**Exercises for SAS Course – Advanced Corporate Finance**

Go to \\okf-filesrv1\exemp\SAS\Advanced Corporate Finance and copy the content to the desktop.

**Assignment 1)**

* Open the data set weekrev to see the variables.
* Make a print of the dataset where only the variables FlightID Origin Date CargoRev and PasRev are included. Make sure there is no observation number.
* Alter the code so only fligths from (origin) JFK and YYZ are on the output.
* Find the total for CargoRev and PasRev
* Make a print of the data set Sales121999 for only the route ids 0000002 , 0000024 and 0000051 if their EClassRev is above 7870 $. The print should only contain FlightID RouteID and EClassRev. (OBS! The variable RouteID is a character variable). You should have 184 observations in your print.

**Assignment 2)**

* Sort the data set sales121999 by the RouteID.
* Next make a page for each of the destinations, where you total FClassRev and EClassRev for each of the destinations. Make an output, that only contains FlightID Destination FClassRev and EClassRev.

**Assignment 3)**

* On the basis of the data set pilots create a new data set called new\_pilots
* The data set must contain all pilots who has the job code PT2 and earn more than 85000 $
* Make a print of new\_pilots that includes the variables IDNum and Salary.

**Assignment 4)**

* If a man buys a car today at a price of 30,000 and he borrows the money at an interest rate of 10%. He pays 5000 upfront. How many years will he have to pay of 5,000 before he has paid of his loan?
* Create a data set called calc where you do the calculations and sub calculations. The data set must contain the accumulated value of the loan.

**Assignment 5)**

In order to get experience with the different matrix operating procedures, do the following:

* Create a 3x3 matrix (name: seven) with all 7’s.
* Create a column vector (name: column) with the numbers from 5 to 15
* Create a matrix (name: three) with the following values 
* Find the inverse matrix to three.
* Multiply seven with three. (Try to multiply three with column and see what the log says)
* Multiply seven and three elementwise.
* Pick out the 2nd row of three and call it row. Then pick out the 3rd column of seven and call it column. Multiply column and row.
* Sum across the columns of three.

Save all your work as a word document.

**Assignment 6 a)**

Create a matrix with the function y=x3 - 3 and print the result for x=2

**Assignment 6 b)**

In the workbook stocks.xls you will find the log-returns on 3 stocks and 1 index; OMX C20, Carlsberg, SAS and TDC. There are 261 returns.

Import the data into a SAS and create a regression module calculating beta for each of the three stocks.

The results should be: Carlsberg: 0,6979644; SAS: 1,3397; TDC: 0,1012995

**Assignment 6c)**

Create a module to estimate the market model (both the betas and the constant) for the three stocks. This time do it using a do-loop, so you easy can alter the code to calculate the market model for 100 stocks.

The results should be:

Constant: Beta:

Carlsberg: 0,000216 0,6985586

SAS: -0,003118 1,3311279

TDC: 0,0010492 0,1041852

Solutions:

libname asb 'C:\Documents and Settings\iwi\Desktop';

\* Assignment 1 a) \*;

**proc** **print** data=asb.weekrev noobs;

var FlightID Date CargoRev PasRev;

**run**;

\* Assignment 1b) \*;

**proc** **print** data=asb.weekrev noobs ;

where Origin in('JFK', 'YYZ');

var Date CargoRev PasRev;

sum CargoRev PasRev;

**run**;

\*Assignment 1c) You should have 60 observations in your output\*;

**proc** **print** data=asb.Sales121999;

where EClassRev gt **70000** and RouteID in('0000002', '0000024', '0000051');

var FlightID RouteID EClassRev;

**run**;

\* Assignment 2a) \*;

**proc** **sort** data=asb.sales121999;

by FlightID;

**run**;

\*Assignment 2b) in this case the proc sort statement it acutally not useful.

It can all be done in a proc print\*;

**proc** **print** data=asb.sales121999;

by RouteID;

pageby RouteID;

sum FClassRev EClassRev;

var FlightID Destination FClassRev EClassRev;

**run**;

\*Assignment 3a) \*;

**data** new\_pilots;

set asb.pilots;

if JobCode='PT2' and Salary gt **84000** then output;

**run**;

**proc** **print** data=new\_pilots;

var IDNum Salary ;

**run**;

\*Assignment 4) \*;

**data** calc;

Loan=**25000**;

do until (loan lt **0**);

Year +**1**;

Loan = (Loan \* **1.10**)- **5000**;

output;

end;

**run**;

**proc** **print** data=calc;

**run**;

/\*Assignment 5\*/

ods html file='test.doc';

**proc** **iml**;

seven= j(**3**,**3**,**7**);

column=t(**5**:**15**);

three={**5** **7** **1**, **2** **7** **8**, **20** **21** **4**};

Inv\_three=inv(three);

sevenxthree=seven\*three;

seven\_plus\_three=seven#three;

row=three[**2**,];

col=seven[,**3**];

rowxcol=row\*col;

sum\_col\_three=three[,+];

print column;

print seven;

print three;

print Inv\_three;

print sevenxthree;

print seven\_plus\_three;

print row;

print col;

print rowxcol;

print sum\_col\_three;

**quit**;

ods html close;

/\*Assignment 6a\*/

**PROC** **IML**;

start polynom(x);

func= x##**3** -**3**;

return(func);

finish polynom;

y=polynom(**2**);

print y;

/\*Assignment 6b\*/

**proc** **import** out=stocks

datafile= '\\okf-filesrv1\exemp\SAS\Empirical Finance\stocks.xls' replace;

sheet='sheet1';

getnames=yes;

mixed=no;

**run**;

**proc** **print** data=stocks;

**run**;

**proc** **iml**;

use work.stocks;

read all var {Carlsberg} into Carlsberg;

read all var {SAS} into SAS;

read all var {TDC} into TDC;

read all var {C20} into C20;

print carlsberg;

Beta\_Carlsberg=inv(C20`\*C20)\*C20`\*Carlsberg;

Beta\_SAS=inv(C20`\*C20)\*C20`\*SAS;

Beta\_TDC=inv(C20`\*C20)\*C20`\*TDC;

print Beta\_Carlsberg;

print Beta\_SAS;

print Beta\_TDC;

**quit**;

/\*Assignment 6c\*/

**PROC** **IML**;

USE stocks;

READ all var \_num\_ into return;

print return;

N=**nrow(return)**;

beta=J(**3**,**2**,**0**);

X=J(N,**1**,**1**)||return[,**1**];

do i=**1** to **3** by **1**;

y=return[,**1**+i];

beta[i,]=(INV(X`\*X)\*X`\*y)`;

end;

print beta;

**quit**;