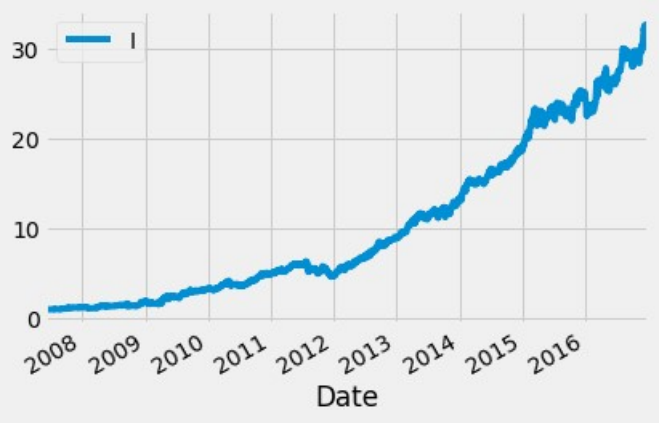
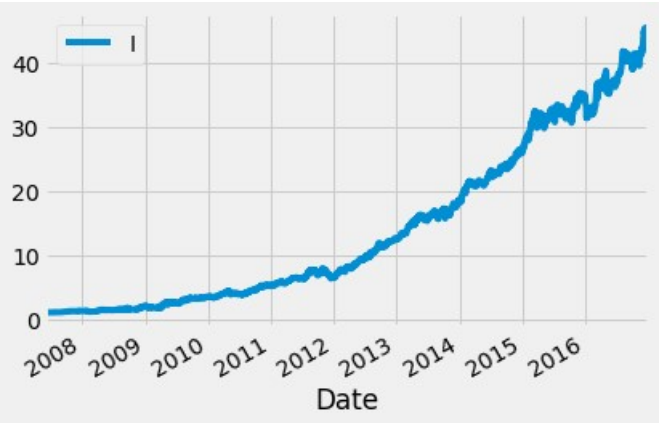
```
In [19]: runfile('E:/GitWorkSpace/v-ratio-momentum-and-ladder/portfolio.py', wdir='E:/
GitWorkSpace/v-ratio-momentum-and-ladder')
Reloaded modules: WhiteRealityCheckFor1, computation_helper, data_helper,
rotational_momentum
requested data history already exists!

==================== (10, '1W-FRI-100%', 2, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

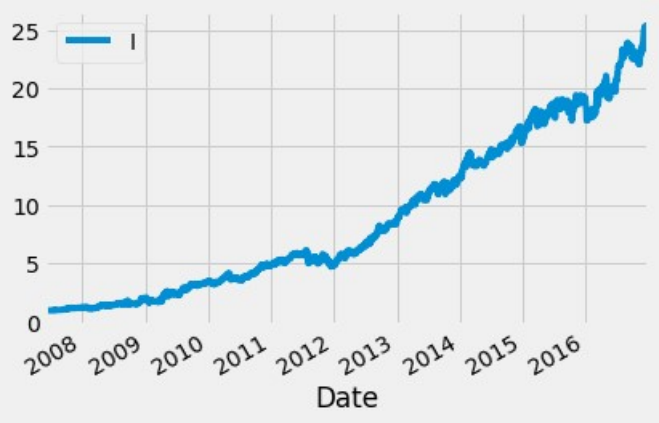



```
TotaAnnReturn = 320.606436
CAGR = 41.500000
Sharpe Ratio = 1.473000
Volatility= 0.271000
number of records for the series after dropping na: 1017
average return 0.004612
[-0.00296342  0.00301657]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0018799999999999928

==================== (10, '1W-FRI-100%', 2, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```



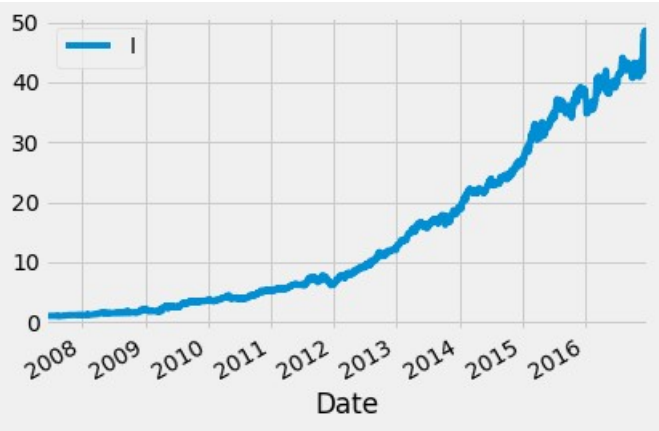

```
TotaAnnReturn = 450.438008
```

```
CAGR = 46.260000
Sharpe Ratio = 1.599000
Volatility= 0.271000
number of records for the series after dropping na: 1017
average return 0.004749
[-0.00294887  0.00304836]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0011200000000000099

==================== (10, '1W-FRI-100%', 2, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```



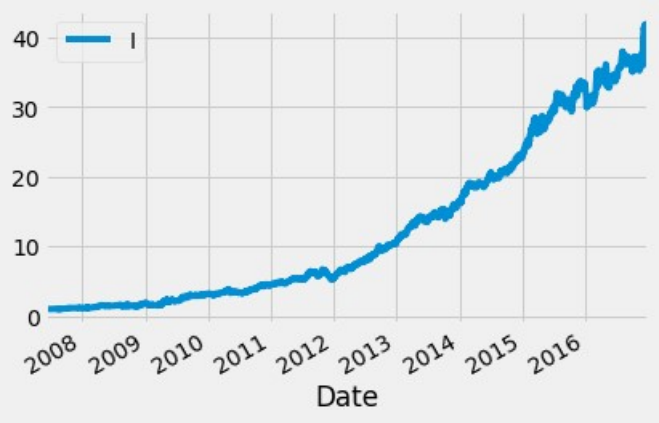

```
TotaAnnReturn = 246.942017
CAGR = 37.980000
Sharpe Ratio = 1.396000
Volatility= 0.266000
number of records for the series after dropping na: 1017
average return 0.004553
[-0.00276394  0.00284775]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0007599999999999829

==================== (10, '1W-FRI-100%', 2, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 218.008528
CAGR = 36.340000
Sharpe Ratio = 1.349000
Volatility= 0.266000
number of records for the series after dropping na: 1017
average return 0.004437
[-0.0027935   0.00281869]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0010000000000000009

==================== (10, '1W-FRI-100%', 3, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

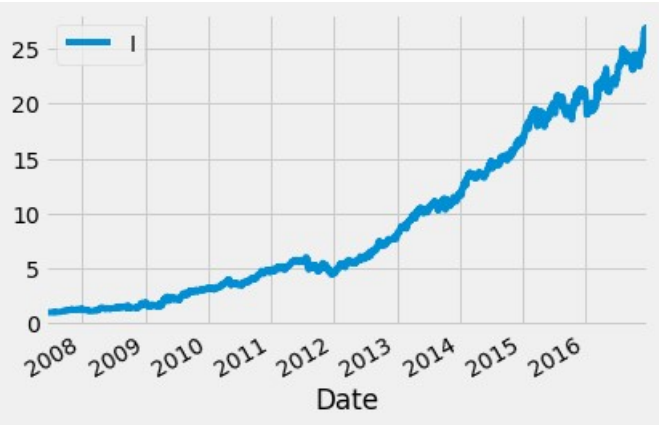



```
TotaAnnReturn = 482.232765
CAGR = 47.240000
Sharpe Ratio = 1.584000
Volatility= 0.279000
number of records for the series after dropping na: 1017
average return 0.004488
[-0.00292306  0.00299821]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0020200000000000218

==================== (10, '1W-FRI-100%', 3, 1, 2, 1, -1) ====================
```

```
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

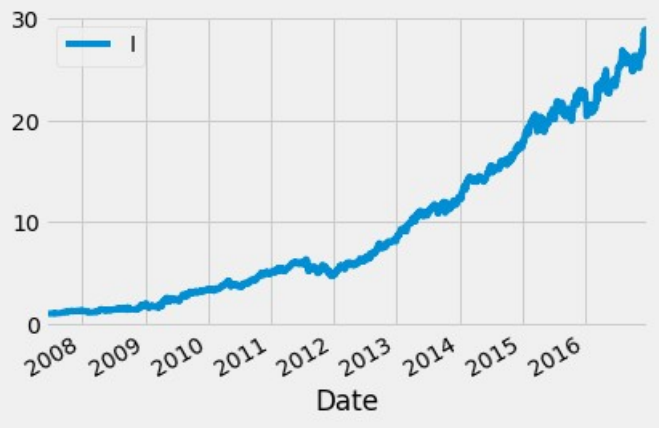



```
TotaAnnReturn = 414.256766
CAGR = 45.070000
Sharpe Ratio = 1.517000
Volatility= 0.282000
number of records for the series after dropping na: 1017
average return 0.004184
[-0.00291266  0.00303978]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0036000000000000476

==================== (10, '1W-FRI-100%', 3, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

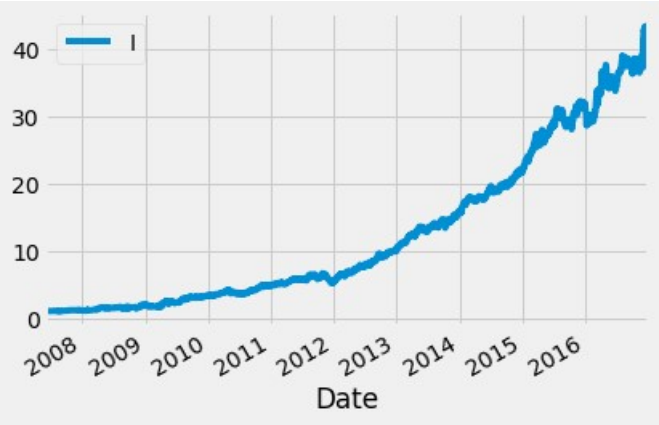



```
TotaAnnReturn = 262.659287
CAGR = 38.800000
Sharpe Ratio = 1.390000
Volatility= 0.273000
number of records for the series after dropping na: 1017
average return 0.004560
[-0.00290285  0.00296638]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
```

```
0.0014199999999999768

==================== (10, '1W-FRI-100%', 3, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

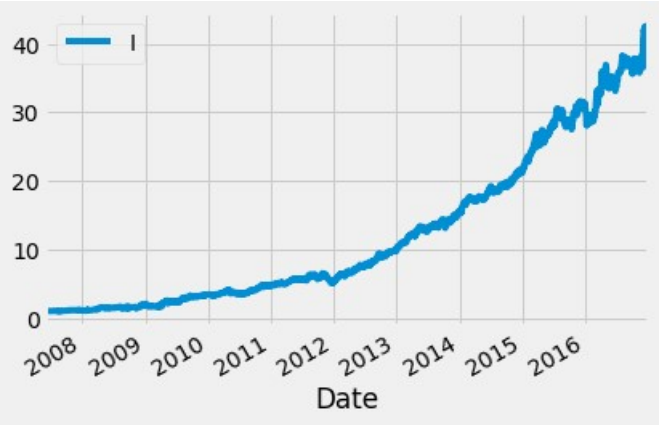



```
TotaAnnReturn = 283.780074
CAGR = 39.840000
Sharpe Ratio = 1.418000
Volatility= 0.273000
number of records for the series after dropping na: 1017
average return 0.004667
[-0.00289581  0.0029796 ]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0013400000000000079

==================== (10, '1W-FRI-100%', 4, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

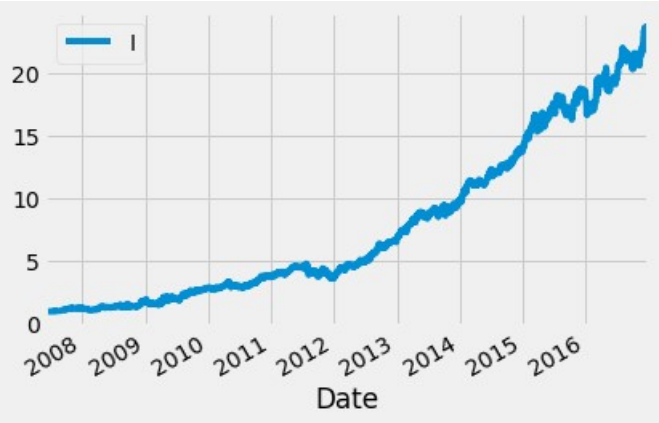



```
TotaAnnReturn = 429.987963
CAGR = 45.600000
Sharpe Ratio = 1.515000
Volatility= 0.286000
number of records for the series after dropping na: 1017
average return 0.004207
```

```
[-0.00296094  0.00303193]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0034800000000000386

==================== (10, '1W-FRI-100%', 4, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

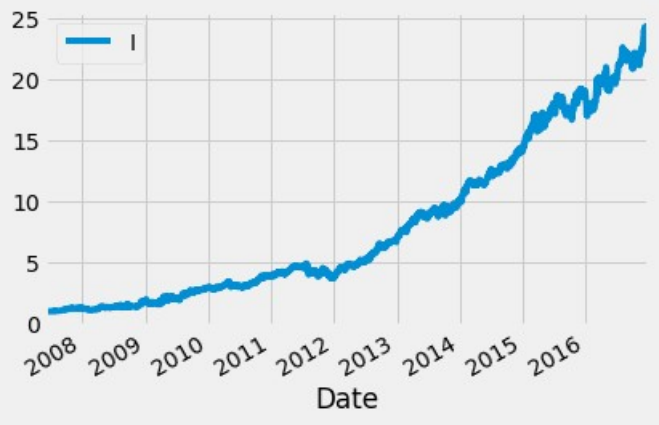



```
TotaAnnReturn = 420.426366
CAGR = 45.280000
Sharpe Ratio = 1.504000
Volatility= 0.286000
number of records for the series after dropping na: 1017
average return 0.004204
[-0.00294835  0.00298852]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0034600000000000186

==================== (10, '1W-FRI-100%', 4, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

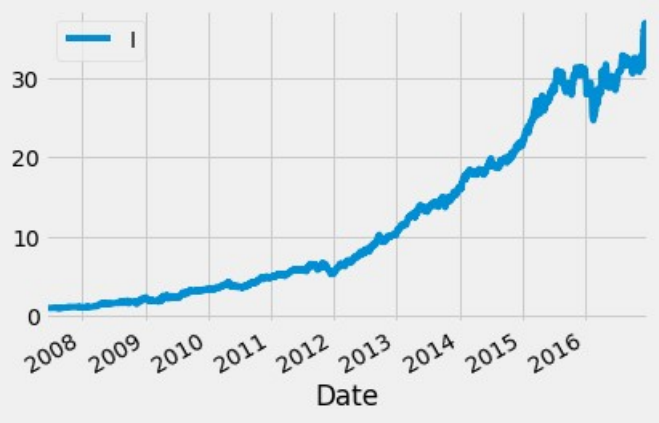



```
TotaAnnReturn = 230.268847
CAGR = 37.060000
Sharpe Ratio = 1.314000
```

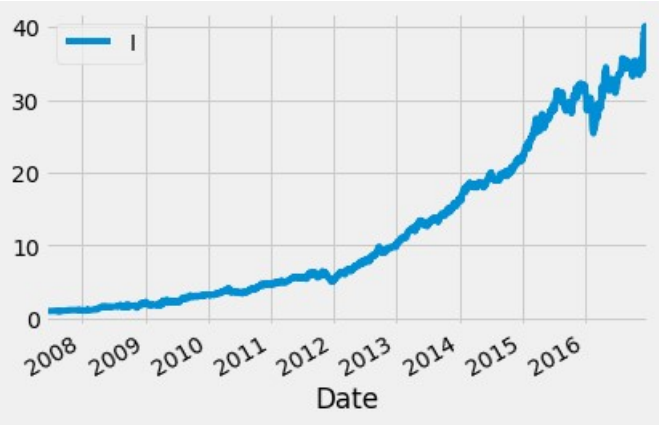
```
Volatility= 0.280000
number of records for the series after dropping na: 1017
average return 0.004145
[-0.00296291  0.00303217]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0040000000000000036

==================== (10, '1W-FRI-100%', 4, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```



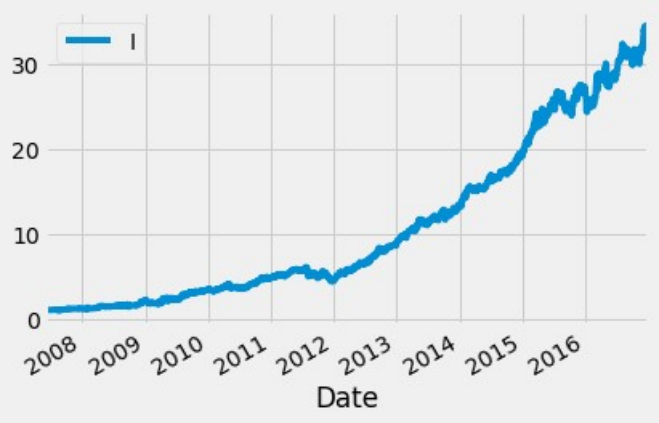

```
TotaAnnReturn = 237.019082
CAGR = 37.440000
Sharpe Ratio = 1.323000
Volatility= 0.281000
number of records for the series after dropping na: 1017
average return 0.004198
[-0.00296289  0.00303092]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0038200000000000456

==================== (10, '1W-FRI-100%', 5, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```



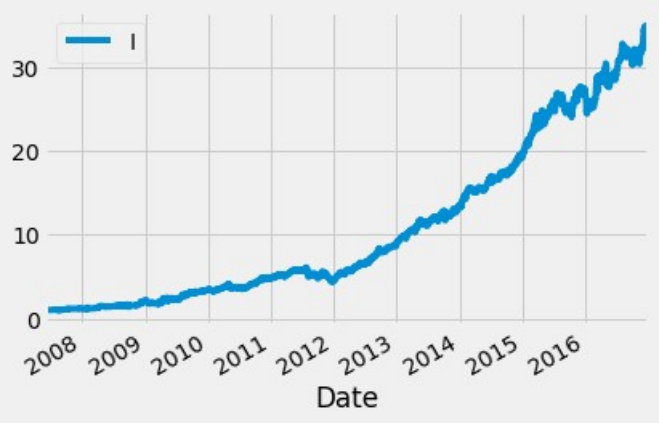
```
TotaAnnReturn = 358.890967
CAGR = 43.050000
Sharpe Ratio = 1.421000
Volatility= 0.293000
number of records for the series after dropping na: 1017
average return 0.004564
[-0.0031363   0.00317087]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0024199999999999777

==================== (10, '1W-FRI-100%', 5, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 391.224533
CAGR = 44.260000
Sharpe Ratio = 1.448000
Volatility= 0.294000
number of records for the series after dropping na: 1017
average return 0.004431
[-0.00316022  0.00321562]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0039599999999999635

==================== (10, '1W-FRI-100%', 5, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```



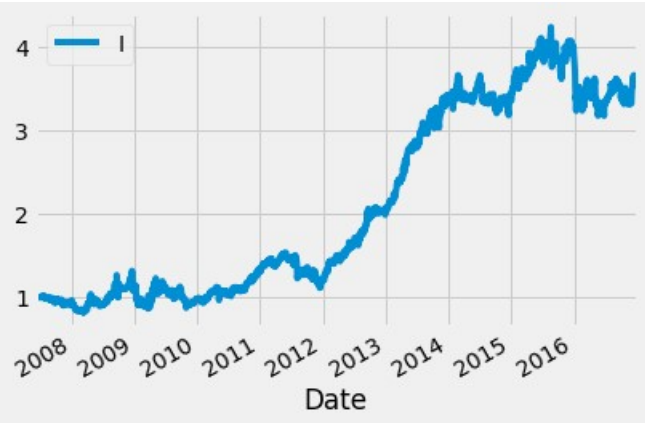

```
TotaAnnReturn = 341.032316
CAGR = 42.350000
Sharpe Ratio = 1.428000
Volatility= 0.287000
number of records for the series after dropping na: 1017
average return 0.004446
[-0.00298093  0.00304283]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0023400000000000087

==================== (10, '1W-FRI-100%', 5, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 343.881825
CAGR = 42.460000
Sharpe Ratio = 1.431000
Volatility= 0.287000
number of records for the series after dropping na: 1017
average return 0.004446
[-0.00297688  0.00307502]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0026399999999999757

==================== (10, '2W-FRI-100%', 2, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
```

```
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

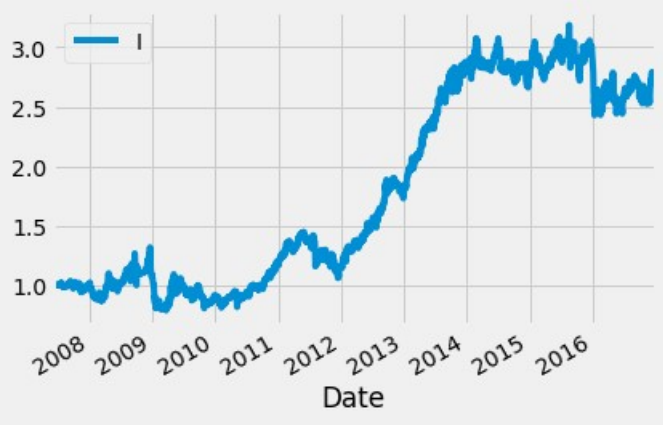

```
TotaAnnReturn = 24.372293
CAGR = 12.920000
Sharpe Ratio = 0.623000
Volatility= 0.256000
number of records for the series after dropping na: 1017
average return 0.001283
[-0.00281849  0.00285938]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.18564000000000003

==================== (10, '2W-FRI-100%', 2, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 26.382118
CAGR = 13.550000
Sharpe Ratio = 0.633000
Volatility= 0.265000
number of records for the series after dropping na: 1017
average return 0.001354
[-0.00282738  0.00285501]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.1733
```

```
==================== (10, '2W-FRI-100%', 2, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 19.002141
CAGR = 11.030000
Sharpe Ratio = 0.563000
Volatility= 0.250000
number of records for the series after dropping na: 1017
average return 0.001173
[-0.00255224  0.00258095]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.18591999999999997

==================== (10, '2W-FRI-100%', 2, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 17.696124
CAGR = 10.530000
Sharpe Ratio = 0.544000
Volatility= 0.249000
number of records for the series after dropping na: 1017
average return 0.001152
[-0.00258069  0.00255687]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
```

```
or less (because p_value is not small enough)
p_value:
0.18630000000000002

==================== (10, '2W-FRI-100%', 3, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 28.680199
CAGR = 14.250000
Sharpe Ratio = 0.645000
Volatility= 0.273000
number of records for the series after dropping na: 1017
average return 0.001074
[-0.00271724  0.00275762]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.21953999999999996

==================== (10, '2W-FRI-100%', 3, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 22.762462
CAGR = 12.380000
Sharpe Ratio = 0.578000
Volatility= 0.277000
number of records for the series after dropping na: 1017
```

```
average return 0.000772
[-0.00275507  0.00279786]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.29279999999999995

==================== (10, '2W-FRI-100%', 3, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 24.654075
CAGR = 13.010000
Sharpe Ratio = 0.629000
Volatility= 0.254000
number of records for the series after dropping na: 1017
average return 0.001357
[-0.00267355  0.00268988]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.1632

==================== (10, '2W-FRI-100%', 3, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 29.185214
CAGR = 14.390000
```

```
Sharpe Ratio = 0.679000
Volatility= 0.254000
number of records for the series after dropping na: 1017
average return 0.001630
[-0.0026857   0.00275065]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.11806000000000005

==================== (10, '2W-FRI-100%', 4, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

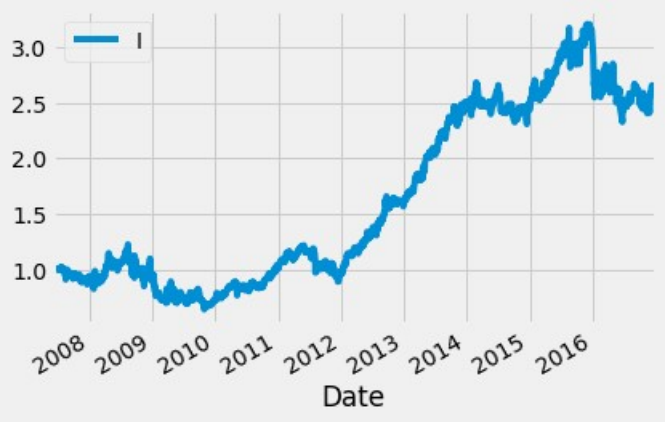

```
TotaAnnReturn = 18.392690
CAGR = 10.800000
Sharpe Ratio = 0.527000
Volatility= 0.275000
number of records for the series after dropping na: 1017
average return 0.000872
[-0.00271697  0.00277141]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.2673

==================== (10, '2W-FRI-100%', 4, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 18.866339
CAGR = 10.980000
Sharpe Ratio = 0.532000
Volatility= 0.276000
number of records for the series after dropping na: 1017
average return 0.000905
[-0.0027221   0.00278072]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.26304000000000005

==================== (10, '2W-FRI-100%', 4, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 19.701557
CAGR = 11.290000
Sharpe Ratio = 0.549000
Volatility= 0.270000
number of records for the series after dropping na: 1017
average return 0.001375
[-0.00276214  0.00277784]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.16424000000000005

==================== (10, '2W-FRI-100%', 4, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
```

```
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 20.918948
CAGR = 11.740000
Sharpe Ratio = 0.564000
Volatility= 0.270000
number of records for the series after dropping na: 1017
average return 0.001417
[-0.00277526  0.0028119 ]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.16093999999999997

==================== (10, '2W-FRI-100%', 5, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 16.860803
CAGR = 10.190000
Sharpe Ratio = 0.502000
Volatility= 0.280000
number of records for the series after dropping na: 1017
average return 0.001113
[-0.00279063  0.00284707]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.21987999999999996
```

```
==================== (10, '2W-FRI-100%', 5, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 16.860803
CAGR = 10.190000
Sharpe Ratio = 0.502000
Volatility= 0.280000
number of records for the series after dropping na: 1017
average return 0.001113
[-0.0028041   0.00283619]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.21894000000000002

==================== (10, '2W-FRI-100%', 5, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 14.911930
CAGR = 9.370000
Sharpe Ratio = 0.476000
Volatility= 0.277000
number of records for the series after dropping na: 1017
average return 0.000921
[-0.00276496  0.00280382]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
```

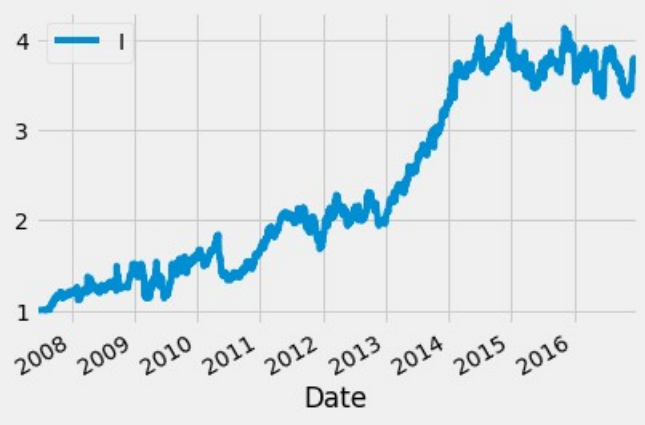
```
or less (because p_value is not small enough)
p_value:
0.25792000000000004

==================== (10, '2W-FRI-100%', 5, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 14.911930
CAGR = 9.370000
Sharpe Ratio = 0.476000
Volatility= 0.277000
number of records for the series after dropping na: 1017
average return 0.000921
[-0.00275766  0.00282125]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.25982000000000005

==================== (20, '1W-FRI-100%', 2, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 33.128862
CAGR = 15.490000
Sharpe Ratio = 0.734000
Volatility= 0.246000
number of records for the series after dropping na: 1017
```

```
average return 0.002825
[-0.00268919  0.00269882]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.01992000000000005

==================== (20, '1W-FRI-100%', 2, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 37.771033
CAGR = 16.670000
Sharpe Ratio = 0.778000
Volatility= 0.246000
number of records for the series after dropping na: 1017
average return 0.002790
[-0.00269615  0.00266476]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.020000000000000018

==================== (20, '1W-FRI-100%', 2, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 27.462349
```

```
CAGR = 13.880000
Sharpe Ratio = 0.678000
Volatility= 0.244000
number of records for the series after dropping na: 1017
average return 0.002700
[-0.00266692  0.00266419]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.023660000000000014

==================== (20, '1W-FRI-100%', 2, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

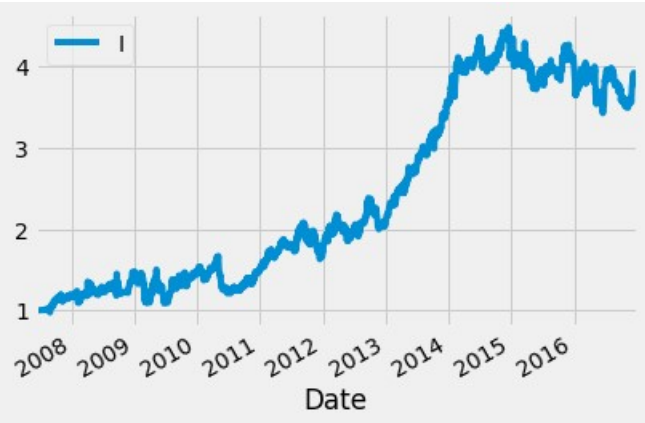

```
TotaAnnReturn = 26.470668
CAGR = 13.580000
Sharpe Ratio = 0.666000
Volatility= 0.245000
number of records for the series after dropping na: 1017
average return 0.002484
[-0.00270483  0.00265473]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.033320000000000016

==================== (20, '1W-FRI-100%', 3, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 21.928454
CAGR = 12.090000
Sharpe Ratio = 0.604000
Volatility= 0.249000
number of records for the series after dropping na: 1017
average return 0.002457
[-0.00274991  0.00275763]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.03957999999999995

==================== (20, '1W-FRI-100%', 3, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 21.526146
CAGR = 11.950000
Sharpe Ratio = 0.598000
Volatility= 0.249000
number of records for the series after dropping na: 1017
average return 0.002462
[-0.00272412  0.0027638 ]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0403

==================== (20, '1W-FRI-100%', 3, 2, 1, 1, -1) ====================
```

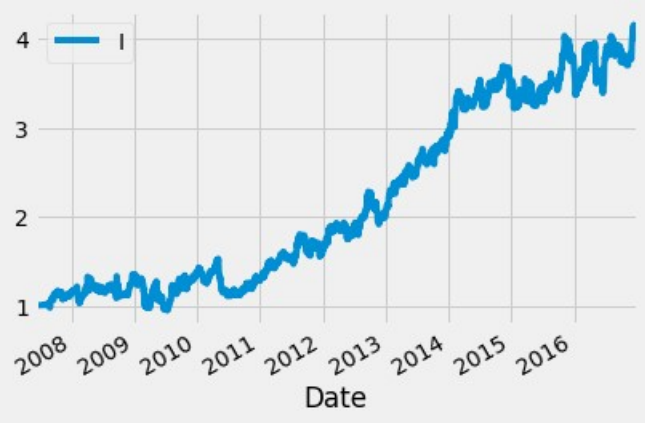
```
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 29.878328
CAGR = 14.590000
Sharpe Ratio = 0.697000
Volatility= 0.249000
number of records for the series after dropping na: 1017
average return 0.002334
[-0.00268497  0.00265706]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.043399999999999994

==================== (20, '1W-FRI-100%', 3, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

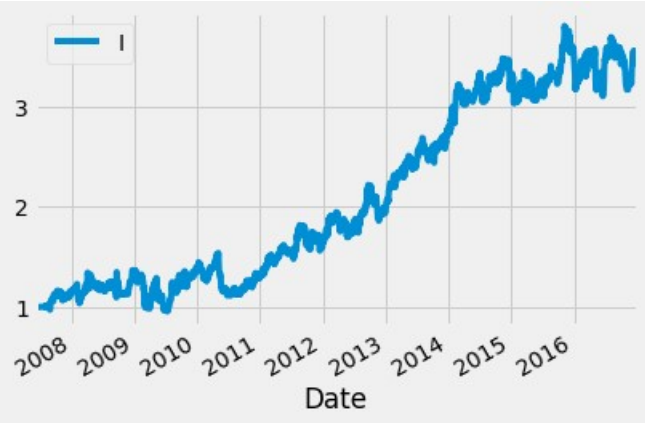



```
TotaAnnReturn = 28.666703
CAGR = 14.240000
Sharpe Ratio = 0.684000
Volatility= 0.249000
number of records for the series after dropping na: 1017
average return 0.002334
[-0.00267681  0.00270162]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
```

```
0.04600000000000004

==================== (20, '1W-FRI-100%', 4, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 30.997844
CAGR = 14.910000
Sharpe Ratio = 0.703000
Volatility= 0.252000
number of records for the series after dropping na: 1017
average return 0.002514
[-0.00272576  0.00275551]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.03622000000000003

==================== (20, '1W-FRI-100%', 4, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 25.031946
CAGR = 13.130000
Sharpe Ratio = 0.637000
Volatility= 0.252000
number of records for the series after dropping na: 1017
average return 0.002475
[-0.00273638  0.00275842]
```

```
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.040000000000000036

==================== (20, '1W-FRI-100%', 4, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 27.185619
CAGR = 13.800000
Sharpe Ratio = 0.664000
Volatility= 0.251000
number of records for the series after dropping na: 1017
average return 0.002341
[-0.00267691  0.00269712]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.04523999999999995

==================== (20, '1W-FRI-100%', 4, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 29.841975
CAGR = 14.580000
Sharpe Ratio = 0.692000
Volatility= 0.251000
```

```
number of records for the series after dropping na: 1017
average return 0.002307
[-0.00271179  0.0026778 ]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.04508000000000001

==================== (20, '1W-FRI-100%', 5, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 29.091596
CAGR = 14.370000
Sharpe Ratio = 0.675000
Volatility= 0.256000
number of records for the series after dropping na: 1017
average return 0.002690
[-0.00277708  0.00280954]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.030039999999999956

==================== (20, '1W-FRI-100%', 5, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 20.062941
```

```
CAGR = 11.430000
Sharpe Ratio = 0.567000
Volatility= 0.258000
number of records for the series after dropping na: 1017
average return 0.001957
[-0.00275455  0.00280706]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.08452000000000004

==================== (20, '1W-FRI-100%', 5, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

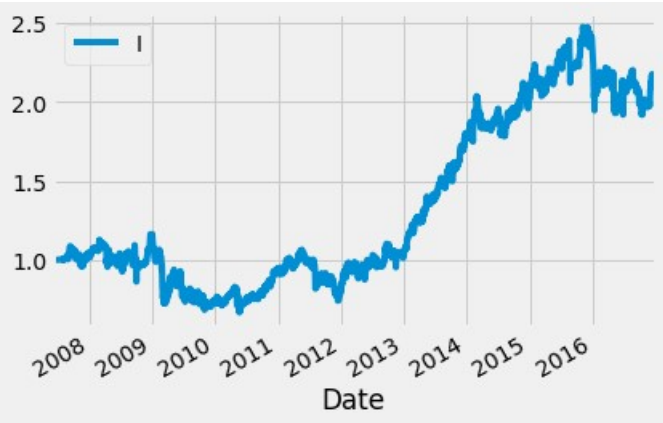

```
TotaAnnReturn = 22.935851
CAGR = 12.440000
Sharpe Ratio = 0.613000
Volatility= 0.251000
number of records for the series after dropping na: 1017
average return 0.002340
[-0.00272478  0.00274837]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.04723999999999995

==================== (20, '1W-FRI-100%', 5, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 21.970890
CAGR = 12.110000
Sharpe Ratio = 0.601000
Volatility= 0.251000
number of records for the series after dropping na: 1017
average return 0.002340
[-0.00271462  0.00273333]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.04601999999999995

==================== (20, '2W-FRI-100%', 2, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 7.471602
CAGR = 5.610000
Sharpe Ratio = 0.353000
Volatility= 0.251000
number of records for the series after dropping na: 1017
average return 0.000926
[-0.00272662  0.0027103 ]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.25364

==================== (20, '2W-FRI-100%', 2, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
```

```
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

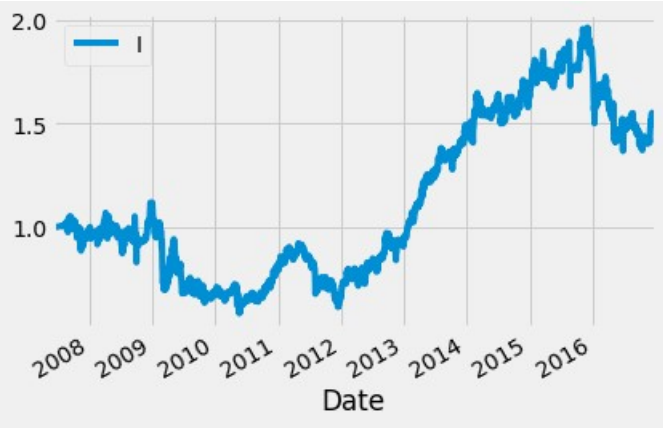

```
TotaAnnReturn = 9.485532
CAGR = 6.750000
Sharpe Ratio = 0.398000
Volatility= 0.251000
number of records for the series after dropping na: 1017
average return 0.000875
[-0.00271069  0.00270378]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.2619

==================== (20, '2W-FRI-100%', 2, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 11.345407
CAGR = 7.720000
Sharpe Ratio = 0.437000
Volatility= 0.248000
number of records for the series after dropping na: 1017
average return 0.000816
[-0.00271147  0.00271471]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.27806
```

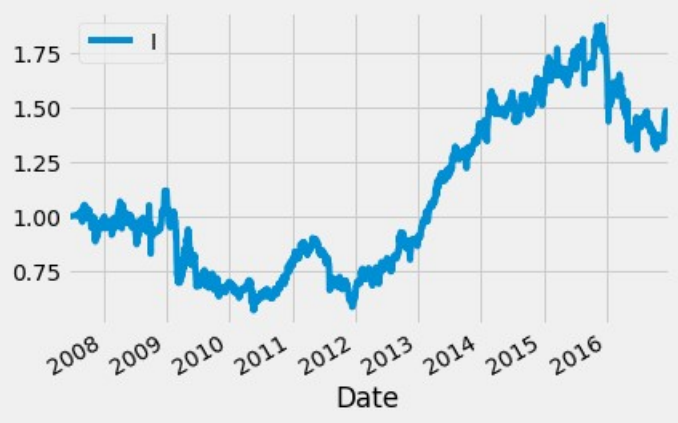
```
==================== (20, '2W-FRI-100%', 2, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 10.848479
CAGR = 7.470000
Sharpe Ratio = 0.427000
Volatility= 0.248000
number of records for the series after dropping na: 1017
average return 0.000734
[-0.00272711  0.00269104]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.29656000000000005

==================== (20, '2W-FRI-100%', 3, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 5.143927
CAGR = 4.140000
Sharpe Ratio = 0.294000
Volatility= 0.255000
number of records for the series after dropping na: 1017
average return 0.000847
[-0.00277421  0.00279954]
```

```
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.2702

==================== (20, '2W-FRI-100%', 3, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

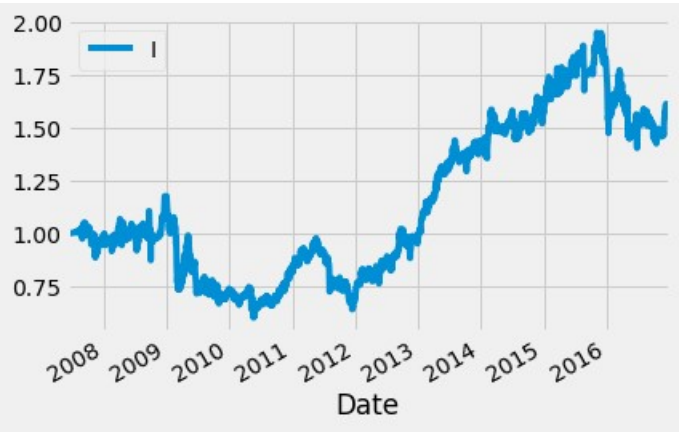



```
TotaAnnReturn = 4.445622
CAGR = 3.660000
Sharpe Ratio = 0.275000
Volatility= 0.256000
number of records for the series after dropping na: 1017
average return 0.000804
[-0.00276934  0.0027974 ]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.28513999999999995

==================== (20, '2W-FRI-100%', 3, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

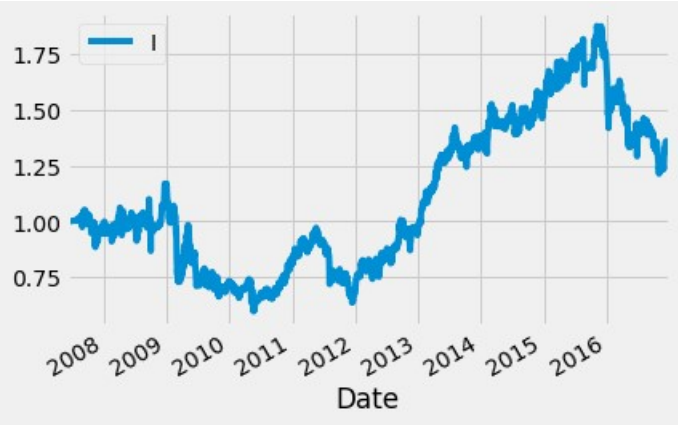

```
TotaAnnReturn = 8.414575
CAGR = 6.160000
Sharpe Ratio = 0.374000
Volatility= 0.252000
```

```
number of records for the series after dropping na: 1017
average return 0.000550
[-0.00272485  0.00271747]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.345

==================== (20, '2W-FRI-100%', 3, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

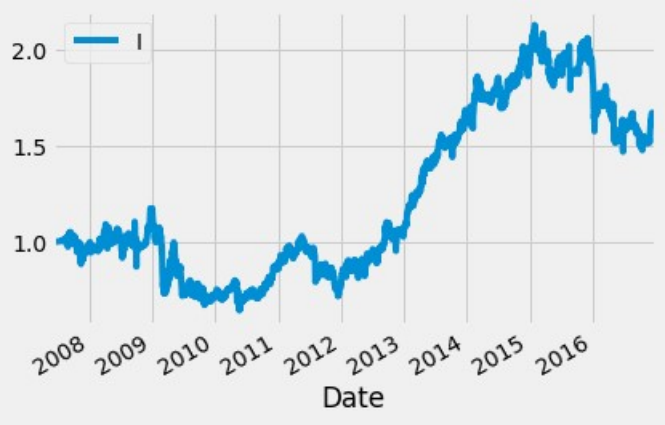

```
TotaAnnReturn = 7.981504
CAGR = 5.910000
Sharpe Ratio = 0.365000
Volatility= 0.252000
number of records for the series after dropping na: 1017
average return 0.000550
[-0.00267833  0.00270538]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.34640000000000004

==================== (20, '2W-FRI-100%', 4, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```



```
TotaAnnReturn = 5.756011
CAGR = 4.540000
Sharpe Ratio = 0.310000
Volatility= 0.257000
number of records for the series after dropping na: 1017
average return 0.000917
[-0.00274565  0.00276786]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.25602

==================== (20, '2W-FRI-100%', 4, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 3.230419
CAGR = 2.770000
Sharpe Ratio = 0.240000
Volatility= 0.258000
number of records for the series after dropping na: 1017
average return 0.000835
[-0.00275317  0.00277419]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.27368000000000003

==================== (20, '2W-FRI-100%', 4, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

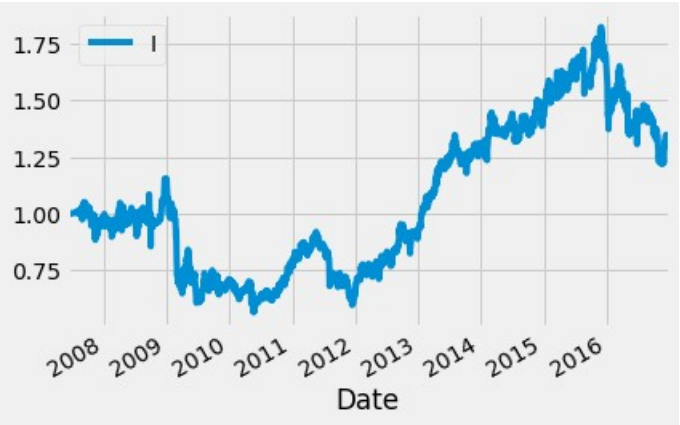



```
TotaAnnReturn = 6.322491
CAGR = 4.910000
Sharpe Ratio = 0.324000
Volatility= 0.256000
number of records for the series after dropping na: 1017
average return 0.000771
[-0.00266058  0.00268949]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.28691999999999995

==================== (20, '2W-FRI-100%', 4, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 8.700561
CAGR = 6.320000
Sharpe Ratio = 0.378000
Volatility= 0.256000
number of records for the series after dropping na: 1017
average return 0.000771
[-0.00270378  0.00268943]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.2884

==================== (20, '2W-FRI-100%', 5, 1, 1, 1, -1) ====================
```

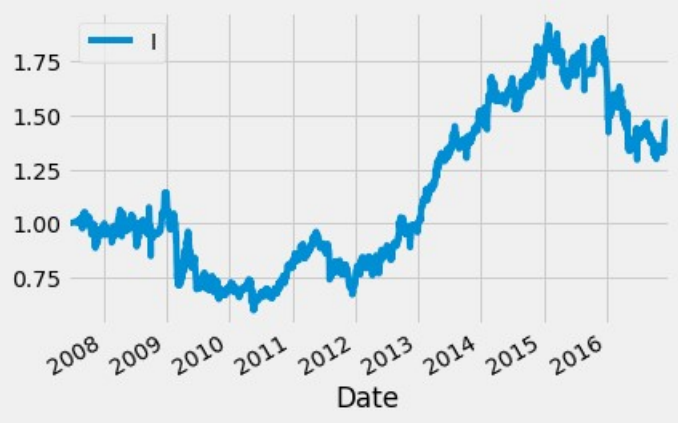
```
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 4.581698
CAGR = 3.750000
Sharpe Ratio = 0.278000
Volatility= 0.260000
number of records for the series after dropping na: 1017
average return 0.000719
[-0.00284424  0.00288664]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.31264000000000003

==================== (20, '2W-FRI-100%', 5, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```

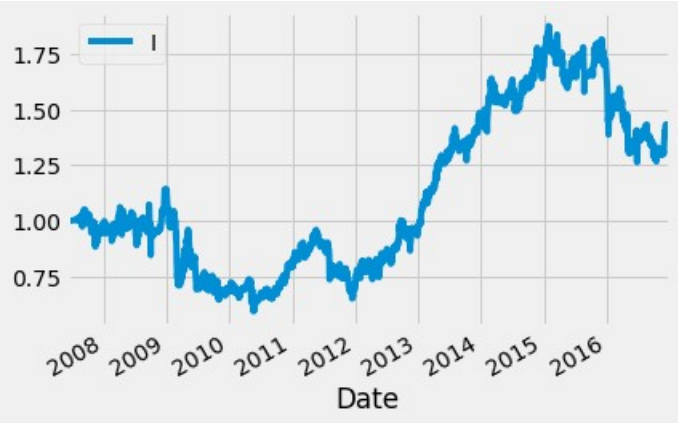



```
TotaAnnReturn = 3.114705
CAGR = 2.680000
Sharpe Ratio = 0.237000
Volatility= 0.261000
number of records for the series after dropping na: 1017
average return 0.000397
[-0.00281636  0.00285745]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
```

```
0.39224000000000003

==================== (20, '2W-FRI-100%', 5, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 4.308551
CAGR = 3.560000
Sharpe Ratio = 0.271000
Volatility= 0.258000
number of records for the series after dropping na: 1017
average return 0.000889
[-0.00275794  0.00275082]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.26496

==================== (20, '2W-FRI-100%', 5, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```




```
TotaAnnReturn = 3.953689
CAGR = 3.310000
Sharpe Ratio = 0.261000
Volatility= 0.258000
number of records for the series after dropping na: 1017
average return 0.000889
[-0.00277821  0.00278713]
```

```
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.26466

==================== (30, '1W-FRI-100%', 2, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 63.013989
CAGR = 21.700000
Sharpe Ratio = 0.990000
Volatility= 0.235000
number of records for the series after dropping na: 1017
average return 0.003740
[-0.00267286  0.00267086]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0030799999999999716

==================== (30, '1W-FRI-100%', 2, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 74.392413
CAGR = 23.470000
Sharpe Ratio = 1.064000
Volatility= 0.232000
```

```
number of records for the series after dropping na: 1017
average return 0.004065
[-0.00260484  0.00262449]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0010999999999999899

==================== (30, '1W-FRI-100%', 2, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 78.543231
CAGR = 24.060000
Sharpe Ratio = 1.098000
Volatility= 0.229000
number of records for the series after dropping na: 1017
average return 0.003725
[-0.00253212  0.00257425]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0021200000000000108

==================== (30, '1W-FRI-100%', 2, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 65.314594
```

```
CAGR = 22.080000
Sharpe Ratio = 1.022000
Volatility= 0.230000
number of records for the series after dropping na: 1017
average return 0.003549
[-0.00258834  0.00257576]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0034399999999999986

==================== (30, '1W-FRI-100%', 3, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 55.290651
CAGR = 20.350000
Sharpe Ratio = 0.917000
Volatility= 0.243000
number of records for the series after dropping na: 1017
average return 0.003684
[-0.00266591  0.0026972 ]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0033400000000000096

==================== (30, '1W-FRI-100%', 3, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 51.828501
CAGR = 19.700000
Sharpe Ratio = 0.892000
Volatility= 0.244000
number of records for the series after dropping na: 1017
average return 0.003692
[-0.00266123  0.00267862]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0034999999999999476

==================== (30, '1W-FRI-100%', 3, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 75.255852
CAGR = 23.590000
Sharpe Ratio = 1.058000
Volatility= 0.235000
number of records for the series after dropping na: 1017
average return 0.003897
[-0.00261655  0.00263061]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0021799999999999597

==================== (30, '1W-FRI-100%', 3, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
```

```
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 81.184444
CAGR = 24.420000
Sharpe Ratio = 1.085000
Volatility= 0.236000
number of records for the series after dropping na: 1017
average return 0.003995
[-0.00261632  0.00263579]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0014399999999999968

==================== (30, '1W-FRI-100%', 4, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 52.757875
CAGR = 19.880000
Sharpe Ratio = 0.886000
Volatility= 0.249000
number of records for the series after dropping na: 1017
average return 0.003325
[-0.00269045  0.00268872]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.007499999999999951
```

```
==================== (30, '1W-FRI-100%', 4, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 73.415317
CAGR = 23.320000
Sharpe Ratio = 1.003000
Volatility= 0.249000
number of records for the series after dropping na: 1017
average return 0.003943
[-0.00270522  0.00268593]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0020200000000000218

==================== (30, '1W-FRI-100%', 4, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 90.897102
CAGR = 25.690000
Sharpe Ratio = 1.124000
Volatility= 0.238000
number of records for the series after dropping na: 1017
average return 0.003953
[-0.00263059  0.00261806]
Reject Ho = The population distribution of rule returns has an expected value of zero or
```

```
less (because p_value is small enough)
p_value:
0.0015600000000000058

==================== (30, '1W-FRI-100%', 4, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 83.065240
CAGR = 24.680000
Sharpe Ratio = 1.089000
Volatility= 0.237000
number of records for the series after dropping na: 1017
average return 0.003846
[-0.0026072   0.00262141]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0019200000000000328

==================== (30, '1W-FRI-100%', 5, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 60.989325
CAGR = 21.360000
Sharpe Ratio = 0.925000
Volatility= 0.253000
number of records for the series after dropping na: 1017
```

```
average return 0.003641
[-0.0026487   0.00267043]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0036800000000000166

==================== (30, '1W-FRI-100%', 5, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 66.252519
CAGR = 22.230000
Sharpe Ratio = 0.955000
Volatility= 0.253000
number of records for the series after dropping na: 1017
average return 0.003630
[-0.00266762  0.00266687]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0041799999999999615

==================== (30, '1W-FRI-100%', 5, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 72.327733
CAGR = 23.160000
```

```
Sharpe Ratio = 1.024000
Volatility= 0.241000
number of records for the series after dropping na: 1017
average return 0.003681
[-0.00265558  0.00268926]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0032799999999999496

==================== (30, '1W-FRI-100%', 5, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 96.994245
CAGR = 26.420000
Sharpe Ratio = 1.148000
Volatility= 0.238000
number of records for the series after dropping na: 1017
average return 0.004264
[-0.00258294  0.00262544]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0006199999999999539

==================== (30, '2W-FRI-100%', 2, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 19.498845
CAGR = 11.220000
Sharpe Ratio = 0.583000
Volatility= 0.240000
number of records for the series after dropping na: 1017
average return 0.002053
[-0.00262955  0.00260352]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.0615

==================== (30, '2W-FRI-100%', 2, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 29.930796
CAGR = 14.610000
Sharpe Ratio = 0.728000
Volatility= 0.233000
number of records for the series after dropping na: 1017
average return 0.002757
[-0.0024751   0.00243278]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.013499999999999956

==================== (30, '2W-FRI-100%', 2, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
```

```
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 52.641825
CAGR = 19.860000
Sharpe Ratio = 0.936000
Volatility= 0.231000
number of records for the series after dropping na: 1017
average return 0.003461
[-0.00239914  0.00241582]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0024800000000000377

==================== (30, '2W-FRI-100%', 2, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 47.251154
CAGR = 18.790000
Sharpe Ratio = 0.894000
Volatility= 0.231000
number of records for the series after dropping na: 1017
average return 0.003518
[-0.00241513  0.00243627]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0024399999999999977
```

```
==================== (30, '2W-FRI-100%', 3, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 21.251169
CAGR = 11.860000
Sharpe Ratio = 0.603000
Volatility= 0.243000
number of records for the series after dropping na: 1017
average return 0.002226
[-0.00259688  0.00258858]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.045540000000000025

==================== (30, '2W-FRI-100%', 3, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 19.803383
CAGR = 11.330000
Sharpe Ratio = 0.583000
Volatility= 0.243000
number of records for the series after dropping na: 1017
average return 0.002153
[-0.00258361  0.00258495]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
```

```
or less (because p_value is not small enough)
p_value:
0.05067999999999995

==================== (30, '2W-FRI-100%', 3, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 46.294291
CAGR = 18.590000
Sharpe Ratio = 0.869000
Volatility= 0.237000
number of records for the series after dropping na: 1017
average return 0.003296
[-0.00245031  0.00247762]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.0043999999999999595

==================== (30, '2W-FRI-100%', 3, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 43.977464
CAGR = 18.090000
Sharpe Ratio = 0.851000
Volatility= 0.237000
number of records for the series after dropping na: 1017
```

```
average return 0.003238
[-0.00243503  0.00246629]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.005639999999999978

==================== (30, '2W-FRI-100%', 4, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 23.208982
CAGR = 12.530000
Sharpe Ratio = 0.624000
Volatility= 0.246000
number of records for the series after dropping na: 1017
average return 0.002007
[-0.00260108  0.00257841]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.06403999999999999

==================== (30, '2W-FRI-100%', 4, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 26.113298
CAGR = 13.470000
```

```
Sharpe Ratio = 0.661000
Volatility= 0.245000
number of records for the series after dropping na: 1017
average return 0.002343
[-0.00257175  0.00258372]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.03747999999999996

==================== (30, '2W-FRI-100%', 4, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 41.116479
CAGR = 17.460000
Sharpe Ratio = 0.821000
Volatility= 0.240000
number of records for the series after dropping na: 1017
average return 0.002993
[-0.0024652   0.00244085]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.007979999999999987

==================== (30, '2W-FRI-100%', 4, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 41.116479
CAGR = 17.460000
Sharpe Ratio = 0.821000
Volatility= 0.240000
number of records for the series after dropping na: 1017
average return 0.002993
[-0.0024599  0.0024739]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.008619999999999961

==================== (30, '2W-FRI-100%', 5, 1, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 23.428936
CAGR = 12.610000
Sharpe Ratio = 0.618000
Volatility= 0.252000
number of records for the series after dropping na: 1017
average return 0.002084
[-0.00256198  0.00256041]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.055560000000000054

==================== (30, '2W-FRI-100%', 5, 1, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
```

```
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 22.132888
CAGR = 12.160000
Sharpe Ratio = 0.603000
Volatility= 0.251000
number of records for the series after dropping na: 1017
average return 0.002084
[-0.00257363  0.00254702]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.05462

==================== (30, '2W-FRI-100%', 5, 2, 1, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 22.396887
CAGR = 12.260000
Sharpe Ratio = 0.616000
Volatility= 0.245000
number of records for the series after dropping na: 1017
average return 0.002175
[-0.00258622  0.00260744]
Do not reject Ho = The population distribution of rule returns has an expected value of zero
or less (because p_value is not small enough)
p_value:
0.05052000000000001
```

```
==================== (30, '2W-FRI-100%', 5, 2, 2, 1, -1) ====================
E:\GitWorkSpace\v-ratio-momentum-and-ladder\computation_helper.py:278: RuntimeWarning:
invalid value encountered in double_scalars
  vratio = t/(lag*b);
```


```
TotaAnnReturn = 37.779631
CAGR = 16.670000
Sharpe Ratio = 0.795000
Volatility= 0.238000
number of records for the series after dropping na: 1017
average return 0.003073
[-0.00244426  0.00246623]
Reject Ho = The population distribution of rule returns has an expected value of zero or
less (because p_value is small enough)
p_value:
0.007079999999999975

In [20]:
```