CASE EXAMPLE

S	$p(s)$	$r(s)$
1	.2	-.05
2	.2	.1
3	.6	.2

$r_f = .05$

$r_{prime} = .07$

1. $E(r_p) = \sum_{s=1}^{3} p(s)r(s)$

$= p(1)r(1) + p(2)r(2) + p(3)r(3)$

$= .2(-.05) + .2(.1) + .6(.2)$

$= .13$

$\boxed{E(r_p) = 13\%}$

$\sigma_p^2 = \sum_{s=1}^{3} p(s)[r(s) - E(r_p)]^2$

$= .2(-.18)^2 + .2(-.03)^2 + .6(.07)^2$

$= .0096$

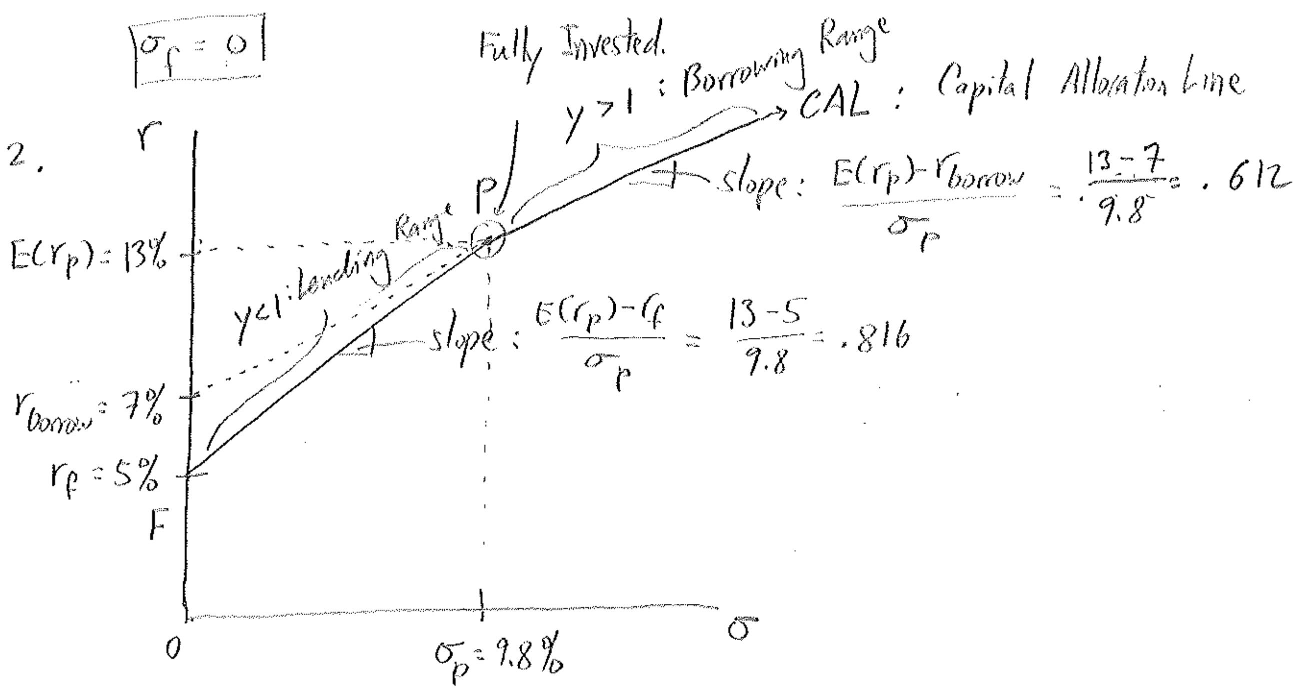
$\sigma_p = .09798$

$\boxed{\sigma_p = 9.80\%}$

$\boxed{r_f = 5\%}$

$\boxed{\sigma_f = 0}$

2.



3. $y = .75$

$E(r_c) = r_f + y\,[E(r_p) - r_f]$

$= 5\% + .75(13\% - 5\%)$

$\boxed{E(r_c) = 11\%}$

$\sigma_c = y\,\sigma_p$

$= .75(9.8\%)$

$\boxed{\sigma_c = 7.35\%}$

4. $y = 1.25$

$E(r_c) = r_{borrow} + y\,[E(r_p) - r_{borrow}]$

$= 7\% + 1.25(13\% - 7\%)$

$\boxed{E(r_c) = 14.5\%}$

$\sigma_c = y\,\sigma_p$

$= 1.25(9.8\%)$

$\boxed{\sigma_c = 12.25\%}$

5. If NEED 12% return on average, then:

$12\% = r_f + y\,[E(r_p) - r_f]$

$= 5\% + y(8\%)$

$y = \frac{7}{8}$

$y = .875$

Thus, allocate 87.5% of assets, or \$144,375 into the risky assets.

$\sigma_c = y\,\sigma_p$

$= .875(9.8\%)$

$\boxed{\sigma_c = 8.575\%}$

Thus, with 95% certainty, the returns to this portfolio lie between a \$8,497.5 loss and \$48,097.5 gain.

6. $\sigma_c = 8\%$

$\sigma_c = y\sigma_p$

$= y\,(9.8\%)$

$y = 8/9.8$

$y = 0.816327$

Thus, allocate 81.63% of funds into risky assets.

$E(r_c) = r_f + y\,[E(r_p) - r_f]$

$= 5\% + .816327\,(8\%)$

$\boxed{E(r_c) = 11.53\%}$