

Prince of Songkla University
APPENDIX
Pattani Campus

A. Data Structure

Day	Month	Year	BAY	BBL	BOA	IFCT	KTB	SCB	TFB
4	1	1994	100	238	75	68	77	232	133
5	1	1994	96	238	72	63	73	236	132
6	1	1994	92	222	66	61	71	220	127
7	1	1994	89	210	63	57	68	214	119
10	1	1994	89	210	59	58	68	218	120
11	1	1994	93	220	63	58	70	228	128
12	1	1994	85	200	59	54	67	208	119
13	1	1994	85	195	57	53	63	208	116
14	1	1994	89	202	60	55	64	212	120
17	1	1994	88	195	58	53	62	208	116
18	1	1994	88	195	60	53	63	210	116
19	1	1994	88	197	60	53	64	206	114
20	1	1994	86	190	57	51	62	200	110
21	1	1994	86	191	57	50	61	204	113
24	1	1994	90	199	59	54	64	208	117
25	1	1994	88	199	59	53	62	206	115
26	1	1994	89	198	59	55	63	206	118
27	1	1994	91	208	60	56	65	210	123
28	1	1994	91	204	59	57	65	206	120
31	1	1994	90	200	57	56	63	200	118
.
.
21	12	1999	13	57	19	15	16	41	40
22	12	1999	14	59	20	16	17	42	41
23	12	1999	14	59	20	16	18	42	42
24	12	1999	14	59	20	17	18	42	42
27	12	1999	14	58	20	17	19	42	42
30	12	1999	15	61	22	18	20	45	43
28	12	1999	14	58	19	17	18	42	42
29	12	1999	16	60	22	18	20	44	43
30	12	1999	15	61	22	18	20	45	43

B. Program

```
% program to create Table 3.1 and Figure 3.1
```

```
% such3nan
```

```
getfile msstock8
```

```
% Table 3.1
```

```
y=getnum;
```

```
ok = (y(:,2)>0);
```

```
y = y(ok,:);
```

```
n = size(y,1);
```

```
c = size(y,2);
```

```
y = [[1:n]' y((1:n),2:c)];
```

```
n = size(y,1);
```

```
putnum(y)
```

```
fn = getfn;
```

```
fn{1} = 'day';
```

```
putfn(fn)
```

```
putdn('Closing prices of bank shares in Thailand: 2 Mar 1992 - 30 Dec 1999')
```

```
describe his=1 fnwid=10 font=9 type=2
```

```
% Figure 3.1
```

```
figure
```

```
axes('position',[0.08,0.12,0.87,0.80])
```

```
fontsize = 10;
```

```
t = y(:,1);
```

```
ymin = min(min(y(:,2:8)));
```

```
ymax = max(max(y(:,2:8)));
```

```
tmin = -0.5;
```

```
tmax = max(t);
```

```
y1 = y(:,2);
```

```
plot(t,y1,'k-')
```

```
axis([tmin tmax+250 -0.5 ymax+50])
```

```
hold on
```

```
y2 = y(:,3);
```

```
plot(t,y2,'m-')
```

```
y3 = y(:,4);
```

```
plot(t,y3,'c')
```

```
y4 = y(:,5);
```

```
plot(t,y4,'g')
```

```
y5 = y(:,6);
```

```
plot(t,y5,'b-')
```

```
y6 = y(:,7);
```

```
plot(t,y6,'r-')
```

```
y7 = y(:,8);
```

```
plot(t,y7,'y-')
```

```
n = length(y1);
```

```
y1T = y1(n);
```

```
h=text(tmax,y1T-0.5,'BAY');
```

```
set(h,'FontSize',fontsize-1.5,'Color','k')
```

```
y2T = y2(n);
```

```

h=text(tmax,y2T+230,'BBL');
set(h,'FontSize',fontsize-1.5,'Color','m')
y3T = y3(n);
h=text(tmax,y3T+130,'BOA');
set(h,'FontSize',fontsize-1.5,'Color','c')
y4T = y4(n);
h=text(tmax,y4T+80,'IFCT');
set(h,'FontSize',fontsize-1.5,'Color','g')
y5T = y5(n);
h=text(tmax,y5T+40,'KTB');
set(h,'FontSize',fontsize-1.5,'Color','b')
y6T = y6(n);
h=text(tmax,y6T+200,'SCB');
set(h,'FontSize',fontsize-1.5,'Color','r')
y7T = y7(n);
h=text(tmax,y7T+150,'TFB');
set(h,'FontSize',fontsize-1.5,'Color','y')
h = text(tmin-148,ymax+130,'Closing price');
set(h,'FontSize',fontsize-7)
xlabel('Trading days')
set(h,'FontSize',fontsize)

```

% program to create Table 3.2 ,Table 3.3 and Table 3.4

```

getfile bsprice
y=getnum;
ok=y(:,2)>0;
y=y(ok,:);
putnum(y)
describe hist=1 fnwid=10 type=2
a=y;
a(:,2:8)=log(y(:,2:8));
putnum(a)
describe hist=1 new=0 fnwid=10 type=2
b=y;
b(:,2:8)=sqrt(y(:,2:8));
putnum(b)
describe hist=1 fnwid=10 type=2

```

% program to create Figure 3.2

```

% such3na1
getfile msstock8
y=getnum;
ok = (y(:,2)>0);
y = y(ok,:);
n = size(y,1);
c = size(y,2);
y = [[481:n] y((481:n),2:c)];
n = size(y,1);

```

```

fn = getfn;
fn{1} = 'day';
putfn(fn)
putnum(y)
putdn('Closing prices of bank shares in Thailand: 4 Jan 1994 - 30 Dec 1999')
% Figure 3.2
figure
axes('position',[0.08,0.12,0.87,0.80])
fontsize = 10;
t = y(:,1);
ymin = min(min(y(:,2:8)));
ymax = max(max(y(:,2:8)));
tmin = min(t)-10;
tmax = max(t)+10;
y1 = y(:,2);
plot(t,y1,'k-')
axis([tmin tmax+100 -0.5 ymax+10])
hold on
y2 = y(:,3);
plot(t,y2,'m-')
y3 = y(:,4);
plot(t,y3,'c')
y4 = y(:,5);
plot(t,y4,'g')
y5 = y(:,6);
plot(t,y5,'b-')
y6 = y(:,7);
plot(t,y6,'r:')
y7 = y(:,8);
plot(t,y7,'y-')
n = length(y1);
y1T = y1(n);
h=text(tmax,y1T-3,'BAY');
set(h,'FontSize',fontsize-1.5,'Color','k')
y2T = y2(n);
h=text(tmax,y2T+15,'BBL');
set(h,'FontSize',fontsize-1.5,'Color','m')
y3T = y3(n);
h=text(tmax,y3T+20,'BOA');
set(h,'FontSize',fontsize-1.5,'Color','c')
y4T = y4(n);
h=text(tmax,y4T+2.5,'IFCT');
set(h,'FontSize',fontsize-1.5,'Color','g')
y5T = y5(n);
h=text(tmax,y5T+14,'KTB');
set(h,'FontSize',fontsize-1.5,'Color','b')
y6T = y6(n);
h=text(tmax,y6T+20,'SCB');

```

```

set(h,'FontSize',fontsize-1.5,'Color','r')
y7T = y7(n);
h=text(tmax,y7T+10,'TFB');
set(h,'FontSize',fontsize-1.5,'Color','y')
h = text(tmin-80,ymax+25,'Closing price');
set(h,'FontSize',fontsize-7)
xlabel('Trading days')
set(h,'FontSize',fontsize)

```

% program to create Figure 3.3

% such3ln

```
getfile msstock8
```

```
y=getnum;
```

```
ok = (y(:,2)>0);
```

```
y = y(ok,:);
```

```
n = size(y,1);
```

```
c = size(y,2);
```

```
y = [[481:n]' log(y((481:n),2:c))];
```

```
n = size(y,1);
```

```
fn = getfn;
```

```
fn{1} = 'day';
```

```
putfn(fn)
```

```
putnum(y)
```

```
putdn('Closing prices of bank shares in Thailand: 4 Jan 1994 - 30 Dec 1999')
```

% Figure 3.3

```
figure
```

```
axes('position',[0.08,0.12,0.87,0.80])
```

```
fontsize = 10;
```

```
t = y(:,1);
```

```
ymin = min(min(y(:,2:8)));
```

```
ymax = max(max(y(:,2:8)));
```

```
tmin = min(t)-10;
```

```
tmax = max(t)+10;
```

```
y1 = y(:,2);
```

```
plot(t,y1,'k-')
```

```
axis([tmin tmax+100 1 ymax+0.2])
```

```
hold on
```

```
y2 = y(:,3);
```

```
plot(t,y2,'m-')
```

```
y3 = y(:,4);
```

```
plot(t,y3,'c')
```

```
y4 = y(:,5);
```

```
plot(t,y4,'g')
```

```
y5 = y(:,6);
```

```
plot(t,y5,'b-')
```

```
y6 = y(:,7);
```

```
plot(t,y6,'r:')
```

```
y7 = y(:,8);
```

```

plot(t,y7,'y-')
n = length(y1);
y1T = y1(n);
h=text(tmax,y1T-0.2,'BAY');
set(h,'FontSize',fontsize-1.5,'Color','k')
y2T = y2(n);
h=text(tmax,y2T,'BBL');
set(h,'FontSize',fontsize-1.5,'Color','m')
y3T = y3(n);
h=text(tmax,y3T,'BOA');
set(h,'FontSize',fontsize-1.5,'Color','c')
y4T = y4(n);
h=text(tmax,y4T-0.15,'IFCT');
set(h,'FontSize',fontsize-1.5,'Color','g')
y5T = y5(n);
h=text(tmax,y5T-0.05,'KTB');
set(h,'FontSize',fontsize-1.5,'Color','b')
y6T = y6(n);
h=text(tmax,y6T+0.1,'SCB');
set(h,'FontSize',fontsize-1.5,'Color','r')
y7T = y7(n);
h=text(tmax,y7T-0.1,'TFB');
set(h,'FontSize',fontsize-1.5,'Color','y')
h = text(tmin-80,ymax+0.4,'natural log of closing price');
set(h,'FontSize',fontsize-7)
xlabel('Trading days')
set(h,'FontSize',fontsize)

% program to create Figure 3.4
% such3sqr
getfile msstock8
y=getnum;
ok = (y(:,2)>0);
y = y(ok,:);
n = size(y,1);
c = size(y,2);
y = [[481:n]' sqrt(y((481:n),2:c))];
n = size(y,1);
fn = getfn;
fn{1} = 'day';
putfn(fn)
putnum(y)
putdn('Closing prices of bank shares in Thailand: 4 Jan 1994 - 30 Dec 1999')
% Figure
figure
axes('position',[0.08,0.12,0.87,0.80])
fontsize = 10;
t = y(:,1);

```

```

ymin = min(min(y(:,2:8)));
ymax = max(max(y(:,2:8)));
tmin = min(t)-10;
tmax = max(t)+10;
y1 = y(:,2);
plot(t,y1,'k-')
axis([tmin tmax+100 1 ymax+0.2])
hold on
y2 = y(:,3);
plot(t,y2,'m-')
y3 = y(:,4);
plot(t,y3,'c')
y4 = y(:,5);
plot(t,y4,'g')
y5 = y(:,6);
plot(t,y5,'b-')
y6 = y(:,7);
plot(t,y6,'r:')
y7 = y(:,8);
plot(t,y7,'y-')
n = length(y1);
y1T = y1(n);
h=text(tmax,y1T-0.7,'BAY');
set(h,'FontSize',fontsize-1.5,'Color','k')
y2T = y2(n);
h=text(tmax,y2T,'BBL');
set(h,'FontSize',fontsize-1.5,'Color','m')
y3T = y3(n);
h=text(tmax,y3T+0.2,'BOA');
set(h,'FontSize',fontsize-1.5,'Color','c')
y4T = y4(n);
h=text(tmax,y4T-0.35,'IFCT');
set(h,'FontSize',fontsize-1.5,'Color','g')
y5T = y5(n);
h=text(tmax,y5T-0.05,'KTB');
set(h,'FontSize',fontsize-1.5,'Color','b')
y6T = y6(n);
h=text(tmax,y6T+0.4,'SCB');
set(h,'FontSize',fontsize-1.5,'Color','r')
y7T = y7(n);
h=text(tmax,y7T-0.1,'TFB');
set(h,'FontSize',fontsize-1.5,'Color','y')
h = text(tmin-40,ymax+1,'square root of closing price');
set(h,'FontSize',fontsize-7)
xlabel('Trading days')
set(h,'FontSize',fontsize)

```

```
%program chap4.m to create figure 4.14 and 4.15.  
%time series analysis of volatilities  
getfile chap4  
y = getnum;  
y(:,[2 3]) = log(y(:,[2 3]));  
putnum(y)  
setvar z=1 y=2  
tsplot pg=3 harm=1 ar=1 cf=-1 siz=4 ma=0.07  
setvar z=1 y=3  
tsplot pg=3 cf=-1 ar=1  
tsplot pg=3 harm=1 ar=1 cf=-1 siz=4 ma=0.07  
fn{3} = ('log of volatility');  
putfn(fn)
```

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