Computer Assignment 1

R bar S	10,3%
R bar B	6,2%
sigma S	12,2%
sigma B	5,5%

1. Similar to the answers in Question 2, but with different correlations. Once Question 2 is solved we can replace the correlation cell for ay value we wish.

2.

cov	0,0022814
corr	0,34

(a)

			bar R-rf
(i)	bar R	10,3%	5,3%
		6,2%	1,2%
	V	0,014884	0,0022814
		0,0022814	0,003025
(ii)	**MV**	5,57%	
		94,43%	
	bar R mv	6,43%	
	sigma^2 mv	0,0029836	
	sigma mv	5,462%	

(iii) Asset S is efficient but asset B is not

(iv)	X (Rbar=12%)	141,46%
		-41,46%
	sum	1
	Rbar	0,12

Solver: set R bar to 10%, with x_B<x_Bmin

(v)

	X(sigma=10%)	78,08%
		21,92%
	sum	1
	Rbar	9,40%
	sigma^2	0,0099999
	sigma	10,00%

Solver: set sigma=12%, with Rbar > Rbarmin

(vi) Mr. Low

			10 000,00 €
	X (efficient, sigma_B)	11%	1 113,73 €
		89%	8 886,27 €
	sum	1	
	Rbar	6,66%	
	sigma^2	0,0030249	
	sigma	5,50%	

Solver: set sigma=sigma_B, with Rbar > Rbarmin

(vii) Shortselling NOT allowed

(i)-(ii)-(iii)
nothing changes

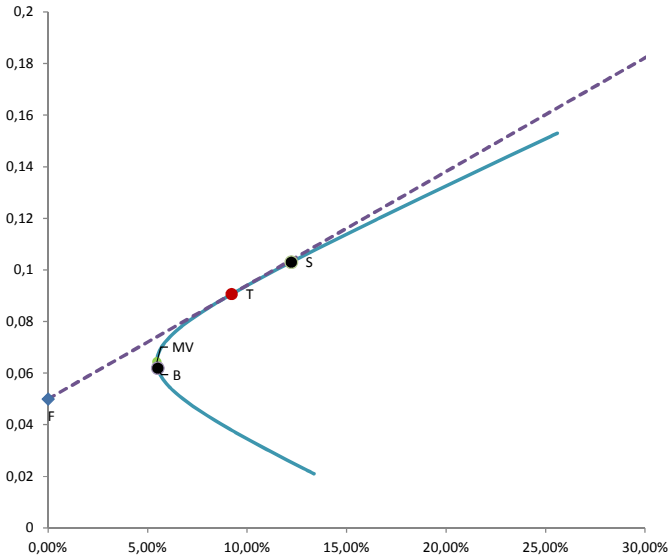
(iv)
If shortselling would not be possible, there is no fesible combination of B and S with Rbar=12%

(v)
nothing changes

(vi)
nothing changes

(c)

x1	sigma^2	sigma	R bar	Rbar no short	EF sigma	EF R bar
-1	0,017858	13,36%	0,021			
-0,99	0,017578	13,26%	0,02141		0%	5%
-0,98	0,0173	13,15%	0,02182		1%	5%
-0,97	0,017025	13,05%	0,02223		2%	6%
-0,96	0,016753	12,94%	0,02264		3%	6%
-0,95	0,016483	12,84%	0,02305		4%	7%
-0,94	0,016216	12,73%	0,02346		5%	7%
-0,93	0,015951	12,63%	0,02387		6%	8%
-0,92	0,015689	12,53%	0,02428		7%	8%
-0,91	0,01543	12,42%	0,02469		8%	9%
-0,9	0,015174	12,32%	0,0251		9%	9%
-0,89	0,01492	12,21%	0,02551		10%	9%
-0,88	0,014669	12,11%	0,02592		11%	10%
-0,87	0,014421	12,01%	0,02633		12%	10%
-0,86	0,014175	11,91%	0,02674		13%	11%
-0,85	0,013932	11,80%	0,02715		14%	11%
-0,84	0,013691	11,70%	0,02756		15%	12%
-0,83	0,013454	11,60%	0,02797		16%	12%
-0,82	0,013218	11,50%	0,02838		17%	12%
-0,81	0,012986	11,40%	0,02879		18%	13%
-0,8	0,012756	11,29%	0,0292		19%	13%
-0,79	0,012529	11,19%	0,02961		20%	14%
-0,78	0,012305	11,09%	0,03002		21%	14%
-0,77	0,012083	10,99%	0,03043		22%	15%
-0,76	0,011864	10,89%	0,03084		23%	15%
-0,75	0,011648	10,79%	0,03125		24%	16%
-0,74	0,011434	10,69%	0,03166		25%	16%
-0,73	0,011223	10,59%	0,03207		26%	16%
-0,72	0,011014	10,49%	0,03248		27%	17%
-0,71	0,010809	10,40%	0,03289		28%	17%
-0,7	0,010606	10,30%	0,0333		29%	18%
-0,69	0,010405	10,20%	0,03371		30%	18%
-0,68	0,010208	10,10%	0,03412		31%	19%
-0,67	0,010013	10,01%	0,03453		32%	19%
-0,66	0,00982	9,91%	0,03494		33%	20%
-0,65	0,00963	9,81%	0,03535		34%	20%
-0,64	0,009443	9,72%	0,03576		35%	20%
-0,63	0,009259	9,62%	0,03617		36%	21%
-0,62	0,009077	9,53%	0,03658		37%	21%
-0,61	0,008898	9,43%	0,03699		38%	22%
-0,6	0,008722	9,34%	0,0374		39%	22%
-0,59	0,008548	9,25%	0,03781		40%	23%
-0,58	0,008377	9,15%	0,03822		41%	23%
-0,57	0,008209	9,06%	0,03863			
-0,56	0,008043	8,97%	0,03904			
-0,55	0,00788	8,88%	0,03945			
-0,54	0,00772	8,79%	0,03986			
-0,53	0,007562	8,70%	0,04027			



-0,28	0,004488	6,70%	0,05052	

(b)

R_f	5%
sigma_f	0

(i) **Tangent**

Z	3,3388 X	69,74%	
	1,4489	30,26%	
sum z	4,7877	bar R T	9,06%
		sigma T^2	0,008478
		sigma T	9,21%
		SR	0,440843

EF: Rbar_p=Rf+SR_Tsigma_p

Rbar_p= 5% + 0,4408 sigma_p

(ii)

Eff P with sigma = sigma B

sigma*	5,50%
bar R*	5,50%
x* (w sigma)	59,73%

Investment Recomendation:

40,27% F	
59,73% T	
	41,66% S
	18,08% B

(iii) Mr. High

Eff with sigma = 15%

sigma	15%
x_T	162,904%
xf	-62,904%
Rbar	11,613%

Take a loan to invest more than 100% in T