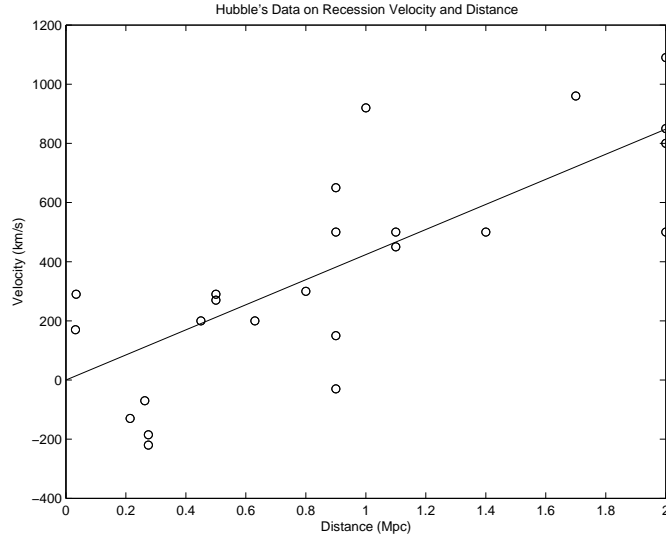


STA 113 Fall 2003
Assignment 1

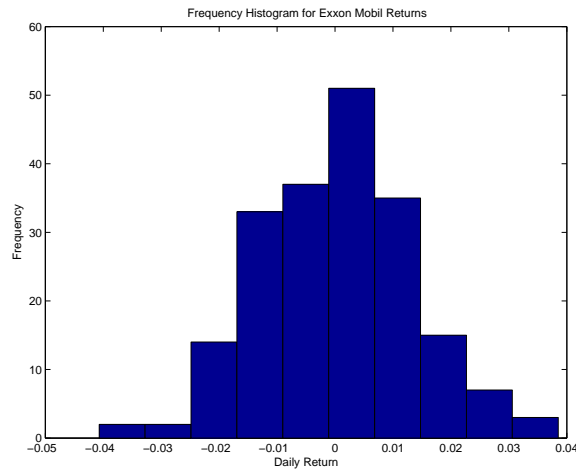
Submitted by: I. H. Dinwoodie

September 17, 2003

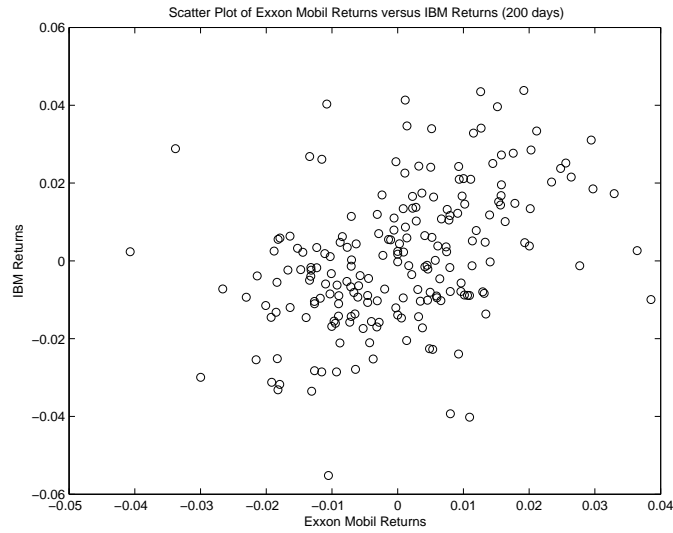
1. The slope of the regression line with no intercept is $H_0 = 423.94$ (km/s)/Mpc.



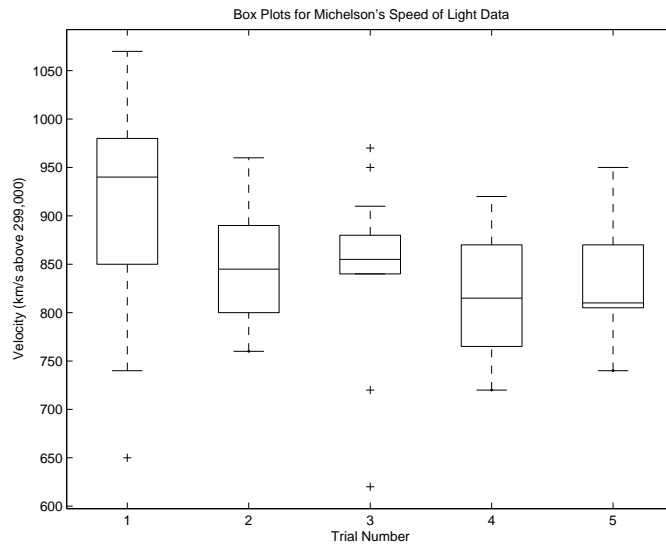
2. Solving $1/10 = e^{H_0 t}$ gives $t = -0.0054$ in units of $s \times \text{Mpc}/\text{km}$. In years this is 5.33×10^9 in the past. The correlation of 0.7896 confirms the linear relationship, but one which is far from perfect for this data.
3. The Exxon Mobil returns have sample mean 2.79×10^{-4} , sample median 8.34×10^{-4} , a 25th percentile of -0.0093 , a 75th percentile of $.0093$, and standard deviation of $.0132$ (there are no units for these quantities).



- The correlation coefficient is 0.4175, indicating a weak linear relationship between the two quantities.



- The means of the five trials are 909.00, 856.00, 845.00, 820.50, 831.50 in km/s, whereas the medians are 940, 845, 855, 815, 810, also in km/s. The overall mean is 852.40 km/s, and the overall median is 850 km/s. The medians are less affected by the outliers. In the first and third trials, extreme low values brought the means down below the medians.



6. The sample correlation between cigarette consumption and frequency of deaths from lung cancer is 0.6974. (There are no units in correlation, they cancel in the computation.)

