# Untitled

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Reikiamos bibliotekos:

```
library("quantmod")
```

```
## Loading required package: xts
```

```
## Loading required package: zoo
```

```
##
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

```
## Loading required package: TTR
```

```
## Version 0.4-0 included new data defaults. See ?getSymbols.
```

```
library("forecast")
```

```
## Loading required package: timeDate
```

```
## This is forecast 7.2
```

```
library("xts")
library("dplyr")
```

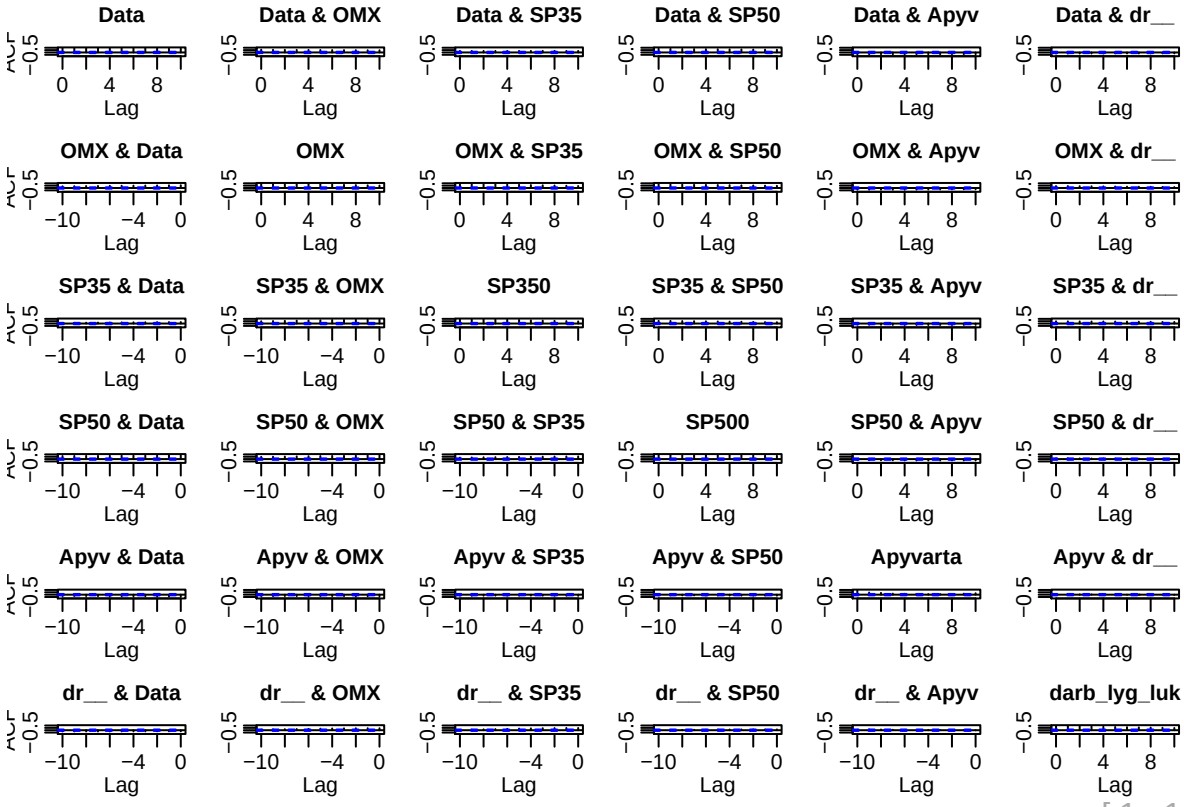
```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:xts':
##
##     first, last
```

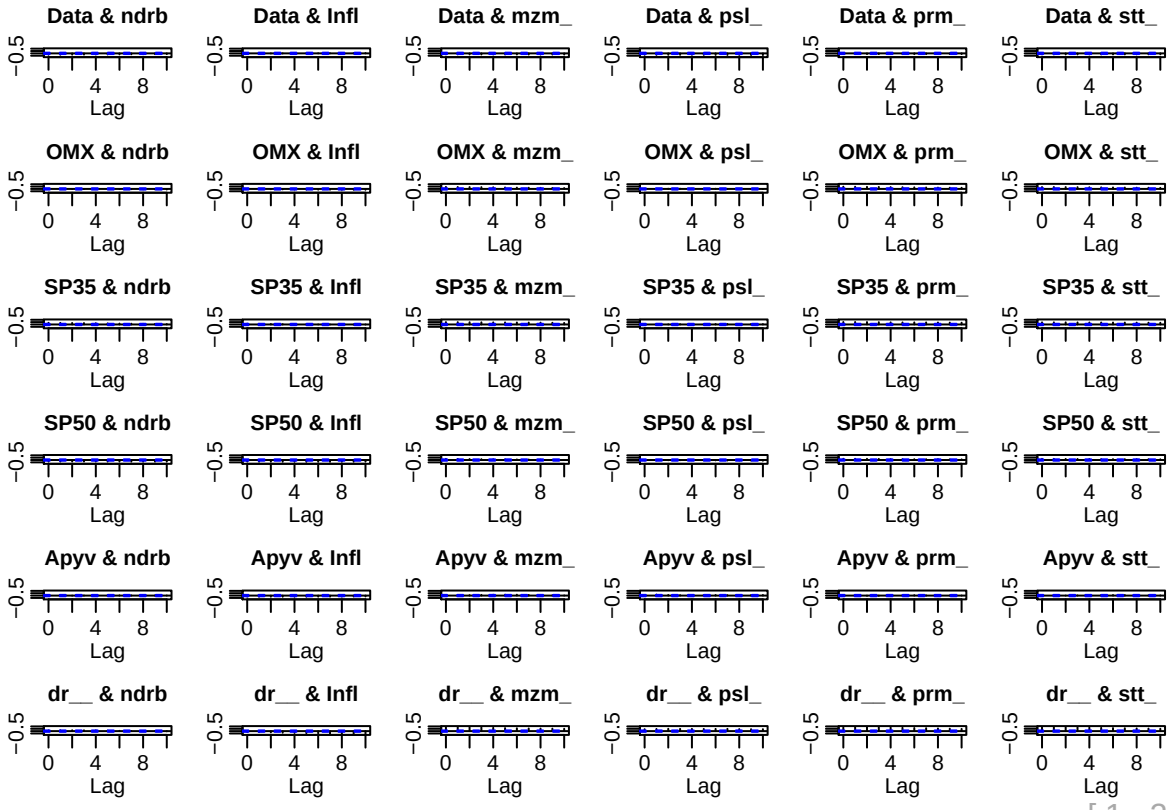
```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

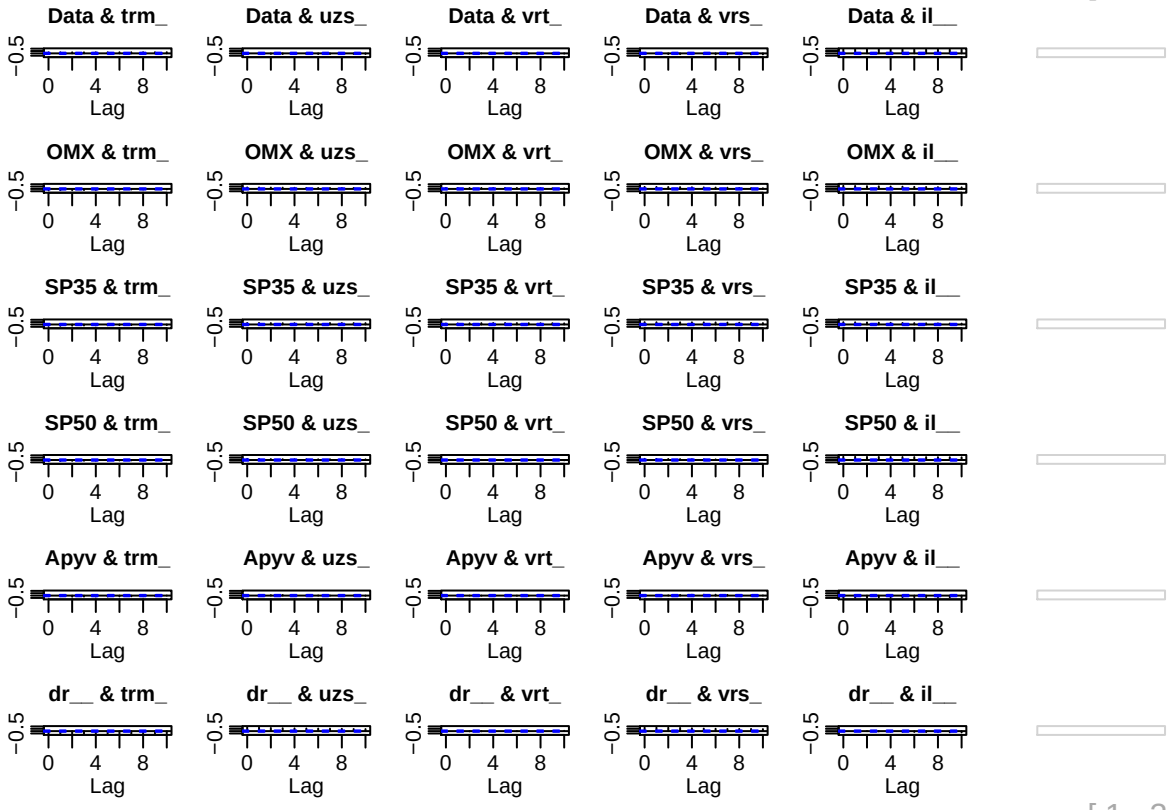
```
data=read.csv("rawdata.csv")

data[ data == ":" ] = NA
data=data[complete.cases(data),]
rownames(data)<-NULL



acf(data)
```



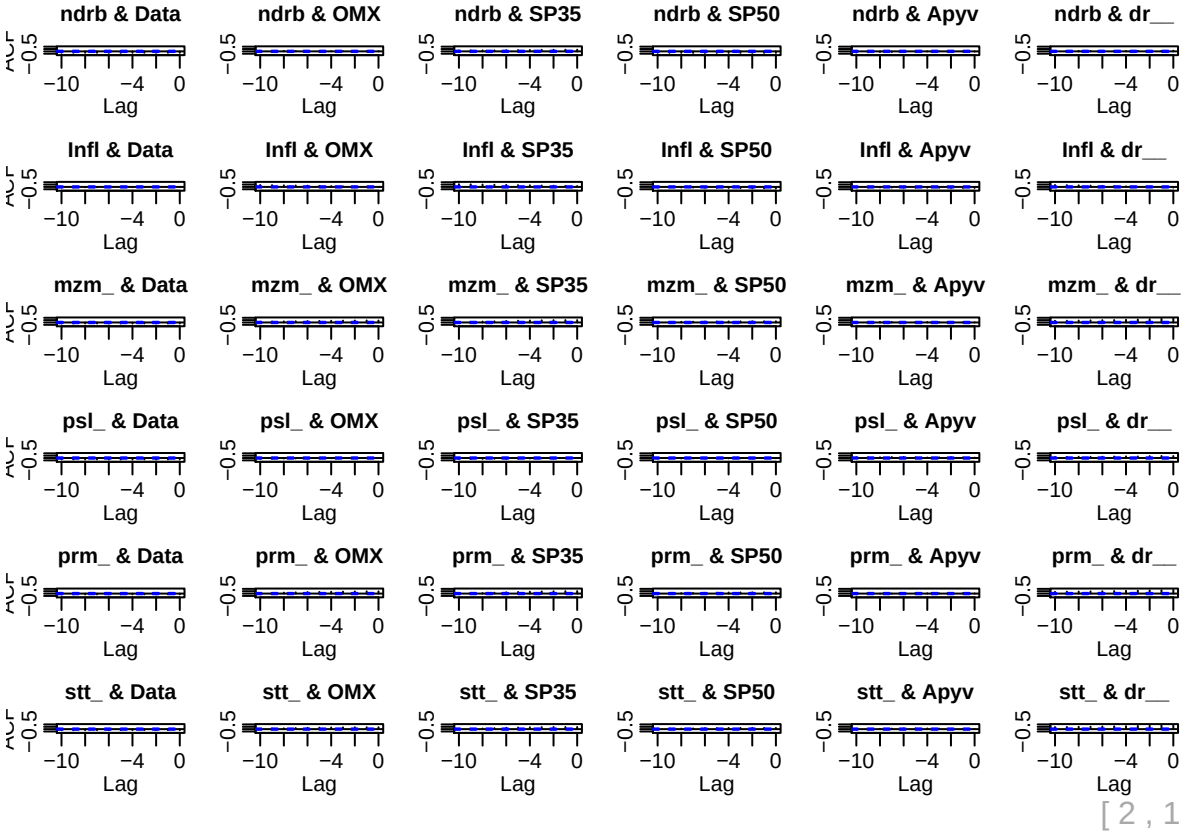

[ 1 , 1 ]


Data & ndrb
Data & lnfl
Data & mzm_
Data & psl_
Data & prm_
Data & stt_
OMX & ndrb
OMX & lnfl
OMX & mzm_
OMX & psl_
OMX & prm_
OMX & stt_
SP35 & ndrb
SP35 & lnfl
SP35 & mzm_
SP35 & psl_
SP35 & prm_
SP35 & stt_
SP50 & ndrb
SP50 & lnfl
SP50 & mzm_
SP50 & psl_
SP50 & prm_
SP50 & stt_
Apyv & ndrb
Apyv & lnfl
Apyv & mzm_
Apyv & psl_
Apyv & prm_
Apyv & stt_
dr__ & ndrb
dr__ & lnfl
dr__ & mzm_
dr__ & psl_
dr__ & prm_
dr__ & stt_
−0.5
0
4
8
Lag

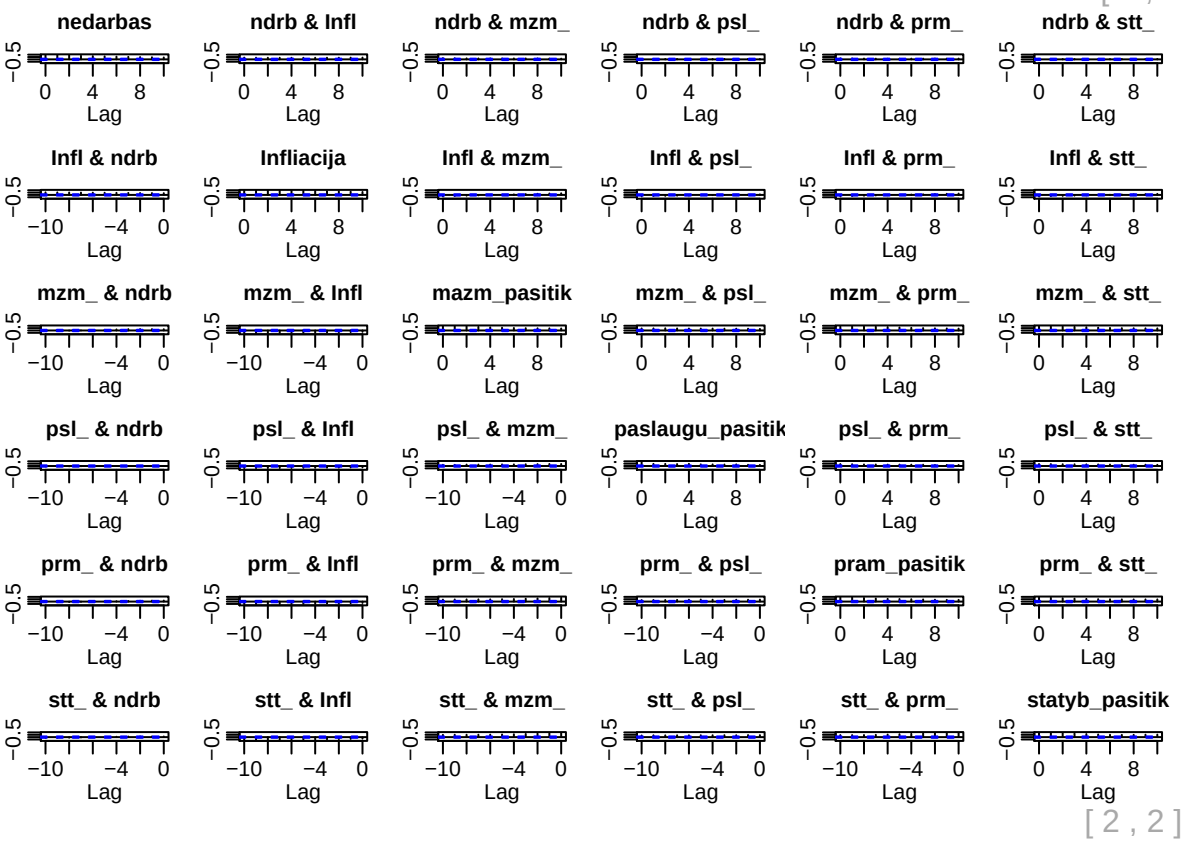
[ 1 , 2 ]


Data & trm_
Data & uzs_
Data & vrt_
Data & vrs_
Data & il__
OMX & trm_
OMX & uzs_
OMX & vrt_
OMX & vrs_
OMX & il__
SP35 & trm_
SP35 & uzs_
SP35 & vrt_
SP35 & vrs_
SP35 & il__
SP50 & trm_
SP50 & uzs_
SP50 & vrt_
SP50 & vrs_
SP50 & il__
Apyv & trm_
Apyv & uzs_
Apyv & vrt_
Apyv & vrs_
Apyv & il__
dr__ & trm_
dr__ & uzs_
dr__ & vrt_
dr__ & vrs_
dr__ & il__
−0.5
0
4
8
Lag

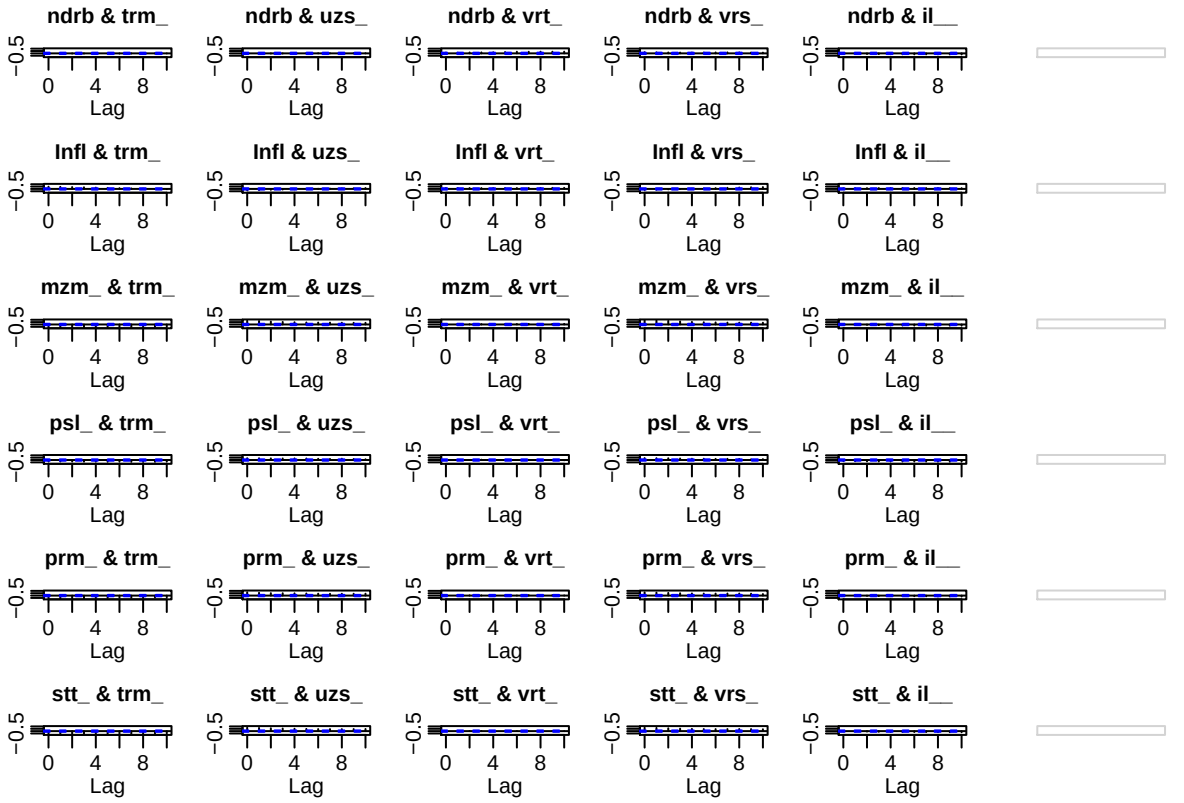
[ 1 , 3 ]


ndrb & Data
ndrb & OMX
ndrb & SP35
ndrb & SP50
ndrb & Apyv
ndrb & dr__
Infl & Data
Infl & OMX
Infl & SP35
Infl & SP50
Infl & Apyv
Infl & dr__
mzm_ & Data
mzm_ & OMX
mzm_ & SP35
mzm_ & SP50
mzm_ & Apyv
mzm_ & dr__
psl_ & Data
psl_ & OMX
psl_ & SP35
psl_ & SP50
psl_ & Apyv
psl_ & dr__
prm_ & Data
prm_ & OMX
prm_ & SP35
prm_ & SP50
prm_ & Apyv
prm_ & dr__
stt_ & Data
stt_ & OMX
stt_ & SP35
stt_ & SP50
stt_ & Apyv
stt_ & dr__
ACF
−0.5
−10
−4
0
Lag

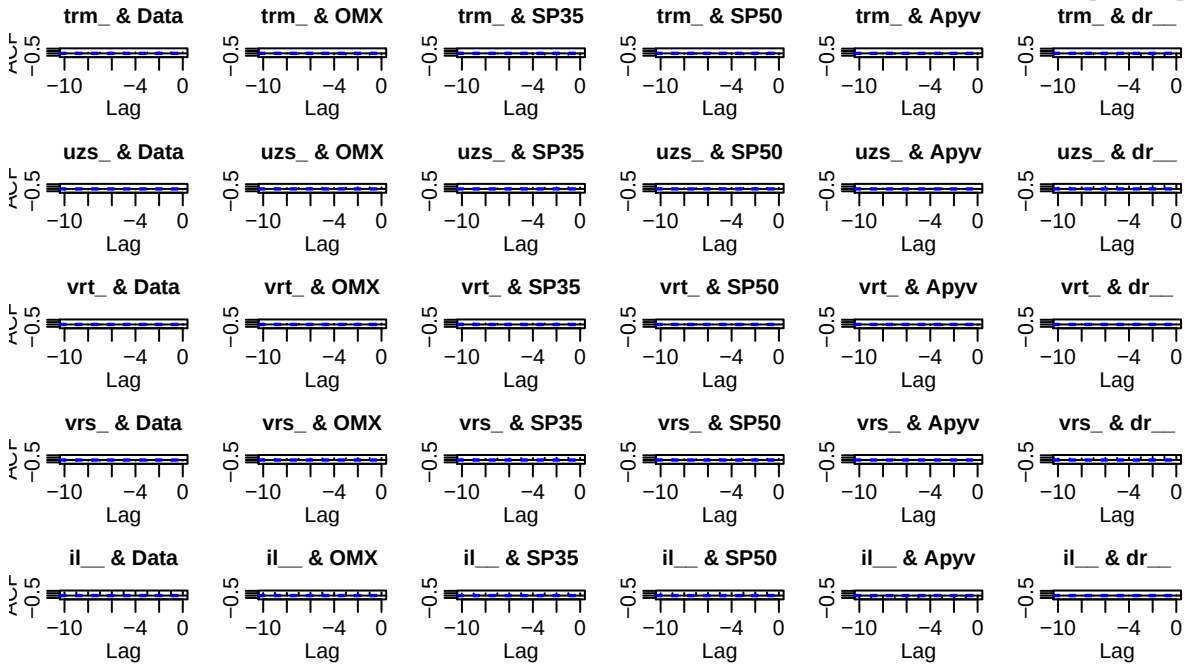
[ 2 , 1 ]


nedarbas
ndrb & Infl
ndrb & mzm_
ndrb & psl_
ndrb & prm_
ndrb & stt_
Infl & ndrb
Infliacija
Infl & mzm_
Infl & psl_
Infl & prm_
Infl & stt_
mzm_ & ndrb
mzm_ & Infl
mazm_pasitik
mzm_ & psl_
mzm_ & prm_
mzm_ & stt_
psl_ & ndrb
psl_ & Infl
psl_ & mzm_
paslaugu_pasitik
psl_ & prm_
psl_ & stt_
prm_ & ndrb
prm_ & Infl
prm_ & mzm_
prm_ & psl_
pram_pasitik
prm_ & stt_
stt_ & ndrb
stt_ & Infl
stt_ & mzm_
stt_ & psl_
stt_ & prm_
statyb_pasitik
−0.5
0
4
8
−10
−4
0
Lag

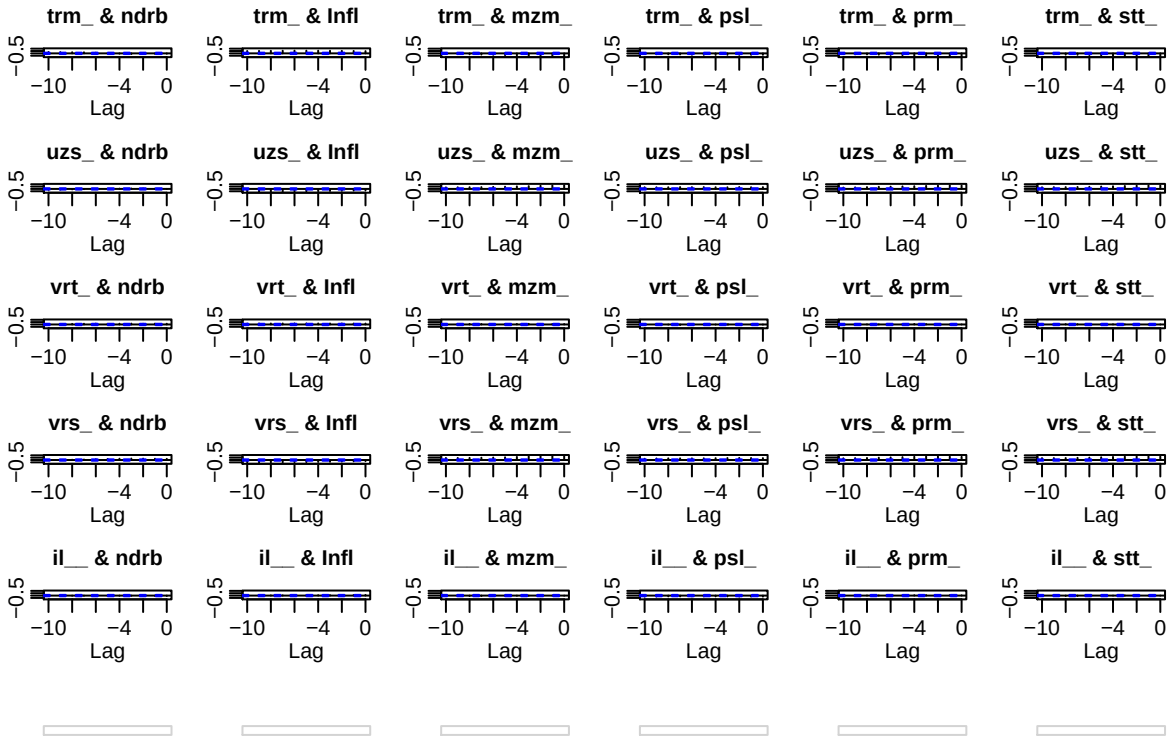
[ 2 , 2 ]


ndrb & trm_
ndrb & uzs_
ndrb & vrt_
ndrb & vrs_
ndrb & il__
lnfl & trm_
lnfl & uzs_
lnfl & vrt_
lnfl & vrs_
lnfl & il__
mzm_ & trm_
mzm_ & uzs_
mzm_ & vrt_
mzm_ & vrs_
mzm_ & il__
psl_ & trm_
psl_ & uzs_
psl_ & vrt_
psl_ & vrs_
psl_ & il__
prm_ & trm_
prm_ & uzs_
prm_ & vrt_
prm_ & vrs_
prm_ & il__
stt_ & trm_
stt_ & uzs_
stt_ & vrt_
stt_ & vrs_
stt_ & il__
ACF
−0.5
0
4
8
Lag

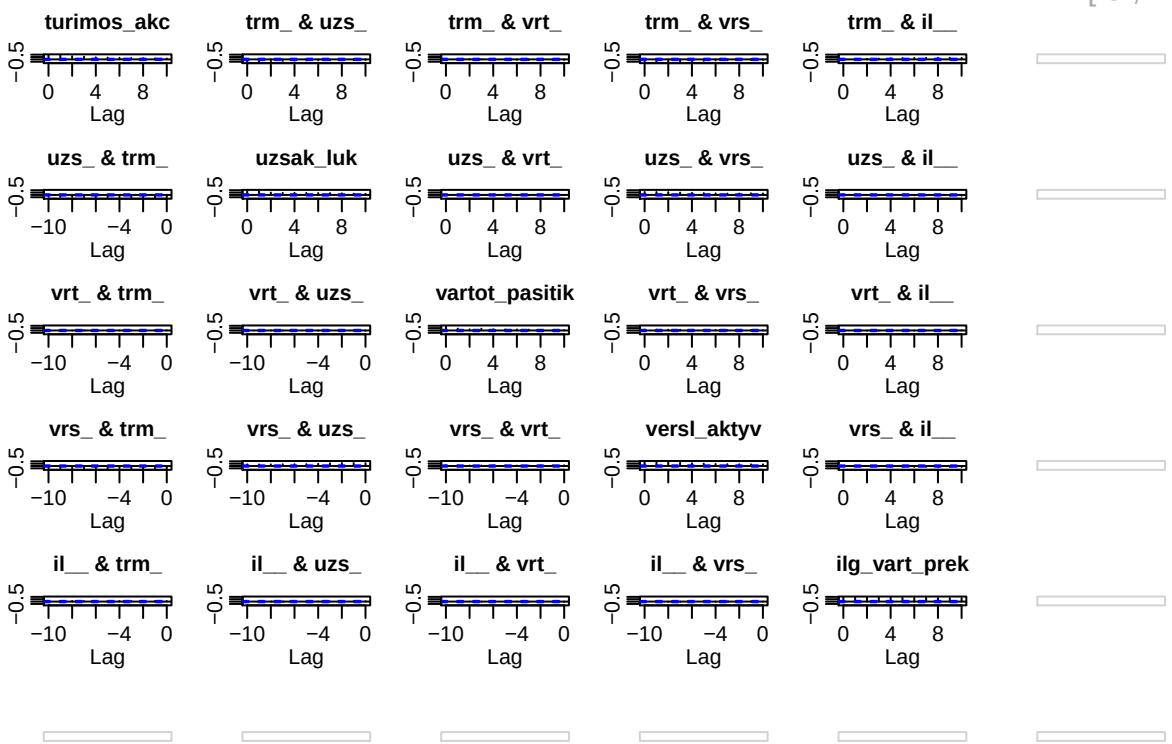
[ 2 , 3 ]


trm_ & Data
trm_ & OMX
trm_ & SP35
trm_ & SP50
trm_ & Apyv
trm_ & dr__
uzs_ & Data
uzs_ & OMX
uzs_ & SP35
uzs_ & SP50
uzs_ & Apyv
uzs_ & dr__
vrt_ & Data
vrt_ & OMX
vrt_ & SP35
vrt_ & SP50
vrt_ & Apyv
vrt_ & dr__
vrs_ & Data
vrs_ & OMX
vrs_ & SP35
vrs_ & SP50
vrs_ & Apyv
vrs_ & dr__
il__ & Data
il__ & OMX
il__ & SP35
il__ & SP50
il__ & Apyv
il__ & dr__
ACF
−0.5
−10
−4
0
Lag

[ 3 , 1 ]

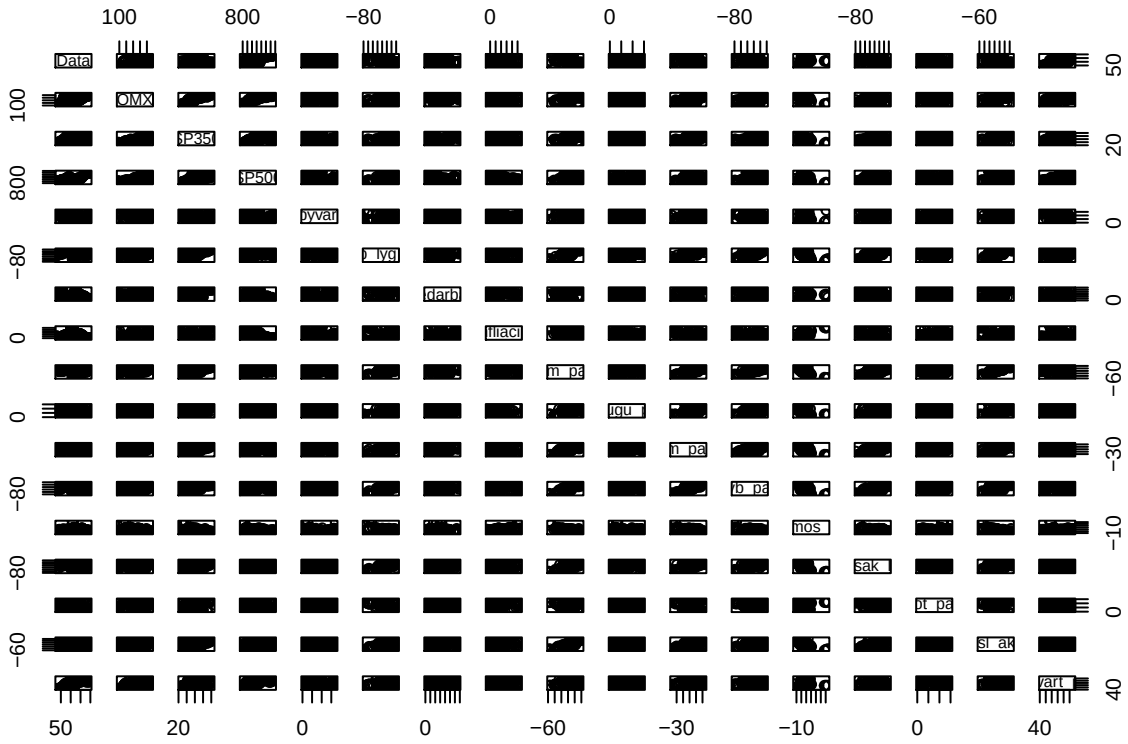

trm_ & ndrb
trm_ & lnfl
trm_ & mzm_
trm_ & psl_
trm_ & prm_
trm_ & stt_
uzs_ & ndrb
uzs_ & lnfl
uzs_ & mzm_
uzs_ & psl_
uzs_ & prm_
uzs_ & stt_
vrt_ & ndrb
vrt_ & lnfl
vrt_ & mzm_
vrt_ & psl_
vrt_ & prm_
vrt_ & stt_
vrs_ & ndrb
vrs_ & lnfl
vrs_ & mzm_
vrs_ & psl_
vrs_ & prm_
vrs_ & stt_
il__ & ndrb
il__ & lnfl
il__ & mzm_
il__ & psl_
il__ & prm_
il__ & stt_
−0.5
−10
−4
0
Lag

[ 3 , 2 ]

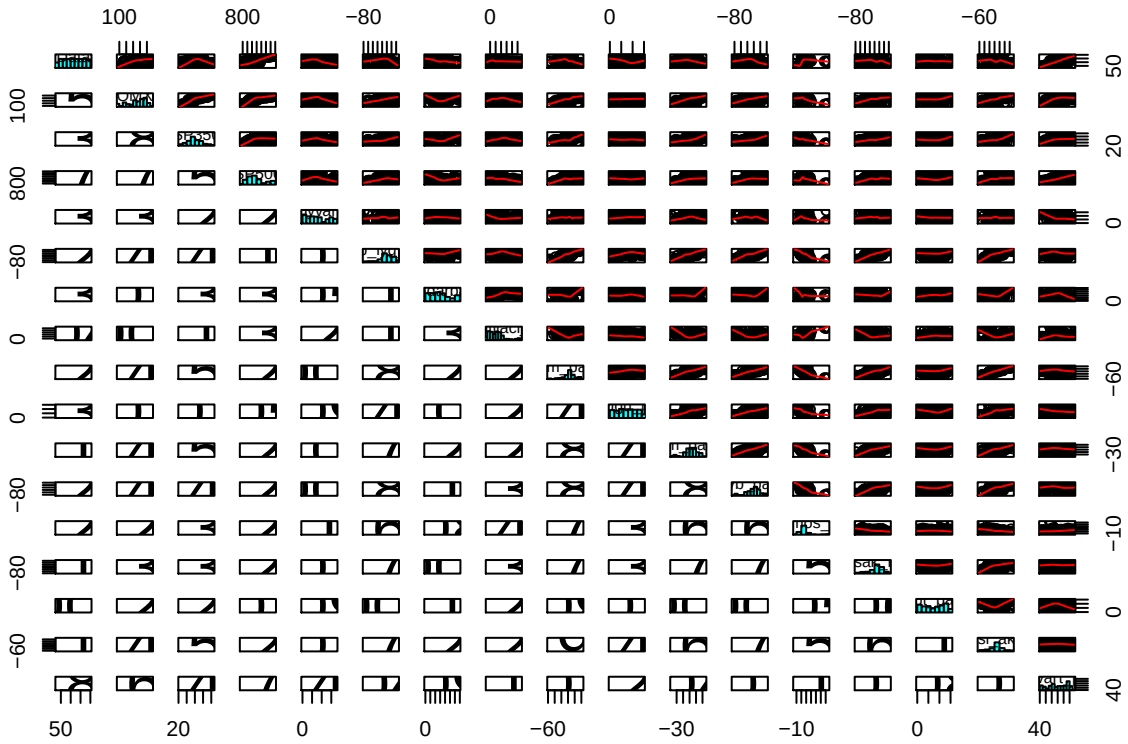

turimos_akc
trm_ & uzs_
trm_ & vrt_
trm_ & vrs_
trm_ & il__
uzs_ & trm_
uzsak_luk
uzs_ & vrt_
uzs_ & vrs_
uzs_ & il__
vrt_ & trm_
vrt_ & uzs_
vartot_pasitik
vrt_ & vrs_
vrt_ & il__
vrs_ & trm_
vrs_ & uzs_
vrs_ & vrt_
versl_aktyv
vrs_ & il__
il__ & trm_
il__ & uzs_
il__ & vrt_
il__ & vrs_
ilg_vart_prek
−0.5
0
4
8
−10
−4
Lag

[ 3 , 3 ]

```r
plot(data)
```

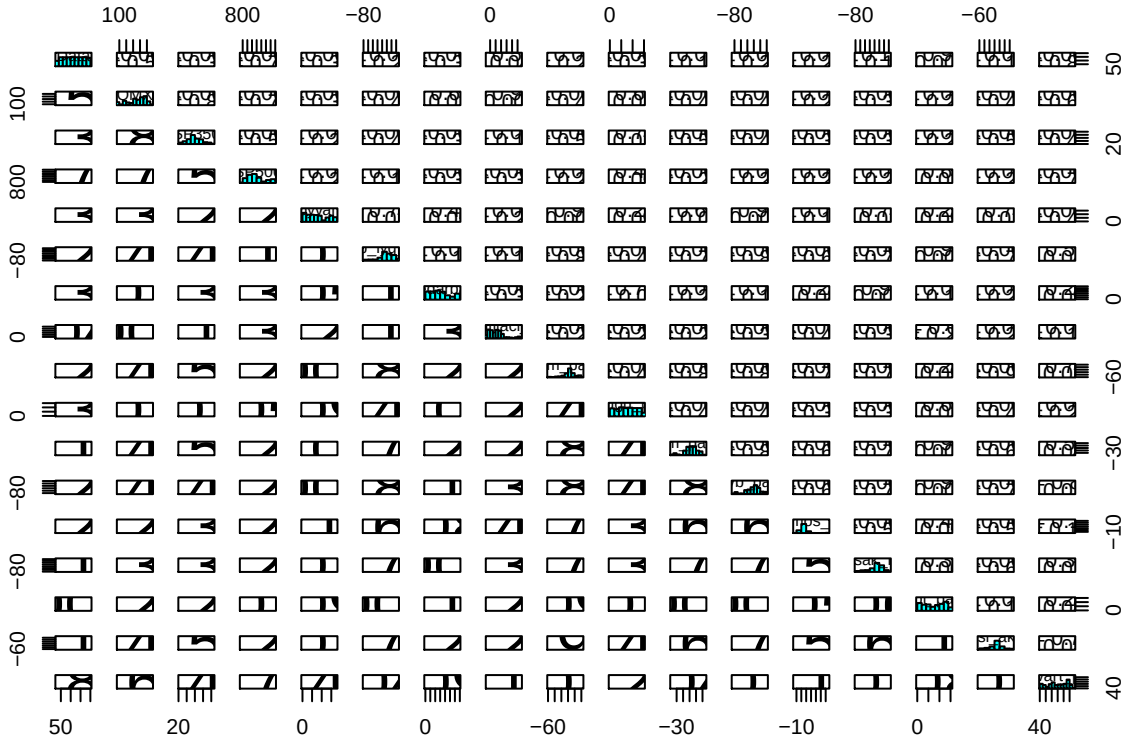



```r
panel.hist <- function(x, ...)    #ši funkcija reikalinga grafikų lentelei išbrėžti (histogramos pateik
{
  usr <- par("usr"); on.exit(par(usr))
  par(usr = c(usr[1:2], 0, 1.5) )
  h <- hist(x, plot = FALSE)
  breaks <- h$breaks; nB <- length(breaks)
  y <- h$counts; y <- y/max(y)
  rect(breaks[-nB], 0, breaks[-1], y, col = "cyan", ...)
}

panel.cor <- function(x, y, digits = 2, prefix = "", cex.cor,...)    #ši funkcija reikalinga grafikų le
    #išbrėžti (koreliacijos koeficiento radimui)
{
  usr <- par("usr"); on.exit(par(usr))
  par(usr = c(0, 1, 0, 1))
  r <- abs(cor(x, y))
  txt <- format(c(r, 0.123456789), digits = digits)[1]
  txt <- paste0(prefix, txt)
  if(missing(cex.cor)) cex.cor <- 0.8/strwidth(txt)
  text(0.5, 0.5, txt, cex = 3)
}

pairs(data,upper.panel=panel.smooth,diag.panel=panel.hist, lower.panel=panel.cor)
```




```r
panel.hist <- function(x, ...)    #ši funkcija reikalinga grafikų lentelei išbrėžti (histogramos pateik
{
  usr <- par("usr"); on.exit(par(usr))
  par(usr = c(usr[1:2], 0, 1.5) )
  h <- hist(x, plot = FALSE)
  breaks <- h$breaks; nB <- length(breaks)
  y <- h$counts; y <- y/max(y)
  rect(breaks[-nB], 0, breaks[-1], y, col = "cyan", ...)
}

panel.cor2 <- function(x, y, digits=2, cex.cor)
{
  usr <- par("usr"); on.exit(par(usr))
  par(usr = c(0, 1, 0, 1))
  r <- abs(cor(x, y))
  txt <- format(c(r, 0.123456789), digits=digits)[1]
  test <- cor.test(x,y)
  Signif <- ifelse(round(test$p.value,3)<0.001,"p<0.001",paste("p=",round(test$p.value,3)))
  text(0.5, 0.25, paste("r=",txt))
  text(.5, .75, Signif)
}


panel.cor <- function(x, y, digits = 2, prefix = "", cex.cor,...)    #ši funkcija reikalinga grafikų le
    #išbrėžti (koreliacijos koeficiento radimui)
{
  usr <- par("usr"); on.exit(par(usr))
  par(usr = c(0, 1, 0, 1))
  r <- abs(cor(x, y))
  txt <- format(c(r, 0.123456789), digits = digits)[1]
```

```
  txt <- paste0(prefix, txt)
  if(missing(cex.cor)) cex.cor <- 0.8/strwidth(txt)
  text(0.5, 0.5, txt, cex = 3)
}

pairs(data,upper.panel=panel.cor2,diag.panel=panel.hist, lower.panel=panel.cor)
```




## prasibandymai ir problemos

## (blogas)

mod=lm(monthly.omx~ilgalaikio_vartojimo_prekės+apyvarta+statybu_pasitikejimas+paslaugu_pasitikejimas+vartotoju_
+pramones_pasitikejimas+verslo_aktyvumas+turimos_akcijos+uzsakymu_lukesciai+darbolygio_lukesciai+infliacija)

## auto arima?

fit <- auto.arima(monthly.omx, xreg=cbind(apyvarta[-c(length(apyvarta),length(apyvarta)-1),2])) #tslm?
fit <- tslm(y ~ x)

‘‘‘

## prasibandymai ir problemos

# (blogas)

mod=lm(monthly.omx~ilgalaikio_vartojimo_prekės+apyvarta+statybu_pasitikejimas+paslaugu_pasitikejimas+vartotoju_
+pramones_pasitikejimas+verslo_aktyvumas+turimos_akcijos+uzsakymu_lukesciai+darbolygio_lukesciai+infliacija)

## auto arima?

fit <- auto.arima(monthly.omx, xreg=cbind(apyvarta[-c(length(apyvarta),length(apyvarta)-1),2])) #tslm?
fit <- tslm(y ~ x)