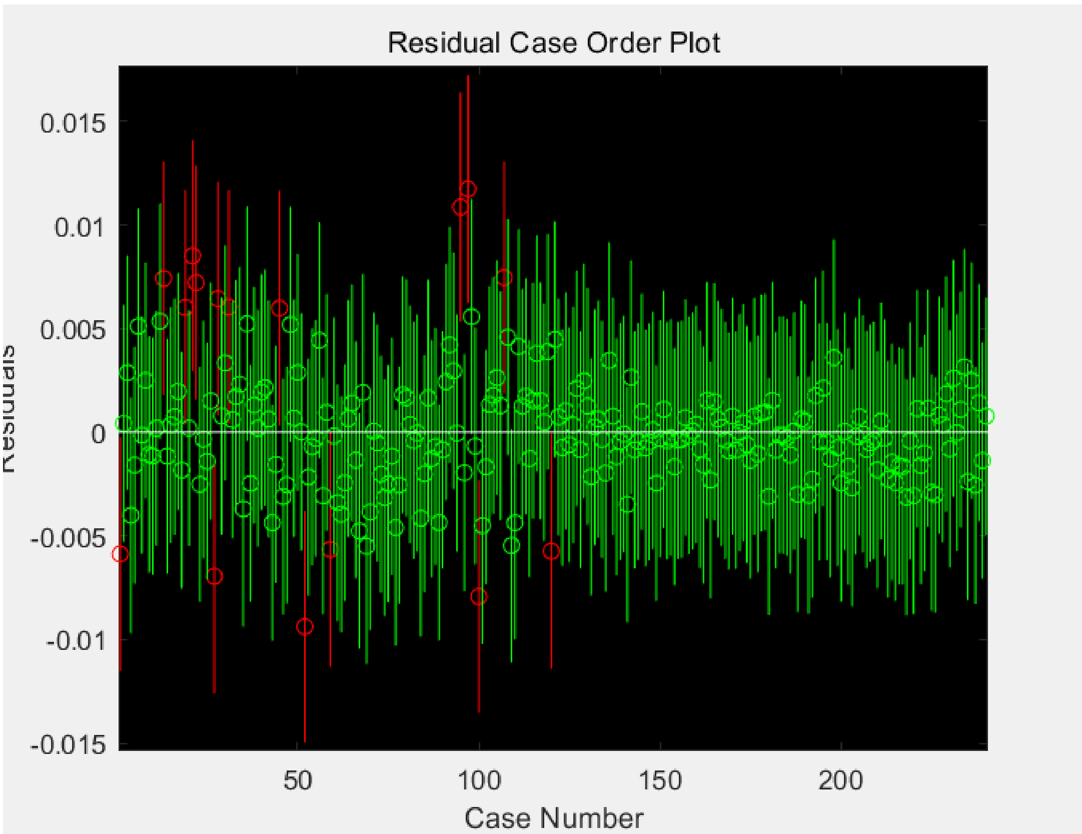
200041

α : 0.0010
β : -0.0265
R^2 : 0.1294

散点图


0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.01
-0.005
0
0.005
0.01
0.015

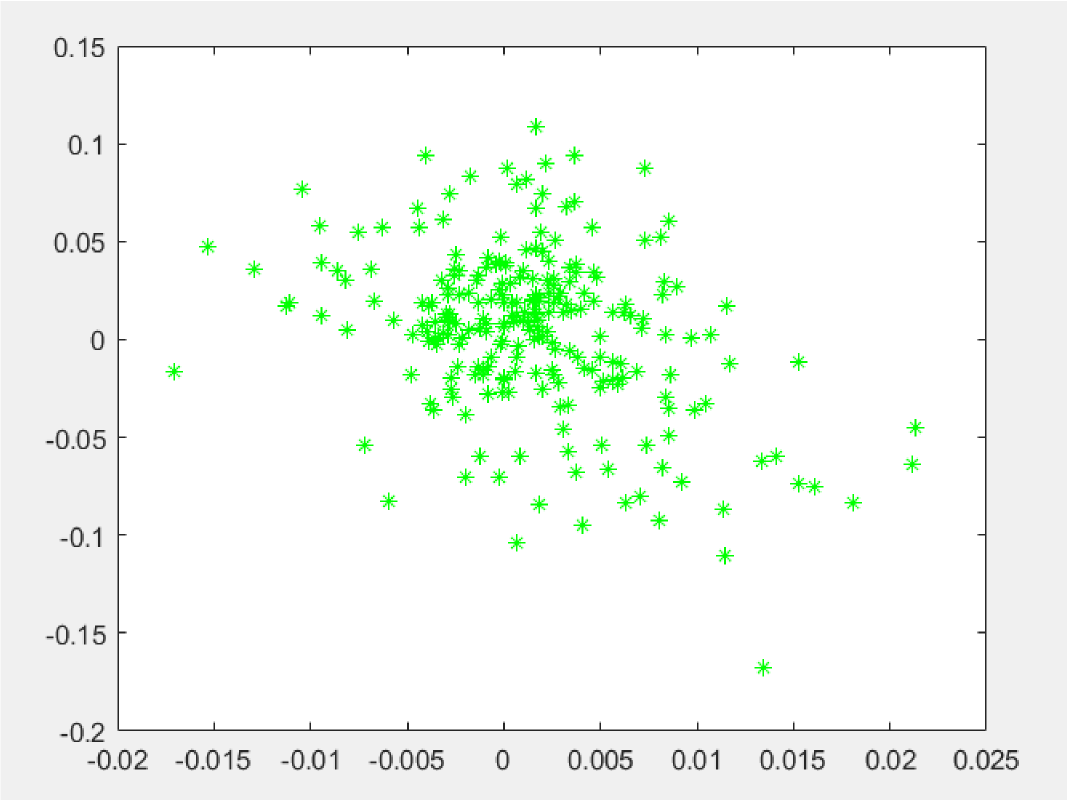
残差图


Residual Case Order Plot
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
Residuals
50
100
150
200
Case Number

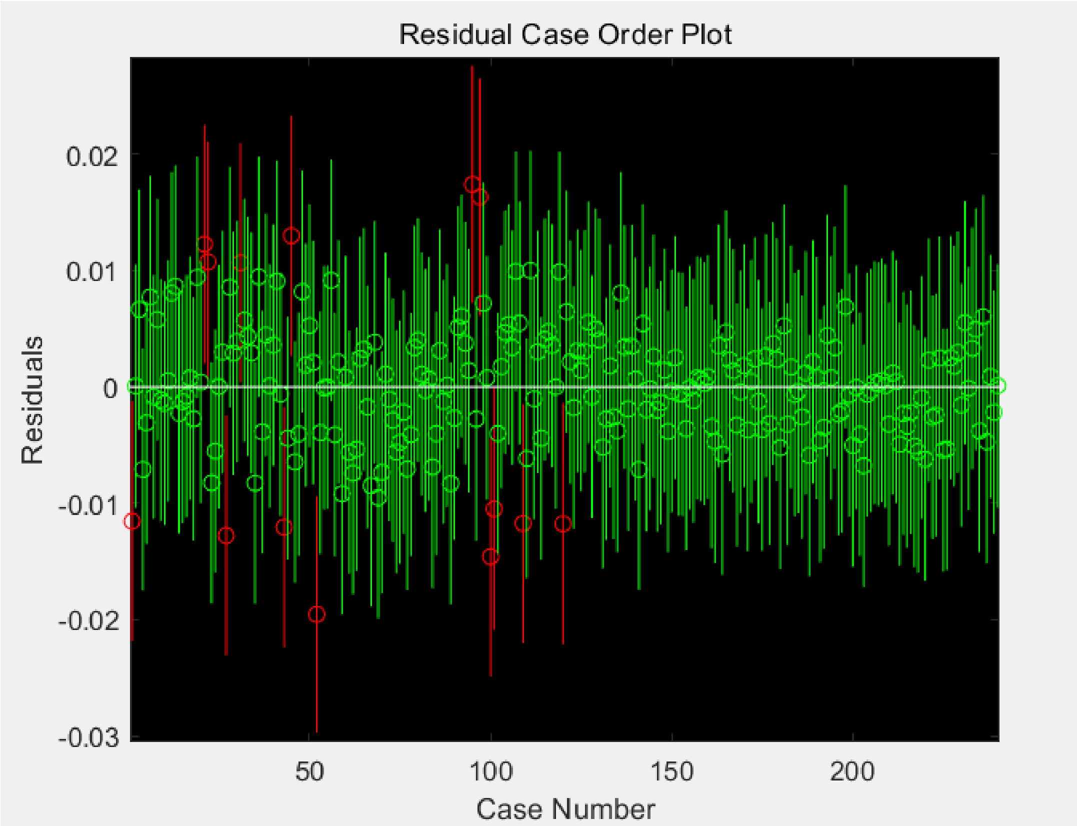
200042

α :   0.0017
β : -0.0499
$\boldsymbol{R}$^2 : 0.1361

散点图



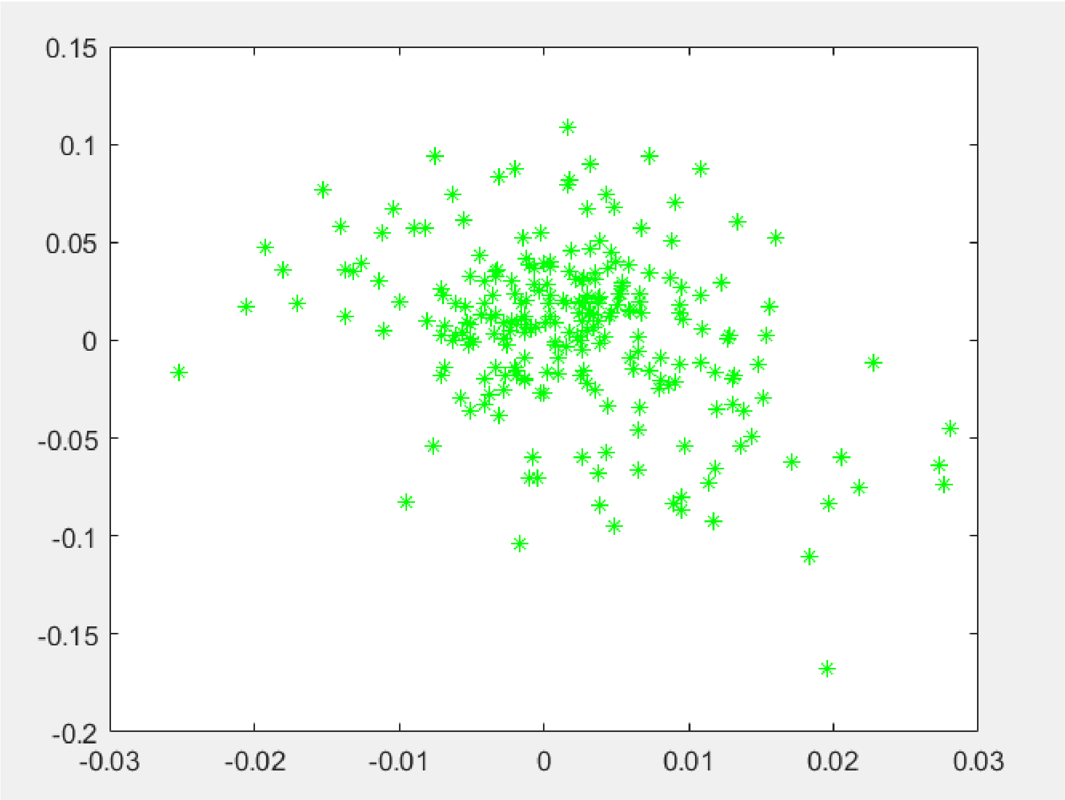
残差图



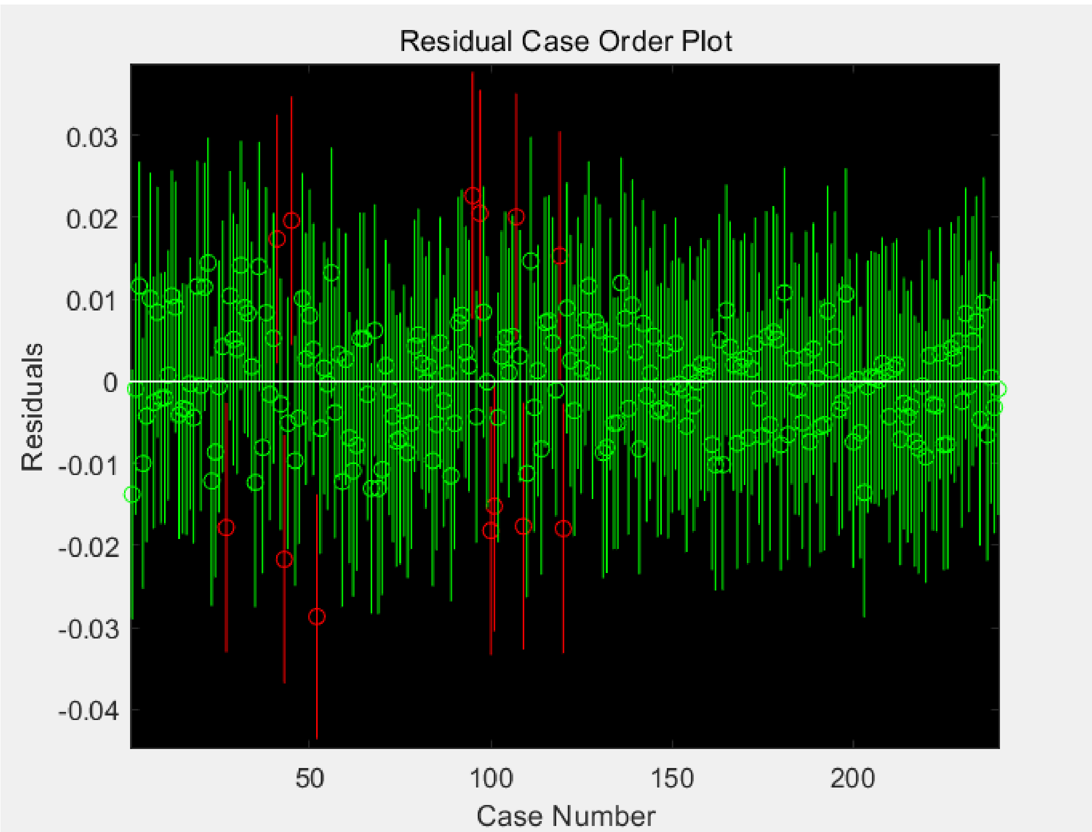
200043

α : 0.0023
β : -0.0704
R^2 : 0.1269

散点图


0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.03
-0.02
-0.01
0
0.01
0.02
0.03

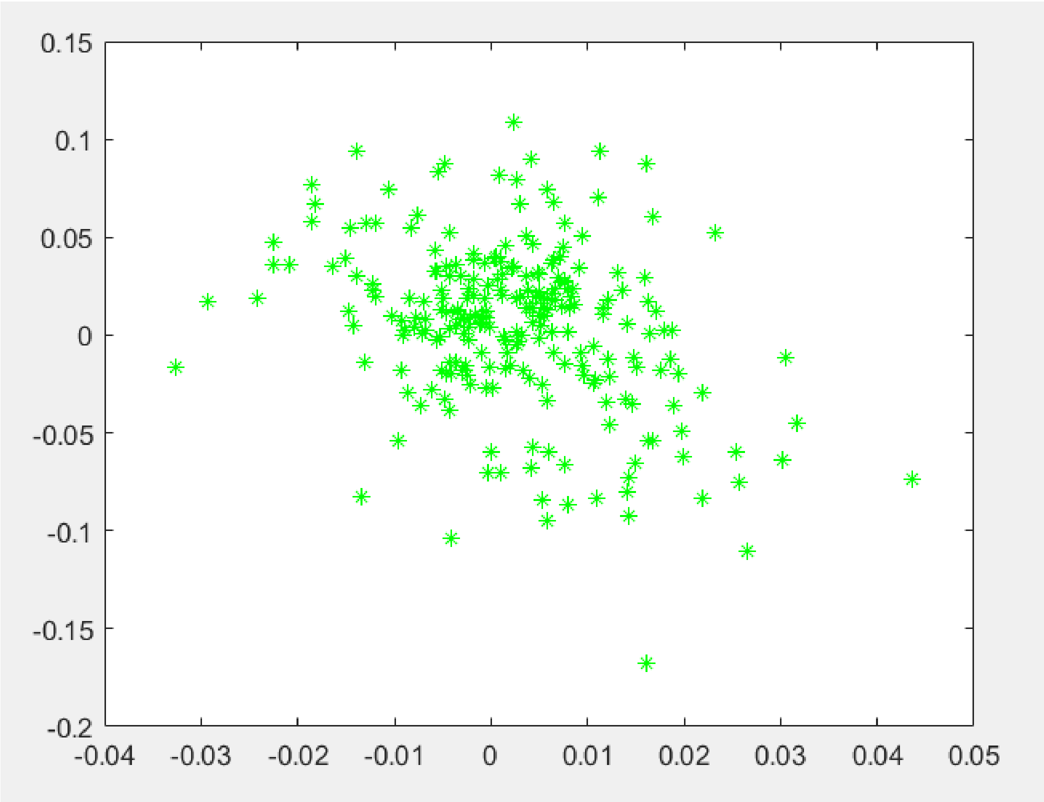
残差图


Residual Case Order Plot
0.03
0.02
0.01
0
-0.01
-0.02
-0.03
-0.04
Residuals
50
100
150
200
Case Number

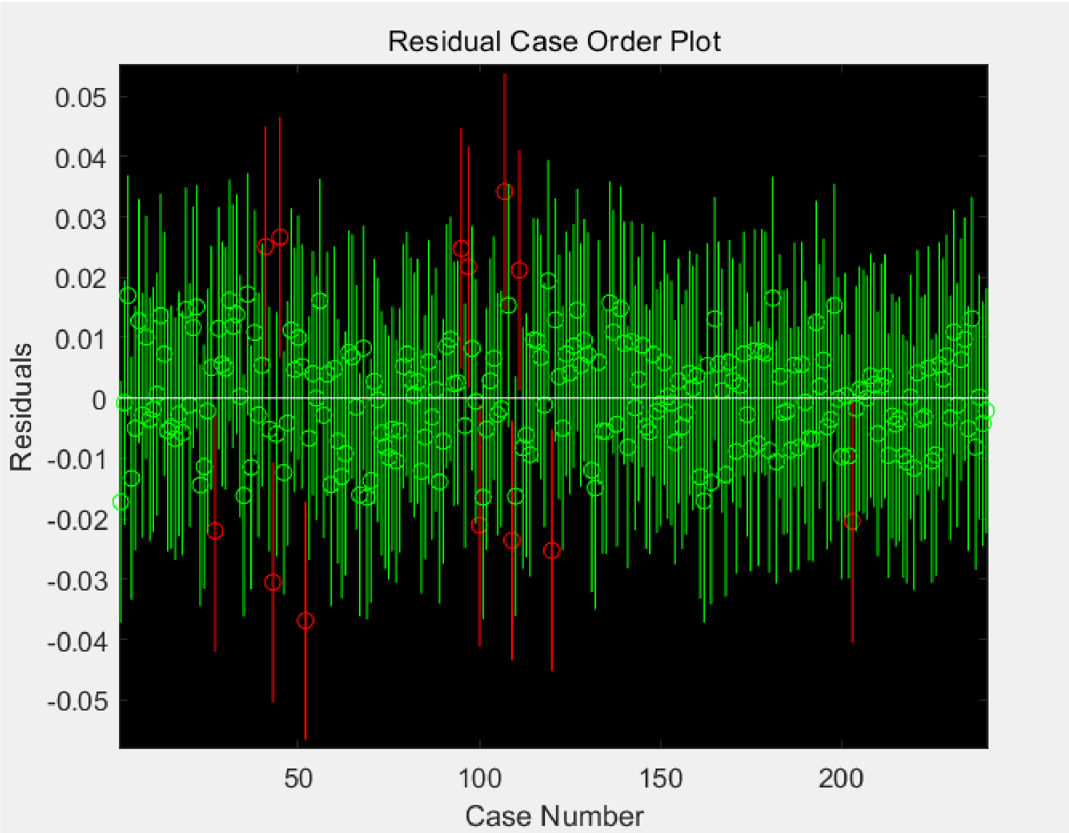
200044:

α : 0.0028
β : -0.0900
$\boldsymbol{R}$^2 : 0.1203

散点图



残差图



这里当市场收益率增加时，可以理解成通货膨胀率在升高，债券的收益率降低。所以 beta 是负值。