

TEORÍA DE INVERSIÓN

2007-2 Grupo 02

Guillermo Buenaventura

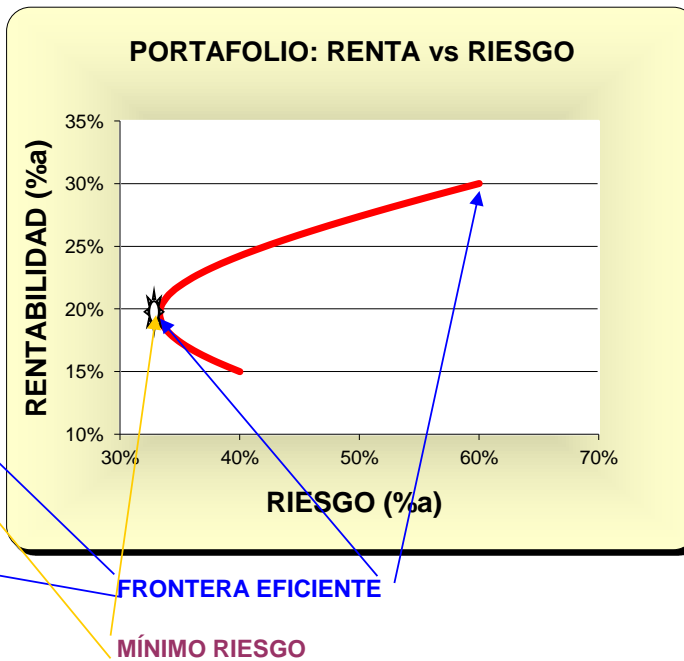
EXAMEN 3

1. Usted asesora a la compañía CARTERAS S.A., la que le ha encomendado estudiar la posibilidad de construir portafolios con acciones de las empresas colombianas CALIMAN, que tiene un nivel de endeudamiento ($r_D = D/ACT$), del 45% y SAMANTA, que presenta un nivel de endeudamiento de 27%. CALIMAN cotiza sus acciones a \$1.775 cada una; su dividendo es de \$400 por acción, estimándose que se mantenga en esta cifra constante en el futuro. Por su parte SAMANTA cotiza sus acciones a \$800 cada una, pagando un dividendo (que se espera que sea constante) de \$100 por acción. El mercado colombiano presenta valores de 6% anual, 22% anual y 20% anual para rentabilidad libre de riesgo, rentabilidad media y desviación estándar de su rentabilidad, respectivamente. La tasa de impuestos que pagan las empresas colombianas es 33%. Apartes de un *paper* le permiten conocer que el coeficiente de correlación de la rentabilidad de CALIMAN con el mercado es 0,5, el de SAMANTA con el mercado es 0,35 y que la covarianza entre las rentabilidades entre las dos empresas es -0,1.
 - a. Encuentre la rentabilidad de cada empresa (Recuerde que $P_0 = D/K_e$, para dividendos constantes).
 - b. Encuentre la desviación estándar de la rentabilidad de cada empresa.

(Si no puede hallar una o las dos respuestas anteriores, suponga valores de 30%a y 15%a para las rentabilidades de CALIMAN y SAMANTA, respectivamente, y valores de 60%a y 40%a para sus correspondientes desviaciones estándar, y **¡siga adelante!**).
 - c. Dibuje la gráfica Rentabilidad vs. Riesgo de portafolios conformados por las dos empresas.
 - d. Señale y especifique la frontera eficiente. Establezca, señale y especifique el portafolio de mínimo riesgo.
 - e. Grafique el costo del capital de los accionistas versus el nivel de endeudamiento para cada empresa. Comente.

¡Suerte!

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
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2	EX 3	EXAMEN 3 (CON DATOS INTERMEDIOS)												
3														
4							CALIMAN	SAMANTA						
5							(\$)	(\$)						
6		PRECIO	(\$/acc)			1,775	800							
7		DIV	(\$/acc)			400	100							
8		Rf	(%a)			6%								
9		Rm	(%a)			22%								
10		σ_m	(%a)			20%								
11	a.	Ke	(%a)			30.00%	15.00%							
12		β	()			1.50	0.56							
13		ρ emp-merc	()											
14		σ emp-emp	(%a)											
15	b.	σ_i	(%a)			60.00%	40.00%							
16														
17														
18	c.	X CALIMAN	X SMANTA			Rp	SIGMAp							
19		100.0%	0%			30.00%	60.00%							
20		95.0%	5%			29.25%	57.04%							
21		90.0%	10%			28.50%	54.15%							
22		85.0%	15%			27.75%	51.35%							
23		80.0%	20%			27.00%	48.66%							
24		75.0%	25%			26.25%	46.10%							
25		70.0%	30%			25.50%	43.68%							
26		65.0%	35%			24.75%	41.44%							
27		60.0%	40%			24.00%	39.40%							
28		55.0%	45%			23.25%	37.59%							
29		50.0%	50%			22.50%	36.06%							
30		45.0%	55%			21.75%	34.83%							
31		42.9%	57%			21.44%	34.41%							
32		40.0%	60%			21.00%	33.94%							
33	d.	35.0%	65%			20.25%	33.42%							
34		30.0%	70%			19.50%	33.29%							
35		29.6%	70%			19.44%	33.29%							
36		25.0%	75%			18.75%	33.54%							
37		20.0%	80%			18.00%	34.18%							
38		15.0%	85%			17.25%	35.17%							
39		10.0%	90%			16.50%	36.50%							
40		5.0%	95%			15.75%	38.12%							
41		0.0%	100%			15.00%	40.00%							
42														



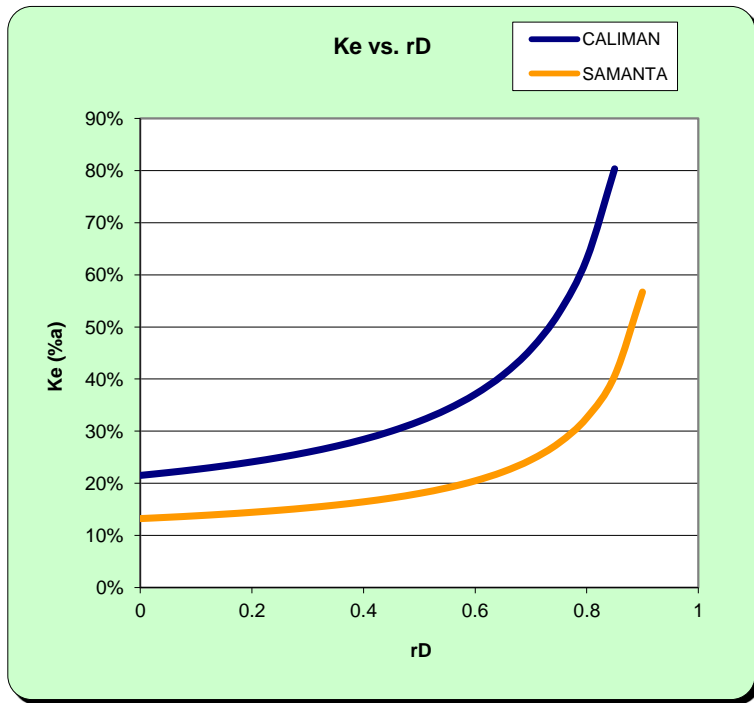
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e.

CALIMAN SAMANTA

		(\$)	(\$)
rD	(%)	45%	27%
T	(%)	33%	33%
β	()	1.50	0.56
β_0	()	0.97	0.45

rD	CALIMAN		SAMANTA	
	β	Ke	β	Ke
0	0.97	21.50%	0.45	13.21%
5%	1.00	22.05%	0.47	13.47%
10%	1.04	22.66%	0.48	13.75%
15%	1.08	23.33%	0.50	14.07%
20%	1.13	24.10%	0.53	14.42%
25%	1.19	24.96%	0.55	14.82%
30%	1.25	25.95%	0.58	15.28%
35%	1.32	27.09%	0.61	15.81%
40%	1.40	28.43%	0.65	16.43%
45%	1.50	30.00%	0.70	17.17%
50%	1.62	31.89%	0.75	18.05%
55%	1.76	34.20%	0.82	19.12%
60%	1.94	37.08%	0.90	20.46%
65%	2.17	40.79%	1.01	22.19%
70%	2.48	45.74%	1.16	24.49%
75%	2.92	52.66%	1.36	27.71%
80%	3.57	63.05%	1.66	32.54%
85%	4.65	80.36%	2.16	40.60%
90%	6.81	114.98%	3.17	56.70%
95%	13.30	218.84%	6.19	105.03%
99%	65.23	1049.75%	30.35	491.63%

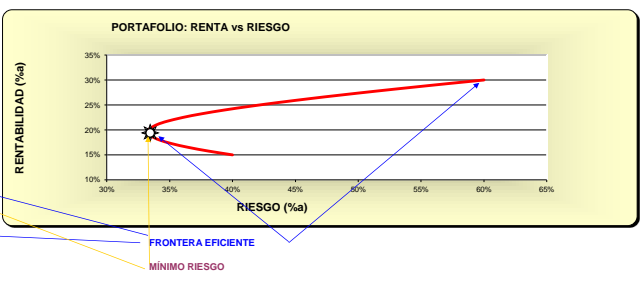


MÁS RIESGOSO CALIMÁN
A MAYOR Rd MAYOR Ke

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			CALIMAN	SAMANTA
			(S)	(S)
6	PRECIO	(\$/acc)	1775	800
7	DIV	(\$/acc)	400	100
8	Rf	(%)	0.06	
9	Rm	(%)	0.22	
10	em	(%)	0.2	
11	Ke	(%)	0.3	0.15
12	l		=+(F11-SF38)/(SF39-SF38)	=+(G11-SF38)/(SF39-SF38)
13	emp-merc			
14	emp-emp	(%)		
15	et	(%)	0.6	0.4

	X CALIMAN	X SMANTA	Rd	SIGMAp
19	1		=+D19*SF311+E19*SG311	=+(D19^2-SF315^2+E19^2-SG315^2+2*D19*E19-SF314*(Y12))
20	0.95		=+D20*SF311+E20*SG311	=+(D20^2-SF315^2+E20^2-SG315^2+2*D20*E20-SF314*(Y12))
21	0.9		=+D21*SF311+E21*SG311	=+(D21^2-SF315^2+E21^2-SG315^2+2*D21*E21-SF314*(Y12))
22	0.85		=+D22*SF311+E22*SG311	=+(D22^2-SF315^2+E22^2-SG315^2+2*D22*E22-SF314*(Y12))
23	0.8		=+D23*SF311+E23*SG311	=+(D23^2-SF315^2+E23^2-SG315^2+2*D23*E23-SF314*(Y12))
24	0.75		=+D24*SF311+E24*SG311	=+(D24^2-SF315^2+E24^2-SG315^2+2*D24*E24-SF314*(Y12))
25	0.7		=+D25*SF311+E25*SG311	=+(D25^2-SF315^2+E25^2-SG315^2+2*D25*E25-SF314*(Y12))
26	0.65		=+D26*SF311+E26*SG311	=+(D26^2-SF315^2+E26^2-SG315^2+2*D26*E26-SF314*(Y12))
27	0.6		=+D27*SF311+E27*SG311	=+(D27^2-SF315^2+E27^2-SG315^2+2*D27*E27-SF314*(Y12))
28	0.55		=+D28*SF311+E28*SG311	=+(D28^2-SF315^2+E28^2-SG315^2+2*D28*E28-SF314*(Y12))
29	0.5		=+D29*SF311+E29*SG311	=+(D29^2-SF315^2+E29^2-SG315^2+2*D29*E29-SF314*(Y12))
30	0.45		=+D30*SF311+E30*SG311	=+(D30^2-SF315^2+E30^2-SG315^2+2*D30*E30-SF314*(Y12))
31	0.429		=+D31*SF311+E31*SG311	=+(D31^2-SF315^2+E31^2-SG315^2+2*D31*E31-SF314*(Y12))
32	0.3999999999999999		=+D32*SF311+E32*SG311	=+(D32^2-SF315^2+E32^2-SG315^2+2*D32*E32-SF314*(Y12))
33	0.3499999999999999		=+D33*SF311+E33*SG311	=+(D33^2-SF315^2+E33^2-SG315^2+2*D33*E33-SF314*(Y12))
34	0.2999999999999999		=+D34*SF311+E34*SG311	=+(D34^2-SF315^2+E34^2-SG315^2+2*D34*E34-SF314*(Y12))
35	0.296		=+D35*SF311+E35*SG311	=+(D35^2-SF315^2+E35^2-SG315^2+2*D35*E35-SF314*(Y12))
36	0.2499999999999999		=+D36*SF311+E36*SG311	=+(D36^2-SF315^2+E36^2-SG315^2+2*D36*E36-SF314*(Y12))
37	0.1999999999999999		=+D37*SF311+E37*SG311	=+(D37^2-SF315^2+E37^2-SG315^2+2*D37*E37-SF314*(Y12))
38	0.1499999999999999		=+D38*SF311+E38*SG311	=+(D38^2-SF315^2+E38^2-SG315^2+2*D38*E38-SF314*(Y12))
39	0.0999999999999999		=+D39*SF311+E39*SG311	=+(D39^2-SF315^2+E39^2-SG315^2+2*D39*E39-SF314*(Y12))
40	0.0499999999999999		=+D40*SF311+E40*SG311	=+(D40^2-SF315^2+E40^2-SG315^2+2*D40*E40-SF314*(Y12))
41	0		=+D41*SF311+E41*SG311	=+(D41^2-SF315^2+E41^2-SG315^2+2*D41*E41-SF314*(Y12))

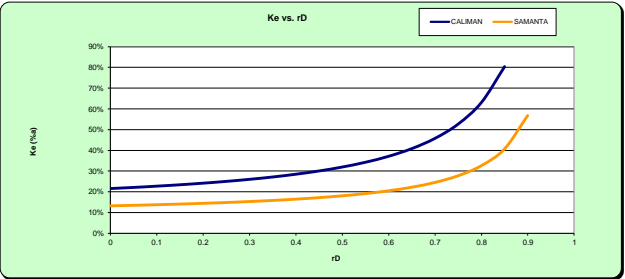


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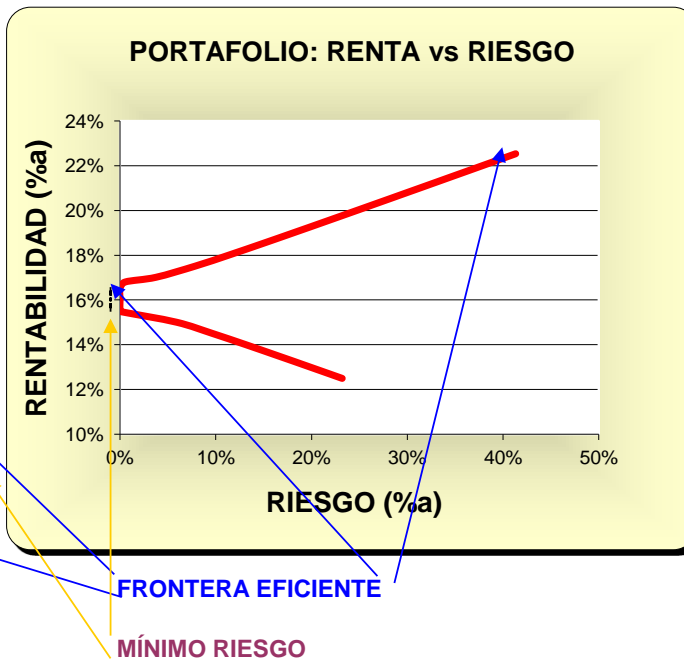
		CALIMAN		SAMANTA	
		(\$)		(\$)	
rD	(%)	0.45		0.27	
T	(%)	0.33		0.33	
U	()	=+F12		=+G12	
U0	()	=+F48(1+F46(1-F46)^(1-F47))		=+G48(1+G46(1-G46)^(1-G47))	

rD	CALIMAN		SAMANTA	
	U	Ke	U	Ke
0	=+SF49*(1+D53(1-D53)^(1-SF347))	=+SF38+(SF39-SF38)*E53	=+SG49*(1+D63(1-D63)^(1-SG347))	=+SF38+(SF39-SF38)*G53
0.05	=+SF49*(1+D54(1-D54)^(1-SF347))	=+SF38+(SF39-SF38)*E54	=+SG49*(1+D64(1-D64)^(1-SG347))	=+SF38+(SF39-SF38)*G54
0.1	=+SF49*(1+D55(1-D55)^(1-SF347))	=+SF38+(SF39-SF38)*E55	=+SG49*(1+D65(1-D65)^(1-SG347))	=+SF38+(SF39-SF38)*G55
0.15	=+SF49*(1+D56(1-D56)^(1-SF347))	=+SF38+(SF39-SF38)*E56	=+SG49*(1+D66(1-D66)^(1-SG347))	=+SF38+(SF39-SF38)*G56
0.2	=+SF49*(1+D57(1-D57)^(1-SF347))	=+SF38+(SF39-SF38)*E57	=+SG49*(1+D67(1-D67)^(1-SG347))	=+SF38+(SF39-SF38)*G57
0.25	=+SF49*(1+D58(1-D58)^(1-SF347))	=+SF38+(SF39-SF38)*E58	=+SG49*(1+D68(1-D68)^(1-SG347))	=+SF38+(SF39-SF38)*G58
0.3	=+SF49*(1+D59(1-D59)^(1-SF347))	=+SF38+(SF39-SF38)*E59	=+SG49*(1+D69(1-D69)^(1-SG347))	=+SF38+(SF39-SF38)*G59
0.35	=+SF49*(1+D60(1-D60)^(1-SF347))	=+SF38+(SF39-SF38)*E60	=+SG49*(1+D70(1-D70)^(1-SG347))	=+SF38+(SF39-SF38)*G60
0.4	=+SF49*(1+D61(1-D61)^(1-SF347))	=+SF38+(SF39-SF38)*E61	=+SG49*(1+D71(1-D71)^(1-SG347))	=+SF38+(SF39-SF38)*G61
0.45	=+SF49*(1+D62(1-D62)^(1-SF347))	=+SF38+(SF39-SF38)*E62	=+SG49*(1+D72(1-D72)^(1-SG347))	=+SF38+(SF39-SF38)*G62
0.5	=+SF49*(1+D63(1-D63)^(1-SF347))	=+SF38+(SF39-SF38)*E63	=+SG49*(1+D73(1-D73)^(1-SG347))	=+SF38+(SF39-SF38)*G63
0.55	=+SF49*(1+D64(1-D64)^(1-SF347))	=+SF38+(SF39-SF38)*E64	=+SG49*(1+D74(1-D74)^(1-SG347))	=+SF38+(SF39-SF38)*G64
0.6	=+SF49*(1+D65(1-D65)^(1-SF347))	=+SF38+(SF39-SF38)*E65	=+SG49*(1+D75(1-D75)^(1-SG347))	=+SF38+(SF39-SF38)*G65
0.65	=+SF49*(1+D66(1-D66)^(1-SF347))	=+SF38+(SF39-SF38)*E66	=+SG49*(1+D76(1-D76)^(1-SG347))	=+SF38+(SF39-SF38)*G66
0.7	=+SF49*(1+D67(1-D67)^(1-SF347))	=+SF38+(SF39-SF38)*E67	=+SG49*(1+D77(1-D77)^(1-SG347))	=+SF38+(SF39-SF38)*G67
0.75	=+SF49*(1+D68(1-D68)^(1-SF347))	=+SF38+(SF39-SF38)*E68	=+SG49*(1+D78(1-D78)^(1-SG347))	=+SF38+(SF39-SF38)*G68
0.8	=+SF49*(1+D69(1-D69)^(1-SF347))	=+SF38+(SF39-SF38)*E69	=+SG49*(1+D79(1-D79)^(1-SG347))	=+SF38+(SF39-SF38)*G69
0.85	=+SF49*(1+D70(1-D70)^(1-SF347))	=+SF38+(SF39-SF38)*E70	=+SG49*(1+D80(1-D80)^(1-SG347))	=+SF38+(SF39-SF38)*G70
0.9	=+SF49*(1+D71(1-D71)^(1-SF347))	=+SF38+(SF39-SF38)*E71	=+SG49*(1+D81(1-D81)^(1-SG347))	=+SF38+(SF39-SF38)*G71
0.95	=+SF49*(1+D72(1-D72)^(1-SF347))	=+SF38+(SF39-SF38)*E72	=+SG49*(1+D82(1-D82)^(1-SG347))	=+SF38+(SF39-SF38)*G72
0.99	=+SF49*(1+D73(1-D73)^(1-SF347))	=+SF38+(SF39-SF38)*E73	=+SG49*(1+D83(1-D83)^(1-SG347))	=+SF38+(SF39-SF38)*G73



MÁS RIESGOSO CALIMAN
A MAYOR R_D MAYOR K_e

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2	EX 3	EXAMEN 3 (TOTAL)												
3														
4							CALIMAN	SAMANTA						
5							(\$)	(\$)						
6		PRECIO	(\$/acc)			1,775	800							
7		DIV	(\$/acc)			400	100							
8		Rf	(%a)			6%								
9		Rm	(%a)			22%								
10		σ_m	(%a)			20%								
11	a.	Ke	(%a)			22.54%	12.50%							
12		β	()			1.03	0.41							
13		ρ emp-merc	()			0.50	0.35							
14		σ emp-emp	(%a)			-0.10								
15	b.	σ_i	(%a)			41.34%	23.21%							
16														
17														
18	c.	X CALIMAN	X SMANTA			Rp	SIGMAP							
19		100.0%	0%			22.54%	41.34%							
20		95.0%	5%			22.03%	38.06%							
21		90.0%	10%			21.53%	34.78%							
22		85.0%	15%			21.03%	31.49%							
23		80.0%	20%			20.53%	28.20%							
24		75.0%	25%			20.03%	24.90%							
25		70.0%	30%			19.52%	21.58%							
26		65.0%	35%			19.02%	18.25%							
27		60.0%	40%			18.52%	14.88%							
28		55.0%	45%			18.02%	11.45%							
29		50.0%	50%			17.52%	7.87%							
30		45.0%	55%			17.02%	3.75%							
31		42.9%	57%			16.81%	0.53%							
32		40.0%	60%			16.51%	#¡NUM!							
33	d.	35.0%	65%			16.01%	#¡NUM!							
34		30.0%	70%			15.51%	#¡NUM!							
35		29.6%	70%			15.47%	0.21%							
36		25.0%	75%			15.01%	5.91%							
37		20.0%	80%			14.51%	9.66%							
38		15.0%	85%			14.01%	13.15%							
39		10.0%	90%			13.50%	16.54%							
40		5.0%	95%			13.00%	19.89%							
41		0.0%	100%			12.50%	23.21%							
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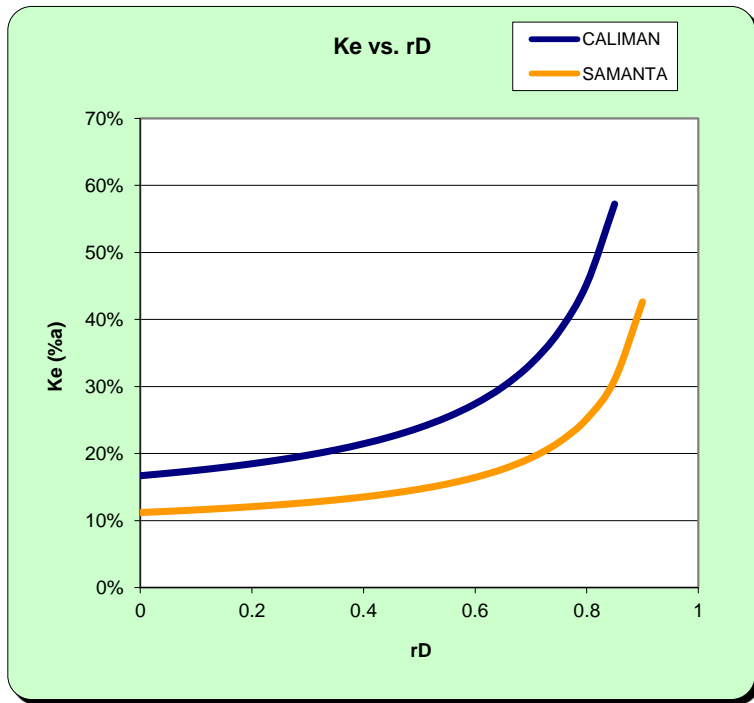
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CALIMAN SAMANTA

		(\$)	(\$)
rD	(%)	45%	27%
T	(%)	33%	33%
β	()	1.03	0.41
β0	()	0.67	0.33

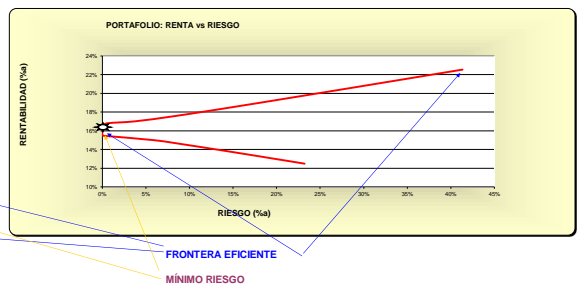
rD	CALIMAN		SAMANTA	
	β	Ke	β	Ke
0	0.67	16.68%	0.33	11.21%
5%	0.69	17.06%	0.34	11.39%
10%	0.72	17.48%	0.35	11.60%
15%	0.75	17.94%	0.36	11.83%
20%	0.78	18.47%	0.38	12.08%
25%	0.82	19.07%	0.40	12.37%
30%	0.86	19.75%	0.42	12.70%
35%	0.91	20.53%	0.44	13.09%
40%	0.97	21.45%	0.47	13.54%
45%	1.03	22.54%	0.50	14.06%
50%	1.11	23.84%	0.54	14.70%
55%	1.21	25.43%	0.59	15.47%
60%	1.34	27.41%	0.65	16.44%
65%	1.50	29.97%	0.73	17.69%
70%	1.71	33.38%	0.83	19.35%
75%	2.01	38.15%	0.98	21.68%
80%	2.46	45.30%	1.20	25.17%
85%	3.20	57.23%	1.56	30.99%
90%	4.69	81.08%	2.29	42.62%
95%	9.17	152.64%	4.47	77.52%
99%	44.94	725.11%	21.92	356.73%



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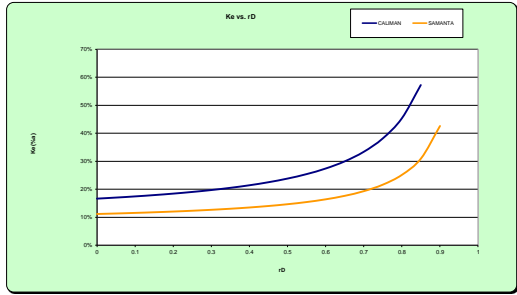
EX 3 EXAMEN 3 (TOTAL)		CALIMAN		SAMANTA	
		(\$)		(\$)	
PRECIO	(\$/acc)	1775	800		
DIV	(\$/acc)	400	100		
Rf	(%)	0.06			
Rm	(%)	0.22			
cm	(%)	0.2			
k_a	(%)	$=+F7/F6$		$=+G7/G6$	
$k_{emp-merc}$	(%)	$=+(F11-($F8)/($F9-$F8))$		$=+(G11-($G8)/($G9-$G8))$	
$k_{emp-emp}$	(%)	-0.1		0.36	
α_i	(%)	$=+F12/F13*$F10		$=+G12/G13*$F10	

	X CALIMAN	X SMANTA	Ro	SIGMAo
1	=1-D19		=+D19*\$F\$11+E19*\$G\$11	=+(D19^2*\$F\$15^2+E19^2*\$G\$15^2+D19*E19*\$F\$14*(1/2))
0.95	=1-D20		=+D20*\$F\$11+E20*\$G\$11	=+(D20^2*\$F\$15^2+E20^2*\$G\$15^2+D20*E20*\$F\$14*(1/2))
0.9	=1-D21		=+D21*\$F\$11+E21*\$G\$11	=+(D21^2*\$F\$15^2+E21^2*\$G\$15^2+D21*E21*\$F\$14*(1/2))
0.85	=1-D22		=+D22*\$F\$11+E22*\$G\$11	=+(D22^2*\$F\$15^2+E22^2*\$G\$15^2+D22*E22*\$F\$14*(1/2))
0.8	=1-D23		=+D23*\$F\$11+E23*\$G\$11	=+(D23^2*\$F\$15^2+E23^2*\$G\$15^2+D23*E23*\$F\$14*(1/2))
0.75	=1-D24		=+D24*\$F\$11+E24*\$G\$11	=+(D24^2*\$F\$15^2+E24^2*\$G\$15^2+D24*E24*\$F\$14*(1/2))
0.7	=1-D25		=+D25*\$F\$11+E25*\$G\$11	=+(D25^2*\$F\$15^2+E25^2*\$G\$15^2+D25*E25*\$F\$14*(1/2))
0.65	=1-D26		=+D26*\$F\$11+E26*\$G\$11	=+(D26^2*\$F\$15^2+E26^2*\$G\$15^2+D26*E26*\$F\$14*(1/2))
0.6	=1-D27		=+D27*\$F\$11+E27*\$G\$11	=+(D27^2*\$F\$15^2+E27^2*\$G\$15^2+D27*E27*\$F\$14*(1/2))
0.55	=1-D28		=+D28*\$F\$11+E28*\$G\$11	=+(D28^2*\$F\$15^2+E28^2*\$G\$15^2+D28*E28*\$F\$14*(1/2))
0.5	=1-D29		=+D29*\$F\$11+E29*\$G\$11	=+(D29^2*\$F\$15^2+E29^2*\$G\$15^2+D29*E29*\$F\$14*(1/2))
0.45	=1-D30		=+D30*\$F\$11+E30*\$G\$11	=+(D30^2*\$F\$15^2+E30^2*\$G\$15^2+D30*E30*\$F\$14*(1/2))
0.429	=1-D31		=+D31*\$F\$11+E31*\$G\$11	=+(D31^2*\$F\$15^2+E31^2*\$G\$15^2+D31*E31*\$F\$14*(1/2))
0.399999999999999	=1-D32		=+D32*\$F\$11+E32*\$G\$11	=+(D32^2*\$F\$15^2+E32^2*\$G\$15^2+D32*E32*\$F\$14*(1/2))
0.349999999999999	=1-D33		=+D33*\$F\$11+E33*\$G\$11	=+(D33^2*\$F\$15^2+E33^2*\$G\$15^2+D33*E33*\$F\$14*(1/2))
0.299999999999999	=1-D34		=+D34*\$F\$11+E34*\$G\$11	=+(D34^2*\$F\$15^2+E34^2*\$G\$15^2+D34*E34*\$F\$14*(1/2))
0.246	=1-D35		=+D35*\$F\$11+E35*\$G\$11	=+(D35^2*\$F\$15^2+E35^2*\$G\$15^2+D35*E35*\$F\$14*(1/2))
0.249999999999999	=1-D36		=+D36*\$F\$11+E36*\$G\$11	=+(D36^2*\$F\$15^2+E36^2*\$G\$15^2+D36*E36*\$F\$14*(1/2))
0.199999999999999	=1-D37		=+D37*\$F\$11+E37*\$G\$11	=+(D37^2*\$F\$15^2+E37^2*\$G\$15^2+D37*E37*\$F\$14*(1/2))
0.149999999999999	=1-D38		=+D38*\$F\$11+E38*\$G\$11	=+(D38^2*\$F\$15^2+E38^2*\$G\$15^2+D38*E38*\$F\$14*(1/2))
0.099999999999999	=1-D39		=+D39*\$F\$11+E39*\$G\$11	=+(D39^2*\$F\$15^2+E39^2*\$G\$15^2+D39*E39*\$F\$14*(1/2))
0.049999999999999	=1-D40		=+D40*\$F\$11+E40*\$G\$11	=+(D40^2*\$F\$15^2+E40^2*\$G\$15^2+D40*E40*\$F\$14*(1/2))
0	=1-D41		=+D41*\$F\$11+E41*\$G\$11	=+(D41^2*\$F\$15^2+E41^2*\$G\$15^2+D41*E41*\$F\$14*(1/2))



CALIMAN		SAMANTA	
rD	(%)	0.45	0.27
T	(%)	0.33	0.33
β	()	=+F12	=+G12
W	()	=+F48/(1+F46)/(1-F46)/(1-F47)	=+G48/(1+G46)/(1-G46)/(1-G47)

rD	CALIMAN		SAMANTA	
	β	Ke	β	Ke
0	=+SF349*(1+D53/(1-D53))*(1-SF347)	=+SF38+(SF39-SF38)*E53	=+SG349*(1+D53/(1-D53))*(1-SG347)	=+SF38+(SF39-SF38)*E53
0.05	=+SF349*(1+D54/(1-D54))*(1-SF347)	=+SF38+(SF39-SF38)*E54	=+SG349*(1+D54/(1-D54))*(1-SG347)	=+SF38+(SF39-SF38)*E54
0.1	=+SF349*(1+D55/(1-D55))*(1-SF347)	=+SF38+(SF39-SF38)*E55	=+SG349*(1+D55/(1-D55))*(1-SG347)	=+SF38+(SF39-SF38)*E55
0.15	=+SF349*(1+D56/(1-D56))*(1-SF347)	=+SF38+(SF39-SF38)*E56	=+SG349*(1+D56/(1-D56))*(1-SG347)	=+SF38+(SF39-SF38)*E56
0.2	=+SF349*(1+D57/(1-D57))*(1-SF347)	=+SF38+(SF39-SF38)*E57	=+SG349*(1+D57/(1-D57))*(1-SG347)	=+SF38+(SF39-SF38)*E57
0.25	=+SF349*(1+D58/(1-D58))*(1-SF347)	=+SF38+(SF39-SF38)*E58	=+SG349*(1+D58/(1-D58))*(1-SG347)	=+SF38+(SF39-SF38)*E58
0.3	=+SF349*(1+D59/(1-D59))*(1-SF347)	=+SF38+(SF39-SF38)*E59	=+SG349*(1+D59/(1-D59))*(1-SG347)	=+SF38+(SF39-SF38)*E59
0.35	=+SF349*(1+D60/(1-D60))*(1-SF347)	=+SF38+(SF39-SF38)*E60	=+SG349*(1+D60/(1-D60))*(1-SG347)	=+SF38+(SF39-SF38)*E60
0.4	=+SF349*(1+D61/(1-D61))*(1-SF347)	=+SF38+(SF39-SF38)*E61	=+SG349*(1+D61/(1-D61))*(1-SG347)	=+SF38+(SF39-SF38)*E61
0.45	=+SF349*(1+D62/(1-D62))*(1-SF347)	=+SF38+(SF39-SF38)*E62	=+SG349*(1+D62/(1-D62))*(1-SG347)	=+SF38+(SF39-SF38)*E62
0.5	=+SF349*(1+D63/(1-D63))*(1-SF347)	=+SF38+(SF39-SF38)*E63	=+SG349*(1+D63/(1-D63))*(1-SG347)	=+SF38+(SF39-SF38)*E63
0.55	=+SF349*(1+D64/(1-D64))*(1-SF347)	=+SF38+(SF39-SF38)*E64	=+SG349*(1+D64/(1-D64))*(1-SG347)	=+SF38+(SF39-SF38)*E64
0.6	=+SF349*(1+D65/(1-D65))*(1-SF347)	=+SF38+(SF39-SF38)*E65	=+SG349*(1+D65/(1-D65))*(1-SG347)	=+SF38+(SF39-SF38)*E65
0.65	=+SF349*(1+D66/(1-D66))*(1-SF347)	=+SF38+(SF39-SF38)*E66	=+SG349*(1+D66/(1-D66))*(1-SG347)	=+SF38+(SF39-SF38)*E66
0.7	=+SF349*(1+D67/(1-D67))*(1-SF347)	=+SF38+(SF39-SF38)*E67	=+SG349*(1+D67/(1-D67))*(1-SG347)	=+SF38+(SF39-SF38)*E67
0.75	=+SF349*(1+D68/(1-D68))*(1-SF347)	=+SF38+(SF39-SF38)*E68	=+SG349*(1+D68/(1-D68))*(1-SG347)	=+SF38+(SF39-SF38)*E68
0.8	=+SF349*(1+D69/(1-D69))*(1-SF347)	=+SF38+(SF39-SF38)*E69	=+SG349*(1+D69/(1-D69))*(1-SG347)	=+SF38+(SF39-SF38)*E69
0.85	=+SF349*(1+D70/(1-D70))*(1-SF347)	=+SF38+(SF39-SF38)*E70	=+SG349*(1+D70/(1-D70))*(1-SG347)	=+SF38+(SF39-SF38)*E70
0.9	=+SF349*(1+D71/(1-D71))*(1-SF347)	=+SF38+(SF39-SF38)*E71	=+SG349*(1+D71/(1-D71))*(1-SG347)	=+SF38+(SF39-SF38)*E71
0.95	=+SF349*(1+D72/(1-D72))*(1-SF347)	=+SF38+(SF39-SF38)*E72	=+SG349*(1+D72/(1-D72))*(1-SG347)	=+SF38+(SF39-SF38)*E72
0.99	=+SF349*(1+D73/(1-D73))*(1-SF347)	=+SF38+(SF39-SF38)*E73	=+SG349*(1+D73/(1-D73))*(1-SG347)	=+SF38+(SF39-SF38)*E73



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