

Vyřešte portfolio sestavené z těchto cenných papírů, máme-li zadané tyto hodnoty:

5

| Cenné papíry i | Výnosnost \bar{r}_i t v% | Nadměrná výnosnost CP $\bar{r}_i - r_f$ | Beta β_i | Nesystematické riziko $\sigma_{\varepsilon_i}^2$ v % | $\frac{\bar{r}_i - r_f}{\beta_i}$ |
|---------------------|-------------------------------------|--|-------------------|--|-----------------------------------|
| 1 | 15 | 10 | 1 | 50 | 10 |
| 2 | 17 | 12 | 1.5 | 40 | 8 |
| 3 | 12 | 7 | 1 | 20 | 7 |
| 4 | 17 | 12 | 2 | 10 | 6 |
| 5 | 11 | 6 | 1 | 40 | 6 |
| 6 | 11 | 6 | 1.5 | 30 | 4 |
| 7 | 11 | 6 | 2 | 40 | 3 |
| 8 | 7 | 2 | 0.8 | 16 | 2.5 |
| 9 | 7 | 2 | 1 | 20 | 2 |
| 10 | 5.6 | 0.6 | 0.6 | 6 | 1 |

$r_f = 5\%$
 $\sigma_M^2 = 10$

0.2
0.45
0.35
2.4
0.15
0.3
0.3
0.1
0.1
0.06

- 1) Vypočítat C_i u jednotlivých cenných papírů a určit C^*
- 2) Vypočítat váhy jednotlivých cenných papírů v portfolio, je-li zakázán sell short a je-li povolen
- 3) Vypočítat výnosnost a riziko portfolií

| | | | Ci | C* |
|---------|------|---------|---|----------|
| 0.02 | 0.2 | 0.02 | 1.666667 v portfoliu | |
| 0.05625 | 0.65 | 0.07625 | 3.687943 v portfoliu | |
| 0.05 | 1 | 0.12625 | 4.41989 v portfoliu | |
| 0.4 | 3.4 | 0.52625 | 5.429142 v portfoliu | |
| 0.025 | 3.55 | 0.55125 | 5.451056 v portfoliu | 5.451056 |
| 0.075 | 3.85 | 0.62625 | 5.301205 mimo portfolio | |
| 0.1 | 4.15 | 0.72625 | 5.022693 mimo portfolio | |
| 0.04 | 4.25 | 0.76625 | 4.906205 mimo portfolio | |
| 0.05 | 4.35 | 0.81625 | 4.747613 mimo portfolio | |
| 0.06 | 4.41 | 0.87625 | 4.517286 mimo portfolio mimo portfolio | |

C* 5.451056

| Zi | Xi - váhy | výnosnost | | |
|----------|-------------|-----------|--|----------|
| 0.090979 | 0.234769688 | 15.31872 | | 0.055117 |
| 0.095585 | 0.246656761 | riziko | beta portfolia | 0.06084 |
| 0.077447 | 0.199851412 | 5.160166 | 1.406637 | 0.039941 |
| 0.109789 | 0.283308569 | | | 0.080264 |
| 0.013724 | 0.035413571 | | rozptyl systematick nesystematické | 0.001254 |
| 0.387524 | 1 | | 26.62731 19.78628 6.84103665 6.84103665 | |

| Zi | Xi - váhy | výnosnost |
|----------|--------------|-----------|
| 0.109654 | 6.154509522 | 343.935 |
| 0.130602 | 7.330219188 | riziko |
| 0.124136 | 6.967301473 | 137.9247 |
| 0.296543 | 16.64390945 | |
| 0.037068 | 2.080488681 | |
| -0.02586 | -1.451670859 | |
| -0.07586 | -4.257994969 | |
| -0.10086 | -5.661157025 | |
| -0.12586 | -7.06431908 | |
| -0.35173 | -19.74128638 | |
| 0.017817 | 1 | |

| Cenné papíry i | Výnosnost \bar{r}_i v% | Nadměrná výnosnost CP $\bar{r}_i - r_f$ | Beta β_i | Nesystematické riziko $\sigma_{\varepsilon_i}^2$ v % | $\frac{\bar{r}_i - r_f}{\beta_i}$ |
|-------------------|--------------------------------|---|-------------------|---|-----------------------------------|
| 1 | 19 | 16 | 1 | 20 | 16 |
| 3 | 11 | 8 | 0.5 | 10 | 16 |
| 2 | 23 | 20 | 1.5 | 30 | 13.3333 |
| 6 | 9 | 6 | 0.5 | 50 | 12 |
| 4 | 25 | 22 | 2 | 40 | 11 |
| 5 | 13 | 10 | 1 | 20 | 10 |
| 7 | 14 | 11 | 1.5 | 30 | 7.33333 |
| 8 | 10 | 7 | 1 | 50 | 7 |
| 9 | 9.5 | 6.5 | 1 | 50 | 6.5 |
| 11 | 11 | 8 | 1.5 | 30 | 5.33333 |
| 10 | 13 | 10 | 2 | 20 | 5 |
| 12 | 8 | 5 | 1 | 20 | 5 |
| 14 | 7 | 4 | 1 | 20 | 4 |
| 13 | 10 | 7 | 2 | 40 | 3.5 |

$r_f = 3\%$
 $\sigma_M^2 = 10$

- 1) Vypočítat C_i u jednotlivých cenných papírů a určit C^*
- 2) Vypočítat váhy jednotlivých cenných papírů v portfoliu, je-li zakázán sell short a je-li povolen
- 3) Vypočítat výnosnost a riziko portfolií

3 10

| | | | | Ci |
|------|-------|------|-------|-----------------------------------|
| 0.8 | 0.05 | 0.8 | 0.05 | 5.333333 v portfoliu |
| 0.4 | 0.025 | 1.2 | 0.075 | 6.857143 v portfoliu |
| 1 | 0.075 | 2.2 | 0.15 | 8.8 v portfoliu |
| 0.06 | 0.005 | 2.26 | 0.155 | 8.862745 v portfoliu |
| 1.1 | 0.1 | 3.36 | 0.255 | 9.464789 v portfoliu |
| 0.5 | 0.05 | 3.86 | 0.305 | 9.530864 v portfoliu |
| 0.55 | 0.075 | 4.41 | 0.38 | 9.1875 mimo portl |
| 0.14 | 0.02 | 4.55 | 0.4 | 9.1 mimo portl |
| 0.13 | 0.02 | 4.68 | 0.42 | 9 mimo portl |
| 0.4 | 0.075 | 5.08 | 0.495 | 8.537815 mimo portl |
| 1 | 0.2 | 6.08 | 0.695 | 7.647799 mimo portl |
| 0.25 | 0.05 | 6.33 | 0.745 | 7.491124 mimo portl |
| 0.2 | 0.05 | 6.53 | 0.795 | 7.296089 mimo portl |
| 0.35 | 0.1 | 6.88 | 0.895 | 6.914573 mimo portl mimo portf |

C*

| Zi | Xi - váhy |
|----------|-----------|
| 0.323457 | 0.337411 |
| 0.323457 | 0.337411 |
| 0.190123 | 0.198326 |
| 0.024691 | 0.025757 |
| 0.073457 | 0.076626 |
| 0.023457 | 0.024469 |
| 0.958642 | 1 |

| výnosnost |
|-------------|
| 17.14938828 |
| riziko |
| 3.841851833 |

beta portfolia
0.994205

rozptyl systematickí nesystemat
14.75983 9.884431 4.875394
4.875394

| Zi | Xi - váhy |
|----------|-----------|
| 0.454271 | 0.468066 |
| 0.454271 | 0.468066 |
| 0.320938 | 0.330684 |
| 0.050854 | 0.052399 |
| 0.204271 | 0.210475 |
| 0.154271 | 0.158956 |
| 0.020938 | 0.021574 |
| 0.001709 | 0.00176 |
| -0.00829 | -0.00854 |
| -0.07906 | -0.08146 |
| -0.19146 | -0.19727 |
| -0.09573 | -0.09864 |
| -0.14573 | -0.15015 |

| výnosnost |
|-------------|
| 28.78999146 |
| riziko |
| 4.496905951 |

| | |
|----------|----------|
| -0.17073 | -0.17591 |
| 0.970528 | 1 |

C*

9.530864

folio

9.530864

0.113846

0.113846

0.039333

0.000663

0.005872

0.000599

tické