dataR <- read.csv("D:/program/garchMHnov/data/DowJones\_from\_Jul2005\_to\_Jul2010.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

len.date.R <- length(dataR[,1])

dataRrv.date <- dataR[len.date.R:1,1]

date.R <- rep(0,55)

date.R[1] <- (1:1259)[dataRrv.date[-1]=="2006-01-04"]

date.R[2] <- (1:1259)[dataRrv.date[-1]=="2006-02-01"]

date.R[3] <- (1:1259)[dataRrv.date[-1]=="2006-03-01"]

date.R[4] <- (1:1259)[dataRrv.date[-1]=="2006-04-03"]

date.R[5] <- (1:1259)[dataRrv.date[-1]=="2006-05-01"]

date.R[6] <- (1:1259)[dataRrv.date[-1]=="2006-06-01"]

date.R[7] <- (1:1259)[dataRrv.date[-1]=="2006-07-03"]

date.R[8] <- (1:1259)[dataRrv.date[-1]=="2006-08-01"]

date.R[9] <- (1:1259)[dataRrv.date[-1]=="2006-09-01"]

date.R[10] <- (1:1259)[dataRrv.date[-1]=="2006-10-02"]

date.R[11] <- (1:1259)[dataRrv.date[-1]=="2006-11-01"]

date.R[12] <- (1:1259)[dataRrv.date[-1]=="2006-12-01"]

date.R[13] <- (1:1259)[dataRrv.date[-1]=="2007-01-03"]

date.R[14] <- (1:1259)[dataRrv.date[-1]=="2007-02-01"]

date.R[15] <- (1:1259)[dataRrv.date[-1]=="2007-03-01"]

date.R[16] <- (1:1259)[dataRrv.date[-1]=="2007-04-02"]

date.R[17] <- (1:1259)[dataRrv.date[-1]=="2007-05-01"]

date.R[18] <- (1:1259)[dataRrv.date[-1]=="2007-06-01"]

date.R[19] <- (1:1259)[dataRrv.date[-1]=="2007-07-02"]

date.R[20] <- (1:1259)[dataRrv.date[-1]=="2007-08-01"]

date.R[21] <- (1:1259)[dataRrv.date[-1]=="2007-09-04"]

date.R[22] <- (1:1259)[dataRrv.date[-1]=="2007-10-01"]

date.R[23] <- (1:1259)[dataRrv.date[-1]=="2007-11-01"]

date.R[24] <- (1:1259)[dataRrv.date[-1]=="2007-12-03"]

date.R[25] <- (1:1259)[dataRrv.date[-1]=="2008-01-02"]

date.R[26] <- (1:1259)[dataRrv.date[-1]=="2008-02-01"]

date.R[27] <- (1:1259)[dataRrv.date[-1]=="2008-03-03"]

date.R[28] <- (1:1259)[dataRrv.date[-1]=="2008-04-01"]

date.R[29] <- (1:1259)[dataRrv.date[-1]=="2008-05-01"]

date.R[30] <- (1:1259)[dataRrv.date[-1]=="2008-06-02"]

date.R[31] <- (1:1259)[dataRrv.date[-1]=="2008-07-01"]

date.R[32] <- (1:1259)[dataRrv.date[-1]=="2008-08-01"]

date.R[33] <- (1:1259)[dataRrv.date[-1]=="2008-09-02"]

date.R[34] <- (1:1259)[dataRrv.date[-1]=="2008-10-01"]

date.R[35] <- (1:1259)[dataRrv.date[-1]=="2008-11-03"]

date.R[36] <- (1:1259)[dataRrv.date[-1]=="2008-12-01"]

date.R[37] <- (1:1259)[dataRrv.date[-1]=="2009-01-02"]

date.R[38] <- (1:1259)[dataRrv.date[-1]=="2009-02-02"]

date.R[39] <- (1:1259)[dataRrv.date[-1]=="2009-03-02"]

date.R[40] <- (1:1259)[dataRrv.date[-1]=="2009-04-01"]

date.R[41] <- (1:1259)[dataRrv.date[-1]=="2009-05-01"]

date.R[42] <- (1:1259)[dataRrv.date[-1]=="2009-06-01"]

date.R[43] <- (1:1259)[dataRrv.date[-1]=="2009-07-01"]

date.R[44] <- (1:1259)[dataRrv.date[-1]=="2009-08-03"]

date.R[45] <- (1:1259)[dataRrv.date[-1]=="2009-09-01"]

date.R[46] <- (1:1259)[dataRrv.date[-1]=="2009-10-01"]

date.R[47] <- (1:1259)[dataRrv.date[-1]=="2009-11-02"]

date.R[48] <- (1:1259)[dataRrv.date[-1]=="2009-12-01"]

date.R[49] <- (1:1259)[dataRrv.date[-1]=="2010-01-04"]

date.R[50] <- (1:1259)[dataRrv.date[-1]=="2010-02-01"]

date.R[51] <- (1:1259)[dataRrv.date[-1]=="2010-03-02"]

date.R[52] <- (1:1259)[dataRrv.date[-1]=="2010-04-01"]

date.R[53] <- (1:1259)[dataRrv.date[-1]=="2010-05-03"]

date.R[54] <- (1:1259)[dataRrv.date[-1]=="2010-06-01"]

date.R[55] <- (1:1259)[dataRrv.date[-1]=="2010-07-01"]

date.R

date.X <- c(

paste(c(rep(0,9),rep("",3)),1:12,"/","06",sep=""),

paste(c(rep(0,9),rep("",3)),1:12,"/","07",sep=""),

paste(c(rep(0,9),rep("",3)),1:12,"/","08",sep=""),

paste(c(rep(0,9),rep("",3)),1:12,"/","09",sep=""),

paste(c(rep(0,9),rep("",3)),1:12,"/","10",sep="")

)

date.X <- c(

paste(c("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec")," ","06",sep=""),

paste(c("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec")," ","07",sep=""),

paste(c("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec")," ","08",sep=""),

paste(c("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec")," ","09",sep=""),

paste(c("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec")," ","10",sep="")

)

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_DowJones.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_DowJones.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_S\_00\_oneave\_para.txt.gz")

windows(width=18,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(2,2,0.1,0.1))

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=3,lty=1,ylim=c(0,4),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=1,lwd=3,lty=1)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=2,lwd=3,lty=2)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=4,lwd=3,lty=4)

lines(Nlist,sqrt(avepDP[Nlist,1]),type="l",col=5,lwd=3,lty=5)

axis(1,at=date.R[0:24+19]-501,labels=date.X[0:24+19],tck=0.01,padj=-0.8,cex.axis=1.2)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=0.8,cex.axis=1.2)

#setwd("D:/program/garchMHnov/")

#savePlot("DowJones\_07Jul\_09Jun\_Sigma",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Oct\_08Sep\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Oct\_08Sep\_DowJones.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Oct\_08Sep\_DowJones.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_05Oct\_08Sep\_DowJones.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_\_S\_00\_oneave\_para.txt.gz")

windows(width=18,height=8)

Nlist <- 1:dim(data0)[1]

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=3,lty=1,ylim=c(0,4),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=1,lwd=3,lty=1)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=2,lwd=3,lty=2)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=4,lwd=3,lty=4)

lines(Nlist,sqrt(avepDP[Nlist,1]),type="l",col=5,lwd=3,lty=5)

lines(Nlist,avepST[Nlist,2],type="l",col=1,lwd=3,lty=1)

lines(Nlist,avepPD[Nlist,2],type="l",col=2,lwd=3,lty=2)

lines(Nlist,avepIG[Nlist,2],type="l",col=4,lwd=3,lty=4)

lines(Nlist,avepDP[Nlist,2],type="l",col=5,lwd=3,lty=5)

axis(1,at=date.R[0:24+21]-545,labels=date.X[0:24+21],tck=0.01,padj=-0.8,cex.axis=1.2)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=0.8,cex.axis=1.2)

cbind(

avepST[(dim(data0)[1]-5):dim(data0)[1],2],

avepPD[(dim(data0)[1]-5):dim(data0)[1],2],

avepIG[(dim(data0)[1]-5):dim(data0)[1],2],

avepDP[(dim(data0)[1]-5):dim(data0)[1],2]

)

cbind(

sqrt(avepST[(dim(data0)[1]-5):dim(data0)[1],1]),

sqrt(avepPD[(dim(data0)[1]-5):dim(data0)[1],1]),

sqrt(avepIG[(dim(data0)[1]-5):dim(data0)[1],1]),

sqrt(avepDP[(dim(data0)[1]-5):dim(data0)[1],1])

)

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_28\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_NASDAQ\_28\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_NASDAQ\_28\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_NASDAQ\_28\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_NASDAQ\_28\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_SAP500\_28\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_SAP500\_28\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_SAP500\_28\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_SAP500\_28\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_NASDAQ\_28\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_NASDAQ\_28\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_NASDAQ\_28\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_NASDAQ\_28\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_\_S\_00\_onepred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_30\_\_\_S\_00\_onepred.txt")

predST2 <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_30\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_30\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_30\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_30\_\_\_S\_00\_onepred.txt.gz")

windows(width=18,height=8)

par(mar=c(2,2,0.1,0.1))

plot(c(0,0),type="l",col=4,xlim=c(-15,15),ylim=c(0,0.15),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=1,lwd=2,lty=1)

lines(predDP,type="l",col=5,lwd=2,lty=5)

lines(predPD,type="l",col=2,lwd=2,lty=2)

lines(predIG,type="l",col=4,lwd=2,lty=4)

axis(1,at=c(seq(-20,20,1)),labels=c(seq(-20,20,1)),tck=0.01,padj=-1.2,cex.axis=1.2)

axis(2,at=c(seq(0,2,.05)),labels=c(seq(0,2,.05)),tck=0.01,padj=1,cex.axis=1.2)

npDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_30\_\_\_D\_00\_XXXnp.txt.gz")

npIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_30\_NGG\_00\_XXXnp.txt.gz")

npPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_SAP500\_30\_\_PD\_00\_XXXnp.txt.gz")

npDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXnp.txt.gz")

npIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXnp.txt.gz")

npPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXnp.txt.gz")

npDP <- read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXnp.txt.gz")

npIG <- read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXnp.txt.gz")

npPD <- read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXnp.txt.gz")

npDP <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXnp.txt.gz")

npIG <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXnp.txt.gz")

npPD <- read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXnp.txt.gz")

windows(width=18,height=8)

par(mar=c(2,2,0.1,0.1))

npPDhist <- hist(npPD[,1],breaks=c(seq(0,100,1),100000),plot=FALSE)

npIGhist <- hist(npIG[,1],breaks=c(seq(0,100,1),100000),plot=FALSE)

npDPhist <- hist(npDP[,1],breaks=c(seq(0,100,1),100000),plot=FALSE)

plot(c(0,0),type="l",col=4,xlim=c(0,90),ylim=c(0,0.20),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

axis(1,at=c(seq(0,90,10)),labels=c(seq(0,90,10)),tck=0.01,padj=-1.2,cex.axis=1.2)

axis(2,at=c(seq(0,2,.05)),labels=c(seq(0,2,.05)),tck=0.01,padj=1,cex.axis=1.2)

lines(npPDhist$breaks[-1],npPDhist$density,col=4,type="l")

lines(npDPhist$breaks[-1],npDPhist$density,col=5,type="l")

lines(npIGhist$breaks[-1],npIGhist$density,col=2,type="l")

points(npPDhist$breaks[-1],npPDhist$density,col=4,pch=16)

points(npDPhist$breaks[-1],npDPhist$density,col=5,pch=16)

points(npIGhist$breaks[-1],npIGhist$density,col=2,pch=16)

windows(width=18,height=8)

par(mar=c(2,2,0.1,0.1))

plot(c(0,0),type="l",col=4,xlim=c(-15,15),ylim=c(0,0.15),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=1,lwd=2,lty=1)

lines(predDP,type="l",col=5,lwd=2,lty=5)

lines(predPD,type="l",col=2,lwd=2,lty=2)

lines(predIG,type="l",col=4,lwd=2,lty=4)

axis(1,at=c(seq(-20,20,1)),labels=c(seq(-20,20,1)),tck=0.01,padj=-1.2,cex.axis=1.2)

axis(2,at=c(seq(0,2,.05)),labels=c(seq(0,2,.05)),tck=0.01,padj=1,cex.axis=1.2)

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp\_\_\_S\_00\_onepred.txt.gz")

predPD2 <- read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_temp2\_\_PD\_00\_XXXpred.txt.gz")

lines(predPD2,type="l",col=2,lwd=2,lty=1)

lines(predST,type="l",col=1,lwd=2,lty=6)

lines(predDP,type="l",col=5,lwd=2,lty=6)

lines(predPD,type="l",col=2,lwd=2,lty=6)

lines(predIG,type="l",col=4,lwd=2,lty=6)

axis(1,at=c(seq(-20,20,1)),labels=c(seq(-20,20,1)),tck=0.01,padj=-1.2,cex.axis=1.2)

axis(2,at=c(seq(0,2,.05)),labels=c(seq(0,2,.05)),tck=0.01,padj=1,cex.axis=1.2)

setwd("D:/program/garchMHnov/")

savePlot("DowJones\_07Jul\_09Jun\_Predictive",type="pdf")

calll <- function(avep) {

Loglikelihood <- (-1) \* avep[1,]

for (i in 2:10000) {

diff0 <- Loglikelihood - (-1) \* avep[i,]

if (diff0>0) { Loglikelihood <- (-1) \* avep[i,] + log(1+exp(-diff0)) }

else { Loglikelihood <- Loglikelihood + log(1+exp(diff0)) }

}

return (-Loglikelihood+log(10000))

}

calll <- function(avep) {

Loglikelihood <- (-1) \* avep[1,]

for (i in 2:20000) {

diff0 <- Loglikelihood - (-1) \* avep[i,]

if (diff0>0) { Loglikelihood <- (-1) \* avep[i,] + log(1+exp(-diff0)) }

else { Loglikelihood <- Loglikelihood + log(1+exp(diff0)) }

}

return (-Loglikelihood+log(20000))

}

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_28\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_05Oct\_08Sep\_DowJones\_29\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Oct\_08Sep\_DowJones\_29\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Oct\_08Sep\_DowJones\_28\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_S\_00\_onelikelihood.txt.gz"))

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -911.0623

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -906.734

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -909.8716

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_28\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -955.9912

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_27\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -912.7122

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_27\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -913.5344

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_27\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -912.0527

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_27\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -960.296

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -912.3202

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -891.0329

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -917.902

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -958.0913

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -949.8813

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -946.6998

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -949.7033

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -961.2033

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -918.3782

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -919.2242

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -915.757

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -957.2904

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_\_S\_00\_onelikelihood.txt.gz"))

calll <- function(avep) {

Loglikelihood <- (-1) \* avep[1,]

for (i in 2:10000) {

diff0 <- Loglikelihood - (-1) \* avep[i,]

if (diff0>0) { Loglikelihood <- (-1) \* avep[i,] + log(1+exp(-diff0)) }

else { Loglikelihood <- Loglikelihood + log(1+exp(diff0)) }

}

return (-Loglikelihood+log(10000))

}

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_\_S\_00\_onelikelihood.txt.gz"))

############################### Data

#Dow Jones Industrial Average (^DJI)

dataR <- read.csv("D:/program/garchMHnov/data/DowJones\_from\_Jul2005\_to\_Jul2010.csv")

rbind(

dataR[dataR[,1]=="2005-09-30",],

dataR[dataR[,1]=="2005-10-03",],

dataR[dataR[,1]=="2006-09-29",],

dataR[dataR[,1]=="2006-10-02",],

dataR[dataR[,1]=="2007-09-30",],

dataR[dataR[,1]=="2007-10-01",],

dataR[dataR[,1]=="2008-09-30",],

dataR[dataR[,1]=="2008-10-01",],

dataR[dataR[,1]=="2009-09-30",],

dataR[dataR[,1]=="2009-10-01",]

)

dataR.07Oct.08Sep <- dataR[442:694,]

dataR.06Oct.08Sep <- dataR[442:945,]

dataR.05Oct.08Sep <- dataR[442:1195,]

len.R.07Oct.08Sep <- length(dataR.07Oct.08Sep[,7])

len.R.06Oct.08Sep <- length(dataR.06Oct.08Sep[,7])

len.R.05Oct.08Sep <- length(dataR.05Oct.08Sep[,7])

dataRrv.07Oct.08Sep <- dataR.07Oct.08Sep[len.R.07Oct.08Sep:1,7]

dataRrv.06Oct.08Sep <- dataR.06Oct.08Sep[len.R.06Oct.08Sep:1,7]

dataRrv.05Oct.08Sep <- dataR.05Oct.08Sep[len.R.05Oct.08Sep:1,7]

Return.R.07Oct.08Sep <- 100\*(log(dataRrv.07Oct.08Sep[-1])-log(dataRrv.07Oct.08Sep[-len.R.07Oct.08Sep]))

Return.R.06Oct.08Sep <- 100\*(log(dataRrv.06Oct.08Sep[-1])-log(dataRrv.06Oct.08Sep[-len.R.06Oct.08Sep]))

Return.R.05Oct.08Sep <- 100\*(log(dataRrv.05Oct.08Sep[-1])-log(dataRrv.05Oct.08Sep[-len.R.05Oct.08Sep]))

write.table(Return.R.07Oct.08Sep,"D:/program/garchMHnov/data/RData\_07Oct\_08Sep\_DowJones.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Oct.08Sep,"D:/program/garchMHnov/data/RData\_06Oct\_08Sep\_DowJones.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Oct.08Sep,"D:/program/garchMHnov/data/RData\_05Oct\_08Sep\_DowJones.txt",col.names=FALSE,row.names=FALSE)

length(Return.R.07Oct.08Sep)

length(Return.R.06Oct.08Sep)

length(Return.R.05Oct.08Sep)

> length(Return.R.07Oct.08Sep)

[1] 252

> length(Return.R.06Oct.08Sep)

[1] 503

> length(Return.R.05Oct.08Sep)

[1] 753

#NASDAQ

dataR <- read.csv("D:/program/garchMHnov/data/NASDAQ\_from\_Jul2005\_to\_Jul2010.csv")

rbind(

dataR[dataR[,1]=="2005-09-30",],

dataR[dataR[,1]=="2005-10-03",],

dataR[dataR[,1]=="2006-09-29",],

dataR[dataR[,1]=="2006-10-02",],

dataR[dataR[,1]=="2007-09-30",],

dataR[dataR[,1]=="2007-10-01",],

dataR[dataR[,1]=="2008-09-30",],

dataR[dataR[,1]=="2008-10-01",],

dataR[dataR[,1]=="2009-09-30",],

dataR[dataR[,1]=="2009-10-01",]

)

dataR.07Oct.08Sep <- dataR[442:694,]

dataR.06Oct.08Sep <- dataR[442:945,]

dataR.05Oct.08Sep <- dataR[442:1195,]

len.R.07Oct.08Sep <- length(dataR.07Oct.08Sep[,7])

len.R.06Oct.08Sep <- length(dataR.06Oct.08Sep[,7])

len.R.05Oct.08Sep <- length(dataR.05Oct.08Sep[,7])

dataRrv.07Oct.08Sep <- dataR.07Oct.08Sep[len.R.07Oct.08Sep:1,7]

dataRrv.06Oct.08Sep <- dataR.06Oct.08Sep[len.R.06Oct.08Sep:1,7]

dataRrv.05Oct.08Sep <- dataR.05Oct.08Sep[len.R.05Oct.08Sep:1,7]

Return.R.07Oct.08Sep <- 100\*(log(dataRrv.07Oct.08Sep[-1])-log(dataRrv.07Oct.08Sep[-len.R.07Oct.08Sep]))

Return.R.06Oct.08Sep <- 100\*(log(dataRrv.06Oct.08Sep[-1])-log(dataRrv.06Oct.08Sep[-len.R.06Oct.08Sep]))

Return.R.05Oct.08Sep <- 100\*(log(dataRrv.05Oct.08Sep[-1])-log(dataRrv.05Oct.08Sep[-len.R.05Oct.08Sep]))

write.table(Return.R.07Oct.08Sep,"D:/program/garchMHnov/data/RData\_07Oct\_08Sep\_NASDAQ.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Oct.08Sep,"D:/program/garchMHnov/data/RData\_06Oct\_08Sep\_NASDAQ.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Oct.08Sep,"D:/program/garchMHnov/data/RData\_05Oct\_08Sep\_NASDAQ.txt",col.names=FALSE,row.names=FALSE)

length(Return.R.07Oct.08Sep)

length(Return.R.06Oct.08Sep)

length(Return.R.05Oct.08Sep)

> length(Return.R.07Oct.08Sep)

[1] 252

> length(Return.R.06Oct.08Sep)

[1] 503

> length(Return.R.05Oct.08Sep)

[1] 753

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jul2005\_to\_Jul2010.csv")

rbind(

dataR[dataR[,1]=="2005-09-30",],

dataR[dataR[,1]=="2005-10-03",],

dataR[dataR[,1]=="2006-09-29",],

dataR[dataR[,1]=="2006-10-02",],

dataR[dataR[,1]=="2007-09-30",],

dataR[dataR[,1]=="2007-10-01",],

dataR[dataR[,1]=="2008-09-30",],

dataR[dataR[,1]=="2008-10-01",],

dataR[dataR[,1]=="2009-09-30",],

dataR[dataR[,1]=="2009-10-01",]

)

dataR.07Oct.08Sep <- dataR[442:694,]

dataR.06Oct.08Sep <- dataR[442:945,]

dataR.05Oct.08Sep <- dataR[442:1195,]

len.R.07Oct.08Sep <- length(dataR.07Oct.08Sep[,7])

len.R.06Oct.08Sep <- length(dataR.06Oct.08Sep[,7])

len.R.05Oct.08Sep <- length(dataR.05Oct.08Sep[,7])

dataRrv.07Oct.08Sep <- dataR.07Oct.08Sep[len.R.07Oct.08Sep:1,7]

dataRrv.06Oct.08Sep <- dataR.06Oct.08Sep[len.R.06Oct.08Sep:1,7]

dataRrv.05Oct.08Sep <- dataR.05Oct.08Sep[len.R.05Oct.08Sep:1,7]

Return.R.07Oct.08Sep <- 100\*(log(dataRrv.07Oct.08Sep[-1])-log(dataRrv.07Oct.08Sep[-len.R.07Oct.08Sep]))

Return.R.06Oct.08Sep <- 100\*(log(dataRrv.06Oct.08Sep[-1])-log(dataRrv.06Oct.08Sep[-len.R.06Oct.08Sep]))

Return.R.05Oct.08Sep <- 100\*(log(dataRrv.05Oct.08Sep[-1])-log(dataRrv.05Oct.08Sep[-len.R.05Oct.08Sep]))

write.table(Return.R.07Oct.08Sep,"D:/program/garchMHnov/data/RData\_07Oct\_08Sep\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Oct.08Sep,"D:/program/garchMHnov/data/RData\_06Oct\_08Sep\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Oct.08Sep,"D:/program/garchMHnov/data/RData\_05Oct\_08Sep\_SAP500.txt",col.names=FALSE,row.names=FALSE)

length(Return.R.07Oct.08Sep)

length(Return.R.06Oct.08Sep)

length(Return.R.05Oct.08Sep)

> length(Return.R.07Oct.08Sep)

[1] 252

> length(Return.R.06Oct.08Sep)

[1] 503

> length(Return.R.05Oct.08Sep)

[1] 753

############################### Data

Dow Jones Industrial Average (^DJI)

dataR <- read.csv("D:/program/garchMHnov/data/DowJones\_from\_Jul2005\_to\_Jul2010.csv")

dataR.08Jul.09Jun <- dataR[254:505,]

dataR.07Jul.09Jun <- dataR[254:757,]

dataR.06Jul.09Jun <- dataR[254:1007,]

dataR.05Jul.09Jun <- dataR[254:1259,]

len.R.08Jul.09Jun <- length(dataR.08Jul.09Jun[,7])

len.R.07Jul.09Jun <- length(dataR.07Jul.09Jun[,7])

len.R.06Jul.09Jun <- length(dataR.06Jul.09Jun[,7])

len.R.05Jul.09Jun <- length(dataR.05Jul.09Jun[,7])

dataRrv.08Jul.09Jun <- dataR.08Jul.09Jun[len.R.08Jul.09Jun:1,7]

dataRrv.07Jul.09Jun <- dataR.07Jul.09Jun[len.R.07Jul.09Jun:1,7]

dataRrv.06Jul.09Jun <- dataR.06Jul.09Jun[len.R.06Jul.09Jun:1,7]

dataRrv.05Jul.09Jun <- dataR.05Jul.09Jun[len.R.05Jul.09Jun:1,7]

Return.R.08Jul.09Jun <- 100\*(log(dataRrv.08Jul.09Jun[-1])-log(dataRrv.08Jul.09Jun[-len.R.08Jul.09Jun]))

Return.R.07Jul.09Jun <- 100\*(log(dataRrv.07Jul.09Jun[-1])-log(dataRrv.07Jul.09Jun[-len.R.07Jul.09Jun]))

Return.R.06Jul.09Jun <- 100\*(log(dataRrv.06Jul.09Jun[-1])-log(dataRrv.06Jul.09Jun[-len.R.06Jul.09Jun]))

Return.R.05Jul.09Jun <- 100\*(log(dataRrv.05Jul.09Jun[-1])-log(dataRrv.05Jul.09Jun[-len.R.05Jul.09Jun]))

write.table(Return.R.08Jul.09Jun,"D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_DowJones.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.07Jul.09Jun,"D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_DowJones.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Jul.09Jun,"D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_DowJones.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Jul.09Jun,"D:/program/garchMHnov/data/RData\_05Jul\_09Jun\_DowJones.txt",col.names=FALSE,row.names=FALSE)

length(Return.R.08Jul.09Jun)

length(Return.R.07Jul.09Jun)

length(Return.R.06Jul.09Jun)

length(Return.R.05Jul.09Jun)

> length(Return.R.08Jul.09Jun)

[1] 251

> length(Return.R.07Jul.09Jun)

[1] 503

> length(Return.R.06Jul.09Jun)

[1] 753

> length(Return.R.05Jul.09Jun)

[1] 1005

#NASDAQ Composite (^IXIC)

dataR <- read.csv("D:/program/garchMHnov/data/NASDAQ\_from\_Jul2005\_to\_Jul2010.csv")

dataR.08Jul.09Jun <- dataR[254:505,]

dataR.07Jul.09Jun <- dataR[254:757,]

dataR.06Jul.09Jun <- dataR[254:1007,]

dataR.05Jul.09Jun <- dataR[254:1259,]

len.R.08Jul.09Jun <- length(dataR.08Jul.09Jun[,7])

len.R.07Jul.09Jun <- length(dataR.07Jul.09Jun[,7])

len.R.06Jul.09Jun <- length(dataR.06Jul.09Jun[,7])

len.R.05Jul.09Jun <- length(dataR.05Jul.09Jun[,7])

dataRrv.08Jul.09Jun <- dataR.08Jul.09Jun[len.R.08Jul.09Jun:1,7]

dataRrv.07Jul.09Jun <- dataR.07Jul.09Jun[len.R.07Jul.09Jun:1,7]

dataRrv.06Jul.09Jun <- dataR.06Jul.09Jun[len.R.06Jul.09Jun:1,7]

dataRrv.05Jul.09Jun <- dataR.05Jul.09Jun[len.R.05Jul.09Jun:1,7]

Return.R.08Jul.09Jun <- 100\*(log(dataRrv.08Jul.09Jun[-1])-log(dataRrv.08Jul.09Jun[-len.R.08Jul.09Jun]))

Return.R.07Jul.09Jun <- 100\*(log(dataRrv.07Jul.09Jun[-1])-log(dataRrv.07Jul.09Jun[-len.R.07Jul.09Jun]))

Return.R.06Jul.09Jun <- 100\*(log(dataRrv.06Jul.09Jun[-1])-log(dataRrv.06Jul.09Jun[-len.R.06Jul.09Jun]))

Return.R.05Jul.09Jun <- 100\*(log(dataRrv.05Jul.09Jun[-1])-log(dataRrv.05Jul.09Jun[-len.R.05Jul.09Jun]))

write.table(Return.R.08Jul.09Jun,"D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_NASDAQ.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.07Jul.09Jun,"D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_NASDAQ.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Jul.09Jun,"D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_NASDAQ.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Jul.09Jun,"D:/program/garchMHnov/data/RData\_05Jul\_09Jun\_NASDAQ.txt",col.names=FALSE,row.names=FALSE)

length(Return.R.08Jul.09Jun)

length(Return.R.07Jul.09Jun)

length(Return.R.06Jul.09Jun)

length(Return.R.05Jul.09Jun)

> length(Return.R.08Jul.09Jun)

[1] 251

> length(Return.R.07Jul.09Jun)

[1] 503

> length(Return.R.06Jul.09Jun)

[1] 753

> length(Return.R.05Jul.09Jun)

[1] 1005

rbind(

dataR[dataR[,1]=="2005-07-01",],

dataR[dataR[,1]=="2006-06-23",],

dataR[dataR[,1]=="2006-06-30",],

dataR[dataR[,1]=="2006-07-03",],

dataR[dataR[,1]=="2007-06-22",],

dataR[dataR[,1]=="2007-06-29",],

dataR[dataR[,1]=="2007-07-02",],

dataR[dataR[,1]=="2008-06-23",],

dataR[dataR[,1]=="2008-06-30",],

dataR[dataR[,1]=="2008-07-01",],

dataR[dataR[,1]=="2009-06-22",],

dataR[dataR[,1]=="2009-06-23",],

dataR[dataR[,1]=="2009-06-30",],

dataR[dataR[,1]=="2009-07-01",],

dataR[dataR[,1]=="2010-06-23",],

dataR[dataR[,1]=="2010-06-30",]

)

rbind(

dataR[dataR[,1]=="2005-07-01",],

dataR[dataR[,1]=="2006-06-23",],

dataR[dataR[,1]=="2006-06-30",],

dataR[dataR[,1]=="2006-07-03",],

dataR[dataR[,1]=="2007-06-22",],

dataR[dataR[,1]=="2007-06-29",],

dataR[dataR[,1]=="2007-07-02",],

dataR[dataR[,1]=="2008-06-23",],

dataR[dataR[,1]=="2008-06-30",],

dataR[dataR[,1]=="2008-07-01",],

dataR[dataR[,1]=="2009-06-22",],

dataR[dataR[,1]=="2009-06-23",],

dataR[dataR[,1]=="2009-06-30",],

dataR[dataR[,1]=="2009-07-01",],

dataR[dataR[,1]=="2010-06-23",],

dataR[dataR[,1]=="2010-06-30",]

)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jul2005\_to\_Jul2010.csv")

dataR.08Jul.10Jun <- dataR[2:505,]

dataR.08Jul.09Jun <- dataR[254:505,]

dataR.07Jul.09Jun <- dataR[254:757,]

dataR.06Jul.09Jun <- dataR[254:1007,]

dataR.05Jul.09Jun <- dataR[254:1259,]

dataR.08Jul.09Jun.2 <- dataR[259:505,]

dataR.07Jul.09Jun.2 <- dataR[259:757,]

dataR.06Jul.09Jun.2 <- dataR[259:1007,]

dataR.05Jul.09Jun.2 <- dataR[259:1259,]

dataR.08Jul.09Jun.3 <- dataR[260:505,]

dataR.07Jul.09Jun.3 <- dataR[260:757,]

dataR.06Jul.09Jun.3 <- dataR[260:1007,]

dataR.05Jul.09Jun.3 <- dataR[260:1259,]

rbind(

dataR[dataR[,1]=="2005-07-01",],

dataR[dataR[,1]=="2006-06-23",],

dataR[dataR[,1]=="2006-06-30",],

dataR[dataR[,1]=="2006-07-03",],

dataR[dataR[,1]=="2007-06-22",],

dataR[dataR[,1]=="2007-06-29",],

dataR[dataR[,1]=="2007-07-02",],

dataR[dataR[,1]=="2008-06-23",],

dataR[dataR[,1]=="2008-06-30",],

dataR[dataR[,1]=="2008-07-01",],

dataR[dataR[,1]=="2009-06-22",],

dataR[dataR[,1]=="2009-06-23",],

dataR[dataR[,1]=="2009-06-30",],

dataR[dataR[,1]=="2009-07-01",],

dataR[dataR[,1]=="2010-06-23",],

dataR[dataR[,1]=="2010-06-30",]

)

len.R.08Jul.10Jun <- length(dataR.08Jul.10Jun[,7])

len.R.08Jul.09Jun <- length(dataR.08Jul.09Jun[,7])

len.R.07Jul.09Jun <- length(dataR.07Jul.09Jun[,7])

len.R.06Jul.09Jun <- length(dataR.06Jul.09Jun[,7])

len.R.05Jul.09Jun <- length(dataR.05Jul.09Jun[,7])

len.R.08Jul.09Jun.2 <- length(dataR.08Jul.09Jun.2[,7])

len.R.07Jul.09Jun.2 <- length(dataR.07Jul.09Jun.2[,7])

len.R.06Jul.09Jun.2 <- length(dataR.06Jul.09Jun.2[,7])

len.R.05Jul.09Jun.2 <- length(dataR.05Jul.09Jun.2[,7])

len.R.08Jul.09Jun.3 <- length(dataR.08Jul.09Jun.3[,7])

len.R.07Jul.09Jun.3 <- length(dataR.07Jul.09Jun.3[,7])

len.R.06Jul.09Jun.3 <- length(dataR.06Jul.09Jun.3[,7])

len.R.05Jul.09Jun.3 <- length(dataR.05Jul.09Jun.3[,7])

dataRrv.08Jul.10Jun <- dataR.08Jul.10Jun[len.R.08Jul.10Jun:1,7]

dataRrv.08Jul.09Jun <- dataR.08Jul.09Jun[len.R.08Jul.09Jun:1,7]

dataRrv.07Jul.09Jun <- dataR.07Jul.09Jun[len.R.07Jul.09Jun:1,7]

dataRrv.06Jul.09Jun <- dataR.06Jul.09Jun[len.R.06Jul.09Jun:1,7]

dataRrv.05Jul.09Jun <- dataR.05Jul.09Jun[len.R.05Jul.09Jun:1,7]

dataRrv.08Jul.09Jun.2 <- dataR.08Jul.09Jun.2[len.R.08Jul.09Jun.2:1,7]

dataRrv.07Jul.09Jun.2 <- dataR.07Jul.09Jun.2[len.R.07Jul.09Jun.2:1,7]

dataRrv.06Jul.09Jun.2 <- dataR.06Jul.09Jun.2[len.R.06Jul.09Jun.2:1,7]

dataRrv.05Jul.09Jun.2 <- dataR.05Jul.09Jun.2[len.R.05Jul.09Jun.2:1,7]

dataRrv.08Jul.09Jun.3 <- dataR.08Jul.09Jun.3[len.R.08Jul.09Jun.3:1,7]

dataRrv.07Jul.09Jun.3 <- dataR.07Jul.09Jun.3[len.R.07Jul.09Jun.3:1,7]

dataRrv.06Jul.09Jun.3 <- dataR.06Jul.09Jun.3[len.R.06Jul.09Jun.3:1,7]

dataRrv.05Jul.09Jun.3 <- dataR.05Jul.09Jun.3[len.R.05Jul.09Jun.3:1,7]

Return.R.08Jul.10Jun <- 100\*(log(dataRrv.08Jul.10Jun[-1])-log(dataRrv.08Jul.10Jun[-len.R.08Jul.10Jun]))

Return.R.08Jul.09Jun <- 100\*(log(dataRrv.08Jul.09Jun[-1])-log(dataRrv.08Jul.09Jun[-len.R.08Jul.09Jun]))

Return.R.07Jul.09Jun <- 100\*(log(dataRrv.07Jul.09Jun[-1])-log(dataRrv.07Jul.09Jun[-len.R.07Jul.09Jun]))

Return.R.06Jul.09Jun <- 100\*(log(dataRrv.06Jul.09Jun[-1])-log(dataRrv.06Jul.09Jun[-len.R.06Jul.09Jun]))

Return.R.05Jul.09Jun <- 100\*(log(dataRrv.05Jul.09Jun[-1])-log(dataRrv.05Jul.09Jun[-len.R.05Jul.09Jun]))

Return.R.08Jul.09Jun.2 <- 100\*(log(dataRrv.08Jul.09Jun.2[-1])-log(dataRrv.08Jul.09Jun.2[-len.R.08Jul.09Jun.2]))

Return.R.07Jul.09Jun.2 <- 100\*(log(dataRrv.07Jul.09Jun.2[-1])-log(dataRrv.07Jul.09Jun.2[-len.R.07Jul.09Jun.2]))

Return.R.06Jul.09Jun.2 <- 100\*(log(dataRrv.06Jul.09Jun.2[-1])-log(dataRrv.06Jul.09Jun.2[-len.R.06Jul.09Jun.2]))

Return.R.05Jul.09Jun.2 <- 100\*(log(dataRrv.05Jul.09Jun.2[-1])-log(dataRrv.05Jul.09Jun.2[-len.R.05Jul.09Jun.2]))

Return.R.08Jul.09Jun.3 <- 100\*(log(dataRrv.08Jul.09Jun.3[-1])-log(dataRrv.08Jul.09Jun.3[-len.R.08Jul.09Jun.3]))

Return.R.07Jul.09Jun.3 <- 100\*(log(dataRrv.07Jul.09Jun.3[-1])-log(dataRrv.07Jul.09Jun.3[-len.R.07Jul.09Jun.3]))

Return.R.06Jul.09Jun.3 <- 100\*(log(dataRrv.06Jul.09Jun.3[-1])-log(dataRrv.06Jul.09Jun.3[-len.R.06Jul.09Jun.3]))

Return.R.05Jul.09Jun.3 <- 100\*(log(dataRrv.05Jul.09Jun.3[-1])-log(dataRrv.05Jul.09Jun.3[-len.R.05Jul.09Jun.3]))

write.table(Return.R.08Jul.10Jun,"D:/program/garchMHnov/data/RData\_08Jul\_10Jun\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.08Jul.09Jun,"D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.07Jul.09Jun,"D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Jul.09Jun,"D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Jul.09Jun,"D:/program/garchMHnov/data/RData\_05Jul\_09Jun\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.08Jul.09Jun.2,"D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_2\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.07Jul.09Jun.2,"D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_2\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Jul.09Jun.2,"D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_2\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Jul.09Jun.2,"D:/program/garchMHnov/data/RData\_05Jul\_09Jun\_2\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.08Jul.09Jun.3,"D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_3\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.07Jul.09Jun.3,"D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_3\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.06Jul.09Jun.3,"D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_3\_SAP500.txt",col.names=FALSE,row.names=FALSE)

write.table(Return.R.05Jul.09Jun.3,"D:/program/garchMHnov/data/RData\_05Jul\_09Jun\_3\_SAP500.txt",col.names=FALSE,row.names=FALSE)

dataR.08Jul.10Jun[c(1,len.R.08Jul.10Jun),1]

dataR.08Jul.09Jun[c(1,len.R.08Jul.09Jun),1]

dataR.07Jul.09Jun[c(1,len.R.07Jul.09Jun),1]

dataR.06Jul.09Jun[c(1,len.R.06Jul.09Jun),1]

dataR.05Jul.09Jun[c(1,len.R.05Jul.09Jun),1]

dataR.08Jul.09Jun.2[c(1,len.R.08Jul.09Jun.2),1]

dataR.07Jul.09Jun.2[c(1,len.R.07Jul.09Jun.2),1]

dataR.06Jul.09Jun.2[c(1,len.R.06Jul.09Jun.2),1]

dataR.05Jul.09Jun.2[c(1,len.R.05Jul.09Jun.2),1]

dataR.08Jul.09Jun.3[c(1,len.R.08Jul.09Jun.3),1]

dataR.07Jul.09Jun.3[c(1,len.R.07Jul.09Jun.3),1]

dataR.06Jul.09Jun.3[c(1,len.R.06Jul.09Jun.3),1]

dataR.05Jul.09Jun.3[c(1,len.R.05Jul.09Jun.3),1]

length(Return.R.08Jul.10Jun)

length(Return.R.08Jul.09Jun)

length(Return.R.07Jul.09Jun)

length(Return.R.06Jul.09Jun)

length(Return.R.05Jul.09Jun)

length(Return.R.08Jul.09Jun.2)

length(Return.R.07Jul.09Jun.2)

length(Return.R.06Jul.09Jun.2)

length(Return.R.05Jul.09Jun.2)

length(Return.R.08Jul.09Jun.3)

length(Return.R.07Jul.09Jun.3)

length(Return.R.06Jul.09Jun.3)

length(Return.R.05Jul.09Jun.3)

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_10Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_05Jul\_09Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_2\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_2\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_05Jul\_09Jun\_2\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_2\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_10Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_10Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_SAP500.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_17\_\_\_D\_00\_XXXave\_para.txt.gz")

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avepST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_21\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_DowJones.txt")

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avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_DowJones.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_\_S\_00\_oneave\_para.txt.gz")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_NASDAQ.txt")

avepDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_\_\_S\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=1,lwd=2,lty=1)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=4,lwd=2,lty=4)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=5,lwd=2,lty=5)

#lines(Nlist,avepST[Nlist,2],type="l",col=1,lwd=2,lty=1)

#lines(Nlist,avepPD[Nlist,2],type="l",col=2,lwd=2,lty=2)

#lines(Nlist,avepIG[Nlist,2],type="l",col=4,lwd=2,lty=4)

#lines(Nlist,avepPD[Nlist,2],type="l",col=5,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.0,c( "y",

"No mixture-GARCH(1,1) ",

"DP-GARCH(1,1)",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,1,5,2,4),col=c("grey",1,5,2,4),cex=1,bty="n",ncol=3,lwd=2)

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_3\_SAP500.txt")

avepDP1 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG1 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_NGG\_00\_XXXave\_para.txt.gz")

avepPD1 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_\_PD\_00\_XXXave\_para.txt.gz")

avepST1 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_\_\_S\_00\_oneave\_para.txt.gz")

avepDP2 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_20\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG2 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_20\_NGG\_00\_XXXave\_para.txt.gz")

avepPD2 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_20\_\_PD\_00\_XXXave\_para.txt.gz")

avepST2 <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_20\_\_\_S\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST1[Nlist,1]),type="l",col=1,lwd=2,lty=1)

lines(Nlist,sqrt(avepST2[Nlist,1]),type="l",col=1,lwd=2,lty=1)

lines(Nlist,sqrt(avepPD1[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepPD2[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepIG1[Nlist,1]),type="l",col=4,lwd=2,lty=4)

lines(Nlist,sqrt(avepIG2[Nlist,1]),type="l",col=4,lwd=2,lty=4)

lines(Nlist,sqrt(avepPD1[Nlist,1]),type="l",col=5,lwd=2,lty=5)

lines(Nlist,sqrt(avepPD2[Nlist,1]),type="l",col=5,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.0,c( "y",

"No mixture-GARCH(1,1) ",

"DP-GARCH(1,1)",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,1,5,2,4),col=c("grey",1,5,2,4),cex=1,bty="n",ncol=3,lwd=2)

#install.packages("tseries")

#data0 <- read.table("D:/program/garchMHnov/data/dataFV\_00.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_2\_SAP500.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_10Jun\_SAP500.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_3\_SAP500.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_3\_SAP500.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_3\_SAP500.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_DowJones.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_NASDAQ.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_06Jul\_09Jun\_NASDAQ.txt")

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_DowJones.txt")

library("tseries")

garch(data0,order=c(1,1))

#install.packages("bayesGARCH")

library("bayesGARCH")

summary(formSmpl(bayesGARCH(data0[,],control=list(n.chain=2,l.chain=5000)),l.bi=1000,batch.size=2))

#install.packages("fGarch")

library("fGarch")

garchFit(~garch(1,1),data=data0[,],trace=FALSE,include.mean=FALSE)

X <- seq(-10,10,0.01)

Y <- dnorm(X,0,sqrt(8.3027))

plot(X,Y,type="l",col=1,ylim=c(0,.2))

Y <- (189/252)\*dnorm(X,0,sqrt(5.8680))+(1-189/252)\*dnorm(X,0,sqrt(12.2842))

lines(X,Y,type="l",col=2)

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_05Jul\_09Jun\_2\_SAP500\_15\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_16\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_17\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_17\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_17\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_17\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_17\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_17\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_17\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_18\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_18\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_18\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_18\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_18\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_18\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_18\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_SAP500\_18\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_18\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_18\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_18\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_18\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_18\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_18\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_18\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_18\_\_\_S\_00\_onepred.txt.gz")

sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

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predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_18\_\_\_D\_00\_XXXpred.txt.gz")

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avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_18\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_18\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_18\_\_PD\_00\_XXXpred.txt.gz")

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avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

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avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

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avepST[(dim(data0)[1]-10):dim(data0)[1],1]

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avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

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avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

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avepST[(dim(data0)[1]-10):dim(data0)[1],1]

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avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

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data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_3\_SAP500.txt")

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predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_20\_\_\_D\_00\_XXXpred.txt.gz")

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avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

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avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

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avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

data0 <- read.table("D:/program/garchMHnov/data/RData\_07Jul\_09Jun\_SAP500.txt")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_21\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_21\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_21\_\_PD\_00\_XXXpred.txt.gz")

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sqrt(cbind(

avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

avepIG[(dim(data0)[1]-10):dim(data0)[1],1],

avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

))

data0 <- read.table("D:/program/garchMHnov/data/RData\_08Jul\_09Jun\_3\_SAP500.txt")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_21\_\_\_D\_00\_XXXpred.txt.gz")

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avepDP[(dim(data0)[1]-10):dim(data0)[1],1],

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avepPD[(dim(data0)[1]-10):dim(data0)[1],1],

avepST[(dim(data0)[1]-10):dim(data0)[1],1]

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predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_21\_\_\_D\_00\_XXXpred.txt.gz")

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predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_22\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_22\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_22\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_22\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_22\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_22\_NGG\_00\_XXXpred.txt.gz")

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predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_22\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_22\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_22\_NGG\_00\_XXXpred.txt.gz")

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predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_24\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_24\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_24\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_24\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_24\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_24\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_24\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_24\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_24\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_24\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_24\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_25\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_25\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_25\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_25\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_25\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_25\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_25\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_25\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_25\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_25\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_25\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_25\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_25\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_25\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_25\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_25\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_23\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_23\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_23\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_SAP500\_23\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_23\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_23\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_23\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_23\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_25\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_25\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_25\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_DowJones\_25\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_27\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_\_S\_00\_onepred.txt.gz")

windows(width=12,height=8)

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(c(0,0),type="l",col=4,xlim=c(-8,8),ylim=c(0,0.35),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=1,lwd=2,lty=1)

lines(predDP,type="l",col=5,lwd=2,lty=5)

lines(predPD,type="l",col=2,lwd=2,lty=2)

lines(predIG,type="l",col=4,lwd=2,lty=4)

axis(1,at=c(seq(-10,10,1)),labels=c(seq(-10,10,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1,c( "No mixture-GARCH(1,1) ",

"DP-GARCH(1,1)",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,5,2,4),col=c(1,5,2,4),cex=1,bty="n",ncol=3,lwd=2)

X <- seq(0.01,1,0.01)

plot(X,dbeta(X,10,10),type="l")

lines(X,dbeta(X,1,1),type="l")

X <- seq(0.01,1,0.01)

plot(X,dbeta(X,1000,1000),type="l")

lines(X,dbeta(X,1,1),type="l")

windows(width=12,height=8)

par(mar=c(2,2,0.1,0.1))

plot(c(0,0),type="l",col=4,xlim=c(-10,10),ylim=c(0,0.15),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

lines(seq(-20,20,0.01),dnorm(seq(-20,20,0.01),0,sd=sqrt(14)),type="l",col=4,lwd=2,lty=2)

lines(seq(-20,20,0.01),dnorm(seq(-20,20,0.01),0,sd=sqrt(16)),type="l",col=2,lwd=2,lty=1)

axis(1,at=c(seq(-20,20,1)),labels=c(seq(-20,20,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("RData\_0809\_SAP500.txt")

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("RData\_0609\_SAP500.txt")

setwd("D:/program/garchMHnov/output")

avepDP <- read.table("RData\_0609\_SAP500\_8DP\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0609\_SAP500\_8IG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0609\_SAP500\_8PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0609\_SAP500\_2ST\_00\_oneave\_para.txt.gz")

avepDP <- read.table("RData\_0609\_SAP500\_10\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0609\_SAP500\_10\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0609\_SAP500\_10\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0609\_SAP500\_10\_\_\_S\_00\_oneave\_para.txt.gz")

sqrt(cbind(

avepDP[874:881,1],

avepIG[874:881,1],

avepPD[874:881,1],

avepST[874:881,1]

))

avepDP <- read.table("RData\_0609\_SAP500\_12\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0609\_SAP500\_12\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0609\_SAP500\_12\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0609\_SAP500\_12\_\_\_S\_00\_oneave\_para.txt.gz")

avepDP <- read.table("RData\_0809\_SAP500\_12\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0809\_SAP500\_12\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0809\_SAP500\_12\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0809\_SAP500\_12\_\_\_S\_00\_oneave\_para.txt.gz")

avepDP <- read.table("RData\_0809\_SAP500\_13\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0809\_SAP500\_13\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0809\_SAP500\_13\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0809\_SAP500\_13\_\_\_S\_00\_oneave\_para.txt.gz")

avepDP <- read.table("RData\_0809\_SAP500\_14\_\_\_D\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0809\_SAP500\_14\_NGG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0809\_SAP500\_14\_\_PD\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0809\_SAP500\_14\_\_\_S\_00\_oneave\_para.txt.gz")

sqrt(cbind(

avepDP[374:381,1],

avepIG[374:381,1],

avepPD[374:381,1],

avepST[374:381,1]

))

dataR[len.R:1,][374:381,]

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

Nlist <- 501:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=1,lwd=2,lty=1)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=4,lwd=2,lty=4)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=5,lwd=2,lty=5)

lines(Nlist,avepST[Nlist,2],type="l",col=1,lwd=2,lty=1)

lines(Nlist,avepPD[Nlist,2],type="l",col=2,lwd=2,lty=2)

lines(Nlist,avepIG[Nlist,2],type="l",col=4,lwd=2,lty=4)

lines(Nlist,avepPD[Nlist,2],type="l",col=5,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.0,c( "y",

"No mixture-GARCH(1,1) ",

"DP-GARCH(1,1)",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,1,5,2,4),col=c("grey",1,5,2,4),cex=1,bty="n",ncol=3,lwd=2)

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=1,lwd=2,lty=1)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=4,lwd=2,lty=4)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=5,lwd=2,lty=5)

lines(Nlist,avepST[Nlist,2],type="l",col=1,lwd=2,lty=1)

lines(Nlist,avepPD[Nlist,2],type="l",col=2,lwd=2,lty=2)

lines(Nlist,avepIG[Nlist,2],type="l",col=4,lwd=2,lty=4)

lines(Nlist,avepPD[Nlist,2],type="l",col=5,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.0,c( "y",

"No mixture-GARCH(1,1) ",

"DP-GARCH(1,1)",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,1,5,2,4),col=c("grey",1,5,2,4),cex=1,bty="n",ncol=3,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0609\_Sigma2",type="pdf")

setwd("D:/program/garchMHnov/output")

predDP <- read.table("RData\_0609\_SAP500\_8DP\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0609\_SAP500\_8IG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0609\_SAP500\_8PD\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0609\_SAP500\_2ST\_00\_onepred.txt.gz")

predDP <- read.table("RData\_0609\_SAP500\_10\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0609\_SAP500\_10\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0609\_SAP500\_10\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0609\_SAP500\_10\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("RData\_0609\_SAP500\_12\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0609\_SAP500\_12\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0609\_SAP500\_12\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0609\_SAP500\_12\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("RData\_0809\_SAP500\_12\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0809\_SAP500\_12\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0809\_SAP500\_12\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0809\_SAP500\_12\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("RData\_0809\_SAP500\_13\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0809\_SAP500\_13\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0809\_SAP500\_13\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0809\_SAP500\_13\_\_\_S\_00\_onepred.txt.gz")

predDP <- read.table("RData\_0809\_SAP500\_14\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0809\_SAP500\_14\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0809\_SAP500\_14\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0809\_SAP500\_14\_\_\_S\_00\_onepred.txt.gz")

windows(width=12,height=8)

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(c(0,0),type="l",col=4,xlim=c(-5,5),ylim=c(0,0.8),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=1,lwd=2,lty=1)

lines(predDP,type="l",col=5,lwd=2,lty=5)

lines(predPD,type="l",col=2,lwd=2,lty=2)

lines(predIG,type="l",col=4,lwd=2,lty=4)

axis(1,at=c(seq(-10,10,1)),labels=c(seq(-10,10,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1,c( "No mixture-GARCH(1,1) ",

"DP-GARCH(1,1)",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,5,2,4),col=c(1,5,2,4),cex=1,bty="n",ncol=3,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0609\_Predictive2",type="pdf")

calll <- function(avep) {

Loglikelihood <- (-1) \* avep[1,]

for (i in 2:10000) {

diff0 <- Loglikelihood - (-1) \* avep[i,]

if (diff0>0) { Loglikelihood <- (-1) \* avep[i,] + log(1+exp(-diff0)) }

else { Loglikelihood <- Loglikelihood + log(1+exp(diff0)) }

}

return (-Loglikelihood+log(10000))

}

setwd("D:/program/garchMHnov/output")

predDP <- read.table("RData\_0609\_SAP500\_10\_\_\_D\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0609\_SAP500\_10\_NGG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0609\_SAP500\_10\_\_PD\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0609\_SAP500\_10\_\_\_S\_00\_onepred.txt.gz")

calll(read.table("RData\_0609\_SAP500\_11\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_11\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_11\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_11\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0809\_SAP500\_13\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("RData\_0809\_SAP500\_13\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0809\_SAP500\_13\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0809\_SAP500\_13\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_10\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_10\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_10\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_10\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_2ST\_00\_onelikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_7DP\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_7PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("RData\_0609\_SAP500\_7IG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_10Jun\_SAP500\_15\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_19\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_19\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_19\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_2\_SAP500\_19\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_19\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_19\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_19\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_2\_SAP500\_19\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_19\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_19\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_19\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_19\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_21\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_21\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_21\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_21\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_19\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_22\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_22\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_22\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_22\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_22\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_22\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_22\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_22\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_22\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_SAP500\_26\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_22\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_22\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_22\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_NASDAQ\_22\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_22\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_22\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_22\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_22\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_23\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_06Jul\_09Jun\_NASDAQ\_24\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_NASDAQ\_26\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_22\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_22\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_22\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_22\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_23\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_23\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_23\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_23\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_26\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_DowJones\_27\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_24\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_25\_\_\_S\_00\_onelikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_D\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_NGG\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_PD\_00\_XXXlikelihood.txt.gz"))

calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_26\_\_\_S\_00\_onelikelihood.txt.gz"))

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_23\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -915.2341

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_23\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -924.9961

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_23\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -925.2752

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_DowJones\_23\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -957.0877

> calll(read.table("RData\_0609\_SAP500\_2ST\_00\_onelikelihood.txt.gz"))

[1] -1578.085

> calll(read.table("RData\_0609\_SAP500\_7DP\_00\_XXXlikelihood.txt.gz"))

[1] -1493.267

> calll(read.table("RData\_0609\_SAP500\_7PD\_00\_XXXlikelihood.txt.gz"))

[1] -1478.036

> calll(read.table("RData\_0609\_SAP500\_7IG\_00\_XXXlikelihood.txt.gz"))

[1] -1431.166

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_20\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -993.8009

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_20\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -954.955

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_20\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -950.4923

> calll(read.table("D:/program/garchMHnov/output/RData\_07Jul\_09Jun\_3\_SAP500\_20\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -948.7605

> calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_21\_\_\_D\_00\_XXXlikelihood.txt.gz"))

[1] -546.2367

> calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_21\_NGG\_00\_XXXlikelihood.txt.gz"))

[1] -547.0624

> calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_21\_\_PD\_00\_XXXlikelihood.txt.gz"))

[1] -554.5811

> calll(read.table("D:/program/garchMHnov/output/RData\_08Jul\_09Jun\_3\_SAP500\_21\_\_\_S\_00\_onelikelihood.txt.gz"))

[1] -571.4644

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("RData\_0609\_SAP500.txt")

setwd("D:/program/garchMHnov/output")

avepDP <- read.table("RData\_0609\_SAP500\_2DP\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0609\_SAP500\_2IG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0609\_SAP500\_2PD\_00\_XXXave\_para.txt.gz")

avepNS <- read.table("RData\_0609\_SAP500\_2NS\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0609\_SAP500\_2ST\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=1,lwd=2,lty=1)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=4,lwd=2,lty=4)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.0,c( "y",

"No mixture-GARCH(1,1) ",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,1,2,4),col=c("grey",1,2,4),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0609\_Sigma1",type="pdf")

setwd("D:/program/garchMHnov/output")

predDP <- read.table("RData\_0609\_SAP500\_2DP\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0609\_SAP500\_2IG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0609\_SAP500\_2PD\_00\_XXXpred.txt.gz")

predNS <- read.table("RData\_0609\_SAP500\_2NS\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0609\_SAP500\_2ST\_00\_onepred.txt.gz")

windows(width=12,height=8)

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(c(0,0),type="l",col=4,xlim=c(-5,5),ylim=c(0,0.8),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=1,lwd=2,lty=1)

lines(predPD,type="l",col=2,lwd=2,lty=2)

lines(predIG,type="l",col=4,lwd=2,lty=4)

axis(1,at=c(seq(-10,10,1)),labels=c(seq(-10,10,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1,c( "No mixture-GARCH(1,1) ",

"PD-GARCH(1,1)",

"NGG-GARCH(1,1)"),

lty=c(1,2,4),col=c(1,2,4),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0609\_Predictive1",type="pdf")

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2006\_to\_Oct2009.csv")

dataR <- dataR[1:505,]

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

write.table(Return.R,"D:/program/garchMHnov/data/RData\_0809\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2006\_to\_Oct2009.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0609\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2006\_to\_Oct2009.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0609\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

####################### 06-09

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("RData\_0609\_SAP500.txt")

setwd("D:/program/garchMHnov/output")

avepDP <- read.table("RData\_0609\_SAP500\_2DP\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0609\_SAP500\_2IG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0609\_SAP500\_2PD\_00\_XXXave\_para.txt.gz")

avepNS <- read.table("RData\_0609\_SAP500\_2NS\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0609\_SAP500\_2ST\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=4,lwd=2,lty=1)

lines(Nlist,sqrt(avepDP[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=3,lwd=2,lty=3)

lines(Nlist,sqrt(avepNS[Nlist,1]),type="l",col=5,lwd=2,lty=4)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "y",

"No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,1,2,3,4,5),col=c("grey",4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0609\_Sigma",type="pdf")

setwd("D:/program/garchMHnov/output")

predDP <- read.table("RData\_0609\_SAP500\_2DP\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0609\_SAP500\_2IG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0609\_SAP500\_2PD\_00\_XXXpred.txt.gz")

predNS <- read.table("RData\_0609\_SAP500\_2NS\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0609\_SAP500\_2ST\_00\_onepred.txt.gz")

windows(width=12,height=8)

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(c(0,0),type="l",col=4,xlim=c(-5,5),ylim=c(0,0.8),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=4,lwd=2,lty=1)

lines(predDP,type="l",col=2,lwd=2,lty=2)

lines(predPD,type="l",col=3,lwd=2,lty=3)

lines(predNS,type="l",col=5,lwd=2,lty=4)

lines(predIG,type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(-10,10,1)),labels=c(seq(-10,10,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,2,3,4,5),col=c(4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0609\_Predictive",type="pdf")

####################### 05-08

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("RData\_0508\_SAP500.txt")

setwd("D:/program/garchMHnov/output")

avepDP <- read.table("RData\_0508\_SAP500\_2DP\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0508\_SAP500\_2IG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0508\_SAP500\_2PD\_00\_XXXave\_para.txt.gz")

avepNS <- read.table("RData\_0508\_SAP500\_2NS\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0508\_SAP500\_2ST\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=4,lwd=2,lty=1)

lines(Nlist,sqrt(avepDP[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=3,lwd=2,lty=3)

lines(Nlist,sqrt(avepNS[Nlist,1]),type="l",col=5,lwd=2,lty=4)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "y",

"No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,1,2,3,4,5),col=c("grey",4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0508\_Sigma",type="pdf")

setwd("D:/program/garchMHnov/output")

predDP <- read.table("RData\_0508\_SAP500\_2DP\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0508\_SAP500\_2IG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0508\_SAP500\_2PD\_00\_XXXpred.txt.gz")

predNS <- read.table("RData\_0508\_SAP500\_2NS\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0508\_SAP500\_2ST\_00\_onepred.txt.gz")

windows(width=12,height=8)

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(c(0,0),type="l",col=4,xlim=c(-5,5),ylim=c(0,0.8),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=4,lwd=2,lty=1)

lines(predDP,type="l",col=2,lwd=2,lty=2)

lines(predPD,type="l",col=3,lwd=2,lty=3)

lines(predNS,type="l",col=5,lwd=2,lty=4)

lines(predIG,type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(-10,10,1)),labels=c(seq(-10,10,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,2,3,4,5),col=c(4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0508\_Predictive",type="pdf")

####################### 04-07

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("RData\_0407\_SAP500.txt")

setwd("D:/program/garchMHnov/output")

avepDP <- read.table("RData\_0407\_SAP500\_2DP\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0407\_SAP500\_2IG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0407\_SAP500\_2PD\_00\_XXXave\_para.txt.gz")

avepNS <- read.table("RData\_0407\_SAP500\_2NS\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0407\_SAP500\_2ST\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=4,lwd=2,lty=1)

lines(Nlist,sqrt(avepDP[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=3,lwd=2,lty=3)

lines(Nlist,sqrt(avepNS[Nlist,1]),type="l",col=5,lwd=2,lty=4)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "y",

"No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,1,2,3,4,5),col=c("grey",4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0407\_Sigma",type="pdf")

setwd("D:/program/garchMHnov/output")

predDP <- read.table("RData\_0407\_SAP500\_2DP\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0407\_SAP500\_2IG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0407\_SAP500\_2PD\_00\_XXXpred.txt.gz")

predNS <- read.table("RData\_0407\_SAP500\_2NS\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0407\_SAP500\_2ST\_00\_onepred.txt.gz")

windows(width=12,height=8)

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(c(0,0),type="l",col=4,xlim=c(-5,5),ylim=c(0,0.8),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=4,lwd=2,lty=1)

lines(predDP,type="l",col=2,lwd=2,lty=2)

lines(predPD,type="l",col=3,lwd=2,lty=3)

lines(predNS,type="l",col=5,lwd=2,lty=4)

lines(predIG,type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(-10,10,1)),labels=c(seq(-10,10,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,2,3,4,5),col=c(4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0407\_Predictive",type="pdf")

####################### 03-06

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("RData\_0306\_SAP500.txt")

setwd("D:/program/garchMHnov/output")

avepDP <- read.table("RData\_0306\_SAP500\_2DP\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("RData\_0306\_SAP500\_2IG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("RData\_0306\_SAP500\_2PD\_00\_XXXave\_para.txt.gz")

avepNS <- read.table("RData\_0306\_SAP500\_2NS\_00\_XXXave\_para.txt.gz")

avepST <- read.table("RData\_0306\_SAP500\_2ST\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(Nlist,data0[Nlist,1],type="h",col="grey",lwd=2,lty=1,ylim=c(0,10),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,sqrt(avepST[Nlist,1]),type="l",col=4,lwd=2,lty=1)

lines(Nlist,sqrt(avepDP[Nlist,1]),type="l",col=2,lwd=2,lty=2)

lines(Nlist,sqrt(avepPD[Nlist,1]),type="l",col=3,lwd=2,lty=3)

lines(Nlist,sqrt(avepNS[Nlist,1]),type="l",col=5,lwd=2,lty=4)

lines(Nlist,sqrt(avepIG[Nlist,1]),type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(0,2000,50)),labels=c(seq(0,2000,50)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-50,50,1)),labels=c(seq(-50,50,1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "y",

"No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,1,2,3,4,5),col=c("grey",4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0306\_Sigma",type="pdf")

setwd("D:/program/garchMHnov/output")

predDP <- read.table("RData\_0306\_SAP500\_2DP\_00\_XXXpred.txt.gz")

predIG <- read.table("RData\_0306\_SAP500\_2IG\_00\_XXXpred.txt.gz")

predPD <- read.table("RData\_0306\_SAP500\_2PD\_00\_XXXpred.txt.gz")

predNS <- read.table("RData\_0306\_SAP500\_2NS\_00\_XXXpred.txt.gz")

predST <- read.table("RData\_0306\_SAP500\_2ST\_00\_onepred.txt.gz")

windows(width=12,height=8)

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(8,1),TRUE)

plot(c(0,0),type="l",col=4,xlim=c(-5,5),ylim=c(0,0.8),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

#mtext(expression(y[n+1]),side=1,line=2)

#mtext(paste("Estimated Predictive Density of given " ),side=2,line=2)

#mtext(expression(y[n+1]),side=2,line=2,adj=.66)

#mtext(expression(y[1]~...~y[n]),side=2,line=2,adj=.87)

lines(predST,type="l",col=4,lwd=2,lty=1)

lines(predDP,type="l",col=2,lwd=2,lty=2)

lines(predPD,type="l",col=3,lwd=2,lty=3)

lines(predNS,type="l",col=5,lwd=2,lty=4)

lines(predIG,type="l",col=6,lwd=2,lty=5)

axis(1,at=c(seq(-10,10,1)),labels=c(seq(-10,10,1)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,2,.1)),labels=c(seq(0,2,.1)),tck=0.01,padj=1.7,cex.axis=.6)

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,2,3,4,5),col=c(4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("SAP500\_0306\_Predictive",type="pdf")

#######################

calll <- function(avep) {

Loglikelihood <- (-1) \* avep[1,]

for (i in 2:10000) {

diff0 <- Loglikelihood - (-1) \* avep[i,]

if (diff0>0) { Loglikelihood <- (-1) \* avep[i,] + log(1+exp(-diff0)) }

else { Loglikelihood <- Loglikelihood + log(1+exp(diff0)) }

}

return (-Loglikelihood+log(10000))

}

setwd("D:/program/garchMHnov/output")

ML<-matrix(rep(0,4\*5),5,4)

ML[1,1]<-calll(read.table("RData\_0609\_SAP500\_2ST\_00\_onelikelihood.txt.gz"))

ML[2,1]<-calll(read.table("RData\_0609\_SAP500\_2DP\_00\_XXXlikelihood.txt.gz"))

ML[3,1]<-calll(read.table("RData\_0609\_SAP500\_2PD\_00\_XXXlikelihood.txt.gz"))

ML[4,1]<-calll(read.table("RData\_0609\_SAP500\_2NS\_00\_XXXlikelihood.txt.gz"))

ML[5,1]<-calll(read.table("RData\_0609\_SAP500\_2IG\_00\_XXXlikelihood.txt.gz"))

ML[1,2]<-calll(read.table("RData\_0508\_SAP500\_2ST\_00\_onelikelihood.txt.gz"))

ML[2,2]<-calll(read.table("RData\_0508\_SAP500\_2DP\_00\_XXXlikelihood.txt.gz"))

ML[3,2]<-calll(read.table("RData\_0508\_SAP500\_2PD\_00\_XXXlikelihood.txt.gz"))

ML[4,2]<-calll(read.table("RData\_0508\_SAP500\_2NS\_00\_XXXlikelihood.txt.gz"))

ML[5,2]<-calll(read.table("RData\_0508\_SAP500\_2IG\_00\_XXXlikelihood.txt.gz"))

ML[1,3]<-calll(read.table("RData\_0407\_SAP500\_2ST\_00\_onelikelihood.txt.gz"))

ML[2,3]<-calll(read.table("RData\_0407\_SAP500\_2DP\_00\_XXXlikelihood.txt.gz"))

ML[3,3]<-calll(read.table("RData\_0407\_SAP500\_2PD\_00\_XXXlikelihood.txt.gz"))

ML[4,3]<-calll(read.table("RData\_0407\_SAP500\_2NS\_00\_XXXlikelihood.txt.gz"))

ML[5,3]<-calll(read.table("RData\_0407\_SAP500\_2IG\_00\_XXXlikelihood.txt.gz"))

ML[1,4]<-calll(read.table("RData\_0306\_SAP500\_2ST\_00\_onelikelihood.txt.gz"))

ML[2,4]<-calll(read.table("RData\_0306\_SAP500\_2DP\_00\_XXXlikelihood.txt.gz"))

ML[3,4]<-calll(read.table("RData\_0306\_SAP500\_2PD\_00\_XXXlikelihood.txt.gz"))

ML[4,4]<-calll(read.table("RData\_0306\_SAP500\_2NS\_00\_XXXlikelihood.txt.gz"))

ML[5,4]<-calll(read.table("RData\_0306\_SAP500\_2IG\_00\_XXXlikelihood.txt.gz"))

0609 0508 0407 0306

No mixture -1578.085 -1384.087 -1110.2826 -1133.3887

DP -1492.086 -1281.530 -1017.9099 -1063.0443

PD -1446.275 -1232.810 -950.9967 -989.7167

NS -1441.841 -1213.663 -919.4039 -989.6478

IG -1442.269 -1204.320 -924.2914 -1006.4578

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("dataFV\_00full.txt")

setwd("D:/program/garchMHnov/output")

avepST <- read.table("dataFV\_3\_\_D\_00\_XXXave\_para.txt.gz")

avepDP <- read.table("dataFV\_3\_\_D\_00\_oneave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2,3,4),4,1,byrow=TRUE),heights=c(3,3,3,3),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,abs(data0[range0,2]),col="grey",type="h",lty=1,lwd=3,xlim=c(min(range0),max(range0)),ylim=c(0,30),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n")

#lines(range0,data0[range0,5],col=1,type="l",lty=1,lwd=2)

lines(range0,sqrt(data0[range0,5]),col=1,type="l",lty=1,lwd=2)

lines(range0,sqrt(avepDP[range0,1]),col=2,type="l",lty=1,lwd=2)

lines(range0,sqrt(avepST[range0,1]),col=5,type="l",lty=1,lwd=2)

lines(range0,avepDP[range0,2],col=4,type="l",lty=1,lwd=2)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-1000,1000,10)),labels=c(seq(-1000,1000,10)),tck=0.05,padj=1.7,cex.axis=.6)

}

layout(matrix(c(1,2),2,1,byrow=TRUE),heights=c(3,3),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:1) {

range0 <- i \* 250 + 1:250

plot(range0,abs(data0[range0,2]),col="grey",type="h",lty=1,lwd=3,xlim=c(min(range0),max(range0)),ylim=c(0,90),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n")

#lines(range0,data0[range0,5],col=1,type="l",lty=1,lwd=2)

lines(range0,sqrt(data0[range0,5]),col=1,type="l",lty=1,lwd=2)

lines(range0,sqrt(avepDP[range0,1]),col=2,type="l",lty=1,lwd=2)

lines(range0,avepDP[range0,2],col=4,type="l",lty=1,lwd=2)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-1000,1000,10)),labels=c(seq(-1000,1000,10)),tck=0.05,padj=1.7,cex.axis=.6)

}

setwd("D:/program/garchMHnov/data/")

data0 <- read.table("dataFU\_00full.txt")

setwd("D:/program/garchMHnov/output")

avepDP <- read.table("dataFU\_2DP\_00\_XXXave\_para.txt.gz")

avepIG <- read.table("dataFU\_2IG\_00\_XXXave\_para.txt.gz")

avepPD <- read.table("dataFU\_2PD\_00\_XXXave\_para.txt.gz")

avepNS <- read.table("dataFU\_2NS\_00\_XXXave\_para.txt.gz")

avepST <- read.table("dataFU\_2ST\_00\_oneave\_para.txt.gz")

avepDP <- read.table("dataFU\_2\_\_D\_00\_XXXave\_para.txt.gz")

windows(width=12,height=8)

Nlist <- 1:dim(data0)[1]

par(mar=c(0.7,1,0.1,0.1))

layout(matrix(c(1,2,3,4,5),5,1,byrow=TRUE),heights=c(3,3,3,3,1),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,abs(data0[range0,2]),col="grey",type="h",lty=1,lwd=3,xlim=c(min(range0),max(range0)),ylim=c(0,20),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n")

lines(range0,sqrt(data0[range0,5]),col=1,type="l",lty=2,lwd=2)

lines(range0,sqrt(avepST[range0,1]),col=4,type="l",lty=1,lwd=2)

lines(range0,sqrt(avepDP[range0,1]),col=2,type="l",lty=1,lwd=2)

lines(range0,avepDP[range0,1],col=2,type="l",lty=1,lwd=2)

lines(range0,sqrt(avepPD[range0,1]),col=3,type="l",lty=1,lwd=2)

lines(range0,sqrt(avepNS[range0,1]),col=5,type="l",lty=1,lwd=2)

lines(range0,sqrt(avepIG[range0,1]),col=6,type="l",lty=1,lwd=2)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-1000,1000,20)),labels=c(seq(-1000,1000,20)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c( "true",

"No mixture-GARCH(1,1) ",

"DP(theta=1)-GARCH(1,1) ",

"PD(alpha=1/2,theta=1)-GARCH(1,1)",

"NS(alpha=1/2)=NGG(alpha=1/2,beta=0)-GARCH(1,1)",

"NGG(alpha=1/2,beta=0.0829)-GARCH(1,1)"),

lty=c(1,1,2,3,4,5),col=c(1,4,2,3,5,6),cex=1,bty="n",ncol=2,lwd=2)

setwd("D:/program/garchMHnov/")

savePlot("sim\_Sigma",type="pdf")

legend(0,1.2,c( "No mixture GARCH(1,1) ",

"DP GARCH(1,1) ",

"PD GARCH(1,1)",

"NS GARCH(1,1)",

"IG GARCH(1,1)",

"True"),

lty=c(1,2,2,2,2,2),col=c(4,2,3,5,6,1),cex=1.2,bty="n",ncol=3,lwd=1.5)

calll <- function(avep) {

Loglikelihood <- (-1) \* avep[1,]

for (i in 2:10000) {

diff0 <- Loglikelihood - (-1) \* avep[i,]

if (diff0>0) { Loglikelihood <- (-1) \* avep[i,] + log(1+exp(-diff0)) }

else { Loglikelihood <- Loglikelihood + log(1+exp(diff0)) }

}

return (-Loglikelihood+log(10000))

}

avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2DP\_00\_XXXlikelihood.txt.gz")

calll(avepX)

avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2IG\_00\_XXXlikelihood.txt.gz")

calll(avepX)

avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2PD\_00\_XXXlikelihood.txt.gz")

calll(avepX)

avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2NS\_00\_XXXlikelihood.txt.gz")

calll(avepX)

avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2ST\_00\_onelikelihood.txt.gz")

calll(avepX)

> avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2DP\_00\_XXXlikelihood.txt.gz")

> calll(avepX)

[1] -2204.820

> avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2IG\_00\_XXXlikelihood.txt.gz")

> calll(avepX)

[1] -2225.959

> avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2PD\_00\_XXXlikelihood.txt.gz")

> calll(avepX)

[1] -2211.645

> avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2NS\_00\_XXXlikelihood.txt.gz")

> calll(avepX)

[1] -2238.462

> avepX <- read.table("D:/program/garchMHnov/output/dataFU\_2ST\_00\_onelikelihood.txt.gz")

> calll(avepX)

[1] -2443.964

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2006\_to\_Oct2009.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0609\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2005\_to\_Dec2008.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0508\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2004\_to\_Dec2007.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0407\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2003\_to\_Dec2006.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0306\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2002\_to\_Dec2005.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0205\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

length(Return.R)

n <- 10000

x <- rep(0,n)

x[1] <- 1

for (i in 2:n) {

y <- exp(log(x[i-1])+rnorm(1,0,1))

acc <- min(dgamma(y,2,1)/dgamma(x[i-1],2,1)\*y/x[i-1],1)

if (runif(1)<acc) { x[i] <- y }

else { x[i] <- x[i-1] }

}

#x<-rgamma(10000,2,1)

hist(x,br=seq(0,100,.1),freq=F,xlim=c(0,5))

lines(seq(0,5,.05),dgamma(seq(0,5,.05),2,1))

n <- 20000

x <- rep(0,n)

s1 <- rep(0,n)

x[1] <- 1

for (i in 2:n) {

s1[i] <- sd(log(x[1:(i-1)]))

if (i<n/2) { y <- exp(log(x[i-1])+rnorm(1,0,.2)) }

else { y <- exp(log(x[i-1])+rnorm(1,0,s1[i])) }

acc <- min(dgamma(y,2,1)/dgamma(x[i-1],2,1)\*y/x[i-1],1)

if (runif(1)<acc) { x[i] <- y }

else { x[i] <- x[i-1] }

}

par(mfrow=c(2,1))

plot(x,type="l")

#x<-rgamma(10000,2,1)

hist(x[(n/2+1):n],br=seq(0,100,.1),freq=F,xlim=c(0,8))

lines(seq(0,8,.05),dgamma(seq(0,8,.05),2,1))

data0 <- read.table("E:/program/garchMHnov/data/RData\_0609\_SAP500.txt")

avepX <- read.table("E:/program/garchMHnov/output/RData\_0609\_SAP500\_2DP\_00\_XXXave\_para.txt.gz")

avepO <- read.table("E:/program/garchMHnov/output/RData\_0609\_SAP500\_2ST\_00\_oneave\_para.txt.gz")

avepX <- read.table(gzfile("E:/program/garchMHnov/output/RData\_0609\_SAP500\_2DP\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("E:/program/garchMHnov/output/RData\_0609\_SAP500\_2ST\_00\_oneave\_para.txt.gz"))

#data0 <- read.table("D:/program/garchMHnov/data/RData\_0609\_SAP500.txt")

#avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_DP\_00\_XXXave\_para.txt.gz"))

#avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_2ST\_00\_oneave\_para.txt.gz"))

#avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_NS\_00\_XXXave\_para.txt.gz"))

#avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_IG\_00\_XXXave\_para.txt.gz"))

#avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_PD\_00\_XXXave\_para.txt.gz"))

#avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_ST\_00\_oneave\_para.txt.gz"))

Nlist <- 1:dim(data0)[1]

par(mar=c(1,1,0.1,0.1))

plot(Nlist,data0[Nlist,1]^2,type="h",col="grey",lwd=2,lty=1,ylim=c(0,80),xlim=c(min(Nlist),max(Nlist)),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",bty="o")

lines(Nlist,data0[Nlist,1],type="h",col="black",lwd=2,lty=1)

lines(Nlist,avepO[Nlist,1],type="l",col=4,lwd=1.5,lty=12)

lines(Nlist,avepX[Nlist,1],type="l",col=2,lwd=1.5,lty=1)

axis(1,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0,padj=-2,cex.axis=.7)

axis(4,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0,padj=1.7,cex.axis=.6)

#legend(30,65,c("Bayesian Mixture GARCH(1,1) ","Bayesian GARCH(1,1)"),lty=c(1,2),col=c(2,4),cex=1,lwd=1.5)

predXDP <- read.table("E:/program/garchMHnov/output/RData\_0609\_SAP500\_2DP\_00\_XXXpred.txt.gz")

predXST <- read.table("E:/program/garchMHnov/output/RData\_0609\_SAP500\_2ST\_00\_onepred.txt.gz")

plot(predXDP,type="l",col=2,xlim=c(-3,3))

lines(predXST,type="l",col=3,xlim=c(-3,3))

predXPD <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_PD\_00\_XXXpred.txt.gz"))

predXNS <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_NS\_00\_XXXpred.txt.gz"))

predXIG <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_IG\_00\_XXXpred.txt.gz"))

plot(predXDP,type="l",col=2)

lines(predXPD,type="l",col=3)

lines(predXNS,type="l",col=4)

lines(predXIG,type="l",col=5)

l4st\_ch4nce

###########################################################################################

data0 <- read.table("E:/program/garchMHnov/data/dataFT\_00.txt")

avepX <- read.table(gzfile("E:/program/garchMHnov/output/dataFT\_2\_00\_XXXave\_para.txt.gz"))

predX <- read.table("E:/program/garchMHnov/output/dataFT\_2\_00\_XXXpred.txt.gz")

predO <- read.table("E:/program/garchMHnov/output/dataFT\_2\_00\_onepred.txt.gz")

#pred <- read.table("D:/program/garchMHnov/output/dataFT\_2\_00\_XXXpred.txt.gz")

plot(predX,type="l",col=4)

lines(predO,type="l",col=2)

layout(matrix(c(1,2,3,4,5),5,1,byrow=TRUE),heights=c(3,3,3,3,1),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,abs(data0[range0,2])^2,col="grey",type="h",lty=1,lwd=3,xlim=c(min(range0),max(range0)),ylim=c(0,50),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n")

lines(range0,data0[range0,5],col=3,type="l",lty=2,lwd=2)

lines(range0,avepX[range0,1],col=4,type="l",lty=1,lwd=2)

lines(range0,avepO[range0,1],col=2,type="l",lty=1,lwd=2)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-1000,1000,20)),labels=c(seq(-1000,1000,20)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c("Bayesian Mixture GARCH(1,1) ","Bayesian GARCH(1,1)","True"),lty=c(1,4,2),col=c(4,2,3),cex=1.2,bty="n",ncol=3,lwd=1.5)

layout(matrix(c(1,2,3,4,5),5,1,byrow=TRUE),heights=c(3,3,3,3,1),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,sqrt(data0[range0,5]),col=3,type="l",lty=2,xlim=c(min(range0),max(range0)),ylim=c(0,15),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5)

lines(range0,avepX[range0,2],col=4,type="l",lty=1,lwd=1.5)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,5)),labels=c(seq(-100,100,5)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c("Bayesian Mixture AR(1)-GARCH(1,1) ","Bayesian AR(1)-GARCH(1,1)","True"),lty=c(1,4,2),col=c(4,2,3),cex=1.2,bty="n",ncol=3,lwd=1.5)

layout(matrix(c(1,2,3,4,5),5,1,byrow=TRUE),heights=c(3,3,3,3,1),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,data0[range0,4],col=3,type="l",lty=2,xlim=c(min(range0),max(range0)),ylim=c(-1,1),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5)

lines(range0,avepX[range0,3],col=4,type="l",lty=1,lwd=1.5)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,5)),labels=c(seq(-100,100,5)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c("Bayesian Mixture AR(1)-GARCH(1,1) ","Bayesian AR(1)-GARCH(1,1)","True"),lty=c(1,4,2),col=c(4,2,3),cex=1.2,bty="n",ncol=3,lwd=1.5)

plot(1:1000,data0[1:1000,5],type="h",col=4,ylim=c(0,20))

lines(1:1000,avepX[1:1000,1],type="l",col=2,lwd=1.5)

data0 <- read.table("E:/program/garchMHnov/data/dataFT\_00.txt")

data0[1:1000,]

Nlist <- 1:500

plot(Nlist,data0[Nlist,2],type="l",ylim=c(-10,10))

lines(Nlist,data0[Nlist,4],col=2)

lines(Nlist,sqrt(data0[Nlist,5]),col=4)

lines(Nlist,data0[Nlist,2]\*data0[Nlist,2],col=5)

plot(Nlist,data0[Nlist,2]\*data0[Nlist,2],type="h",ylim=c(0,50))

lines(Nlist,sqrt(data0[Nlist,5]),col=2,lwd=1.5)

windows(width=25,height=10)

draw0 <- function(data0,avep0,avepX) {

Nlist <- 1:dim(data0)[1]

par(mar=c(1,1,0.1,0.1))

plot(Nlist,data0[Nlist,1]^2,type="h",col="grey",ylim=c(0,70),xlim=c(0,1006),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5,bty="o")

lines(Nlist,avepO[Nlist,1],type="l",col=4,lwd=1.5,lty=12)

lines(Nlist,avepX[Nlist,1],type="l",col=2,lwd=1.5,lty=1)

axis(1,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0,padj=-2,cex.axis=.7)

axis(4,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0,padj=1.7,cex.axis=.6)

#legend(30,65,c("Bayesian Mixture GARCH(1,1) ","Bayesian GARCH(1,1)"),lty=c(1,2),col=c(2,4),cex=1,lwd=1.5)

}

data0 <- read.table("D:/program/garchMHnov/data/RData\_0609\_SAP500.txt")

avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_DP\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_PD\_00\_XXXave\_para.txt.gz"))

draw0(data0,avep0,avepX)

avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_ST\_00\_oneave\_para.txt.gz"))

savePlot("D:/recentfiles/GARCH/h2\_SAP100",type="pdf")

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan2006\_to\_Oct2009.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_0609\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

len.R <- length(dataR[1:207,7])

dataRrv <- dataR[207:1,7]

Return.R <- 100\*(log(dataRrv[-1])-log(dataRrv[-len.R]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_SAP500.txt",col.names=FALSE,row.names=FALSE)

plot(Return.R,type="l")

points(Return.R,type="p",pch=16,cex=.5)

dataR[1,1]

dataR[len.R,1]

len.R

####### TEST ##############################################################################

data0 <- read.table("D:/program/garchMHnov/data/dataFS\_00full.txt")

Nlist <- 1:500

plot(Nlist,data0[Nlist,2],type="l",ylim=c(-10,10))

lines(Nlist,data0[Nlist,4],col=2)

lines(Nlist,sqrt(data0[Nlist,5]),col=4)

lines(Nlist,data0[Nlist,2]\*data0[Nlist,2],col=5)

plot(Nlist,data0[Nlist,2]\*data0[Nlist,2],type="h",ylim=c(0,50))

lines(Nlist,sqrt(data0[Nlist,5]),col=2,lwd=1.5)

acf(data0[Nlist,2])

pacf(data0[Nlist,2])

acf(data0[Nlist,2]\*data0[Nlist,2])

pacf(data0[Nlist,2]\*data0[Nlist,2])

plot(exp(cumsum(data0[Nlist,2])),type="l")

alpha.0 <- 3

beta.0 <- 1

x <- rep(1,5000)

for (i in 2:5000) {

E <- rnorm(1,0,3)

xnew <- x[i-1] \* exp(E)

xold <- x[i-1]

oldlnpost <- (alpha.0)\*log(beta.0)+(alpha.0-1.0)\*log(xold)-lgamma(alpha.0)-beta.0\*xold

newlnpost <- (alpha.0)\*log(beta.0)+(alpha.0-1.0)\*log(xnew)-lgamma(alpha.0)-beta.0\*xnew

if (log(runif(1))<(newlnpost-oldlnpost+E)) {

x[i] <- xnew

} else {

x[i] <- xold

}

}

hist(x[1000:5000],br=seq(-1,29,0.1),probability=T,xlim=c(0,9))

lines(seq(0,9,0.01),dgamma(seq(0,9,0.01),alpha.0,beta.0))

###########################################################################################

####### Real Data #########################################################################

#S&P 100 INDEX,RTH (^OEX)

dataR <- read.csv("D:/program/garchMHnov/data/S&P100\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_SAP100.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#FTSE 100 (^FTSE)

dataR <- read.csv("D:/program/garchMHnov/data/FTSE100\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_FTSE100.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#IBEX 35 (^IBEX)

dataR <- read.csv("D:/program/garchMHnov/data/IBEX35\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_IBEX35.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#NIKKEI 225 (^N225)

dataR <- read.csv("D:/program/garchMHnov/data/NIKKEI225\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_NIKKEI225.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#HANG SENG INDEX (^HSI)

dataR <- read.csv("D:/program/garchMHnov/data/HSI\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_HSI.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#DAX (^GDAXI)

dataR <- read.csv("D:/program/garchMHnov/data/DAX\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_DAX.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#PSEI (^PSI)

dataR <- read.csv("D:/program/garchMHnov/data/PSEI\_from\_Jan1998\_to\_Oct2002.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_PSEI.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#NASDAQ-100 (DRM) (^NDX)

dataR <- read.csv("D:/program/garchMHnov/data/NASDAQ100\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_NASDAQ100.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#S&P 500 INDEX,RTH (^GSPC)

dataR <- read.csv("D:/program/garchMHnov/data/S&P500\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_SAP500.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

#AEX (^AEX)

dataR <- read.csv("D:/program/garchMHnov/data/AEX\_from\_Jan1996\_to\_Oct2000.csv")

len.R <- length(dataR[,7])

dataRrv <- dataR[len.R:1,7]

Return.R <- 100\*(log(dataRrv[-len.R])-log(dataRrv[-1]))

#write.table(Return.R,"D:/program/garchMHnov/data/RData\_AEX.txt",col.names=FALSE,row.names=FALSE)

dataR[1,1]

dataR[len.R,1]

len.R

dev.off()

windows(width=12,height=8)

par(mfrow=c(3,1))

par(mar=c(0,0,0,0))

plot(Return.R,type="l")

plot(Return.R\*Return.R,type="h")

hist(Return.R,br=seq(-50,50,.5),xlim=c(-10,10),probability=T)

length(Return.R)

###########################################################################################

####### Test #########################################################################

plot(x[-1]/x[-10000])

--- Cycle 499 --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1 202 0.9409 -0.0358 | 0.5295 0.2936 0.5552

2 364 -0.0332 0.6964 | 0.0144 0.7050 0.2463

3 434 -0.4392 -0.3994 | 0.0608 0.5545 0.4445

--- Cycle 1119 --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1 196 0.7086 -0.2617 | 0.8421 0.5245 0.4646

2 497 -0.1281 0.3921 | 0.0170 0.6253 0.3556

3 307 -0.3892 -0.4234 | 0.0561 0.2955 0.4345

double phi2\_init[] = { 0.5, 0.0, 0.0}; // AR order + 1

double phi3\_init[] = { 0.0, 0.5, 0.0}; // AR order + 1

double phi4\_init[] = { -0.5, -0.5, 0.0}; // AR order + 1

double alp2\_init[] = { 1.0, 0.8, 0.1}; // alpha order + 1

double alp3\_init[] = { 0.01, 0.5, 0.5}; // alpha order + 1

double alp4\_init[] = { 0.10, 0.1, 0.8}; // alpha order + 1

###########################################################################################

####### Anlysis ###########################################################################

data0 <- read.table("D:/program/garchMHnov/data/dataFS\_00full.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/output/dataFS\_2\_00\_XXXave\_para.txt.gz"))

windows(width=12,height=8)

layout(matrix(c(1,2,3,4,5),5,1,byrow=TRUE),heights=c(3,3,3,3,1),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,data0[range0,5],col=3,type="l",lty=2,xlim=c(min(range0),max(range0)),ylim=c(0,80),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5)

lines(range0,avepX[range0,1],col=4,type="l",lty=1,lwd=1.5)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c("Bayesian Mixture AR(1)-GARCH(1,1) ","Bayesian AR(1)-GARCH(1,1)","True"),lty=c(1,4,2),col=c(4,2,3),cex=1.2,bty="n",ncol=3,lwd=1.5)

layout(matrix(c(1,2,3,4,5),5,1,byrow=TRUE),heights=c(3,3,3,3,1),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,sqrt(data0[range0,5]),col=3,type="l",lty=2,xlim=c(min(range0),max(range0)),ylim=c(0,5),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5)

lines(range0,avepX[range0,2],col=4,type="l",lty=1,lwd=1.5)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,5)),labels=c(seq(-100,100,5)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c("Bayesian Mixture AR(1)-GARCH(1,1) ","Bayesian AR(1)-GARCH(1,1)","True"),lty=c(1,4,2),col=c(4,2,3),cex=1.2,bty="n",ncol=3,lwd=1.5)

layout(matrix(c(1,2,3,4,5),5,1,byrow=TRUE),heights=c(3,3,3,3,1),TRUE)

par(mar=c(1,1,0.1,0.1))

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,data0[range0,4],col=3,type="l",lty=2,xlim=c(min(range0),max(range0)),ylim=c(-1,1),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5)

lines(range0,avepX[range0,3],col=4,type="l",lty=1,lwd=1.5)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,5)),labels=c(seq(-100,100,5)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c("Bayesian Mixture AR(1)-GARCH(1,1) ","Bayesian AR(1)-GARCH(1,1)","True"),lty=c(1,4,2),col=c(4,2,3),cex=1.2,bty="n",ncol=3,lwd=1.5)

plot(1:1000,data0[1:1000,5],type="h",col=4,ylim=c(0,20))

lines(1:1000,avepX[1:1000,1],type="l",col=2,lwd=1.5)

###########################################################################################

####### Anlysis ###########################################################################

calll <- function(avep) {

Loglikelihood <- (-1) \* avep[1,]

for (i in 2:10000) {

diff0 <- Loglikelihood - (-1) \* avep[i,]

if (diff0>0) { Loglikelihood <- (-1) \* avep[i,] + log(1+exp(-diff0)) }

else { Loglikelihood <- Loglikelihood + log(1+exp(diff0)) }

}

return (-Loglikelihood+log(10000))

}

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_FTSE100\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_IBEX35\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NIKKEI225\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_HSI\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_PSEI\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NASDAQ100\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP500\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_AEX\_00\_XXXlikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_FTSE100\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_IBEX35\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NIKKEI225\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_HSI\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_PSEI\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NASDAQ100\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP500\_00\_onelikelihood.txt.gz"))

calll(avepX)

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_AEX\_00\_onelikelihood.txt.gz"))

calll(avepX)

windows(width=25,height=10)

draw0 <- function(data0,avep0,avepX) {

Nlist <- 1:dim(data0)[1]

par(mar=c(1,1,0.1,0.1))

plot(Nlist,data0[Nlist,1]^2,type="h",col="grey",ylim=c(0,70),xlim=c(0,1225),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5,bty="o")

lines(Nlist,avepO[Nlist,1],type="l",col=4,lwd=1.5,lty=12)

lines(Nlist,avepX[Nlist,1],type="l",col=2,lwd=1.5,lty=1)

axis(1,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0,padj=-2,cex.axis=.7)

axis(4,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0,padj=1.7,cex.axis=.6)

#legend(30,65,c("Bayesian Mixture GARCH(1,1) ","Bayesian GARCH(1,1)"),lty=c(1,2),col=c(2,4),cex=1,lwd=1.5)

}

data0 <- read.table("D:/program/garchMHnov/data/RData\_SAP100.txt")

avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_0609\_SAP500\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_SAP100",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_SAP100.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_SAP100",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_FTSE100.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_FTSE100\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_FTSE100\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_FTSE100",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_IBEX35.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_IBEX35\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_IBEX35\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_IBEX35",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_NIKKEI225.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NIKKEI225\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_NIKKEI225\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_NIKKEI225",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_HSI.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_HSI\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_HSI\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_HSI",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_DAX.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_DAX",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_PSEI.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_PSEI\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_PSEI\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_PSEI",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_NASDAQ100.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NASDAQ100\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_NASDAQ100\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_NASDAQ100",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_SAP500.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP500\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP500\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_SAP500",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_AEX.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_AEX\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_AEX\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_AEX",type="pdf")

windows(width=25,height=10)

drawnp0 <- function(data0,avep0,avepX) {

par(mar=c(1,1,0.1,0.1))

plot(avepX[,1],type="l",col=4,lwd=1.5,lty=1,ylim=c(0,15),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n")

axis(1,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0,padj=-2,cex.axis=.7)

axis(4,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0,padj=1.7,cex.axis=.6)

#legend(30,65,c("Bayesian Mixture GARCH(1,1) ","Bayesian GARCH(1,1)"),lty=c(1,2),col=c(2,4),cex=1,lwd=1.5)

}

data0 <- read.table("D:/program/garchMHnov/data/RData\_SAP100.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_SAP100",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_FTSE100.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_FTSE100\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_FTSE100\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_FTSE100",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_IBEX35.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_IBEX35\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_IBEX35\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_IBEX35",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_NIKKEI225.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NIKKEI225\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_NIKKEI225\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_NIKKEI225",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_HSI.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_HSI\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_HSI\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_HSI",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_DAX.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_DAX",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_PSEI.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_PSEI\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_PSEI\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_PSEI",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_NASDAQ100.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NASDAQ100\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_NASDAQ100\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_NASDAQ100",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_SAP500.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP500\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP500\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_SAP500",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_AEX.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_AEX\_00\_XXXnp.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_AEX\_00\_onenp.txt.gz"))

drawnp0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/np\_AEX",type="pdf")

windows(width=25,height=10)

drawsigma0 <- function(avepX) {

layout(matrix(c(1,2,3,0),4,1,byrow=TRUE),heights=c(5,5,5,1),TRUE)

par(mar=c(0,1,0.1,0.1))

plot(avepX[,300],type="l",col=4,ylim=c(0,20),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5,bty="o")

axis(1,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0.01,padj=-2,cex.axis=.7,col.axis=0)

axis(2,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0,padj=-2,cex.axis=.7,col.axis=0)

axis(4,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0,padj=1.7,cex.axis=.6,col.axis=0)

text(500,18,expression(sigma[300]^2))

par(mar=c(0,1,0.1,0.1))

plot(avepX[,600],type="l",col=4,ylim=c(0,20),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5,bty="o")

axis(1,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0.01,padj=-2,cex.axis=.7,col.axis=0)

axis(2,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0,padj=-2,cex.axis=.7,col.axis=0)

axis(4,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0,padj=1.7,cex.axis=.6,col.axis=0)

text(500,18,expression(sigma[600]^2))

par(mar=c(0,1,0.1,0.1))

plot(avepX[,900],type="l",col=4,ylim=c(0,20),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5,bty="o")

axis(1,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,9000,1000)),labels=c(seq(0,9000,1000)),tck=0,padj=-2,cex.axis=.7,col.axis=0)

axis(4,at=c(seq(0,20,2)),labels=c(seq(0,20,2)),tck=0,padj=1.7,cex.axis=.6,col.axis=0)

text(500,18,expression(sigma[900]^2))

}

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_SAP100",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_FTSE100\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_FTSE100",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_IBEX35\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_IBEX35",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NIKKEI225\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_NIKKEI225",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_HSI\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_HSI",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_DAX",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_PSEI\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_PSEI",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_NASDAQ100\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_NASDAQ100",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP500\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_SAP500",type="pdf")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_AEX\_00\_XXXproc\_h2.txt.gz"))

drawsigma0(avepX)

savePlot("D:/recentfiles/GARCH/sigma\_AEX",type="pdf")

data0 <- read.table("D:/program/garchMHnov/data/RData\_SAP100.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_XXXproc\_h2.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_SAP100\_00\_oneproc\_h2.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/GARCH/h2\_SAP100",type="pdf")

data0 <- read.table("../data/RData\_SAP100.txt")

avepX <- read.table(gzfile("./RData\_SAP100\_00\_XXXgarch.txt.gz"))

avepO <- read.table(gzfile("./RData\_SAP100\_00\_onegarch.txt.gz"))

draw0(data0,avep0,avepX)

plot(avepX[,1200],type="l")

windows(width=25,height=10)

draw0 <- function(data0,avep0,avepX) {

Nlist <- 1:dim(data0)[1]

par(mar=c(1,1,0,0))

plot(Nlist,data0[Nlist,1],type="l",col="grey",ylim=c(-5,5),xlim=c(0,1225),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5)

lines(Nlist,avepO[Nlist,2],type="l",col=4,lwd=1.5,lty=12)

lines(Nlist,avepX[Nlist,2],type="l",col=2,lwd=1.5,lty=1)

axis(1,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0.01,padj=1.7,cex.axis=.6)

#legend(30,65,c("Bayesian Mixture GARCH(1,1) ","Bayesian GARCH(1,1)"),lty=c(1,2),col=c(2,4),cex=1,lwd=1.5)

}

for (i in 0:3) {

range0 <- i \* 250 + 1:250

plot(range0,data0[range0,5],col=3,type="l",lty=2,xlim=c(min(range0),max(range0)),ylim=c(0,80),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5)

lines(range0,avepX[range0,1],col=4,type="l",lty=1,lwd=1.5)

axis(1,at=c(seq(0,480,20),seq(520,980,20)),labels=c(seq(0,480,20),seq(520,980,20)),tck=0.05,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,20)),labels=c(seq(-100,100,20)),tck=0.05,padj=1.7,cex.axis=.6)

}

par(mar=c(0,0,0,0))

plot(0,0,type="n",ylim=c(0,1),xlim=c(0,1),bty="n",xaxt="n",yaxt="n")

legend(0,1.2,c("Bayesian Mixture AR(1)-GARCH(1,1) ","Bayesian AR(1)-GARCH(1,1)","True"),lty=c(1,4,2),col=c(4,2,3),cex=1.2,bty="n",ncol=3,lwd=1.5)

data0 <- read.table("D:/program/garchMHnov/data/RData\_NIKKEI225.txt")

avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_NIKKEI225\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_NIKKEI225\_00\_oneave\_para.txt.gz"))

Nlist <- 1:dim(data0)[1]

par(mar=c(1,1,0,0))

plot(Nlist,data0[Nlist,1]^2,type="h",col="grey",ylim=c(0,70))

lines(Nlist,avepO[Nlist,1],type="l",col=4,lwd=1.5)

lines(Nlist,avepX[Nlist,1],type="l",col=2,lwd=1.5)

Nlist <- 1:dim(data0)[1]

Nlist <- 200:900

par(mar=c(0,0,0,0))

plot(Nlist,data0[Nlist,1],type="l",col="grey",ylim=c(-10,10))

lines(Nlist,avepO[Nlist,2],type="l",col=4,lwd=1.5)

lines(Nlist,avepX[Nlist,2],type="l",col=2,lwd=1.5)

avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_DAX\_00\_XXXnp.txt.gz"))

avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_HSI\_00\_XXXnp.txt.gz"))

avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_NIKKEI225\_00\_XXXnp.txt.gz"))

barplot(table(avepX[,1])[1:20])

plot(1:10000,avepX[,1],type="s",ylim=c(1,20))

data0 <- read.table("D:/program/garchMHnov/data/RData\_DAX.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_oneave\_para.txt.gz"))

data0 <- read.table("D:/program/garchMHnov/data/RData\_DAX.txt")

avepX <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_XXXproc\_h2.txt.gz"))

avepO <- read.table(gzfile("I:/garchMHnovoutput/RData\_DAX\_00\_oneproc\_h2.txt.gz"))

data0 <- read.table("D:/program/garchMHnov/data/RData\_HSI.txt")

avepX <- read.table(gzfile("D:/program/garchMHnov/output/RData\_HSI\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("D:/program/garchMHnov/output/RData\_HSI\_00\_oneave\_para.txt.gz"))

windows(width=25,height=10)

draw0 <- function(data0,avep0,avepX) {

Nlist <- 1:dim(data0)[1]

par(mar=c(1,1,0.1,0.1))

plot(Nlist,data0[Nlist,1]^2,type="h",col="grey",ylim=c(0,20),xlim=c(0,1225),xaxt="n",ylab="",xlab="",xaxs="i",yaxs="i",yaxt="n",lwd=1.5,bty="o")

lines(Nlist,avepO[Nlist,1],type="l",col=4,lwd=1.5,lty=12)

lines(Nlist,avepX[Nlist,1],type="l",col=2,lwd=1.5,lty=1)

axis(1,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0.01,padj=-2,cex.axis=.7)

axis(2,at=c(seq(-100,100,5)),labels=c(seq(-100,100,5)),tck=0.01,padj=1.7,cex.axis=.6)

axis(3,at=c(seq(0,2800,200)),labels=c(seq(0,2800,200)),tck=0,padj=-2,cex.axis=.7)

axis(4,at=c(seq(-100,100,5)),labels=c(seq(-100,100,5)),tck=0,padj=1.7,cex.axis=.6)

#legend(30,65,c("Bayesian Mixture GARCH(1,1) ","Bayesian GARCH(1,1)"),lty=c(1,2),col=c(2,4),cex=1,lwd=1.5)

}

data0 <- read.table("D:/program/garchMHnov/data/RData\_SAP500.txt")

avepX <- read.table(gzfile("I:/Simulation Output/garchMHnovoutput/RData\_SAP500\_00\_XXXave\_para.txt.gz"))

avepO <- read.table(gzfile("I:/Simulation Output/garchMHnovoutput/RData\_SAP500\_00\_oneave\_para.txt.gz"))

draw0(data0,avep0,avepX)

savePlot("D:/recentfiles/IEEEconference/h2\_SAP500",type="pdf")