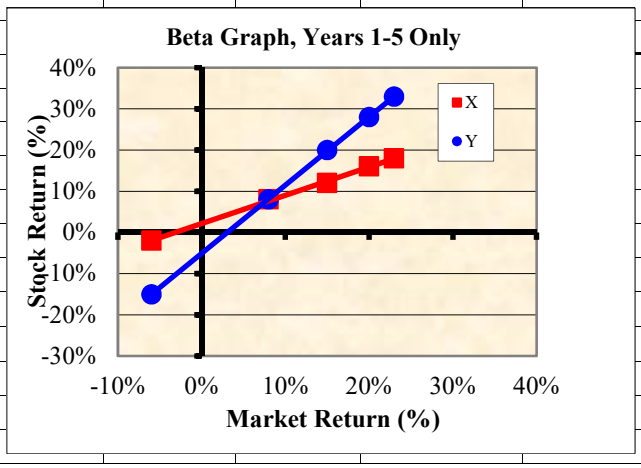
Worksheet for Chapter 2 BOC Questions — **3/17/2017**

We use BOC Question 2-6 to illustrate some points about the CAPM, the SML, and Excel. For additional information on Excel, see the Tool Kit for Chapter 2.

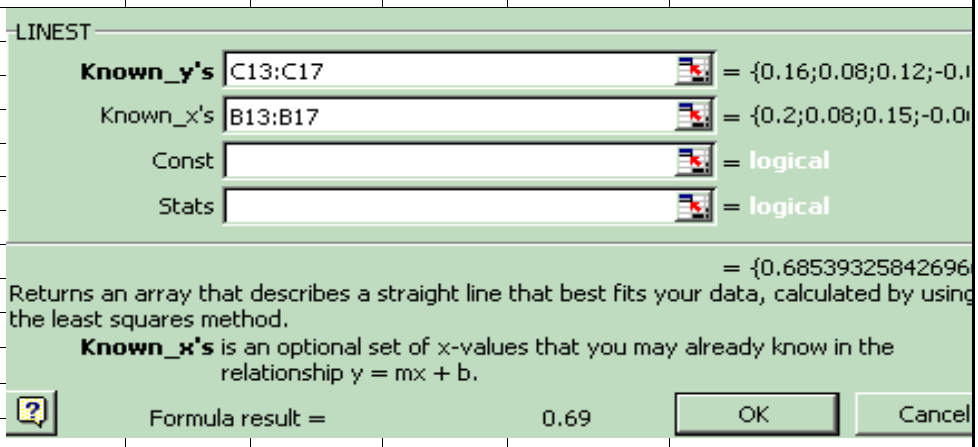
The following returns were earned on the market and on Stocks X and Y during the last 5 years:

Year	Percentage Returns: Market	Stock X	Stock Y	Rate of Return Ca: For the Market: Ending Price
				$100.00
1	20%	16%	28%	$118.00
2	8%	8%	8%	$124.94
3	15%	12%	20%	$140.68
4	-6%	-2%	-15%	$128.74
5	23%	18%	33%	$154.35
6	20%	16%	-70%	$180.72
Avg 1-5	12.0%	10.4%	14.8%	



Beta X: 0.69 (From below)
Beta Y: 1.66 (From below)

Could get betas by regression, but an easier way is to use the LINEST function. Click fx > Statistical > 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 can use the data to find beta to Y as an exercise, and also to find the revised beta based on years 2-6.



SML Analysis:

Risk-free rate:		8.0%					
Market return:		12.0%					
r(X) = r(rf) +	b(r(Market) - r(fr))						
	8.0%	+	2.7%	=	10.7%	=	Predicted return for X.
r(Y) = r(rf) +	b(r(Market) - r(fr))						
	8.0%	+	6.6%	=	14.6%	=	Predicted return for Y.
New Beta Y:		0.19					
New r(y):		8.8%					

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

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