

분산분해

2024-11-01

```
library(vars)

## Warning: 패키지 'vars'는 R 버전 4.3.3 에서 작성되었습니다

## 필요한 패키지를 로딩중입니다: MASS

## 필요한 패키지를 로딩중입니다: strucchange

## Warning: 패키지 'strucchange'는 R 버전 4.3.3 에서 작성되었습니다

## 필요한 패키지를 로딩중입니다: zoo

## Warning: 패키지 'zoo'는 R 버전 4.3.3 에서 작성되었습니다

##
## 다음의 패키지를 부착합니다: 'zoo'

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

## 필요한 패키지를 로딩중입니다: sandwich

## Warning: 패키지 'sandwich'는 R 버전 4.3.3 에서 작성되었습니다

## 필요한 패키지를 로딩중입니다: urca

## Warning: 패키지 'urca'는 R 버전 4.3.3 에서 작성되었습니다

## 필요한 패키지를 로딩중입니다: lmtest

## Warning: 패키지 'lmtest'는 R 버전 4.3.2 에서 작성되었습니다

library(svars)

## Warning: 패키지 'svars'는 R 버전 4.3.3 에서 작성되었습니다

## Registered S3 method overwritten by 'svars':
##   method      from
##   stability.varest vars

library(readxl)

## Warning: 패키지 'readxl'는 R 버전 4.3.3 에서 작성되었습니다

insurance = read_excel("C:/temp/seed/insurance_standardized.xlsx")
```

```

insurance_whole = subset(insurance, select = c(CD, unemployment, CCI, CPI, KOSPI, whole))
insurance_annuity = subset(insurance, select = c(CD, unemployment, CCI, CPI, KOSPI, annuity))
insurance_universal = subset(insurance, select = c(CD, unemployment, CCI, CPI, KOSPI, universal))

var_model_whole = VAR(insurance_whole, p=1)
var_model_annuity = VAR(insurance_annuity, p=1)
var_model_universal = VAR(insurance_universal, p=1)

n=6
A_mat = matrix(NA, n,n)

for (i in 1:n) {
  for (j in 1:n) {
    if (i == j) {
      A_mat[i,j]=1
    }
  }
}
A_mat[1,2]=0
A_mat[1,3]=0
A_mat[1,4]=0
A_mat[1,5]=0
A_mat[1,6]=0
A_mat[2,1]=0
A_mat[2,6]=0
A_mat[2,5]=0
A_mat[3,6]=0
A_mat[4,1]=0
A_mat[4,2]=0
A_mat[4,3]=0
A_mat[4,5]=0
A_mat[4,6]=0
A_mat[5,6]=0
A_mat

##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]    1    0    0    0    0    0
## [2,]    0    1   NA   NA    0    0
## [3,]   NA   NA    1   NA   NA    0
## [4,]    0    0    0    1    0    0
## [5,]   NA   NA   NA   NA    1    0
## [6,]   NA   NA   NA   NA   NA    1

svar_model_whole = SVAR(var_model_whole, Amat = A_mat, method = "BFGS")
svar_model_annuity = SVAR(var_model_annuity, Amat = A_mat, method = "BFGS")
svar_model_universal = SVAR(var_model_universal, Amat = A_mat, method = "BFGS")

svar_model_whole

##
## SVAR Estimation Results:
## =====
##
##
## Estimated A matrix:
##      CD unemployment      CCI      CPI      KOSPI whole
## CD      1.00000      0.00000      0.00000      0.00000      0.00000      0
## unemployment 0.00000      1.00000     -0.44302     -0.15862      0.00000      0

```

```
## CCI      0.11311      0.60473      1.00000 -0.05275 -0.39036      0
## CPI      0.00000      0.00000      0.00000      1.00000      0.00000      0
## KOSPI    -0.08395      0.23602      0.26047      0.01921      1.00000      0
## whole    0.09723      0.08802      0.08108 -0.09007 -0.03634      1
```

svar_model_annuity

```
##
## SVAR Estimation Results:
## =====
##
## Estimated A matrix:
##      CD unemployment      CCI      CPI      KOSPI annuity
## CD      1.00000      0.00000      0.0000      0.000000      0.0000      0
## unemployment 0.00000      1.00000 -0.4422 -0.126818      0.0000      0
## CCI      0.10837      0.60095      1.0000 -0.047128 -0.3964      0
## CPI      0.00000      0.00000      0.0000      1.000000      0.0000      0
## KOSPI    -0.09316      0.25607      0.2741 -0.004282      1.0000      0
## annuity   0.09555     -0.01625      0.1319      0.024040 -0.1193      1
```

svar_model_universal

```
##
## SVAR Estimation Results:
## =====
##
## Estimated A matrix:
##      CD unemployment      CCI      CPI      KOSPI universal
## CD      1.00000      0.000000      0.00000      0.000000      0.00000      0
## unemployment 0.00000      1.000000 -0.43270 -0.122740      0.00000      0
## CCI      0.10183      0.604422      1.00000 -0.051929 -0.39307      0
## CPI      0.00000      0.000000      0.00000      1.000000      0.00000      0
## KOSPI    -0.09588      0.255933      0.26167 -0.008214      1.00000      0
## universal  0.12767      0.003772      0.01942 -0.076388 -0.07447      1
```

종신 분산분해

```
fevd_result_whole = fevd(svar_model_whole, n.ahead=12)
fevd_result_whole
```

```
## $CD
##      CD unemployment      CCI      CPI      KOSPI      whole
## [1,] 1.0000000 0.0000000000 0.000000000 0.000000000 0.000000000 0.000000000
## [2,] 0.9915019 0.0002016515 0.002376447 0.0003127586 0.003646101 0.001961099
## [3,] 0.9850111 0.0001984645 0.003481466 0.0004231339 0.006185146 0.004700664
## [4,] 0.9813504 0.0002147578 0.003778027 0.0004265988 0.007283421 0.006946833
## [5,] 0.9794866 0.0002358998 0.003823906 0.0004297818 0.007678658 0.008345112
## [6,] 0.9786012 0.0002447109 0.003823557 0.0004423003 0.007811590 0.009076689
## [7,] 0.9782060 0.0002460788 0.003822083 0.0004539494 0.007855995 0.009415943
## [8,] 0.9780389 0.0002460335 0.003823103 0.0004610056 0.007871184 0.009559724
## [9,] 0.9779714 0.0002465114 0.003824705 0.0004643864 0.007876554 0.009616460
## [10,] 0.9779449 0.0002473806 0.003825912 0.0004657673 0.007878507 0.009637545
## [11,] 0.9779347 0.0002482165 0.003826615 0.0004662649 0.007879229 0.009644974
## [12,] 0.9779308 0.0002488227 0.003826970 0.0004664251 0.007879497 0.009647462
##
## $unemployment
##      CD unemployment      CCI      CPI      KOSPI      whole
## [1,] 0.0008565042      0.8205722 0.1326956 0.02565567 0.02022001 0.000000000
## [2,] 0.0211506875      0.8001751 0.1357746 0.02253615 0.01441921 0.005944287
```

```

## [3,] 0.0390297982 0.7801061 0.1323506 0.02170065 0.01298726 0.013825553
## [4,] 0.0483157562 0.7681043 0.1292395 0.02171312 0.01255574 0.020071570
## [5,] 0.0521299639 0.7620800 0.1274805 0.02192863 0.01240827 0.023972700
## [6,] 0.0534506084 0.7593421 0.1266694 0.02211237 0.01235953 0.026065956
## [7,] 0.0538382108 0.7581805 0.1263412 0.02222151 0.01234603 0.027072520
## [8,] 0.0539303974 0.7577121 0.1262208 0.02227524 0.01234380 0.027517593
## [9,] 0.0539449595 0.7575303 0.1261801 0.02229854 0.01234438 0.027701665
## [10,] 0.0539443721 0.7574617 0.1261673 0.02230771 0.01234522 0.027773681
## [11,] 0.0539428137 0.7574363 0.1261636 0.02231103 0.01234578 0.027800528
## [12,] 0.0539421520 0.7574270 0.1261625 0.02231214 0.01234608 0.027810106
##
## $CCI
##          CD unemployment          CCI          CPI          KOSPI          whole
## [1,] 0.003914968 0.2945425 0.6065339 0.002585640 0.09242299 0.00000000
## [2,] 0.058950603 0.2646419 0.5615033 0.005980633 0.09702373 0.01189977
## [3,] 0.070317581 0.2585442 0.5514106 0.007054847 0.09668686 0.01598596
## [4,] 0.071494324 0.2579417 0.5499041 0.007326981 0.09646308 0.01686981
## [5,] 0.071465647 0.2581282 0.5496682 0.007377213 0.09637587 0.01698488
## [6,] 0.071445294 0.2582940 0.5495614 0.007380692 0.09633549 0.01698314
## [7,] 0.071460413 0.2583762 0.5494876 0.007379201 0.09631527 0.01698129
## [8,] 0.071475853 0.2584097 0.5494447 0.007378853 0.09630562 0.01698525
## [9,] 0.071484157 0.2584218 0.5494236 0.007379194 0.09630139 0.01698983
## [10,] 0.071487588 0.2584257 0.5494145 0.007379589 0.09629967 0.01699297
## [11,] 0.071488776 0.2584268 0.5494109 0.007379846 0.09629902 0.01699470
## [12,] 0.071489126 0.2584271 0.5494095 0.007379979 0.09629879 0.01699553
##
## $CPI
##          CD unemployment          CCI          CPI          KOSPI          whole
## [1,] 0.000000000 0.000000000 0.000000000 1.0000000 0.00000000 0.00000000
## [2,] 0.008611752 0.001304603 0.001744313 0.9289981 0.01719308 0.04214813
## [3,] 0.008628123 0.003075740 0.001804287 0.8963086 0.02556396 0.06461932
## [4,] 0.008729360 0.003549834 0.002329556 0.8853765 0.02759189 0.07242287
## [5,] 0.009122275 0.003569266 0.002698283 0.8819958 0.02787939 0.07473498
## [6,] 0.009427047 0.003570667 0.002864205 0.8808973 0.02788239 0.07535843
## [7,] 0.009594268 0.003596270 0.002926870 0.8805001 0.02786972 0.07551277
## [8,] 0.009673148 0.003622206 0.002948781 0.8803441 0.02786493 0.07554683
## [9,] 0.009707463 0.003638958 0.002956191 0.8802809 0.02786371 0.07555278
## [10,] 0.009721663 0.003647724 0.002958662 0.8802554 0.02786345 0.07555313
## [11,] 0.009727333 0.003651780 0.002959478 0.8802453 0.02786338 0.07555277
## [12,] 0.009729532 0.003653511 0.002959745 0.8802413 0.02786335 0.07555251
##
## $KOSPI
##          CD unemployment          CCI          CPI          KOSPI          whole
## [1,] 0.01231597 0.003477628 0.07519882 0.001773553 0.9072340 0.00000000
## [2,] 0.01546994 0.005707234 0.08486775 0.002636567 0.8810992 0.01021936
## [3,] 0.02147604 0.008353100 0.08575513 0.002673214 0.8580063 0.02373625
## [4,] 0.02410263 0.010015171 0.08483391 0.002630049 0.8447978 0.03362048
## [5,] 0.02478261 0.010697563 0.08415090 0.002747918 0.8385389 0.03908208
## [6,] 0.02486271 0.010887116 0.08384858 0.002880371 0.8358863 0.04163492
## [7,] 0.02484187 0.010915606 0.08374445 0.002961772 0.8348353 0.04270099
## [8,] 0.02482955 0.010913008 0.08371508 0.002999602 0.8344321 0.04311066
## [9,] 0.02483018 0.010911195 0.08370857 0.003014339 0.8342778 0.04325792
## [10,] 0.02483499 0.010912453 0.08370772 0.003019366 0.8342176 0.04330785
## [11,] 0.02483934 0.010914554 0.08370786 0.003020892 0.8341935 0.04332385
## [12,] 0.02484216 0.010916251 0.08370801 0.003021300 0.8341836 0.04332869
##
## $whole
##          CD unemployment          CCI          CPI          KOSPI          whole
## [1,] 0.007322596 0.0009216538 0.008730512 0.006285242 3.104673e-07 0.9767397
## [2,] 0.028369267 0.0020640153 0.021618525 0.017654242 9.590313e-06 0.9302844

```

```
## [3,] 0.043970656 0.0049429847 0.028402817 0.022219215 2.670888e-04 0.9001972
## [4,] 0.053300644 0.0081023580 0.031417342 0.023461440 6.448480e-04 0.8830734
## [5,] 0.058212309 0.0104875774 0.032628364 0.023651430 9.329210e-04 0.8740874
## [6,] 0.060580941 0.0119366065 0.033081771 0.023618336 1.093322e-03 0.8696890
## [7,] 0.061652265 0.0127011252 0.033242581 0.023574320 1.167356e-03 0.8676624
## [8,] 0.062113299 0.0130667681 0.033296979 0.023549883 1.197521e-03 0.8667755
## [9,] 0.062303726 0.0132294404 0.033314516 0.023539226 1.208759e-03 0.8664043
## [10,] 0.062379621 0.0132978655 0.033319859 0.023535159 1.212668e-03 0.8662548
## [11,] 0.062408903 0.0133253624 0.033321367 0.023533758 1.213952e-03 0.8661967
## [12,] 0.062419859 0.0133359893 0.033321745 0.023533323 1.214352e-03 0.8661747
```

#연금 분산분해

```
fevd_result_annuity = fevd(svar_model_annuity, n.ahead=12)
fevd_result_annuity
```

```
## $CD
##           CD unemployment          CCI          CPI          KOSPI          annuity
## [1,] 1.0000000 0.0000000000 0.000000000 0.000000000 0.000000000 0.000000000
## [2,] 0.9927743 0.0001464560 0.001976792 0.0004884928 0.003963506 0.0006504551
## [3,] 0.9873008 0.0001473424 0.003460285 0.0010324787 0.006740219 0.0013189130
## [4,] 0.9847148 0.0001686603 0.004206991 0.0013407020 0.007861279 0.0017075405
## [5,] 0.9837006 0.0002218413 0.004521561 0.0014671170 0.008203277 0.0018855927
## [6,] 0.9833271 0.0002740589 0.004642011 0.0015098945 0.008289204 0.0019577743
## [7,] 0.9831891 0.0003101490 0.004685785 0.0015226139 0.008307286 0.0019850525
## [8,] 0.9831367 0.0003307635 0.004701269 0.0015260434 0.008310296 0.0019949080
## [9,] 0.9831163 0.0003412148 0.004706679 0.0015268919 0.008310574 0.0019983536
## [10,] 0.9831082 0.0003461042 0.004708563 0.0015270830 0.008310519 0.0019995247
## [11,] 0.9831050 0.0003482653 0.004709219 0.0015271206 0.008310476 0.0019999117
## [12,] 0.9831037 0.0003491817 0.004709448 0.0015271262 0.008310460 0.0020000356
##
## $unemployment
##           CD unemployment          CCI          CPI          KOSPI          annuity
## [1,] 0.0006732019 0.8289473 0.1319071 0.01774118 0.02073121 0.000000e+00
## [2,] 0.0191420685 0.8165848 0.1347518 0.01459813 0.01490477 1.847778e-05
## [3,] 0.0386495836 0.8004501 0.1340211 0.01328000 0.01354707 5.221157e-05
## [4,] 0.0508316693 0.7903541 0.1327348 0.01276046 0.01310710 2.118355e-04
## [5,] 0.0570389658 0.7852297 0.1318077 0.01257170 0.01291780 4.340617e-04
## [6,] 0.0598551259 0.7828702 0.1312868 0.01251426 0.01283278 6.408237e-04
## [7,] 0.0610360363 0.7818383 0.1310289 0.01250354 0.01279644 7.967343e-04
## [8,] 0.0615029088 0.7813986 0.1309107 0.01250607 0.01278170 9.000195e-04
## [9,] 0.0616788745 0.7812128 0.1308592 0.01251044 0.01277595 9.627357e-04
## [10,] 0.0617424421 0.7811341 0.1308375 0.01251372 0.01277376 9.985317e-04
## [11,] 0.0617644641 0.7811003 0.1308285 0.01251570 0.01277296 1.018047e-03
## [12,] 0.0617717461 0.7810856 0.1308248 0.01251677 0.01277268 1.028319e-03
##
## $CCI
##           CD unemployment          CCI          CPI          KOSPI          annuity
## [1,] 0.003079375 0.2977412 0.6033723 0.0009779787 0.09482917 0.00000000
## [2,] 0.051848662 0.2636792 0.5481730 0.0025725661 0.09536334 0.03836324
## [3,] 0.061750880 0.2519260 0.5266152 0.0041030609 0.09252016 0.06308467
## [4,] 0.062367000 0.2475843 0.5184794 0.0051218518 0.09105679 0.07539066
## [5,] 0.061974269 0.2458100 0.5150479 0.0056661872 0.09038249 0.08111916
## [6,] 0.061742504 0.2450590 0.5134931 0.0059220435 0.09007442 0.08370899
## [7,] 0.061660336 0.2447410 0.5127679 0.0060338492 0.08993526 0.08486170
## [8,] 0.061640526 0.2446076 0.5124278 0.0060808214 0.08987327 0.08536999
## [9,] 0.061639837 0.2445523 0.5122690 0.0061001855 0.08984592 0.08559276
## [10,] 0.061642967 0.2445296 0.5121954 0.0061081136 0.08983392 0.08568998
## [11,] 0.061645737 0.2445203 0.5121617 0.0061113590 0.08982866 0.08573226
## [12,] 0.061647507 0.2445166 0.5121463 0.0061126914 0.08982635 0.08575060
```

```

##
## $CPI
##          CD unemployment          CCI          CPI          KOSPI          annuity
## [1,] 0.000000000 0.000000000 0.000000000 1.0000000 0.00000000 0.000000000
## [2,] 0.005143211 0.001112705 0.001126834 0.9734801 0.01703786 0.002099334
## [3,] 0.006257473 0.002915381 0.001125395 0.9615156 0.02554122 0.002644936
## [4,] 0.006444322 0.003782078 0.001133849 0.9579530 0.02794906 0.002737679
## [5,] 0.006480828 0.004061111 0.001141621 0.9570822 0.02848299 0.002751228
## [6,] 0.006490459 0.004137199 0.001143608 0.9568896 0.02858603 0.002753148
## [7,] 0.006493684 0.004156739 0.001143879 0.9568481 0.02860416 0.002753460
## [8,] 0.006494895 0.004161756 0.001143890 0.9568388 0.02860713 0.002753534
## [9,] 0.006495365 0.004163088 0.001143887 0.9568365 0.02860758 0.002753562
## [10,] 0.006495547 0.004163459 0.001143887 0.9568359 0.02860764 0.002753577
## [11,] 0.006495617 0.004163569 0.001143888 0.9568357 0.02860765 0.002753585
## [12,] 0.006495643 0.004163602 0.001143889 0.9568356 0.02860765 0.002753590
##
## $KOSPI
##          CD unemployment          CCI          CPI          KOSPI          annuity
## [1,] 0.01430757 0.004673169 0.08395367 0.0003337683 0.8967318 0.000000000
## [2,] 0.01505707 0.006823788 0.09485535 0.0036953164 0.8761842 0.003384282
## [3,] 0.02106941 0.009678210 0.09745524 0.0047074889 0.8595911 0.007498536
## [4,] 0.02517926 0.011816243 0.09757229 0.0047517215 0.8500005 0.010679969
## [5,] 0.02717393 0.012987245 0.09727485 0.0047161774 0.8451439 0.012703887
## [6,] 0.02799372 0.013511924 0.09704919 0.0047258054 0.8428560 0.013863310
## [7,] 0.02829586 0.013715034 0.09692956 0.0047509982 0.8418214 0.014487176
## [8,] 0.02839752 0.013784443 0.09687437 0.0047717722 0.8413625 0.014809398
## [9,] 0.02842855 0.013805256 0.09685063 0.0047845911 0.8411599 0.014971084
## [10,] 0.02843681 0.013810468 0.09684082 0.0047914987 0.8410699 0.015050479
## [11,] 0.02843849 0.013811362 0.09683686 0.0047949511 0.8410295 0.015088810
## [12,] 0.02843857 0.013811324 0.09683529 0.0047965998 0.8410112 0.015107062
##
## $annuity
##          CD unemployment          CCI          CPI          KOSPI          annuity
## [1,] 0.005577836 0.004795682 0.01407513 0.0004074742 0.004971418 0.9701725
## [2,] 0.005687596 0.004611017 0.02090660 0.0123659851 0.003680116 0.9527487
## [3,] 0.005945659 0.004072481 0.02456623 0.0197800794 0.003404695 0.9422309
## [4,] 0.006198774 0.003955360 0.02638170 0.0230102351 0.003705094 0.9367488
## [5,] 0.006408765 0.004101819 0.02727492 0.0243026812 0.004049935 0.9338619
## [6,] 0.006566336 0.004301997 0.02771777 0.0248121738 0.004282244 0.9323195
## [7,] 0.006675242 0.004464427 0.02793829 0.0250147279 0.004411305 0.9314960
## [8,] 0.006745428 0.004572909 0.02804778 0.0250963303 0.004476595 0.9310610
## [9,] 0.006788074 0.004638194 0.02810167 0.0251295503 0.004508024 0.9308345
## [10,] 0.006812744 0.004675009 0.02812790 0.0251431478 0.004522745 0.9307185
## [11,] 0.006826447 0.004694860 0.02814051 0.0251487178 0.004529533 0.9306599
## [12,] 0.006833805 0.004705217 0.02814650 0.0251509929 0.004532635 0.9306309

```

#유니버설 분산분해해 fev

```

fevd_result_universal = fevd(svar_model_universal, n.ahead=12)
fevd_result_universal

```

```

## $CD
##          CD unemployment          CCI          CPI          KOSPI          universal
## [1,] 1.0000000 0.0000000000 0.000000000 0.0000000000 0.000000000 0.000000000
## [2,] 0.9895491 0.0001718822 0.001657680 0.0003833404 0.004137689 0.004100277
## [3,] 0.9800786 0.0001867391 0.002883850 0.0012587984 0.006933247 0.008658719
## [4,] 0.9747079 0.0001913635 0.003492278 0.0019927511 0.007912718 0.011702953
## [5,] 0.9721492 0.0002226859 0.003743481 0.0024046160 0.008127142 0.013352912
## [6,] 0.9709988 0.0002605700 0.003836837 0.0025937951 0.008148573 0.014161391
## [7,] 0.9704860 0.0002897115 0.003869440 0.0026721900 0.008144673 0.014537988

```

```

## [8,] 0.9702560 0.0003075587 0.003880441 0.0027031805 0.008143759 0.014709071
## [9,] 0.9701523 0.0003170846 0.003884097 0.0027152785 0.008145329 0.014785901
## [10,] 0.9701055 0.0003217321 0.003885309 0.0027200426 0.008147129 0.014820254
## [11,] 0.9700845 0.0003238659 0.003885715 0.0027219572 0.008148392 0.014835604
## [12,] 0.9700750 0.0003248056 0.003885852 0.0027227460 0.008149124 0.014842470
##
## $unemployment
##          CD unemployment      CCI      CPI      KOSPI      universal
## [1,] 0.0005282009      0.8338885 0.1283671 0.01738327 0.01983291 0.000000000
## [2,] 0.0196731685      0.8200284 0.1290171 0.01444509 0.01421803 0.002618244
## [3,] 0.0403826588      0.8015231 0.1276420 0.01292624 0.01301003 0.004515924
## [4,] 0.0536861227      0.7897395 0.1262993 0.01230589 0.01257632 0.005392933
## [5,] 0.0606261526      0.7837807 0.1254526 0.01206035 0.01235910 0.005721002
## [6,] 0.0638385518      0.7811052 0.1250102 0.01196173 0.01225834 0.005825950
## [7,] 0.0652122602      0.7799894 0.1248034 0.01192232 0.01221828 0.005854415
## [8,] 0.0657679106      0.7795466 0.1247137 0.01190706 0.01220432 0.005860353
## [9,] 0.0659838345      0.7793771 0.1246769 0.01190143 0.01219991 0.005860832
## [10,] 0.0660653119      0.7793138 0.1246624 0.01189945 0.01219860 0.005860448
## [11,] 0.0660953891      0.7792906 0.1246568 0.01189880 0.01219821 0.005860151
## [12,] 0.0661063066      0.7792823 0.1246547 0.01189860 0.01219808 0.005860012
##
## $CCI
##          CD unemployment      CCI      CPI      KOSPI      universal
## [1,] 0.002483781      0.3000347 0.6036261 0.0005942689 0.09326114 0.000000000
## [2,] 0.049316175      0.2720914 0.5618166 0.0020781667 0.09780265 0.01689499
## [3,] 0.060084386      0.2629556 0.5445429 0.0034023424 0.09637068 0.03264406
## [4,] 0.060842587      0.2595605 0.5374986 0.0044191262 0.09536193 0.04231725
## [5,] 0.060495754      0.2580242 0.5341728 0.0050535165 0.09484925 0.04740448
## [6,] 0.060319810      0.2572798 0.5325124 0.0053906767 0.09460989 0.04988748
## [7,] 0.060278278      0.2569196 0.5316876 0.0055522918 0.09450805 0.05105410
## [8,] 0.060279046      0.2567485 0.5312867 0.0056252676 0.09446883 0.05159161
## [9,] 0.060286272      0.2566685 0.5310959 0.0056572503 0.09445515 0.05183686
## [10,] 0.060291530      0.2566315 0.5310067 0.0056711207 0.09445086 0.05194827
## [11,] 0.060294383      0.2566145 0.5309655 0.0056771419 0.09444970 0.05199880
## [12,] 0.060295752      0.2566067 0.5309466 0.0056797736 0.09444947 0.05202172
##
## $CPI
##          CD unemployment      CCI      CPI      KOSPI      universal
## [1,] 0.000000000      0.000000000 0.000000000 1.00000000 0.00000000 0.000000000
## [2,] 0.005106146      0.001236122 0.001019462 0.9755298 0.01650536 0.0006031253
## [3,] 0.006309844      0.002920845 0.001068878 0.9639864 0.02494714 0.0007669285
## [4,] 0.006510273      0.003754147 0.001065031 0.9605005 0.02738720 0.0007828031
## [5,] 0.006548870      0.004040188 0.001065024 0.9596256 0.02793817 0.0007821463
## [6,] 0.006559985      0.004124558 0.001064959 0.9594203 0.02804704 0.0007831200
## [7,] 0.006564453      0.004148288 0.001064902 0.9593706 0.02806709 0.0007846748
## [8,] 0.006566508      0.004155047 0.001064924 0.9593570 0.02807071 0.0007857943
## [9,] 0.006567467      0.004157063 0.001064964 0.9593527 0.02807139 0.0007864152
## [10,] 0.006567903      0.004157700 0.001064990 0.9593512 0.02807153 0.0007867198
## [11,] 0.006568094      0.004157913 0.001065004 0.9593506 0.02807156 0.0007868598
## [12,] 0.006568174      0.004157987 0.001065010 0.9593503 0.02807157 0.0007869220
##
## $KOSPI
##          CD unemployment      CCI      CPI      KOSPI      universal
## [1,] 0.01429754      0.005415166 0.07856025 0.0002492736 0.9014778 0.000000000
## [2,] 0.01495971      0.008055341 0.08787031 0.0036745117 0.8849526 0.0004875421
## [3,] 0.02121767      0.011001911 0.09106638 0.0049624843 0.8704131 0.0013384261
## [4,] 0.02554003      0.013166664 0.09187209 0.0051329930 0.8621428 0.0021454763
## [5,] 0.02764045      0.014394979 0.09198176 0.0051109940 0.8581429 0.0027289576
## [6,] 0.02850733      0.014984849 0.09195157 0.0051026521 0.8563611 0.0030924973
## [7,] 0.02883247      0.015238047 0.09191665 0.0051106298 0.8556025 0.0032997354

```

```

## [8,] 0.02894670 0.015338469 0.09189593 0.0051207026 0.8552868 0.0034113954
## [9,] 0.02898480 0.015376029 0.09188557 0.0051278364 0.8551564 0.0034693428
## [10,] 0.02899687 0.015389439 0.09188072 0.0051319563 0.8551024 0.0034986434
## [11,] 0.02900048 0.015394037 0.09187851 0.0051341072 0.8550797 0.0035131843
## [12,] 0.02900147 0.015395553 0.09187751 0.0051351691 0.8550700 0.0035203006
##
## $universal
##      CD unemployment      CCI      CPI      KOSPI universal
## [1,] 0.01366084 2.499200e-06 0.001172131 0.005531843 0.003613899 0.9760188
## [2,] 0.01937058 9.307545e-05 0.002345662 0.029537461 0.002493995 0.9461592
## [3,] 0.02275146 8.274263e-05 0.002843571 0.040897085 0.003656299 0.9297688
## [4,] 0.02442548 1.417392e-04 0.002999174 0.045349715 0.005421845 0.9216620
## [5,] 0.02518911 2.305622e-04 0.003038807 0.047011497 0.006789926 0.9177401
## [6,] 0.02552697 3.030909e-04 0.003046725 0.047635435 0.007618057 0.9158697
## [7,] 0.02567608 3.491244e-04 0.003047493 0.047877529 0.008060147 0.9149896
## [8,] 0.02574258 3.747773e-04 0.003047132 0.047975517 0.008280252 0.9145797
## [9,] 0.02577268 3.880732e-04 0.003046815 0.048016784 0.008385605 0.9143900
## [10,] 0.02578648 3.946841e-04 0.003046649 0.048034715 0.008434942 0.9143025
## [11,] 0.02579288 3.978928e-04 0.003046576 0.048042674 0.008457779 0.9142622
## [12,] 0.02579586 3.994282e-04 0.003046546 0.048046256 0.008468288 0.9142436

```