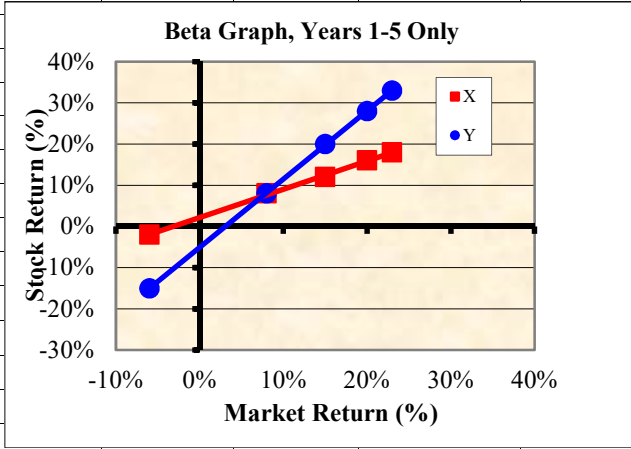


	A	B	C	D	E	F	G	H	I
1	Worksheet for Chapter 2 BOC Questions							3/17/2017	
2									
3	We use BOC Question 2-6 to illustrate some points about the CAPM, the SML, and Excel. For additional								
4	information on Excel, see the Tool Kit for Chapter 2.								
8									Rate of Return Ca
9	The following returns were earned on the market and on Stocks X and Y during the last 5 years:								For the Market:
10									Ending
11		Percentage Returns							Price
12	Year	Market	Stock X	Stock Y					\$100.00
13	1	20%	16%	28%					\$118.00
14	2	8%	8%	8%					\$124.94
15	3	15%	12%	20%					\$140.68
16	4	-6%	-2%	-15%					\$128.74
17	5	23%	18%	33%					\$154.35
18	6	20%	16%	-70%					\$180.72
19	Avg 1-5	12.0%	10.4%	14.8%					
20									
21	Beta X:	0.69	From						
22	Beta Y:	1.66	below						
23									
24	Could get betas by regression, but an easier way is to use the LINEST function. Click fx > Statistical >								
25	LINEST and then follow the menu to get beta X = 0.69 and beta Y = 1.66. Here's the completed dialog box for X. You								
26	can use the data to find beta to Y as an exercise, and also to find the revised beta based on years 2-6.								
27									
28									
29	Beta X:	0.69							
30	Beta Y:	1.66							
31									
32									
33									
34	<b>SML Analysis:</b>								
35	Risk-free rate:		8.0%						= {0.68539325842696
36	Market return:		12.0%						Returns an array that describes a straight line that best fits your data, calculated by using
37									the least squares method.
38									<b>Known_x's</b> is an optional set of x-values that you may already know in the
39									relationship y = mx + b.
40									Formula result = 0.69 OK Cancel
41	$r(X)$	= $r(rf)$ +	$b(r(\text{Market}) - r(fr))$						
42		8.0%	+	2.7%	=	10.7%	=	Predicted return for X.	
43									
44	$r(Y)$	= $r(rf)$ +	$b(r(\text{Market}) - r(fr))$						
45		8.0%	+	6.6%	=	14.6%	=	Predicted return for Y.	
46									
47	New Beta Y:		0.19						
48									
49	New $r(y)$ :		8.8%						



LINEST

Known\_y's: C13:C17 = {0.16;0.08;0.12;-0.15;0.18}

Known\_x's: B13:B17 = {0.2;0.08;0.15;-0.06;0.23}

Const: = logical

Stats: = logical

Returns an array that describes a straight line that best fits your data, calculated by using the least squares method.

**Known\_x's** is an optional set of x-values that you may already know in the relationship y = mx + b.

Formula result = 0.69 OK Cancel

	A	B	C	D	E	F	G	H	I
50									

51 We could also use the statistical function RSQ to calculate the R-squares for the betas.  
 52 For Y R-square dropped from 1.0 to .0029. This indicates that the beta, and the CAPM  
 53 required return, are being measured with a lot of error. So, we cannot trust the accuracy  
 54 of the new estimated required return.

56 We can show the data in graph form; we provide graphs below. To make the first chart, you would highlight the data  
 57 range B13:D17. Then click the chart icon. Then click "Scatter" and then click the box with lines and data point  
 58 indicators. Excel assumes the first column contains the X axis data. When you click "Finish," you get a reasonably  
 59 good graph, one that shows the essence of what we are driving at. You could do some formatting, add labels, and make a  
 60 prettier graph, like the one we show. We will have more to say about graphs in other BOC models. We also show the  
 61 charts on a separate tab to demonstrate that they can be embedded in a worksheet or shown separately.

