Assignment 2 Econometrics

Instructions

This is an R markdown Document, it is an incredible way of reporting your results in HTML,PDF, and MS Words Documents and include the code associated with the results. It will allow the user to improve her or his reporting for corporate settings or research. Please pay attention to the way this is structured as it will help you with your future assignment. you can also code mathematical expression Please click on the following link for more information :

- https://www.calvin.edu/~rpruim/courses/s341/S17/from-class/MathinRmd.html

Question 2.10

(a) The model is a simple regression model because it can be written as $y = \beta_1 + \beta_2 x + e$ where $y = r_j - r_j, x = r_m - r_f$, $\beta_1 = \alpha_j, \beta_2 = \beta_j$.

```
#*************In order to read the dta file in R we will us the library "foreign" *********
#install.packages("foreign") if needed
require("foreign")
```

```
## Warning: package 'foreign' was built under R version 3.4.4
```

```
data <- read.dta("~/Downloads/Assignment2_Econometrics/capm4.dta", convert.dates = TRUE,
                 convert.factors = TRUE,
                 missing.type = FALSE,
                 convert.underscore = FALSE, warn.missing.labels = TRUE)

summary(data)
```

```
##       date                dis                  ge                 
##  Min.   :19980130   Min.   :-0.267794   Min.   :-0.234902  
##  1st Qu.:20001006   1st Qu.:-0.043638   1st Qu.:-0.032974  
##  Median :20030680   Median : 0.005858   Median :-0.004716  
##  Mean   :20030680   Mean   : 0.001379   Mean   : 0.001361  
##  3rd Qu.:20060355   3rd Qu.: 0.047858   3rd Qu.: 0.040096  
##  Max.   :20081231   Max.   : 0.241453   Max.   : 0.192392  
##        gm                  ibm                  msft          
##  Min.   :-0.389313   Min.   :-0.226453   Min.   :-0.343529  
##  1st Qu.:-0.076167   1st Qu.:-0.038707   1st Qu.:-0.056052  
##  Median :-0.013017   Median : 0.006482   Median : 0.003996  
##  Mean   :-0.009081   Mean   : 0.008332   Mean   : 0.008557  
##  3rd Qu.: 0.068138   3rd Qu.: 0.051488   3rd Qu.: 0.056916  
##  Max.   : 0.276619   Max.   : 0.353799   Max.   : 0.407781  
##       xom                  mkt                riskfree       
##  Min.   :-0.116462   Min.   :-0.184726   Min.   :0.000025  
##  1st Qu.:-0.028031   1st Qu.:-0.022966   1st Qu.:0.001376  
##  Median : 0.003309   Median : 0.010952   Median :0.002870  
##  Mean   : 0.010488   Mean   : 0.002511   Mean   :0.002675  
##  3rd Qu.: 0.041534   3rd Qu.: 0.037875   3rd Qu.:0.003904  
##  Max.   : 0.232171   Max.   : 0.083925   Max.   :0.005195
```

```
#*********************************************************************************************
```

(b)

```
#install.packages("stargazer")
require(stargazer)
```

```
## Warning: package 'stargazer' was built under R version 3.4.4
```

```
################ The we change data to a dataframe so that Our Manipulation is easier ********
data <- as.data.frame(data)

Excess_Return <- matrix(0, ncol = dim(data)[2], nrow = dim(data)[1])
Excess_Return <- as.data.frame(Excess_Return)
colnames(Excess_Return) <- colnames(data)

############### Let us generate excess returns #########################################
for (name in colnames(data)) {
     Excess_Return[,name] <- data[,name] - data$riskfree
}

######### you should see zeros for the risk free rate #############################

result <- list()


for (name in colnames(data)) {
  result[[name]] <- lm(Excess_Return[,name] ~ Excess_Return$mkt)

}

summary(result$dis)

# ############## let us print the result ###########
for (name in colnames(data)) {
  print(result[name])
}
#################################### results ###################################
```

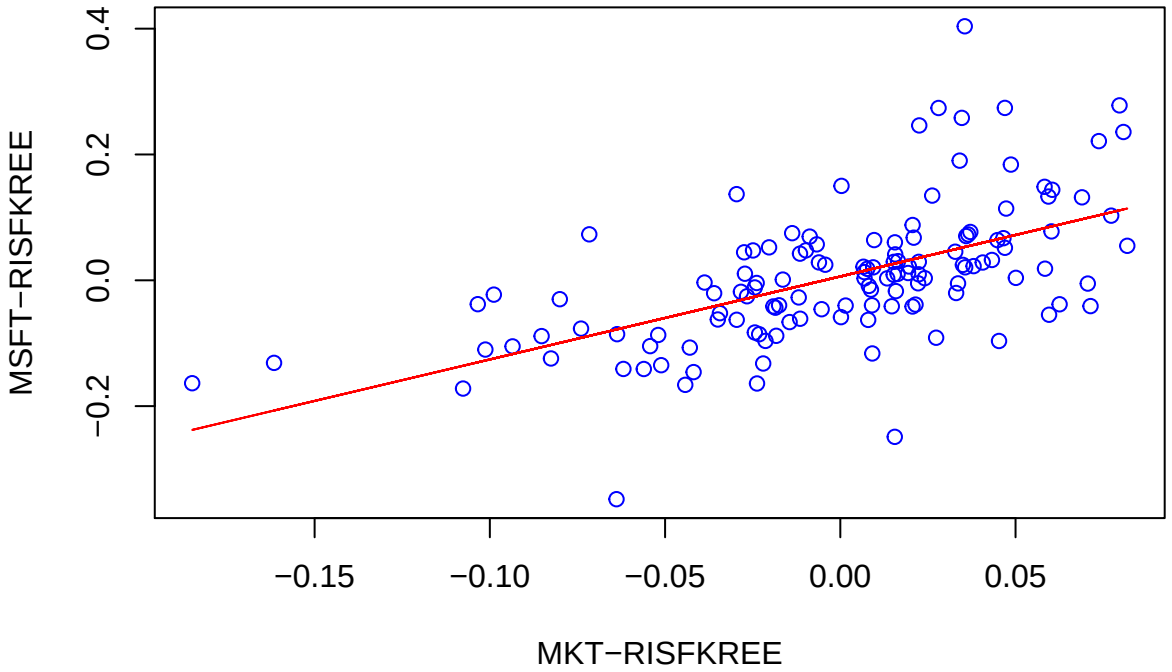
```
stargazer(result$dis, result$ge, result$gm, result$ibm, result$msft, result$xom, header=TRUE,
          type='latex',
          title= "Regression results")
```

```
plot( Excess_Return$mkt, Excess_Return$msft , xlab ="MKT-RISFKREE", ylab = "MSFT-RISFKREE", col="blue")
lines(Excess_Return$mkt, fitted(result$msft), col="red")
```

Table 1:

	Dependent variable:					
	(dis)	(ge)	(gm)	(ibm)	(msft)	(xom)
mkt	0.898***	0.899***	1.261***	1.188***	1.319***	0.414***
	(0.124)	(0.099)	(0.202)	(0.126)	(0.161)	(0.090)
Constant	−0.001	−0.001	−0.012	0.006	0.006	0.008*
	(0.006)	(0.005)	(0.010)	(0.006)	(0.008)	(0.004)
Observations	132	132	132	132	132	132
R^2	0.289	0.389	0.230	0.405	0.341	0.141
Adjusted R^2	0.283	0.385	0.224	0.400	0.336	0.134
Residual Std. Error (df = 130)	0.068	0.055	0.112	0.070	0.089	0.050
F Statistic (df = 1; 130)	52.744***	82.874***	38.909***	88.321***	67.288***	21.292***

Note: *p<0.1; **p<0.05; ***p<0.01



Comments: All estimates of the aplhas are close to zero and are therefore consistent with finance theory.

```
Fair <- read.dta("~/Downloads/Assignment2_Econometrics/fair4.dta", convert.dates = TRUE,
                 convert.factors = TRUE,
                 missing.type = FALSE,
                 convert.underscore = FALSE, warn.missing.labels = TRUE)


Fair <- as.data.frame(Fair)
Fair2 <- Fair[10:33,]

Reg <-lm(Fair2$vote ~ Fair2$growth)
#summary(Reg)
```

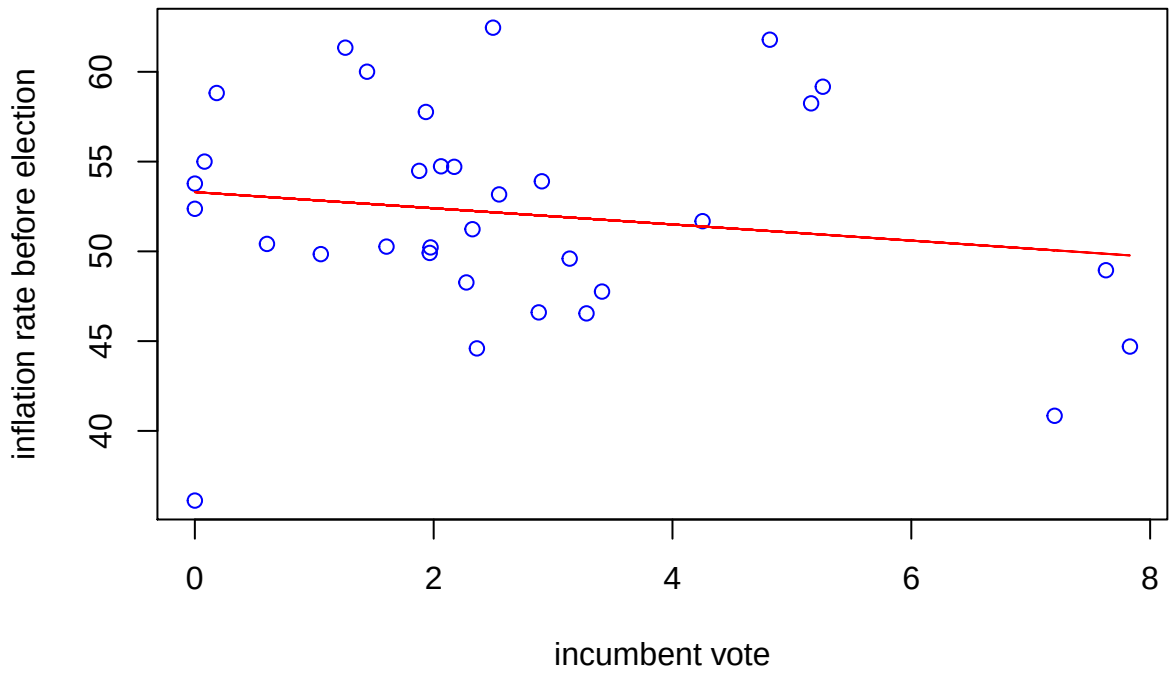
```
#stargazer(Reg)
```

Table 2:

	Dependent variable:
	vote
growth	0.886***
	(0.182)
Constant	50.800***
	(1.010)
Observations	24
R^2	0.519
Adjusted R^2	0.497
Residual Std. Error	4.800 (df = 22)
F Statistic	23.700*** (df = 1; 22)
Note:	*p<0.1; **p<0.05; ***p<0.01

```
Reg1 <-lm(Fair$vote ~ Fair$inflation)
#summary(Reg1)

plot(Fair$inflation , Fair$vote , xlab ="incumbent vote", ylab = "inflation rate before election", col=
lines(Fair$inflation, fitted(Reg1), col="red")
```




```
#stargazer(Reg1)
```

Table 3:

	Dependent variable:
	vote
inflation	−0.450
	(0.510)
Constant	53.300***
	(1.720)
Observations	33
R^2	0.025
Adjusted R^2	−0.007
Residual Std. Error	6.080 (df = 31)
F Statistic	0.779 (df = 1; 31)
Note:	*p<0.1; **p<0.05; ***p<0.01