

Introduction to Finance - II
Quiz on univariate stock returns

Read the questions carefully. Don't make them harder than they are! Answer succinctly and precisely. Show all of your work.

1. Suppose that we pull the following data from a source such as WRDS for 2 stocks, LRCX and GK:

Date	LRCX			GK		
	Price	\$ Dividend	Stock Distribution	Price	\$ Dividend	Stock Distribution
19970131	54.125			32.75		
19970228	55.00	.08		25.25		0.25
19970331	53.875		0.1	26.50	0.40	

- (a) What are the monthly returns that you can compute from these data? (Show the computations and returns.)
2. Suppose that you have a spreadsheet with a column of 10 years worth of these monthly returns in Excel. For example, you have 120 monthly returns on LRCX in Rows 3 through 122 in column C in your spreadsheet.
- (a) How would you compute the mean monthly return over this period?
- (b) Suppose that you have computed the mean monthly return, \bar{r} , and put that in Cell C124 in your spreadsheet. You next construct a new column in your spreadsheet (Column D) – each element of which contains the return in column C minus \bar{r} . For example, Cell D10 contains $=C10 - \$C\124 (the return in row 10 minus the mean return).
- What will the mean of this new column D be?
 - Now in Column E you put the element in Column D – squared. For example, Cell E10 contains $=D10^2$ (the square of the value in Cell D10). What is the mean of these 120 terms – that is the average of the squared differences from the mean? What is the interpretation / importance / meaning of this average?
 - You have the mean of Column E in cell E124. How do you compute the standard deviation of monthly returns?
 - Suppose you computed the standard deviations of the 2 stocks' returns (LRCX and GK) using the 120 months of data. You find that the monthly return standard deviations are: LRCX 0.19, and GK: 0.09. What can you say about the relative nature of the two companies, or how these companies differ—one from the other?
- (c) Suppose that the mean monthly return of LRCX is .0085, and the standard deviation of LRCX's monthly returns is .17. Also suppose that the current price of LRCX is \$138.35. What are the 68%, 95%, and 99% probability bands on Lam's rate of return over the next 12 months, assuming that Lam's returns follow a normal distribution?
3. Suppose that on May 14, 1979 GK Technologies, GK, has 25,974,026 shares outstanding and its stock price is \$77.00 per share. It does a 2-for-1 stock split on May 15, 1979 (i.e., the stock distribution is 1.0). The return on GK on May 15, 1979 is 0%.
- What is the market capitalization of GK on May 14, 1979?
 - How many shares of GK are outstanding at market close on May 15, 1979? What is GK's stock price on May 15, 1979? What is the market capitalization of GK on May 15, 1979?
 - Suppose that on May 16, 1979 GK pays a cash dividend of 0.30, and also has a return of 0. What is the market capitalization of GK on May 16, 1979?