

Trh	CP	r_i	riziko	korelace _{A,B}
I	A	0.22	0.3	0.15
	B	0.31	0.32	
II	A	0.26	0.29	-0.06
	B	0.34	0.33	
III	A	0.18	0.2	0.09
	B	0.41	0.38	

Cov_M

0.09 0.0144
0.0144 0.1024

0.18 0.0288 1 0.22
0.0288 0.2048 1 0.31
1 1 0 0
0.22 0.31 0 0

VPS

0
0
1
0.3

wi

Rp

0.3

0 2.52E-15 3.444444 -11.1111 1 0.111111
0 -2.5E-15 -2.444444 11.11111 2 0.888889
3.444444 -2.444444 -2.87432 10.56691 lambda1 0.295753
-11.1111 11.11111 10.56691 -40.3951 lambda2 -1.5516

Zk

1

0.111111 0.888889

Var_P	Sigma_p	0.001111	0.001422
0.084864	0.291315	0.001422	0.080909

$\beta_1 = 1.235, \beta_2 = 0.268, \beta_3 = 1.997, \beta_4 = 2.45$ $r_f = 6\%$
 $r_m = 14\%$

rf 0.06
 rm 0.14

beta_i		ri	
1	1.235	1	0.2329
2	0.268	2	0.09752
3	1.997	3	0.33958
4	2.45	4	0.403

ROK	r_M	r_i	r_i	β	β_i		
1	10	9	22	0.666666667	5	defensive	agresive
2	32	24	48	0.68	1.64	defensive	agresive
3	20	14	30	0.538461538	1.76923	defensive	agresive
4	18	-2	-20	-0.818181818	-2.45455	defensive	agresive
5	17	16	29	0.9	2.2	defensive	agresive
6	3	4	-3	0.75	2.5	defensive	agresive
7	12	8	21	0.2	2.8	defensive	agresive
8	-5	0	-15	0.583333333	1.83333	defensive	agresive
9	18	12	28	0.454545455	1.90909	defensive	agresive
10	21	15	36	0.571428571	2.07143	defensive	agresive

covar 105.3778 61.44444 166.3778

beta_10 0.583087 1.57887

E(ri) 14.6 10 17.6

rf 7

rie 15.51307

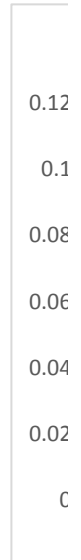
rje 30.0515

Předpokládejme, že kapitálový trh je v rovnováze. Je dáno $r_f = 0,04$, $R_m = 0,10$ a $r_i = 0,09$

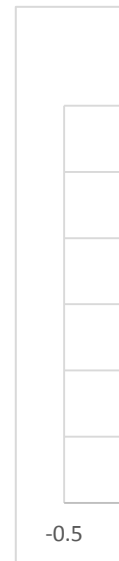
a) Popište a nakreslete přímku kapitálového trhu (CML)

b) Mějme tři CP mající následující kovariance s výnosem tržního portfolia: , , . Popište a nakr

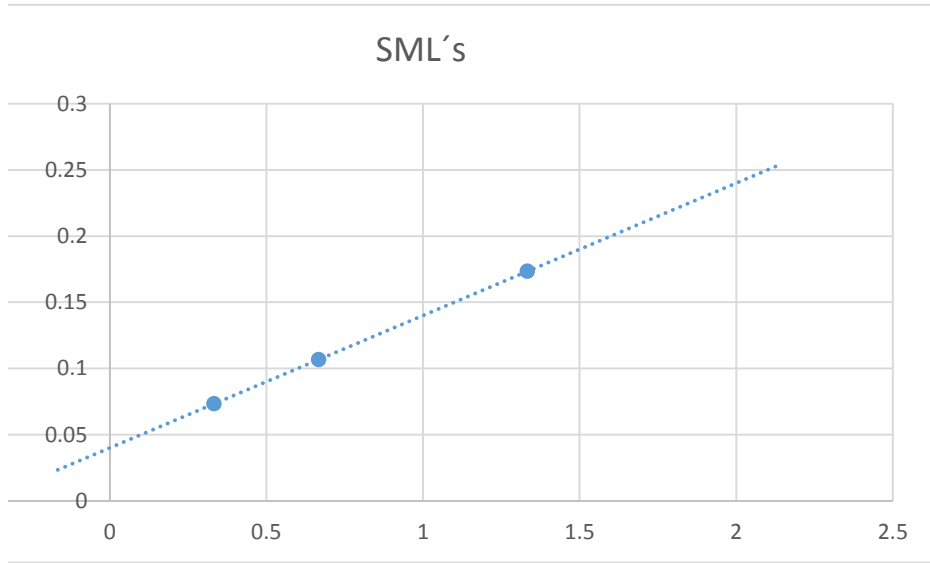
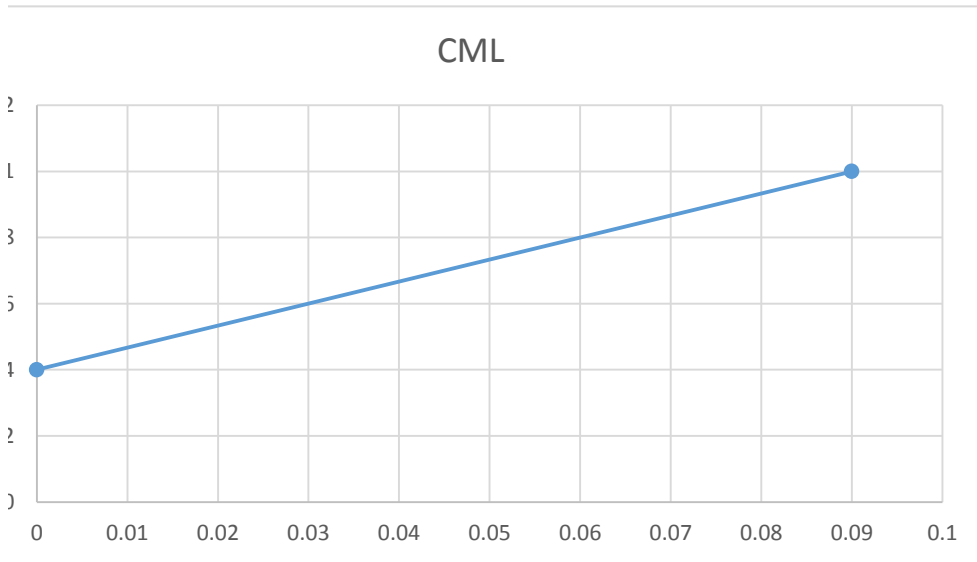
CML	r_i	R_m	r_f
		0.1	0.04
	σ_i	0.09	0



covar_l		β_i	r_{ie}
1	0.0108	1.333333	0.173333
2	0.0027	0.333333	0.073333
3	0.0054	0.666667	0.106667

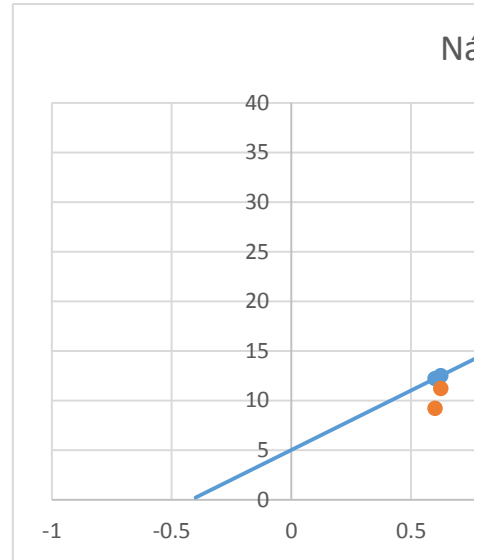


eslete přímku SML. Zaneste CP na přímku SML

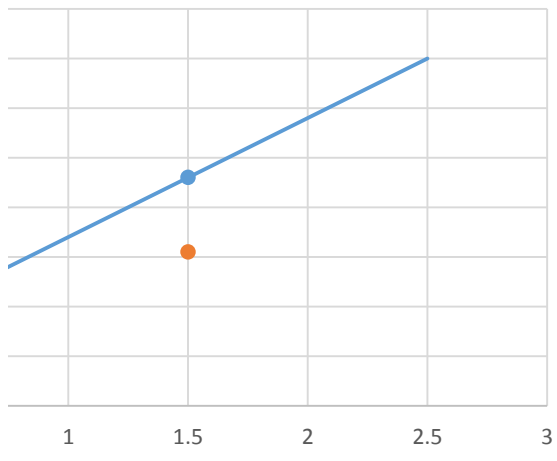


	r_i	korelace i a M	sigma i
C1	15.5	0.9	20
C2	9.2	0.8	9
C3	11.2	0.5	15
TP	12	1	12
rf	5	0	0

covar_ri_M	beta_i	rie	delta
216	1.5	23	-7.5
86.4	0.6	12.2	-3
90	0.625	12.5	-1.3
144	1		



úzev grafu



den	Český Telecom	ČEZ	Komerční banka	UNIPETROBANKA	IPB	PX50	Český Telecom
1	570	98.4	669.1	53.9	103.5	333.4	
2	569	98.2	715	53.8	103	338.9	-0.001755927
3	563.8	96.6	725	53.2	101.9	346.8	-0.009180855
4	575.3	96.5	716	53.9	100	347.8	0.020192065
5	595.1	97	725	55.6	101.6	350.9	0.033837815
6	602.8	98.4	727.5	57	101.2	348.1	0.012856008
7	601.8	99	716.6	54.7	102	349.4	-0.001660303
8	601.3	105.4	721.5	55.6	101.6	354.2	-0.000831186
9	614.8	116.9	718.6	55.9	101.7	361.1	0.022203034
10	628.1	119.6	717.8	56.5	100.5	372.7	0.021402378
11	629	113.2	729.5	56.4	103.4	371.6	0.001431867
12	618.6	109.5	702.6	54.9	102.3	395.9	-0.016672396
13	638	105	750.8	55	102.8	397.6	0.030879423
14	656	104.9	789.7	56.6	99.8	406.1	0.027822506
15	662	105.3	799.1	56.9	101.4	400.7	0.009104767
16	669.4	105.7	805	56	100.9	396.6	0.011116233
17	700.7	108.5	870	56.7	95.3	398.2	0.045698047
18	709	110.3	937.6	57	65.7	400.9	0.011775691
19	713	112.6	948.8	56.8	99.4	399.1	0.005625894
20	708	113.9	951.5	56.5	99.2	401.1	-0.007037327

E(ri) 0.011410933

Min Variance

Cov_M

0.000267119
0.000122378
0.000257158
0.000190277
-0.000253024

0.000534238
0.000244757
0.000514316
0.000380554
-0.000506048

1

Inv_M

3135.688208
-308.3583546
-723.9039686
-2041.711841
-61.71404383
0.518336137

trading days

rf p.a. 250
 0.03 0.00012

Tangencialni portfolio Cov_M
 0.000267119
 0.000122378
 0.000257158
 0.000190277
 -0.000253024

Inv_M
 7518.836014
 -396.1822772
 -1270.206012
 -3395.350697
 -50.43558186

ČEZ	Komerční banka	UNIPETROL	IPB	PX50
-0.002034589	0.066349017	-0.001857011	-0.004842624	0.016362108
-0.016427474	0.013889112	-0.011215071	-0.010737048	0.023043166
-0.001035733	-0.012491488	0.013072082	-0.018821754	0.002879357
0.00516797	0.012491488	0.031052723	0.015873349	0.008873681
0.014329826	0.003442344	0.024868067	-0.003944778	-0.008011488
0.006079046	-0.015096194	-0.041187558	0.007874056	0.003727603
0.062642786	0.006814573	0.016319492	-0.003929278	0.013644328
0.103556232	-0.004027504	0.005381179	0.000983768	0.019293203
0.022833973	-0.001113896	0.010676258	-0.011869576	0.031618878
-0.054996676	0.016168389	-0.00177148	0.028447235	-0.0029558
-0.033231617	-0.037571628	-0.02695581	-0.010695289	0.063343647
-0.041964199	0.066351565	0.001819837	0.00487568	0.004284821
-0.000952835	0.050513822	0.0286758	-0.02961717	0.02115296
0.003805904	0.011832968	0.005286356	0.015904908	-0.013386417
0.003791474	0.007356183	-0.01594365	-0.004943164	-0.010284802
0.02614528	0.077650934	0.01242252	-0.057100117	0.004026176
0.016453753	0.074830207	0.005277057	-0.371930885	0.006757628
0.020637789	0.011874609	-0.003514942	0.414053188	-0.004500008
0.011479155	0.002841658	-0.005295688	-0.002014099	0.004998761
0.007698951	0.018531903	0.002479482	-0.002233347	0.009729884

0.000122378	0.000257158	0.000190277	-0.000253024
0.001223278	-0.000106427	0.00016828	-1.35394E-05
-0.000106427	0.001071405	0.000203278	-0.001495229
0.00016828	0.000203278	0.000329542	-0.000260157
-1.35394E-05	-0.001495229	-0.000260157	0.017556896

VPS

0.000244757	0.000514316	0.000380554	-0.000506048	1	0
0.002446556	-0.000212854	0.00033656	-2.70788E-05	1	0
-0.000212854	0.002142809	0.000406556	-0.002990457	1	0
0.00033656	0.000406556	0.000659083	-0.000520315	1	0
-2.70788E-05	-0.002990457	-0.000520315	0.035113793	1	0
1	1	1	1	0	1

wi

-308.3583546	-723.9039686	-2041.711841	-61.71404383	0.518336137	1	0.518336
450.2517943	127.2654861	-269.300585	0.141659233	0.091635004	2	0.091635
127.2654861	713.6362945	-162.9241314	45.92631946	0.073795974	3	0.073796
-269.300585	-162.9241314	2488.708704	-14.77214575	0.285903523	4	0.285904
0.141659233	45.92631946	-14.77214575	30.41821088	0.030329362	5	0.030329
0.091635004	0.073795974	0.285903523	0.030329362	-0.000430751	lambda1	-0.00043

Zk

1

0.000122378	0.000257158	0.000190277	-0.000253024		VPS
0.001223278	-0.000106427	0.00016828	-1.35394E-05		0.011291
-0.000106427	0.001071405	0.000203278	-0.001495229		0.007579
0.00016828	0.000203278	0.000329542	-0.000260157		0.018412
-1.35394E-05	-0.001495229	-0.000260157	0.017556896		0.002359
					-0.00235
				Zi	wi
-396.1822772	-1270.206012	-3395.350697	-50.43558186	50.61254	1.28109
939.4911725	285.9286541	-416.9589258	13.18743242	6.896739	0.174568
285.9286541	1452.557932	-227.8867038	102.2446465	13.79127	0.349081
-416.9589258	-227.8867038	5356.944275	10.71686928	-33.0782	-0.83727
13.18743242	102.2446465	10.71686928	65.10742655	1.285067	0.032527
				Sum_Zi	39.5074
					1

				0.518336137	0.091635	0.073796	0.285904
				7.17675E-05	5.81E-06	9.84E-06	2.82E-05
				5.8127E-06	1.03E-05	-7.2E-07	4.41E-06
				9.83657E-06	-7.2E-07	5.83E-06	4.29E-06
				2.81979E-05	4.41E-06	4.29E-06	2.69E-05
				-3.9777E-06	-3.8E-08	-3.3E-06	-2.3E-06
ri	Rp	Var_p	Sigma_p				
0.011411	0.008629	0.000215	0.014676				
0.007699							
0.018532	0.587975						
0.002479							
-0.00223							

			1.281090309	0.174568	0.349081	-0.83727
			0.000438394	2.74E-05	0.000115	-0.0002
			2.73684E-05	3.73E-05	-6.5E-06	-2.5E-05
			0.000115002	-6.5E-06	0.000131	-5.9E-05
Rp	Var_p	Sigma_p	-0.00020409	-2.5E-05	-5.9E-05	0.000231
0.020283	0.00051	0.022591	-1.0544E-05	-7.7E-08	-1.7E-05	7.09E-06
0.897828						

0.030329

-4E-06

-3.8E-08

-3.3E-06

-2.3E-06

1.62E-05

0.032527

-1.1E-05

-7.7E-08

-1.7E-05

7.09E-06

1.86E-05