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\* Homework 1

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\* Instructions:

\* To create this document, first copy and paste the full text here into a .Do document (a STATA Do-File).

\* Below each question, write the code you used to answer the question

\* Next, write your actual answer to the question by commenting out your writing (by starting the line with a \*)

\* Next, copy and paste the entire document (my writing and yours) into a Word document. This will allow me to see your code on Canvas without downloading every homework.

\* The goal is that I should be able to copy and paste your entire text into a .Do File and run the code without any errors.

\* Finally, submit file as Homework 1 on Canvas

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\* Topic 1: Using STATA

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\* 1. Import the AssetReuturns file

clear

cd "C:\Users\haniu\OneDrive\Desktop\Deepa\Deepa\Fall second seven week\Business Appliation in ML\Homework 1"

import excel "AssetReturns.xlsx", sheet("Sheet1") firstrow

\* (7 vars, 94 obs)

\* 2. Save File as Homework1

save "C:\Users\haniu\OneDrive\Desktop\Deepa\Deepa\Fall second seven week\Business Appliation in ML\Homework 1.dta"

\* file C:\Users\haniu\OneDrive\Desktop\Deepa\Deepa\Fall second seven week\Business Appliation in ML\Homework 1.dta saved

\* 3. Estimate the Mean, Minimum, and Maximum of Annual S&P500 Returns

summarize AnnualReturnSP500

\* Variable | Obs Mean Std. dev. Min Max

\*-------------+---------------------------------------------------------

\* AnnualRe~500 | 94 .1182064 .1946077 -.4384 .5256

tabstat AnnualReturnSP500, statistics( mean min max )

\* Variable | Mean Min Max

\*-------------+------------------------------

\*AnnualRe~500 | .1182064 -.4384 .5256

\*--------------------------------------------

\* 4. Estimate the 25th and 75th percentile of Annual S&P 500 Returns

sum AnnualReturnSP500, detail

\* AnnualReturnSP500

\*-------------------------------------------------------------

\* Percentiles Smallest

\* 1% -.4384 -.4384

\* 5% -.2512 -.3655

\*10% -.1067 -.3534 Obs 94

\*25% -.0119 -.259 Sum of wgt. 94

\*50% .1452 Mean .1182064

\* Largest Std. dev. .1946077

\*75% .2594 .4381

\*90% .326 .4674 Variance .0378722

\*95% .4372 .4998 Skewness -.4376344

\*99% .5256 .5256 Kurtosis 3.055353

tabstat AnnualReturnSP500, statistics( p25 p75 )

\* Variable | p25 p75

\*-------------+--------------------

\*AnnualRe~500 | -.0119 .2594

\*----------------------------------

\* 5. Estimate the variance of Annual Return in Treasury Bonds in 1992-2002 (including 1992 and 2002)

tabstat AnnualReturnTBonds if Year>=1992 & Year<=2002, statistics( var )

\* Variable | Variance

\*-------------+----------

\*Annua~TBonds | .0102407

\*------------------------

\* 6. Estimate the median of Annual Returns on Real Estate when Annual S&P500 Returns are positive

tabstat AnnualReturnRealEstate if AnnualReturnSP500>0, statistics( median )

\* Variable | p50

\*-------------+----------

\*AnnualRetu~e | .0413

\*------------------------

\* 7. Estimate mean Annual Corporte Bonds Returns when years are less than 1945 or year are between 2008 and 2012 (including 2008 and 2012)

tabstat AnnualReturnCorporateBonds if Year<1945 | (Year>=2008 & Year<=2012), statistics( mean )

\* Variable | Mean

\*-------------+----------

\*Annua~eBonds | .0757864

\*------------------------

\* 8. How many times is inflation exactly 0 (Hint: use tabulate)

tabulate InflationRate

\* Inflation |

\* Rate | Freq. Percent Cum.

\*------------+-----------------------------------

\* 0 | 1 1.06 8.51

. count if InflationRate==0

\* 1

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\* Topic 2: Graphing in STATA

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\* 9. Create a histogram of Inflation with a 2% bar width

histogram InflationRate, width(0.02)

\*(bin=1, start=-.1027, width=2)

\* 10. Create a box plot of Returns for all Assets

\* Based on the graph, which asset has the greatest highs? The greatest lows?

graph box AnnualReturnSP500 AnnualReturnTBills AnnualReturnTBonds AnnualReturnCorporateBonds AnnualReturnRealEstate , name(Q10)

graph display Q10

\* The greatest high is Annual Return S&P 500

\* The greatest low is Annual Return T-Bills

\* 11. Create a Scatter plot with inflation as the x-variable and annual real estate returns as the y-variable.

\*Does Real Estate pay well when inflation is high or low? Why?

twoway (scatter AnnualReturnRealEstate InflationRate) (lfit AnnualReturnRealEstate InflationRate), name(Q11)

graph display Q11

\* Trend line shows Annual Real Estate Returns and Inflation has a positive correlation which indicates whenever the Inflation is high the Annual Real Estate Returns is high.

\* 12. Create a two-way layered graphic with both a scatter plot and a linear fit. The y-variable is Corporate Bond Returns and the x-variable is Treasury Bonds Returns

twoway (scatter AnnualReturnCorporateBonds AnnualReturnTBonds) (lfit AnnualReturnCorporateBonds AnnualReturnTBonds), name(Q12)

graph display Q12