COMMANDS

* **Data file ‘ppt’ is imported and merged year wise.**

**data** sasuser.ppt;

**run**;

**data** al mm tata;

set sasuser.firms;

if company=**1** then output al;

if company=**2** then output mm;

if company=**3** then output tata;

**run**;

**data** al;

set al;

rename investment=i\_a mktcap=mcap\_a netfixedassets= nfa\_a assets=a\_a;

**run**;

**data** mm;

set mm;

rename investment=i\_m mktcap=mcap\_m netfixedassets= nfa\_m assets=a\_m;

**run**;

**data** tata;

set tata;

rename investment=i\_t mktcap=mcap\_t netfixedassets= nfa\_t assets=a\_t;

**run**;

**data** sasuser.ppt;

merge al mm tata;

by year;

**run**;

* **Estimation SIMPLE CASE [σij=0, σii=σ² => ∑ ⊗ I17 = σ²I17]**

**proc** **reg** data=sasuser.ppt;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

tata:model i\_t=mcap\_t nfa\_t a\_t;

**run**;

* **Estimation GENERAL CASE [∑ is free ]**

**proc** **syslin** data=sasuser.ppt sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

tata:model i\_t=mcap\_t nfa\_t a\_t;

**run**;

* **Hypothesis testing SIMPLE CASE 1 (σij=0,σii=σ2)**

Unconstrained Model

**proc** **syslin** data=sasuser.ppt sdiag sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

**run**;

Constrained Model

**proc** **syslin** data=sasuser.ppt sdiag sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

joint: srestrict al.nfa\_a=mm.nfa\_m,al.a\_a=mm.a\_m, al.intercept = mm.intercept;

**run**;

* **Hypothesis testing SIMPLE CASE 2 (σij=0,σii=σ2)**

Unconstrained Model

**proc** **syslin** data=sasuser.ppt sdiag sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

tata:model i\_t=mcap\_t nfa\_t a\_t;

**run**;

Constrained Model

**proc** **syslin** data=sasuser.ppt sdiag sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

tata:model i\_t=mcap\_t nfa\_t a\_t;

joint: srestrict al.mcap\_a = mm.mcap\_m = tata.mcap\_t, al.nfa\_a = mm.nfa\_m = tata.nfa\_t, al.a\_a = mm.a\_m = tata.a\_t, al.intercept = mm.intercept = tata.intercept;

**run**;

* **Hypothesis testing SIMPLE CASE 3 (σij=0,σii=σ2)**

Constrained Model

**proc** **syslin** data=sasuser.file1 sdiag sur;

 al: model i=mcap nfa a;

**run**;

* **Hypothesis testing SIMPLE CASE 4 (PARTIAL TEST)**

Unconstrained Model

**proc** **syslin** data=sasuser.ppt sdiag sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

**run**;

Constrained Model

**proc** **syslin** data=sasuser.ppt sdiag sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

joint: srestrict al.nfa\_a=mm.nfa\_m,al.a\_a=mm.a\_m;

**run**;

* **Hypothesis testing GENERAL CASE (∑ is free)**

Unconstrained Model

**proc** **syslin** data=sasuser.ppt sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

tata:model i\_t=mcap\_t nfa\_t a\_t;

**run**;

Constrained Model

**proc** **syslin** data=sasuser.ppt sur;

al:model i\_a=mcap\_a nfa\_a a\_a;

mm:model i\_m=mcap\_m nfa\_m a\_m;

tata:model i\_t=mcap\_t nfa\_t a\_t;

joint: srestrict al.mcap\_a = mm.mcap\_m = tata.mcap\_t, al.nfa\_a = mm.nfa\_m = tata.nfa\_t, al.a\_a = mm.a\_m = tata.a\_t, al.intercept = mm.intercept = tata.intercept;

**run**;

* Chow Test

**proc autoreg data=sasuser.ppt;**

mm:model i\_m=mcap\_m nfa\_m a\_m /chow=(**10);**

**run;**