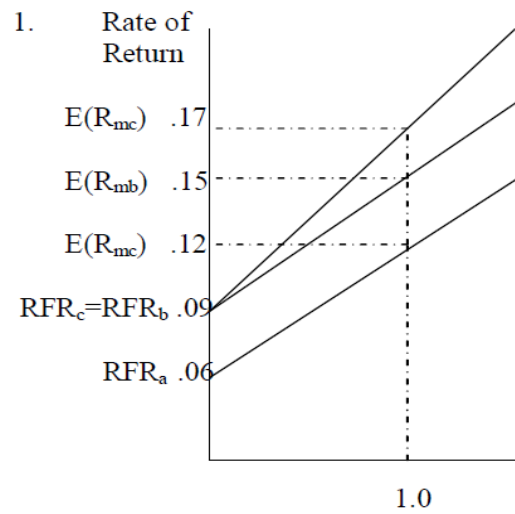


**1.**

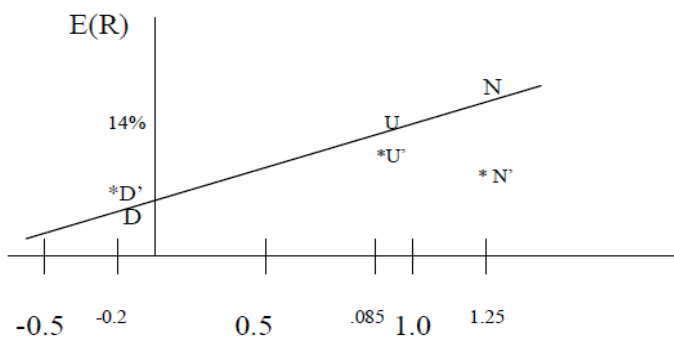


**2.**

RFR		10
RM		14
	beta	
U		0.85
N		1.25
D		-0.2

**3.**

	current price	expected price
U	22	24
N	48	51
D	37	40



**11. Single Index Model**

company	alpha (intercept)	sigma
Intel	0.22	0.121
Ford	0.1	0.146
Anheuser Busch	0.17	0.076

Merck	0.05	0.102
S&P 500	0	0.055

a.	COV		<b>beta</b>
Intel	0.0047916		<b>1.584</b>
Ford	0.0026499		<b>0.876</b>
Anheuser Busch	0.002299		<b>0.76</b>
Merck	0.003366		<b>1.112727273</b>
S&P 500	0.003025		<b>1</b>

b.		
RFR	0.05	Intel
RM	0.15	Ford
		Anheuser Busch
		Merck
		S&P 500

c.	expected	
Intel	0.2	<
Ford	0.15	>
Anheuser Busch	0.19	>
Merck	0.1	<

**12. CAPM model**

RFR	0.08
RM	0.14

<b>13. Single index model</b>		Chelle
		0.37
	2	0.09
	3	-0.11
	4	0.08
	5	0.11
	6	0.04

<b>mean</b>	<b>0.096666667</b>
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a.	<b>correlation</b>	<b>0.130546149</b>
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b.	<b>standard deviation</b>	<b>0.14208761</b>
		<b>0.082663978</b>

c. **beta** **0.224390244**

**17. CAPM model**

proxy	RFR	0.07
	RM	0.16
True	RFR	0.09
	RM	0.18

**18. CAPM model**

a. Ra 0.11  
Beta 0.09

proxy	<b>0.0781 &lt;</b>
True	<b>0.0981 &lt;</b>

b. Ra 0.14  
Beta 1

proxy	<b>0.16 &gt;</b>
True	<b>0.18 &gt;</b>

c. Ra 0.12  
Beta -0.4

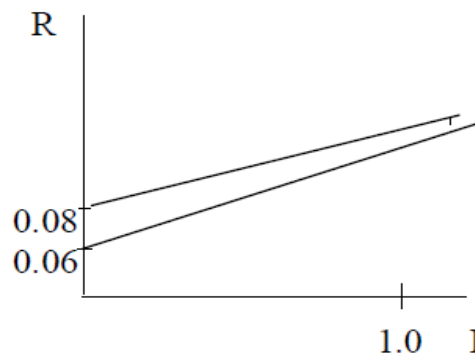
proxy	<b>0.034 &lt;</b>
True	<b>0.054 &lt;</b>

d. Ra 0.2  
Beta 1.1

proxy	<b>0.169 &lt;</b>
True	<b>0.189 &lt;</b>

**19. CAPM model + Single Index model**

a. RFR 0.08  
 RM 0.12



b.

Period	Return of Rader
1	0.29
2	0.12
3	-0.12
4	0.17
5	0.2
6	-0.05
mean	0.101666667

riziko	Proxy
	0.0025
	0.0009
	0.0256
	0.0049
	0.0324
	0.0289
<b>variance index</b>	<b>0.015866667</b>
<b>standard deviation index</b>	<b>0.125962958</b>

<b>beta</b>	<b>0.984243697</b>	<b>1.05</b>
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c.  
 RM 0.12  
 ri 0.11

SML<sub>c</sub>

— SML<sub>b</sub>

— SML<sub>c</sub>

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Systematic Risk (Beta)

CAPM model

expected (required) rate of return*
13.4
15
9.2

expected dividend

0.75  
2  
1.25

expected rate of return
12.5
10.41666667
11.48648649

riM

0.72  
0.33  
0.55

0.6  
1

$$B_i = \frac{COV_{i,m}}{\sigma_m^2} \text{ and } r_i$$

$$\text{then } COV_{i,m} = (r_{i,m})$$

expected (required) return

0.2084
0.1376
0.126
0.161272727
0.15

required \*

0.2084	overvaluated	sell
0.1376	undervaluated	buy
0.126	undervaluated	buy
0.161272727	overvaluated	sell

stock

beta

expected (required) return\*

A	1.72	0.1832
B	1.14	0.1484
C	0.76	0.1256
D	0.44	0.1064
E	0.03	0.0818
F	-0.79	0.0326

Index

0.15	0.273333333	0.06	0.0164
0.13	-0.006666667	0.04	-0.00027
0.14	-0.206666667	0.05	-0.01033
-0.09	-0.016666667	-0.18	0.003
0.12	0.013333333	0.03	0.0004
0.09	-0.056666667	0	0

0.09

covariance

0.001533

COV<sub>1,M</sub>

$$I_{1,M} = \frac{\rho_{1,M}}{\sigma_1 \sigma_M}$$



undervaluated

undervaluated



overvaluated

overvaluated



undervaluated

undervaluated



undervaluated

undervaluated

Rz  
RM

0.06  
0.15

### Beta

Proxy Index

True Index

0.12	0.15	0.188333333	0.05
0.1	0.13	0.018333333	0.03
-0.09	-0.08	-0.221666667	-0.16
0.14	0.18	0.068333333	0.07
0.25	0.28	0.098333333	0.18
-0.1	0	-0.151666667	-0.17
0.07	0.11		

True

0.0016  
0.0004  
0.0361  
0.0049  
0.0289  
0.0121

**0.014**  
**0.118321596**

<b>required * (proxy)</b>	<b>0.119369748 &gt;</b>	<b>0.11</b>
<b>required * (market)</b>	<b>0.123 &gt;</b>	<b>0.11</b>



comparison of required rate of return to expected		
higher	overvaluated	sale
higher	overvaluated	sale
lower	undervaluated	buy

$$\rho_{i,m} = \frac{\text{COV}_{i,m}}{(\sigma_i)(\sigma_m)}$$

$$(\sigma_i)(\sigma_m)$$

	chelle	index
	0.074711111	0.0036
	4.44444E-05	0.0016
	0.042711111	0.0025
	0.000277778	0.0324
	0.000177778	0.0009
	0.003211111	0

<b>variance</b>	<b>0.020188889</b>	<b>0.006833333</b>
<b>standard devi</b>	<b>0.14208761</b>	<b>0.082663978</b>



	cov Radex x Proxy	cov Rader x True
0.04	0.009416667	0.007533333
0.02	0.00055	0.000366667
-0.19	0.035466667	0.042116667
0.07	0.004783333	0.004783333
0.17	0.0177	0.016716667
-0.11	0.025783333	0.016683333

<b>cov</b>	<b>0.015616667</b>	<b>0.0147</b>
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<b>overvaluated</b>
<b>overvaluated</b>