# equity_factors

2022-12-15

```r
inflation <- read.csv("CPIAUCSL.csv")
predictor_df <- read.csv("PredictorLSretWide.csv")
predictor_df$date <- as.character(seq(as.Date("1926/01/01"), as.Date("2021-12-31"), by = "month"))
inflation <-inflation %>% rename(date=DATE)
data <- inner_join(predictor_df,inflation)
```

```
## Joining, by = "date"
```

```r
date <- data$date
data$date <- as.Date(date)
data %>% ggplot(aes(as.Date(date),CPIAUCSL_PC1)) + geom_point() + geom_hline(yintercept = mean(data$CPI
```


Inflation Data used in this research
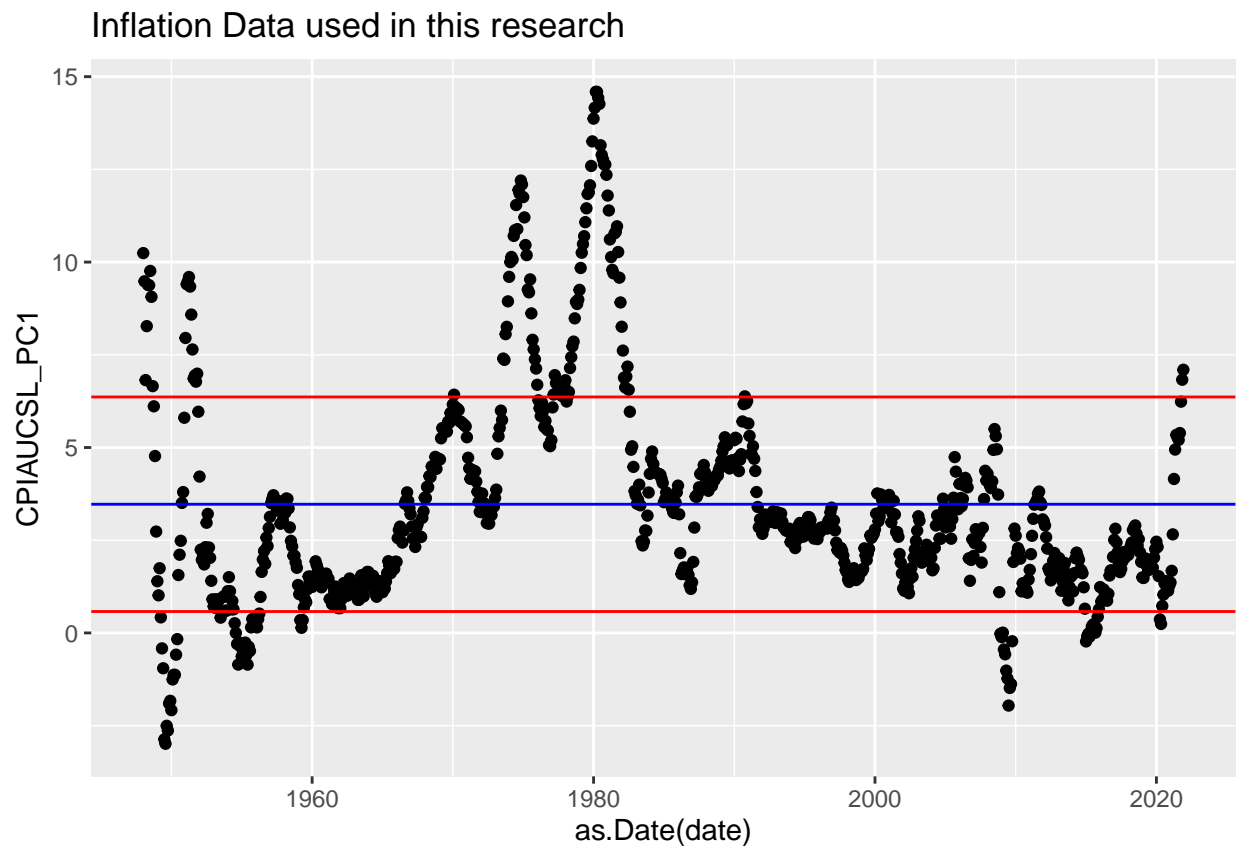
```r
data[,-c(1,209)] <- ((1+data[,-c(1,209)] )/(1+data[,c(209)]*0.01))-1
```

1

Inflation definition: "The Best Strategies for Inflationary Times" paper

```
## Warning: package 'PerformanceAnalytics' was built under R version 4.0.5

## Loading required package: xts

## Warning: package 'xts' was built under R version 4.0.5

## Loading required package: zoo

## Warning: package 'zoo' was built under R version 4.0.5

##
## Attaching package: 'zoo'

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

##
## Attaching package: 'xts'

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

##
## Attaching package: 'PerformanceAnalytics'

## The following object is masked from 'package:graphics':
##
##     legend
```
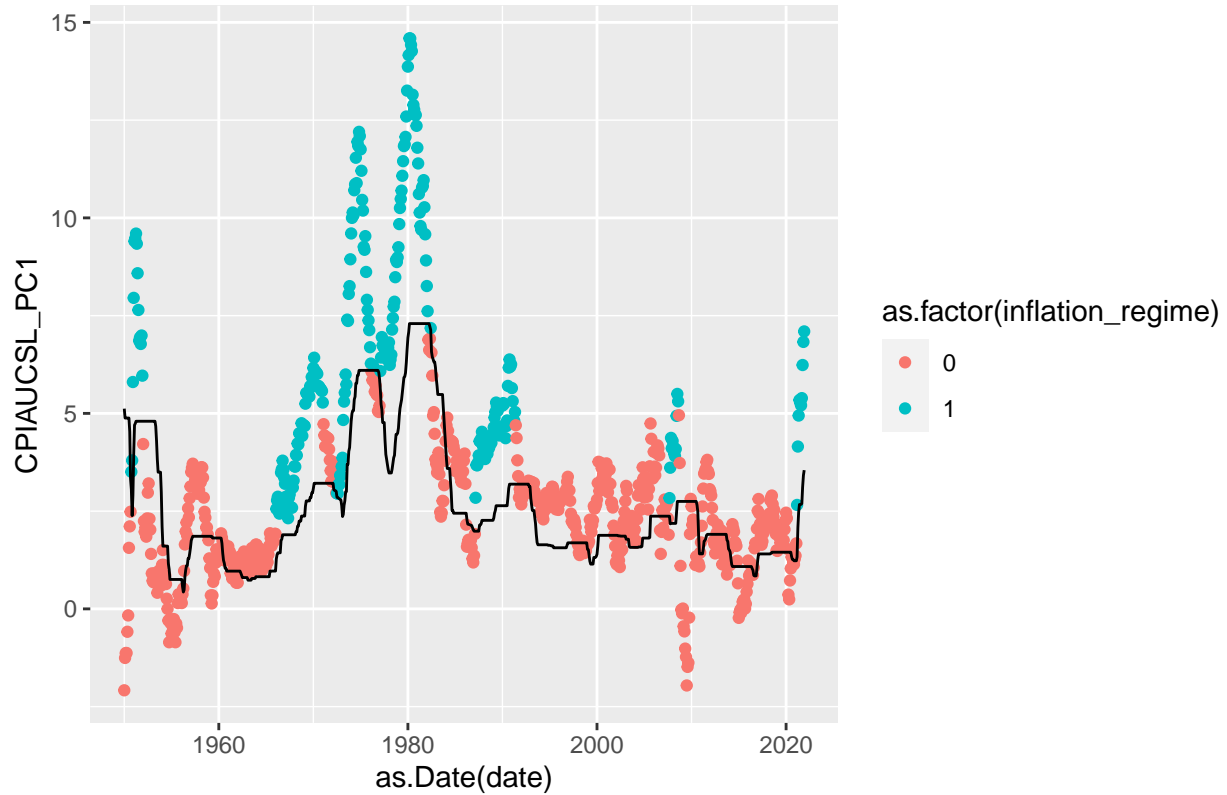
The Best Strategies for Inflationary Times paper definition of Inflation


```
##             low          high          diff              ï..Acronym
## 1    2.17935366   6.561000941   4.381647279              CPIAUCSL_PC1
## 2    2.10925790   3.773540176   1.664282278            rolling_window
## 3    1.72677796   2.737846802   1.011068846                STreversal
## 4    0.44871759   2.643709062   2.194991470                 Activism2
## 5    3.52534216   1.965507474  -1.559834688            IO_ShortInterest
## 6    0.57889038   1.876602214   1.297711835        Recomm_ShortInterest
## 7    1.21147106   1.742405812   0.530934749                    MomVol
## 8    1.12856166   1.676236912   0.547675251                SmileSlope
## 9    0.73475085   1.649013697   0.914262843             EarningsStreak
## 10   0.94061708   1.586362359   0.645745275                    IntMom
## 11   1.19649078   1.538384836   0.341894057               TrendFactor
## 12   1.53810333   1.369070576  -0.169032755                 IndRetBig
## 13   0.44341540   1.329576959   0.886161560                     skew1
## 14   0.67437155   1.328701377   0.654329829                        MS
## 15   0.92723907   1.273407681   0.346168616                      roaq
## 16   1.26338714   1.236546064  -0.026841071        ProbInformedTrading
## 17   0.84877403   1.226507387   0.377733354                      XFIN
## 18   0.71878272   1.192923239   0.474140518           NetEquityFinance
## 19   0.60483298   1.185348866   0.580515883               MomOffSeason
## 20   0.59379868   1.161335348   0.567536670             MomSeasonShort
## 21   0.77079122   1.143065225   0.372274007                     Mom12m
## 22   0.97946166   1.139046203   0.159584542            Mom12mOffSeason
## 23   1.05654772   1.136803831   0.080256110             retConglomerate
## 24   0.55711355   1.125314242   0.568200689            CustomerMomentum
## 25   0.42877703   1.122971050   0.694194021                      REV6
```

```
## 26   1.27429305   1.111344341  -0.162948712              AccrualsBM
## 27   0.75642944   1.102625872   0.346196429                   ChTax
## 28   0.39449472   1.042265190   0.647770474          EarningsSurprise
## 29   1.68200064   1.031936148  -0.650064491               FirmAgeMom
## 30   0.00000000   1.000000000   1.000000000          inflation_regime
## 31   0.83433697   0.984709889   0.150372922          ResidualMomentum
## 32   1.05028840   0.981609890  -0.068678506        AnnouncementReturn
## 33   0.46288123   0.937300994   0.474419761                ConsRecomm
## 34   0.85134831   0.933305622   0.081957310                        BM
## 35   0.51828693   0.918029510   0.399742577             NetPayoutYield
## 36   0.49875789   0.897323581   0.398565686            AnalystRevision
## 37   0.10120793   0.871888107   0.770680178                  ShareVol
## 38   0.39526089   0.859413420   0.464152534                       sfe
## 39   0.49393096   0.855897524   0.361966563                  RIO_Disp
## 40   1.49812736   0.851669830  -0.646457529                  Frontier
## 41   0.72709539   0.843191103   0.116095709                      FEPS
## 42   0.64186930   0.841975590   0.200106289                    OScore
## 43   0.59020354   0.820377093   0.230173557                 CredRatDG
## 44   0.93136256   0.819581706  -0.111780858                 Mom6mJunk
## 45   0.81282299   0.806994757  -0.005828235                    MomRev
## 46   0.51449346   0.803823869   0.289330405                 InvGrowth
## 47   0.85496431   0.792927802  -0.062036512                     Mom6m
## 48   0.59273765   0.782974282   0.190236635                    MaxRet
## 49   0.59647703   0.780991095   0.184514060                     BMdec
## 50   0.53050341   0.780190044   0.249686636             RIO_Volatility
## 51   0.25432184   0.777204658   0.522882821         ForecastDispersion
## 52   0.39600227   0.770633234   0.374630967          MomSeason11YrPlus
## 53   0.88093230   0.768552523  -0.112379778               AssetGrowth
## 54   0.20645632   0.761201537   0.554745218             zerotradeAlt1
## 55   0.60442198   0.754052797   0.149630820                  IdioVol3F
## 56   0.63988739   0.745937263   0.106049872                  IdioRisk
## 57   0.69376037   0.725763911   0.032003536                        SP
## 58   0.18456420   0.718421843   0.533857641                  std_turn
## 59   0.56629936   0.697906431   0.131607068                    DelDRC
## 60   0.71396902   0.684638544  -0.029330472                      dNoa
## 61   0.47098295   0.681749515   0.210766568                 DelBreadth
## 62   0.79633306   0.662148365  -0.134184699             ShortInterest
## 63   0.70799160   0.654894260  -0.053097335                     AgeIPO
## 64   0.59629290   0.612113393   0.015820494             NetDebtFinance
## 65   0.25601457   0.610425657   0.354411086            EquityDuration
## 66   0.09084153   0.600164419   0.509322884                 Activism1
## 67   0.48487783   0.595018840   0.110141007            RevenueSurprise
## 68   0.27710619   0.592260109   0.315153920                  Accruals
## 69   0.20920044   0.590991050   0.381790607                        CF
## 70   0.21541929   0.583573419   0.368154133                ReturnSkew
## 71   0.54040168   0.576179272   0.035777593                     ChInv
## 72   0.13281741   0.559944083   0.427126675                 zerotrade
## 73   0.55541871   0.544483254  -0.010935452          MomSeason06YrPlus
## 74   0.42029444   0.539193142   0.118898698                 ShareIss1Y
## 75   0.21949181   0.530485221   0.310993414            OrderBacklogChg
## 76   0.40821637   0.509662291   0.101445916                        AM
## 77   0.35789208   0.501079502   0.143187423             OptionVolume1
## 78   0.41967850   0.497122789   0.077444290                    DelFINL
## 79   0.51091501   0.491367528  -0.019547483               VolumeTrend
```

```
## 80  0.48519250  0.489859245  0.004666743           MomSeason16YrPlus
## 81  0.68425116  0.489354886 -0.194896270                      RIO_MB
## 82  0.28527117  0.488282779  0.203011612                      PctAcc
## 83  0.42009338  0.480698422  0.060605039                   DivYieldST
## 84  0.41138963  0.474090950  0.062701317                       DolVol
## 85  0.48849577  0.470379212 -0.018116563                      DivOmit
## 86  0.25007647  0.467498726  0.217422256                    IdioVolAHT
## 87  0.21932660  0.460828769  0.241502172                          cfp
## 88  0.38551133  0.456986568  0.071475239                        IndIPO
## 89  0.50000149  0.454440095 -0.045561391                  InvestPPEInv
## 90  0.35657524  0.450342547  0.093767312                NumEarnIncrease
## 91  0.70758974  0.436010921 -0.271578818                         RDIPO
## 92  0.11756717  0.435018502  0.317451331                   ReturnSkew3F
## 93  0.39614299  0.430412790  0.034269802  EarningsForecastDisparity
## 94  0.28783161  0.404251526  0.116419914                         Price
## 95  0.43877148  0.401808087 -0.036963396                  RIO_Turnover
## 96  0.72711764  0.394914087 -0.332203555                      EntMult
## 97  0.13020784  0.393163598  0.262955762                   AnalystValue
## 98  0.24410435  0.392329272  0.148224924                    BrandInvest
## 99  0.08201870  0.391591409  0.309572705                 zerotradeAlt12
## 100  0.44883455  0.386891800 -0.061942754                         ChEQ
## 101  0.32850439  0.385071809  0.056567418                      Leverage
## 102  0.20475445  0.382291018  0.177536564                    Illiquidity
## 103  0.08892715  0.378051906  0.289124751              MeanRankRevGrowth
## 104  0.81728449  0.374069535 -0.443214957                      MomSeason
## 105  0.35489886  0.367877223  0.012978362                        DelCOA
## 106  0.15021779  0.366562035  0.216344246          MomOffSeason16YrPlus
## 107  0.32990441  0.364745119  0.034840705                      ShareIss5Y
## 108  0.27647226  0.361924602  0.085452343                      CashProd
## 109  0.30049327  0.357214308  0.056721036                     CoskewACX
## 110  0.55472343  0.344881808 -0.209841622                     CBOperProf
## 111  0.04878190  0.340175747  0.291393846              AbnormalAccruals
## 112  0.27399419  0.331644854  0.057650663                     EarnSupBig
## 113  0.74877547  0.331365587 -0.417409887                     ExchSwitch
## 114  0.24931083  0.330369658  0.081058823                     DelNetFin
## 115  1.00187595  0.322759786 -0.679116167                           RD
## 116  0.01013545  0.313300268  0.303164820                    Coskewness
## 117  0.25911266  0.311697157  0.052584493                      IntanCFP
## 118  0.92498230  0.309849972 -0.615132330                     ChNAnalyst
## 119  0.27943092  0.309229581  0.029798659                        VolMkt
## 120  0.69685085  0.303631347 -0.393219499          MomOffSeason06YrPlus
## 121  0.98983381  0.302722531 -0.687111283                           NOA
## 122  0.04290765  0.298685523  0.255777875                       Spinoff
## 123  0.08728578  0.296546450  0.209260667                         VolSD
## 124  0.08608515  0.295008698  0.208923548                       GrLTNOA
## 125  0.24093920  0.293791109  0.052851905                       IntanEP
## 126  0.23308784  0.293344737  0.060256900                       DivInit
## 127  0.39638801  0.287764323 -0.108623683                           GP
## 128  0.28317658  0.285973912  0.002797336                        High52
## 129  0.57251592  0.283355990 -0.289159926                       betaVIX
## 130  0.41485119  0.282840652 -0.132010537                       IntanSP
## 131  0.49531738  0.279710288 -0.215607097                     LRreversal
## 132  0.26529462  0.275276986  0.009982367                   BetaTailRisk
## 133  0.08498335  0.271415911  0.186432562                 ShareRepurchase
```

```
## 134  0.58135085  0.271104957 -0.310245898                iomom_cust
## 135 -0.08741665  0.267694582  0.355111229                  RDAbility
## 136  0.86582285  0.265140268 -0.600682585                         PS
## 137  0.53801634  0.263251456 -0.274764888                     DelEqu
## 138  0.35983760  0.261860389 -0.097977209                     OrgCap
## 139  0.35912740  0.260242855 -0.098884542                    grcapx3y
## 140  0.21995993  0.256834808  0.036874874                   DivSeason
## 141  0.31367772  0.242359996 -0.071317723                     ChInvIA
## 142  0.48968176  0.242238027 -0.247443737                        hire
## 143  0.46825185  0.237929136 -0.230322719                    OperProf
## 144  0.23501051  0.235765512  0.000754997                  MRreversal
## 145  0.16793996  0.228073191  0.060133233            ChForecastAccrual
## 146  0.23429605  0.215527822 -0.018768233         EarningsConsistency
## 147  0.35223317  0.207707190 -0.144525985                PriceDelayRsq
## 148  0.34938540  0.207459385 -0.141926016                       grcapx
## 149  0.29307071  0.205180874 -0.087889839                           EP
## 150  0.18240118  0.204226676  0.021825492        CompositeDebtIssuance
## 151  0.19314019  0.202028602  0.008888409               GrSaleToGrInv
## 152  0.22121011  0.197915618 -0.023294489                 PayoutYield
## 153  0.36653712  0.194296380 -0.172240741                    PctTotAcc
## 154  0.18667976  0.183905326 -0.002774433                          EBM
## 155  0.23112486  0.182259717 -0.048865140                     IntanBM
## 156  0.09488091  0.172647757  0.077766849                       ChNWC
## 157  0.47819241  0.166478902 -0.311713511                  OperProfRD
## 158  0.37342662  0.160821046 -0.212605571                         Tax
## 159  0.20868144  0.157415567 -0.051265877                     GrAdExp
## 160  0.11021441  0.151423795  0.041209382                      DelLTI
## 161  0.29273914  0.146887196 -0.145851944                  CompEquIss
## 162  0.18915357  0.141423139 -0.047730428                      DelCOL
## 163  0.48115964  0.141272115 -0.339887525                      IndMom
## 164  0.62760051  0.136593904 -0.491006609                        Cash
## 165  0.43903080  0.133651212 -0.305379585                  OPLeverage
## 166  0.20011571  0.126120042 -0.073995665                        Size
## 167  0.22170594  0.125768277 -0.095937668               BidAskSpread
## 168  0.12281567  0.125255632  0.002439960                    fgr5yrLag
## 169  0.35484032  0.123138058 -0.231702260                  DownRecomm
## 170  0.03335201  0.117268853  0.083916840                BookLeverage
## 171  0.14208531  0.117096527 -0.024988784             ChAssetTurnover
## 172  0.26238248  0.109098862 -0.153283622                         RoE
## 173  0.24917166  0.106028016 -0.143143647                  realestate
## 174  0.30611354  0.097846129 -0.208267406              BetaLiquidityPS
## 175  0.60955549  0.097739102 -0.511816386                       AdExp
## 176 -0.19360245  0.096011701  0.289614155                          FR
## 177  0.25072147  0.079328864 -0.171392610                    PatentsRD
## 178  0.26208209  0.070712685 -0.191369408                 OptionVolume2
## 179  0.21005878  0.068318505 -0.141740277           MomOffSeason11YrPlus
## 180  0.12884087  0.066660597 -0.062180275                       BPEBM
## 181  0.07167831  0.059398912 -0.012279399                     ExclExp
## 182  0.19110050  0.058012654 -0.133087847                  CitationsRD
## 183  0.09945521  0.053892600 -0.045562612               PriceDelaySlope
## 184  0.23937977  0.052629903 -0.186749865                      ChNNCOA
## 185  0.04275469  0.048465024  0.005710335                   SurpriseRD
## 186  0.03225315  0.044305850  0.012052700               PriceDelayTstat
## 187  0.15746911  0.031506819 -0.125962289                         AOP
```

```
## 188  0.29551238  0.031055960 -0.264456417                     RDS
## 189  0.21864085  0.021948099 -0.196692749                    Beta
## 190  0.57192299  0.018471598 -0.553451396 ChangeInRecommendation
## 191  0.28049745  0.007971706 -0.272525742                 ConvDebt
## 192  0.34022339  0.004895918 -0.335327476                 UpRecomm
## 193  0.39741178 -0.001959232 -0.399371008                     tang
## 194  0.66962056 -0.012685483 -0.682306048              NetDebtPrice
## 195  0.38360155 -0.027518549 -0.411120095             TotalAccruals
## 196  0.57886908 -0.034610901 -0.613479982                iomom_supp
## 197  0.16818919 -0.041309627 -0.209498813                Investment
## 198  0.34952073 -0.044475509 -0.393996238              DebtIssuance
## 199 -0.04340844 -0.048704499 -0.005296062          GrSaleToGrOverhead
## 200  0.34181519 -0.062669822 -0.404485010                   sinAlgo
## 201  0.11311082 -0.123656462 -0.236767284               OrderBacklog
## 202  0.03237295 -0.131419370 -0.163792320                PredictedFE
## 203  0.47482324 -0.223162615 -0.697985850                     RDcap
## 204  0.12852913 -0.226356990 -0.354886115                     Herf
## 205  0.13226727 -0.228734179 -0.361001446                   HerfBE
## 206 -0.02860877 -0.233268620 -0.204659847                  FirmAge
## 207  0.10556338 -0.274299007 -0.379862385                HerfAsset
## 208 -0.49213962 -0.499249318 -0.007109702                    VarCF
## 209 -0.12115927 -0.542744327 -0.421585057                    BetaFP
## 210 -0.12416406 -0.754424420 -0.630260364                Governance
##             avg
## 1    3.472548171
## 2    2.600452321
## 3    2.025183692
## 4    0.537854301
## 5    3.218336925
## 6    0.664113246
## 7    1.368170555
## 8    1.150468671
## 9    0.884394772
## 10   1.131201627
## 11   1.297397011
## 12   1.488215191
## 13   0.478861861
## 14   0.840625951
## 15   1.049385649
## 16   1.257383212
## 17   0.963238686
## 18   0.862461666
## 19   0.776165796
## 20   0.761300820
## 21   0.880663755
## 22   1.026561265
## 23   1.076770987
## 24   0.695439564
## 25   0.601049443
## 26   1.217532979
## 27   0.873288998
## 28   0.615639685
## 29   1.494720155
## 30   0.295138889
```

```
## 31    0.878717864
## 32    1.029855121
## 33    0.493760626
## 34    0.878441638
## 35    0.635000094
## 36    0.597312319
## 37    0.328665620
## 38    0.510242205
## 39    0.584422602
## 40    1.277116237
## 41    0.755961297
## 42    0.701901187
## 43    0.629184542
## 44    0.906333372
## 45    0.811102853
## 46    0.597754013
## 47    0.836654927
## 48    0.648883876
## 49    0.649574606
## 50    0.604195645
## 51    0.384330815
## 52    0.506570435
## 53    0.848592796
## 54    0.370183206
## 55    0.648583851
## 56    0.671186832
## 57    0.703066367
## 58    0.342126353
## 59    0.577521672
## 60    0.704110034
## 61    0.507336934
## 62    0.756786296
## 63    0.698406072
## 64    0.601086988
## 65    0.377180755
## 66    0.111524697
## 67    0.522479315
## 68    0.367797965
## 69    0.320217570
## 70    0.324075888
## 71    0.550697389
## 72    0.258879101
## 73    0.552191229
## 74    0.455386074
## 75    0.313732235
## 76    0.437714833
## 77    0.363638732
## 78    0.441964626
## 79    0.505145789
## 80    0.486569839
## 81    0.617903489
## 82    0.355883902
## 83    0.437980287
## 84    0.429895230
```

```
## 85    0.483142676
## 86    0.314246233
## 87    0.303327353
## 88    0.404145945
## 89    0.486983946
## 90    0.388908791
## 91    0.641215065
## 92    0.211259404
## 93    0.401569040
## 94    0.322191656
## 95    0.427879717
## 96    0.630519445
## 97    0.195224371
## 98    0.296573348
## 99    0.173385648
## 100   0.428013460
## 101   0.344953073
## 102   0.257152399
## 103   0.178578240
## 104   0.686474522
## 105   0.358633641
## 106   0.214069389
## 107   0.340187262
## 108   0.301746896
## 109   0.319011022
## 110   0.484188431
## 111   0.137083066
## 112   0.293675783
## 113   0.607679174
## 114   0.272637115
## 115   0.804402457
## 116   0.099611176
## 117   0.275047359
## 118   0.742269729
## 119   0.288225665
## 120   0.580796480
## 121   0.756914734
## 122   0.118397645
## 123   0.149046743
## 124   0.146207035
## 125   0.257077190
## 126   0.250871991
## 127   0.364802397
## 128   0.284002179
## 129   0.524659612
## 130   0.374542628
## 131   0.431683346
## 132   0.268240804
## 133   0.141478065
## 134   0.528803406
## 135   0.022695362
## 136   0.685618078
## 137   0.445658398
## 138   0.331347771
```

```
## 139   0.329828274
## 140   0.230843144
## 141   0.293154633
## 142   0.402091061
## 143   0.389509045
## 144   0.235233344
## 145   0.182808065
## 146   0.228816278
## 147   0.310051753
## 148   0.307947148
## 149   0.267075127
## 150   0.189065457
## 151   0.195698009
## 152   0.214408796
## 153   0.342114926
## 154   0.185747177
## 155   0.213882653
## 156   0.117259858
## 157   0.371623691
## 158   0.311605139
## 159   0.190534231
## 160   0.122246349
## 161   0.249692559
## 162   0.175418192
## 163   0.380845614
## 164   0.481031376
## 165   0.350232478
## 166   0.178276709
## 167   0.193391008
## 168   0.123191447
## 169   0.339714355
## 170   0.057753363
## 171   0.134789316
## 172   0.211710212
## 173   0.205857970
## 174   0.232305364
## 175   0.432046915
## 176  -0.144737514
## 177   0.196355000
## 178   0.254375942
## 179   0.168225714
## 180   0.107939939
## 181   0.069695133
## 182   0.151957016
## 183   0.086157286
## 184   0.185638800
## 185   0.044390107
## 186   0.035770857
## 187   0.126324586
## 188   0.219174442
## 189   0.160589169
## 190   0.535792635
## 191   0.199891243
## 192   0.318332580
```

```
## 193  0.279287957
## 194  0.436353540
## 195  0.265293605
## 196  0.476146851
## 197  0.107021649
## 198  0.231321857
## 199 -0.044932483
## 200  0.222849009
## 201  0.042783907
## 202  0.006492345
## 203  0.343074902
## 204  0.023562810
## 205  0.028817387
## 206 -0.089011852
## 207 -0.003291360
## 208 -0.494215442
## 209 -0.245585416
## 210 -0.149758386


## Warning: 'as.tibble()' was deprecated in tibble 2.0.0.
## Please use 'as_tibble()' instead.
## The signature and semantics have changed, see '?as_tibble'.


## Joining, by = "ï..Acronym"


## # A tibble: 207 x 8
##      low  high   diff ï..Acronym LongDescription Detailed.Defini~ Cat.Data   avg
##    <dbl> <dbl>  <dbl> <chr>      <chr>           <chr>            <chr>    <dbl>
## 1 1.73   2.74   1.01  STreversal Short term rev~ "Stock return (~ Price     2.03
## 2 0.449  2.64   2.19  Activism2  Active shareho~ "Institiutional~ 13F       0.538
## 3 3.53   1.97  -1.56  IO_ShortI~ Inst own among~ "Exclude all st~ 13F       3.22
## 4 0.579  1.88   1.30  Recomm_Sh~ Analyst Recomm~ "Go long firms ~ Analyst   0.664
## 5 1.21   1.74   0.531 MomVol     Momentum in hi~ "Define momentu~ Price     1.37
## 6 1.13   1.68   0.548 SmileSlope Put volatility~ "Using OptionMe~ Options   1.15
## 7 0.735  1.65   0.914 EarningsS~ Earnings surpr~ "Use fpi == 6 a~ Account~ 0.884
## 8 0.941  1.59   0.646 IntMom     Intermediate M~ "Stock return b~ Price     1.13
## 9 1.20   1.54   0.342 TrendFact~ Trend Factor    "See paper sect~ Price     1.30
## 10 1.54  1.37  -0.169 IndRetBig  Industry retur~ "Average monthl~ Price     1.49
## # ... with 197 more rows
```
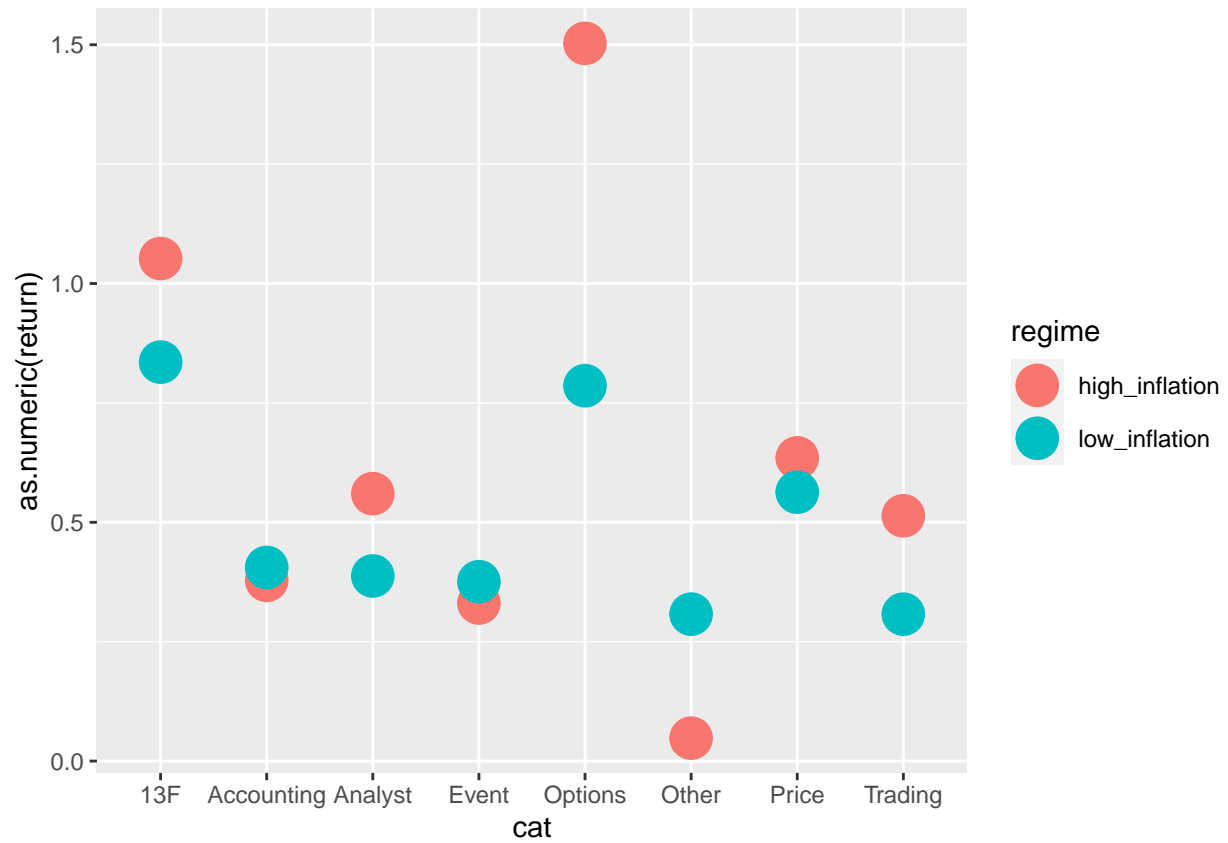
Inflation definition: "Investing in deflation, inflation, and stagflation regimes"

global inflation regimes

```
## [1] 0
```

Investing in deflation, inflation, and stagflation regimes
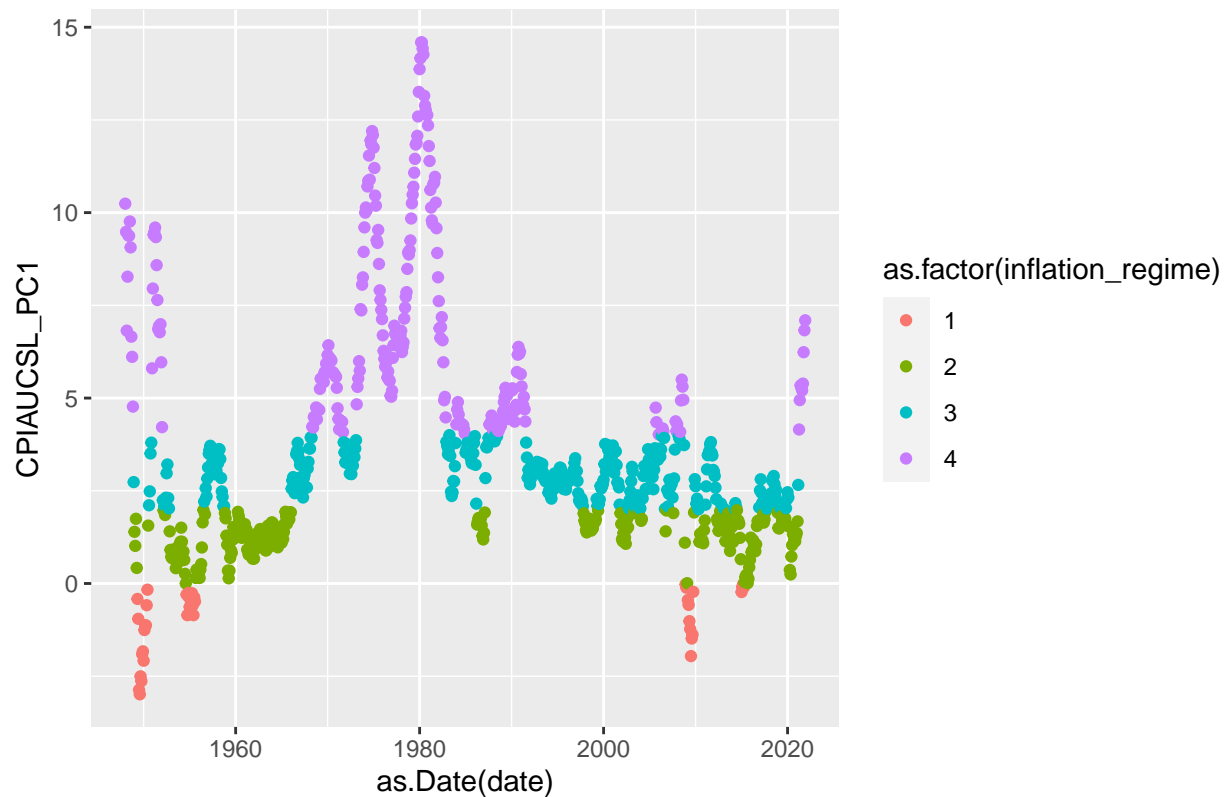

```
## [1] NA


##                            V1             V2       V3       V4
## BM                  6.1864339  -0.0005344423 1.076719 1.012667
## IO_ShortInterest   -3.6405011   8.4065130164 1.612831 1.533757
## FirmAgeMom         -0.6634407   1.7142634890 1.826637 1.164025
## STreversal          3.1919286   1.3831983180 1.759680 2.855063


## Joining, by = "ï..Acronym"


## # A tibble: 207 x 8
##           V1      V2      V3       V4 ï..Acronym  LongDescription Detailed.Defini~
##        <dbl>   <dbl>   <dbl>    <dbl> <chr>       <chr>           <chr>
##  1   0.542   0.0738  0.00615  0.321   AbnormalAc~ Abnormal Accru~ "Define Accrual~
##  2   0.861   0.191   0.352    0.524   Accruals    Accruals        "Accruals = ( (~
##  3   6.14    0.714   1.51     0.879   AccrualsBM  Book-to-market~ "Binary variabl~
##  4 NaN       0.213   0.0837   0.140   Activism1   Takeover vulne~ "24 minus Gover~
##  5 NaN       0.141   0.577    1.11    Activism2   Active shareho~ "Institiutional~
##  6   2.46    0.663   0.562   -0.0122  AdExp       Advertising Ex~ "Advertising ex~
##  7   0.451   0.138   1.04     0.618   AgeIPO      IPO and age     "Age is  (curre~
##  8   0.00860 0.147   0.601    0.571   AM          Total assets t~ "Total assets (~
##  9  -1.15    0.338   0.647    0.888   AnalystRev~ EPS forecast r~ "keep fpi == \"~
## 10  -0.0357  0.0850  0.0424   0.552   AnalystVal~ Analyst Value   "Value based on~
## # ... with 197 more rows, and 1 more variable: Cat.Data <chr>
```

```
## geom_path: Each group consists of only one observation. Do you need to adjust
## the group aesthetic?
```
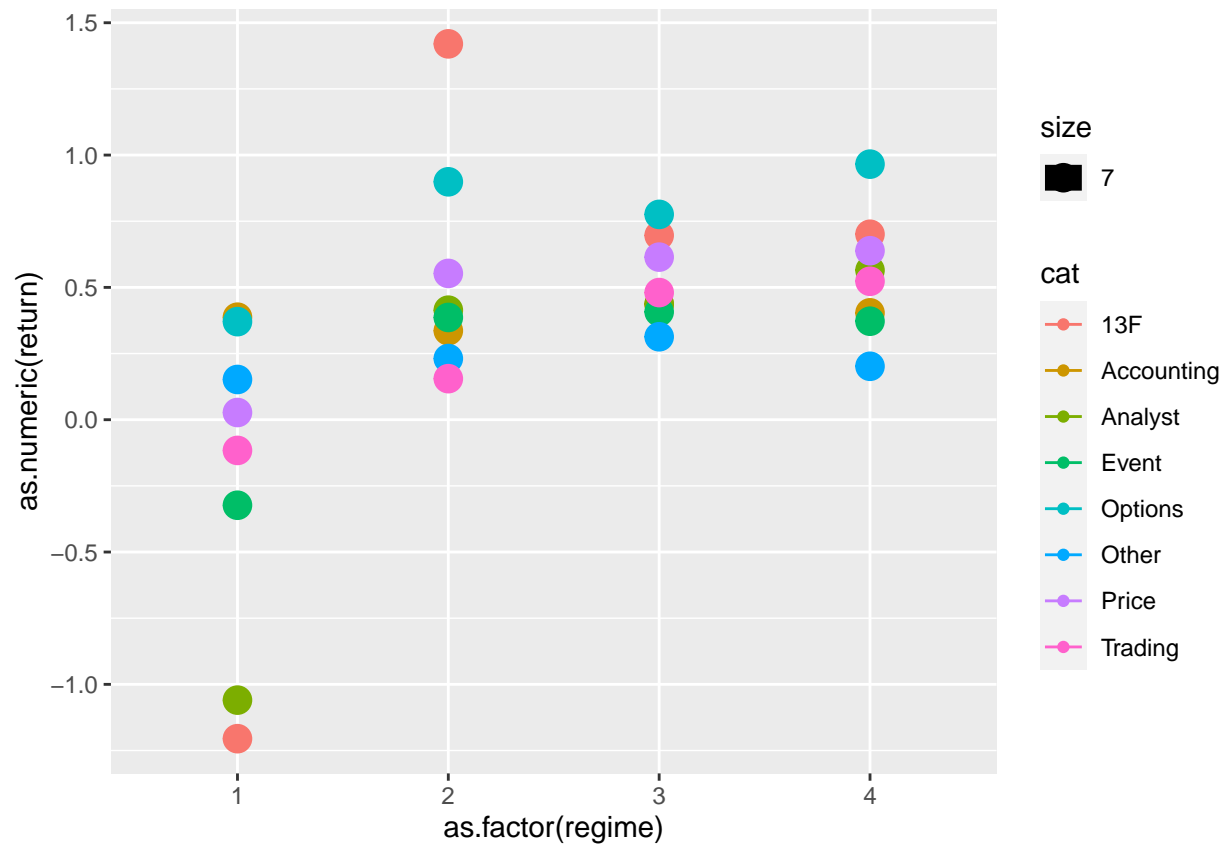

Sub-inflation regimes

```
business_cycles <- read.csv("20210719_cycle_dates_pasted.csv")[-1,]

contractions <- c()
for (i in 1:nrow(business_cycles)){
  contractions<-append(x=contractions,values = (seq(as.Date(business_cycles[i,1]), as.Date(business_cyc

}
data_paper2$date <- date
data_paper2$contraction<- ifelse(as.Date(data_paper2$date) %in% as.Date(contractions[(contractions>=date

data_paper2$date <- as.Date(date)
data_paper2 <- read.csv("LCEAMNO1USM659S.csv") %>% mutate(date = as.Date(DATE),earnings_growth= ifelse(

inner_join(read.csv("DGS10.csv") %>% mutate(date = as.Date(DATE),yield=
                                            ifelse(lead(as.numeric(DGS10))-as.numeric(DGS10)<0,0,1)) %
```

```
## Warning in vec_size(x): NAs durch Umwandlung erzeugt
```

```
## Warning in ifelse(lead(as.numeric(DGS10)) - as.numeric(DGS10) < 0, 0, 1): NAs
## durch Umwandlung erzeugt
```

```
data_paper2<- data_paper2[(1:nrow(data_paper2))-1,]
ifelse(rollsum(data_paper2$contraction,12)>=6,1,0) %>% length()
```

```
## [1] 502
```

```
contractions <- data_paper2$contraction
data_paper2 <-data_paper2[12:nrow(data_paper2),]
data_paper2$contraction  <- ifelse(rollsum(contractions,12)>=6,1,0)
```

```
regime_paper2_returns<- data_paper2 %>% select(-date) %>% filter(inflation_regime==4) %>% slice_rows(c(
colnames(regime_paper2_returns) <- c("positive_earnings_growth","negative_earnings_growth")

regime_paper2_returns2<- data_paper2 %>% select(-date) %>% filter(inflation_regime==4) %>% slice_rows(c
colnames(regime_paper2_returns2) <- c("expansion","contraction")

regime_paper2_returns3<- data_paper2 %>% select(-date) %>% filter(inflation_regime==4) %>% slice_rows(c
colnames(regime_paper2_returns3) <- c("positive_yield_change","negative_yield_change","no_yield_change")

regime_paper2_returns4<- data_paper2 %>% select(-date) %>% filter(inflation_regime==4) %>% slice_rows(c
colnames(regime_paper2_returns4) <- c("positive_inflation_change","negative_inflation_change")

regime_paper2_returns <- regime_paper2_returns %>% merge(regime_paper2_returns2, by=0)
rownames(regime_paper2_returns) <- regime_paper2_returns$Row.names
regime_paper2_returns <- regime_paper2_returns %>% select(-Row.names)

regime_paper2_returns<-regime_paper2_returns %>% merge(regime_paper2_returns3,by=0)
rownames(regime_paper2_returns) <- regime_paper2_returns$Row.names
regime_paper2_returns <- regime_paper2_returns %>% select(-Row.names)

regime_paper2_returns<-regime_paper2_returns %>% merge(regime_paper2_returns4,by=0)
rownames(regime_paper2_returns) <- regime_paper2_returns$Row.names
regime_paper2_returns <- regime_paper2_returns %>% select(-Row.names)
regime_paper2_returns
```

```
##                       positive_earnings_growth negative_earnings_growth
## AbnormalAccruals                   0.4199796919              0.239248921
## Accruals                           0.2724742475              0.506585549
## AccrualsBM                         0.1487331024              1.380583011
## Activism1                          0.4139232233             -0.092040357
## Activism2                          0.8156401088              4.739490041
## AdExp                              0.2835629273              0.222997118
## AgeIPO                             0.6266142076             -0.107541376
## AM                                 0.2476909385              0.839169255
## AnalystRevision                    0.8761199136              0.751161703
## AnalystValue                       0.4105660596              0.886321694
## AnnouncementReturn                 1.0508831987              0.800158212
## AOP                                0.3995627447              0.001829279
## AssetGrowth                        0.8372945087              1.236353405
## Beta                               0.2427619811             -0.331715581
```

```
## BetaFP                    -0.1304633292          -0.797649885
## BetaLiquidityPS           -0.5741354430           0.085810288
## BetaTailRisk               0.7432117702           0.125589745
## betaVIX                    0.9101550321          -0.168871519
## BidAskSpread              -0.2447432194           0.519665571
## BM                         0.4892815509           1.604463311
## BMdec                      0.3822818567           1.131390147
## BookLeverage              -0.1074972760           0.101199611
## BPEBM                     -0.0288039608          -0.235975919
## BrandInvest                0.4807531521           0.969315767
## Cash                       0.6163508545          -0.261707871
## CashProd                   0.1111232898           0.728360546
## CBOperProf                 0.0793522238           0.429999250
## CF                         0.6072703033           0.647587088
## cfp                        0.5495152848           0.535568884
## ChangeInRecommendation     0.2644475608          -0.606703830
## ChAssetTurnover            0.0768944516           0.186044275
## ChEQ                       0.0740921899           0.707645424
## ChForecastAccrual          0.1363110486           0.140831447
## ChInv                      0.4606370876           0.839976428
## ChInvIA                    0.1697433998           0.325839680
## ChNAnalyst                 0.4603000040          -0.317652754
## ChNNCOA                    0.1024668244           0.178562149
## ChNWC                      0.1530411010           0.061980997
## ChTax                      1.4780930845           0.989617304
## CitationsRD                0.0673718666          -0.204925851
## CompEquIss                 0.0569924490           0.524590742
## CompositeDebtIssuance      0.0532629914           0.319804243
## ConsRecomm                -1.2705433474           1.173929922
## contraction                0.2674418605           0.153846154
## ConvDebt                   0.0310175179           0.179233595
## CoskewACX                 -0.2318800279           0.524026000
## Coskewness                 0.2957473760           0.510101656
## CPIAUCSL_PC1               6.6959451163           7.093118462
## CredRatDG                  0.0363305571           1.509323186
## CustomerMomentum           0.7862231503           1.211873036
## DebtIssuance               0.1316601604          -0.123371851
## DelBreadth                 0.2404426797           0.568056498
## DelCOA                     0.2485398127           0.559404101
## DelCOL                    -0.0114731366           0.341577676
## DelDRC                     2.2960480881          -0.207912330
## DelEqu                     0.0217645508           0.642681652
## DelFINL                    0.4796748741           0.728624810
## DelLTI                     0.0237386042           0.215469520
## DelNetFin                  0.4208755546           0.450411698
## DivInit                    0.7524640189           0.376545089
## DivOmit                    0.5077583214           0.097305742
## DivSeason                  0.4538297252           0.350472781
## DivYieldST                 0.5357559739           0.852132778
## dNoa                       0.7417396060           0.880556746
## DolVol                     0.1155655199           1.249306149
## DownRecomm                 0.5362023946          -0.354338712
## earnings_growth            0.0000000000           1.000000000
## EarningsConsistency        0.1117547227           0.011365214
```

```
## EarningsForecastDisparity          0.0715410775         -0.169794058
## EarningsStreak                      0.9355302555          1.532074592
## EarningsSurprise                    0.8905090554          1.048884217
## EarnSupBig                          0.0566917031          0.313637318
## EBM                                 0.0140966693          0.020529590
## EntMult                             0.5178991379          0.531580287
## EP                                  0.0944240925          0.519824208
## EquityDuration                      0.2362792416          0.989268138
## ExchSwitch                         -0.0006648739          0.613666917
## ExclExp                            -0.0169895226          0.407937813
## FEPS                                0.3157995106          0.533745165
## fgr5yrLag                          -0.3714083254          0.342466035
## FirmAge                             0.2154047014         -0.170118360
## FirmAgeMom                          1.3624381394          0.646690045
## ForecastDispersion                  0.8698729638          0.715999395
## FR                                 -0.2211687610          1.120449422
## Frontier                            0.5611793387          1.080882473
## Governance                          0.2498431054         -0.540769623
## GP                                  0.8170493425         -0.045357746
## GrAdExp                            -0.1943113974          0.859882773
## grcapx                              0.1418458440          0.402227114
## grcapx3y                            0.3483343524          0.467372194
## GrLTNOA                             0.0453543976          0.363901637
## GrSaleToGrInv                       0.3353101127          0.106330839
## GrSaleToGrOverhead                 -0.0628267595         -0.098397697
## Herf                                0.0471194415         -0.221226976
## HerfAsset                           0.0662522278         -0.294434980
## HerfBE                              0.1018372851         -0.193804372
## High52                              0.4660481810          0.348623084
## hire                                0.1922897824          0.326347224
## IdioRisk                            0.7204954195          0.691609661
## IdioVol3F                           0.6877324485          0.711841193
## IdioVolAHT                          0.6207309134          0.547545256
## Illiquidity                         0.4027930723          0.756016322
## IndIPO                              0.4471377370          0.254223574
## IndMom                              0.1306926799          0.049379439
## IndRetBig                           1.5821773720          1.516929680
## inflation_change                    0.3720930233          0.474358974
## inflation_regime                    4.0000000000          4.000000000
## IntanBM                            -0.0276934142          0.648556917
## IntanCFP                            0.1263497682          0.524422879
## IntanEP                             0.0912747416          0.432529444
## IntanSP                             0.0264093628          0.319433516
## IntMom                              1.6795140910          2.641553160
## Investment                          0.3848741860         -0.068241435
## InvestPPEInv                        0.5179687045          0.657222481
## InvGrowth                           0.6606015184          0.960666587
## IO_ShortInterest                    1.9774499800          2.532310737
## iomom_cust                          1.1648350512          0.441826338
## iomom_supp                          0.7397118372         -0.080469004
## Leverage                            0.2988786649          0.627064860
## LRreversal                          0.0003314247          0.581912265
## MaxRet                              0.5054575426          1.357644252
## MeanRankRevGrowth                   0.3575424897          0.492714628
```

```
## Mom12m                        1.1473608082          1.010447993
## Mom12mOffSeason               0.9639834688          1.206190586
## Mom6m                         0.5382151121          0.540333945
## Mom6mJunk                     0.6320662754          0.914023158
## MomOffSeason                  0.6795998720          1.389916937
## MomOffSeason06YrPlus          0.5262378740          0.462047454
## MomOffSeason11YrPlus         -0.3514945899          0.266069878
## MomOffSeason16YrPlus          0.5573737748          0.493712924
## MomRev                        0.5499490294          0.718067689
## MomSeason                     0.0804042719          0.371576483
## MomSeason06YrPlus             0.2421641077          0.786313250
## MomSeason11YrPlus             0.8508002599          0.551929109
## MomSeason16YrPlus             0.0783802641          1.010617996
## MomSeasonShort                1.2270269177          1.070874335
## MomVol                        0.9543701502          1.607354907
## MRreversal                   -0.2098456461          0.324570306
## MS                            0.5356643732          1.952504791
## NetDebtFinance                0.8022854505          0.676321958
## NetDebtPrice                  0.2329894038          0.010843997
## NetEquityFinance              1.0433922562          1.202326046
## NetPayoutYield                0.6335781617          1.214282958
## NOA                           0.6370175382          0.201475804
## NumEarnIncrease               0.5189117020          0.661065946
## OperProf                      0.4561471672          0.111729924
## OperProfRD                    0.2389959331          0.269528495
## OPLeverage                    0.5941878171          0.036941478
## OptionVolume1                 1.6185170617          0.872326310
## OptionVolume2                 1.4763611685         -0.800947719
## OrderBacklog                 -0.1375936212          0.227571727
## OrderBacklogChg               1.0652316869         -0.014368571
## OrgCap                        0.9047438648         -0.061847015
## OScore                        0.3114028414          0.775642572
## PatentsRD                    -0.0484193691         -0.112519947
## PayoutYield                   0.0598892372          0.317741960
## PctAcc                        0.3656011772          0.200871499
## PctTotAcc                     0.0928654997          0.720434857
## PredictedFE                  -0.5760584483          0.844275144
## Price                        -0.2297745720          0.990808529
## PriceDelayRsq                -0.0155944795          0.580563790
## PriceDelaySlope              -0.1764187984          0.213134224
## PriceDelayTstat               0.0401733238          0.007782671
## ProbInformedTrading           0.4024419974          1.564833525
## PS                            0.7912102916          0.623785707
## RD                            0.3910053706          0.175353226
## RDAbility                     0.3404550995          0.256458698
## RDcap                         0.5591021011         -1.035530126
## RDIPO                         0.8855020463          0.987122785
## RDS                           0.0875274812          0.542525837
## realestate                    0.1023903805          0.058260763
## Recomm_ShortInterest         -2.1366009823          2.162879790
## ResidualMomentum              0.8996984864          0.799033230
## retConglomerate               1.2064351647          1.308798674
## ReturnSkew                    0.5452645580          0.673380161
## ReturnSkew3F                  0.3602394174          0.471379255
```

```
## REV6                               0.7722043701             1.038230706
## RevenueSurprise                     0.5703571578             0.486599083
## RIO_Disp                            2.0372365221             0.078358532
## RIO_MB                              1.1474657014             0.274579574
## RIO_Turnover                        0.6430746607             0.946315054
## RIO_Volatility                      1.4791966451             1.026142640
## roaq                                1.3284478059             1.611184713
## RoE                                 0.3314332912             0.041247548
## sfe                                 1.5706974106             0.691422837
## ShareIss1Y                          0.2527575970             0.770630840
## ShareIss5Y                          0.2501566376             0.668753039
## ShareRepurchase                     0.1955248629             0.360685384
## ShareVol                            0.5188479759             0.899625879
## ShortInterest                       0.3468819307             0.600969868
## sinAlgo                            -0.1520411913             0.175103157
## Size                              -0.0984739101             0.401369215
## skew1                             -1.2206678688             0.197644617
## SmileSlope                          1.6181133667             0.922650448
## SP                                  0.6500174295             1.075439858
## Spinoff                             0.4779562471             0.240928033
## std_turn                            0.1429414631             0.866689975
## STreversal                          3.0602387241             3.545051515
## SurpriseRD                          0.1799120023            -0.128414297
## tang                                0.0689991731            -0.003124936
## Tax                                 0.2850008584             0.159091462
## TotalAccruals                       0.0265101962            -0.008074048
## TrendFactor                         1.2252444854             2.231163183
## UpRecomm                            0.0518392580            -0.428206150
## VarCF                             -0.2189637765            -0.678464176
## VolMkt                            -0.0147222771             0.676671844
## VolSD                               0.1889047946             0.619840947
## VolumeTrend                         0.5281381600             0.536674020
## XFIN                                1.0996504404             1.318578651
## yield                               0.5394736842             0.484375000
## zerotrade                         -0.0219337346             1.219060736
## zerotradeAlt1                       0.2813066184             1.267308430
## zerotradeAlt12                      0.2035742161             0.730247598
##                      expansion  contraction positive_yield_change
## AbnormalAccruals   0.2295400552  0.766907736          0.403918408
## Accruals           0.5251920634 -0.137237660          0.662199096
## AccrualsBM         0.8005326751  0.491651618          0.144009514
## Activism1          0.5861718179 -0.097431458          1.050448507
## Activism2          2.0052561113  0.993141071          0.679882939
## AdExp              0.1973475993  0.466352761          0.261405200
## AgeIPO             0.4936417863 -0.247869560         -0.451131415
## AM                 0.4357434906  0.872734637          0.422309098
## AnalystRevision    0.7864591666  1.048540231          0.794540922
## AnalystValue       0.6345677494  0.521716768          0.646123159
## AnnouncementReturn 0.8494610734  1.264701728          0.941265115
## AOP                0.2107712089  0.316990569          0.379459099
## AssetGrowth        0.9007220810  1.492849855          0.985047808
## Beta              -0.1448878654  0.391264278         -0.858250225
## BetaFP            -0.6051611498  0.132264314         -1.284401051
## BetaLiquidityPS   -0.1718082552 -0.592714300         -0.325794099
```

```
## BetaTailRisk               0.3932996985  0.656472893     -0.192643370
## betaVIX                    0.3541054873  0.747884144     -0.048517361
## BidAskSpread              -0.0754121122  0.834690291     -0.954457960
## BM                         0.8594459822  1.610223427      0.586304800
## BMdec                      0.7744434588  0.606327571      0.558178503
## BookLeverage               0.0267578529 -0.137227403     -0.176164340
## BPEBM                     -0.0568718230 -0.387051347     -0.202918699
## BrandInvest                0.5167021749  1.437052011      0.511816391
## Cash                       0.2700265778 -0.147349356      0.024400070
## CashProd                   0.3298131169  0.680652383      0.226474790
## CBOperProf                 0.4716779931 -0.585206524      0.291770648
## CF                         0.6887680117  0.396741870      0.690750257
## cfp                        0.6539821752  0.133399625      0.849014017
## ChangeInRecommendation    -0.1191831906 -1.162133814      0.131756766
## ChAssetTurnover            0.2057034594 -0.154610570      0.253091836
## ChEQ                       0.3545021631  0.452499782      0.449543812
## ChForecastAccrual          0.2008869051 -0.286383755      0.171295124
## ChInv                      0.6818759716  0.490598588      0.497389091
## ChInvIA                    0.2361349652  0.272914769      0.245613704
## ChNAnalyst                 0.1425240961  0.226115119     -0.135314506
## ChNNCOA                    0.1286598270  0.175510768      0.286435232
## ChNWC                      0.1479484159 -0.031122662      0.170816650
## ChTax                      1.3568171575  0.836478333      1.436991136
## CitationsRD               -0.0400543411 -0.077307732      0.040471614
## CompEquIss                 0.4048587116 -0.183067008      0.246316987
## CompositeDebtIssuance      0.2800138289 -0.188469593      0.178095221
## ConsRecomm                 0.3776378289 -0.983591281      0.291408804
## contraction                0.0000000000  1.000000000      0.205882353
## ConvDebt                   0.0843413676  0.164791157      0.291581152
## CoskewACX                  0.3157262504 -0.464248270      0.011468781
## Coskewness                 0.2567824376  0.917064829      0.252489138
## CPIAUCSL_PC1               6.8440831783  7.035079714      6.742295735
## CredRatDG                  0.9265321584 -0.589167298      0.633522994
## CustomerMomentum           0.9278210340  1.223760799      1.442942248
## DebtIssuance               0.0003838455  0.039671002      0.114233862
## DelBreadth                 0.2026692867  1.020664802      0.414413161
## DelCOA                     0.4792372160  0.091038369      0.581618431
## DelCOL                     0.1771989990  0.079934232      0.127075437
## DelDRC                     0.8675326365  0.313576643      2.036057141
## DelEqu                     0.2859875824  0.431672059      0.403281359
## DelFINL                    0.5807598322  0.661907315      0.607258820
## DelLTI                     0.1196137153  0.097656379     -0.031171224
## DelNetFin                  0.4483347199  0.385492321      0.503995310
## DivInit                    0.6087599474  0.444353982      0.644907819
## DivOmit                    0.1925849357  0.754674480      0.694739269
## DivSeason                  0.3880045139  0.466104314      0.396210137
## DivYieldST                 0.6952851678  0.652845250      0.763170096
## dNoa                       0.7360119688  1.072213953      0.806251218
## DolVol                     0.5562945480  1.017786218      0.003680426
## DownRecomm                 0.0239594512 -0.141653451      0.248595411
## earnings_growth            0.5116279070  0.342857143      0.485294118
## EarningsConsistency        0.1462456169 -0.239094051      0.138635840
## EarningsForecastDisparity -0.0481498230  0.050954280     -0.305493654
## EarningsStreak             1.4250171536 -0.221967649      1.389075119
```

```
## EarningsSurprise           0.9672032191  0.960786642         0.825232045
## EarnSupBig                  0.2583332521 -0.113879778         0.102491684
## EBM                         0.0090153533  0.047161171        -0.035934747
## EntMult                     0.4959508643  0.629283621         0.775928648
## EP                          0.2812683183  0.353804204         0.215118265
## EquityDuration              0.6613191899  0.347792972         0.480756493
## ExchSwitch                  0.2562534719  0.421489785         0.199856635
## ExclExp                     0.0715589736  0.906479817         0.461647555
## FEPS                        0.4735018489  0.005828025         0.828759599
## fgr5yrLag                   0.0822911619 -0.719110015         0.313566175
## FirmAge                    -0.0149847765  0.205388812        -0.003906307
## FirmAgeMom                  1.0969498330  0.802593876         1.509329277
## ForecastDispersion          0.6709445027  1.701832763         0.976362609
## FR                          0.2121714163  0.660858634         0.362011273
## Frontier                    0.7164497597  1.147092485         0.302849046
## Governance                  0.3214441615 -0.252864843        -0.325556147
## GP                          0.2172156457  1.105929171         0.220490626
## GrAdExp                     0.5106518515 -0.443257506         0.774869668
## grcapx                      0.1962045699  0.521773370         0.190875902
## grcapx3y                    0.2685654030  0.907624241         0.393473164
## GrLTNOA                     0.3704169725 -0.442828102         0.266695672
## GrSaleToGrInv               0.2308060975  0.210185388         0.286194291
## GrSaleToGrOverhead          0.0217750540 -0.453917246        -0.022743601
## Herf                       -0.0530334725 -0.181774692        -0.072954199
## HerfAsset                  -0.1031063305 -0.113357720        -0.090094802
## HerfBE                     -0.0335372656 -0.058069349        -0.034244825
## High52                      0.6853357642 -0.603873413         1.275378754
## hire                        0.1941308838  0.484260593         0.205927491
## IdioRisk                    0.7450273389  0.565703798         1.198403393
## IdioVol3F                   0.7609186777  0.471716977         1.389783961
## IdioVolAHT                  0.5720317980  0.637122473         1.038664337
## Illiquidity                 0.5362093638  0.698241984         0.281094900
## IndIPO                      0.2300226468  1.051719758         0.789361157
## IndMom                      0.2350905281 -0.435300327         0.313366792
## IndRetBig                   1.4146493888  2.054228510         1.111721825
## inflation_change            0.4728682171  0.228571429         0.455882353
## inflation_regime            4.0000000000  4.000000000         4.000000000
## IntanBM                     0.0802600015  1.081493307        -0.022420271
## IntanCFP                    0.1998744103  0.742493305        -0.013782869
## IntanEP                     0.1540813786  0.620297903        -0.009402479
## IntanSP                     0.0672436395  0.528931141        -0.210482021
## IntMom                      2.3543854960  1.336103695         1.884275856
## Investment                  0.1744478657  0.150644954         0.294112974
## InvestPPEInv                0.5506692125  0.707780963         0.502803972
## InvGrowth                   0.7806942782  0.886690358         0.886477626
## IO_ShortInterest            1.4542177723  5.716887625         0.281166265
## iomom_cust                  0.6428393298  1.993774580         0.794296822
## iomom_supp                  0.1621453631  1.751447931        -0.317766476
## Leverage                    0.3802770666  0.730253791         0.357953209
## LRreversal                  0.0935308024  0.952919591        -0.247567908
## MaxRet                      1.0288485504  0.475546781         1.226589847
## MeanRankRevGrowth           0.4320936683  0.384008911         0.201724010
## Mom12m                      1.3075206848  0.251937275         1.653773110
## Mom12mOffSeason             1.2585884537  0.417929528         1.740587703
```

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## Mom6m                       0.7605057655 -0.276362753        1.595642315
## Mom6mJunk                    0.1939483325  3.424680364        0.360839477
## MomOffSeason                 0.8407003099  1.668822003        0.288510531
## MomOffSeason06YrPlus         0.4251469719  0.755777120        0.245046873
## MomOffSeason11YrPlus         0.0011366125 -0.274905922       -0.195609819
## MomOffSeason16YrPlus         0.5094070536  0.592292652        0.497460348
## MomRev                       0.6644057951  0.502758534        1.250764713
## MomSeason                    0.3263142036 -0.177051405       -0.115405043
## MomSeason06YrPlus            0.6628702609 -0.095763339        0.401532136
## MomSeason11YrPlus            0.7345507771  0.613206932        0.608744032
## MomSeason16YrPlus            0.3128004710  1.291932732        0.098120440
## MomSeasonShort               1.0954266775  1.364070620        0.695722417
## MomVol                       1.5202349470  0.323977358        2.054529139
## MRreversal                  -0.0408214284  0.358163501       -0.049782179
## MS                           1.0008466540  2.201270887        1.326724939
## NetDebtFinance               0.6601795339  1.083749309        0.787938828
## NetDebtPrice                 0.1976650283 -0.131881947        0.145151703
## NetEquityFinance             1.0809171435  1.288080430        1.220983140
## NetPayoutYield               1.0606791207  0.353548173        0.928414840
## NOA                          0.2968189622  0.920256425        0.657649419
## NumEarnIncrease              0.6368050658  0.401191335        0.739848713
## OperProf                     0.2900847130  0.300647499        0.527762967
## OperProfRD                   0.3413622523 -0.070253078        0.459195524
## OPLeverage                  -0.0586017916  1.758320533        0.079123020
## OptionVolume1                0.9594463542  2.059787659        1.609161297
## OptionVolume2                0.2025705223  0.241356211        0.956918347
## OrderBacklog                 0.1016709320 -0.213223864        0.239641013
## OrderBacklogChg              0.3992179168  1.142458521        0.571712633
## OrgCap                       0.3920942491  0.640107059        0.646190399
## OScore                       0.6265179218  0.156678355        0.661068074
## PatentsRD                   -0.0281732649 -0.384691385       -0.081847692
## PayoutYield                  0.0988944734  0.490770292        0.190708765
## PctAcc                       0.3702455049 -0.018628341        0.702798781
## PctTotAcc                    0.3496123318  0.644282366        0.772532765
## PredictedFE                  0.0983858766 -0.177871290        0.110203706
## Price                        0.1978552216  0.914260813       -0.603018891
## PriceDelayRsq                0.3509435067 -0.040616130        0.095087368
## PriceDelaySlope              0.1803628400 -0.614946133        0.106582970
## PriceDelayTstat              0.0544845326 -0.081681016        0.205818682
## ProbInformedTrading          0.8906336639  0.611781059        0.706673251
## PS                           0.8357825051  0.177634673        0.360073827
## RD                           0.1607299245  0.759138663       -0.015345505
## RDAbility                    0.2890237019  0.342824555       -0.164294340
## RDcap                       -0.2097103692  0.377956504       -0.308865117
## RDIPO                        0.7517385770  2.045680460        1.558373835
## RDS                          0.2400185215  0.562464216        0.507053954
## realestate                   0.0826353911  0.076086266        0.152728813
## Recomm_ShortInterest         0.8433159751 -2.158397731        0.142361315
## ResidualMomentum             0.7835730833  1.103363830        0.970099091
## retConglomerate              0.9299248781  3.367151685        0.988115309
## ReturnSkew                   0.5687083215  0.744372317        0.763594103
## ReturnSkew3F                 0.3588027601  0.613217593        0.568566356
## REV6                         0.9475488772  0.487979664        1.424184355
## RevenueSurprise              0.5377816959  0.503760150        0.577294321
```

```
## RIO_Disp               0.9207940303  2.696849358           0.047861361
## RIO_MB                 0.6511904669  1.031305340           0.446707495
## RIO_Turnover           0.6432615619  1.318178672           0.709209976
## RIO_Volatility         1.1039564451  1.852561600           0.863403868
## roaq                   1.3526279305  1.869426168           0.923351756
## RoE                    0.2600230536 -0.052068633           0.256192082
## sfe                    0.8946248784  3.114647905           1.605098531
## ShareIss1Y             0.5319735646  0.377764829           0.517154963
## ShareIss5Y             0.5489250251  0.081853705           0.185360999
## ShareRepurchase        0.2812510006  0.252090988           0.384427292
## ShareVol               0.6668164372  0.822069260           1.036302202
## ShortInterest          0.6252655907 -0.185902635           0.711450656
## sinAlgo                0.0833416936 -0.290530706          -0.032202424
## Size                   0.0426558773  0.495298124          -0.143729971
## skew1                  0.9668763709 -5.331291493          -0.446454973
## SmileSlope             1.8038394834 -0.770585339           1.986219408
## SP                     0.6026438435  1.772707200           0.558379874
## Spinoff                0.3033312106  0.593339934          -0.117397640
## std_turn               0.5556195514  0.234853192           0.554549257
## STreversal             2.9774862325  4.445680699           3.009841363
## SurpriseRD            -0.0077685052  0.184521548          -0.149913080
## tang                   0.1213453434 -0.284667583           0.108248691
## Tax                    0.0849460989  0.741747461           0.213028157
## TotalAccruals         -0.0847804421  0.359622233           0.087781076
## TrendFactor            1.5843566601  2.143421283           1.459264503
## UpRecomm              -0.1543149215 -0.768362910          -0.101814443
## VarCF                 -0.3234638335 -0.857835885           0.200656538
## VolMkt                 0.5133105998 -0.420079412           0.731156069
## VolSD                  0.5126308820 -0.043885074           0.509331548
## VolumeTrend            0.5224698046  0.568052872           0.335421523
## XFIN                   1.1833822519  1.301141310           1.576597733
## yield                  0.5090909091  0.533333333           0.000000000
## zerotrade              0.7599280130 -0.138007927           0.943572491
## zerotradeAlt1          0.9257022178  0.103624017           0.987536410
## zerotradeAlt12         0.5183151063  0.217258472           0.705955826
##                      negative_yield_change no_yield_change
## AbnormalAccruals              0.475417634     -0.297774085
## Accruals                      0.530577528     -0.845194271
## AccrualsBM                   -0.377988585      5.745793870
## Activism1                    -0.398119250     -0.532460461
## Activism2                     3.000456512      0.602860209
## AdExp                        -0.789207182      3.367814602
## AgeIPO                        1.453192819     -0.494330272
## AM                           -0.277141113      3.249740169
## AnalystRevision               1.202322109     -0.230567670
## AnalystValue                  0.330894840      1.374938740
## AnnouncementReturn            1.133581548      0.275270982
## AOP                          -0.099395821      0.699922681
## AssetGrowth                   0.126647938      3.847541288
## Beta                         -0.200758548      2.825806077
## BetaFP                       -0.567965347      2.283176630
## BetaLiquidityPS              -0.308060741      0.022402429
## BetaTailRisk                  0.950020880      0.767102423
## betaVIX                       1.027325380     -0.042847642
```

```
## BidAskSpread                    -1.290093325    7.386494100
## BM                              -0.012766703    5.344867828
## BMdec                            0.079861056    3.225772373
## BookLeverage                     0.427427638   -0.839450454
## BPEBM                           -0.005394733   -0.279015417
## BrandInvest                      0.121105999    3.059510601
## Cash                             0.564292673   -0.467606199
## CashProd                        -0.409518830    3.352241479
## CBOperProf                       0.850598421   -1.696635734
## CF                               0.610040091    0.493463956
## cfp                              0.982647919   -1.643788159
## ChangeInRecommendation          -0.156203488   -1.929362772
## ChAssetTurnover                  0.132405001   -0.234126193
## ChEQ                            -0.484240987    2.744360135
## ChForecastAccrual                0.204323894   -0.148430406
## ChInv                            0.328866450    1.984671181
## ChInvIA                          0.003378925    0.961183875
## ChNAnalyst                      -0.419789031    3.103599444
## ChNNCOA                          0.091250717   -0.137818869
## ChNWC                            0.231808843   -0.429571516
## ChTax                            1.735812929   -0.766157213
## CitationsRD                     -0.084251524   -0.166332501
## CompEquIss                       0.600672137   -0.590771685
## CompositeDebtIssuance            0.165625601    0.228742912
## ConsRecomm                       1.355022350   -3.613943256
## contraction                      0.222222222    0.208333333
## ConvDebt                        -0.004141537   -0.120066699
## CoskewACX                        0.529339699   -0.704409601
## Coskewness                       0.486006534    0.544186320
## CPIAUCSL_PC1                     6.936665694    7.133270000
## CredRatDG                        1.268367191   -0.533074364
## CustomerMomentum                 0.699492950    0.366669302
## DebtIssuance                     0.023130476   -0.335562787
## DelBreadth                       1.038118551   -1.573727913
## DelCOA                          -0.007743201    1.083975037
## DelCOL                          -0.218134691    1.363372374
## DelDRC                           0.034532420   -1.277258473
## DelEqu                          -0.644390072    2.957244707
## DelFINL                          0.569819069    0.656841735
## DelLTI                           0.209725169    0.244482232
## DelNetFin                        0.494470771    0.060576396
## DivInit                          0.714079679   -0.049376914
## DivOmit                          0.317515820   -0.785264410
## DivSeason                        0.408375226    0.417538652
## DivYieldST                       0.421508333    1.262383496
## dNoa                             0.361671393    2.150317050
## DolVol                          -0.701338499    6.567942386
## DownRecomm                      -0.017675836   -0.802973448
## earnings_growth                  0.430555556    0.583333333
## EarningsConsistency              0.188105426   -0.519726456
## EarningsForecastDisparity        0.493329879   -0.597472916
## EarningsStreak                   1.677363787   -0.604982961
## EarningsSurprise                 1.290112996    0.391368038
## EarnSupBig                       0.417770507   -0.321238072
```

```
## EBM                      -0.083661244     0.470033082
## EntMult                   0.551324731    -0.268997521
## EP                       -0.336710508     2.428411449
## EquityDuration           -0.025638768     2.776561635
## ExchSwitch               -0.229030290     2.112865418
## ExclExp                  -0.178369474     0.366725010
## FEPS                      0.466495140    -1.003107398
## fgr5yrLag                -0.664157202     0.597150366
## FirmAge                  -0.023875424     0.301676317
## FirmAgeMom                1.811744921    -2.491615491
## ForecastDispersion        0.886714163     0.003805401
## FR                        0.309779134     0.112036398
## Frontier                  0.467278479     3.263852933
## Governance                0.550289575     0.343828034
## GP                        0.750875437    -0.097002282
## GrAdExp                   0.139666182    -0.516126099
## grcapx                   -0.207991519     1.898678562
## grcapx3y                 -0.161966434     2.138216400
## GrLTNOA                   0.246834393    -0.150940674
## GrSaleToGrInv             0.168235032     0.231514209
## GrSaleToGrOverhead        0.168095746    -0.984768771
## Herf                     -0.058807089    -0.167018177
## HerfAsset                -0.058111591    -0.289906490
## HerfBE                    0.003538227    -0.178534947
## High52                    1.392785492    -4.988898607
## hire                     -0.069821660     1.375670621
## IdioRisk                  0.888749845    -1.232219164
## IdioVol3F                 0.744852446    -1.394420078
## IdioVolAHT                1.000669821    -1.941083898
## Illiquidity              -0.082736797     3.352169731
## IndIPO                   -0.347611378     1.053950968
## IndMom                    0.135893717    -0.666755114
## IndRetBig                 2.014785996     1.405253883
## inflation_change          0.430555556     0.291666667
## inflation_regime          4.000000000     4.000000000
## IntanBM                  -0.687420518     4.134360903
## IntanCFP                 -0.399571806     3.394894572
## IntanEP                  -0.198848152     2.355973331
## IntanSP                  -0.817783271     4.182508015
## IntMom                    3.196718631    -0.325630890
## Investment               -0.140597021     0.745818806
## InvestPPEInv              0.088442026     2.302090258
## InvGrowth                 0.147972706     2.533717126
## IO_ShortInterest          5.679422386    -1.966088440
## iomom_cust                0.359863871     2.136124383
## iomom_supp                0.693532054     1.157644026
## Leverage                 -0.310201850     3.025347470
## LRreversal               -0.696852023     4.684400943
## MaxRet                    0.953116062    -0.111119405
## MeanRankRevGrowth         0.121684769     1.945910794
## Mom12m                    2.300807370    -4.192780382
## Mom12mOffSeason           2.373885433    -4.678927956
## Mom6m                     1.352292628    -4.893174970
## Mom6mJunk                 1.532496334    -0.276941951
```

```
## MomOffSeason                 -0.194241717      6.717741567
## MomOffSeason06YrPlus          0.447612437      1.350203157
## MomOffSeason11YrPlus         -0.500140074      1.659852867
## MomOffSeason16YrPlus          0.123697798      1.821258652
## MomRev                        0.324198065     -0.212056871
## MomSeason                     0.101766654      1.517419871
## MomSeason06YrPlus             0.340365522      1.264501830
## MomSeason11YrPlus             0.566918599      1.416939979
## MomSeason16YrPlus             0.352005604      2.231346373
## MomSeasonShort                1.371535242      1.791368805
## MomVol                        1.929505896     -2.965953762
## MRreversal                   -0.467185110      1.845511434
## MS                            1.916895559     -1.302905712
## NetDebtFinance                0.489256367      1.365863719
## NetDebtPrice                  0.550827101     -1.193622773
## NetEquityFinance              0.999947440      1.200953736
## NetPayoutYield                0.860387669      1.005069637
## NOA                          -0.182838294      1.622617404
## NumEarnIncrease               0.650105778     -0.038657430
## OperProf                      0.768662537     -1.803666418
## OperProfRD                    0.722500610     -1.736186114
## OPLeverage                    0.252566183      1.267352376
## OptionVolume1                 0.663478234      1.677151486
## OptionVolume2                 0.081087889     -0.647200259
## OrderBacklog                 -0.490314221      1.104647683
## OrderBacklogChg               1.116982380     -1.270847891
## OrgCap                        0.549796867     -0.439267349
## OScore                        0.263850019      1.006989765
## PatentsRD                    -0.106683190      0.030633726
## PayoutYield                  -0.256727367      1.477105072
## PctAcc                        0.358245942     -1.103097782
## PctTotAcc                    -0.129477128      0.662454465
## PredictedFE                  -0.400382467      1.388633397
## Price                        -0.781963514      6.451212901
## PriceDelayRsq                -0.131372409      1.910374667
## PriceDelaySlope              -0.264047423      0.538145591
## PriceDelayTstat              -0.233757656      0.292457337
## ProbInformedTrading           1.818990603     -1.677725222
## PS                            1.635695277     -1.087563693
## RD                            0.157203998      1.542867498
## RDAbility                     0.660137560      0.538542824
## RDcap                         0.163278977     -0.258380455
## RDIPO                        -0.137423833      2.255272998
## RDS                          -0.294060517      1.433623973
## realestate                   -0.356295296      1.202471221
## Recomm_ShortInterest          0.666367893      0.825787825
## ResidualMomentum              1.284808378     -0.782261649
## retConglomerate               1.394675019      1.591727976
## ReturnSkew                    0.387114184      0.817491013
## ReturnSkew3F                  0.153049106      0.752755166
## REV6                          1.101427994     -1.267303645
## RevenueSurprise               0.752857095     -0.269011694
## RIO_Disp                      2.256580576      1.391299082
## RIO_MB                        0.597204410      1.946851247
```

```
## RIO_Turnover                       -0.055467342     3.536848554
## RIO_Volatility                       0.725549721     4.012458103
## roaq                                 2.977658187    -1.552516246
## RoE                                  0.531038011    -0.997301108
## sfe                                   0.709899386     1.248355202
## ShareIss1Y                           0.043078901     1.815755853
## ShareIss5Y                           0.094750409     2.260401271
## ShareRepurchase                      0.251831182     0.042708826
## ShareVol                             0.054113481     1.684459339
## ShortInterest                       -0.020006671     1.265245497
## sinAlgo                              0.371597875    -0.999282431
## Size                                 -0.486386746     2.817980262
## skew1                                 1.135400648    -3.548343031
## SmileSlope                            1.545408763    -0.527293785
## SP                                    0.085539597     3.985713559
## Spinoff                               0.747139132     0.586901910
## std_turn                             0.417409080     0.505499192
## STreversal                            2.193663796     7.378397604
## SurpriseRD                            0.132537773     0.254478616
## tang                                  0.145680118    -0.506653981
## Tax                                   0.094533212     0.651120916
## TotalAccruals                        -0.493842678     1.301569198
## TrendFactor                           1.809598204     2.078362382
## UpRecomm                             -0.043847016    -1.283518304
## VarCF                                 0.239355684    -4.276222681
## VolMkt                               -0.006329854     0.093809364
## VolSD                                -0.226633870     1.928187481
## VolumeTrend                          -0.199646154     3.285263119
## XFIN                                  1.114627787     0.441729074
## yield                                 1.000000000              NA
## zerotrade                            -0.433483691     2.510347191
## zerotradeAlt1                        -0.016247818     2.377491405
## zerotradeAlt12                       -0.272963583     1.921461541
##                         positive_inflation_change negative_inflation_change
## AbnormalAccruals                     0.260484261               0.420535863
## Accruals                             0.153055724               0.701538612
## AccrualsBM                           0.842450246               0.586141279
## Activism1                            0.443552086              -0.864663699
## Activism2                            1.646902504               1.181978416
## AdExp                                0.402340603               0.051562749
## AgeIPO                               1.110988817              -1.057523104
## AM                                   0.771403857               0.195264583
## AnalystRevision                      0.778704795               0.873238639
## AnalystValue                         0.243043627               1.117431193
## AnnouncementReturn                   0.782177266               1.110277900
## AOP                                  0.610529501              -0.284929707
## AssetGrowth                          0.966746415               1.110173680
## Beta                                -0.040472979              -0.016686259
## BetaFP                              -0.244467055              -0.727712567
## BetaLiquidityPS                     -0.180755102              -0.388850567
## BetaTailRisk                         0.432682942               0.472570042
## betaVIX                              0.163320343               0.739531050
## BidAskSpread                         0.158829756               0.063727114
## BM                                   1.316371371               0.611174947
```

```
## BMdec                          0.809276835          0.641208288
## BookLeverage                  -0.075930037          0.084958804
## BPEBM                          0.010834198         -0.317572626
## BrandInvest                    0.527819559          0.968239751
## Cash                           0.440907278         -0.117970583
## CashProd                       0.637007734          0.084825953
## CBOperProf                    -0.032211835          0.629338509
## CF                             1.160155268         -0.108372631
## cfp                            0.545850120          0.538796031
## ChangeInRecommendation        -0.400883599         -0.044282785
## ChAssetTurnover                0.075517615          0.202176853
## ChEQ                           0.284735980          0.500265989
## ChForecastAccrual              0.139812968          0.136308073
## ChInv                          0.568028607          0.741597584
## ChInvIA                        0.218601728          0.278931351
## ChNAnalyst                     0.708315724         -0.594127520
## ChNNCOA                        0.119764524          0.164671953
## ChNWC                          0.032196871          0.216483330
## ChTax                          1.046698046          1.519852762
## CitationsRD                    0.064589653         -0.201002216
## CompEquIss                     0.005242019          0.656832416
## CompositeDebtIssuance          0.093779159          0.298787363
## ConsRecomm                    -0.301847183          0.943122310
## contraction                    0.284210526          0.115942029
## ConvDebt                       0.121284001          0.074286186
## CoskewACX                     -0.125925190          0.506327362
## Coskewness                     0.407068697          0.384792425
## CPIAUCSL_PC1                   6.711093368          7.124067391
## CredRatDG                      0.223499950          1.491972723
## CustomerMomentum               0.593287546          1.447753580
## DebtIssuance                   0.043174775         -0.035482608
## DelBreadth                     0.364195020          0.379528100
## DelCOA                         0.283934129          0.551220312
## DelCOL                         0.242593682          0.037825640
## DelDRC                         1.145718726          0.265601504
## DelEqu                         0.290893565          0.353130892
## DelFINL                        0.498976862          0.734521341
## DelLTI                         0.023128093          0.241318460
## DelNetFin                      0.433724059          0.436574268
## DivInit                        0.310373648          0.936187334
## DivOmit                        0.264593796          0.378560187
## DivSeason                      0.435194372          0.362648811
## DivYieldST                     0.913708348          0.373030106
## dNoa                           0.806940530          0.808893942
## DolVol                         0.618253598          0.705078587
## DownRecomm                     0.114899754         -0.167655304
## earnings_growth                0.431578947          0.536231884
## EarningsConsistency            0.104754686          0.007908662
## EarningsForecastDisparity     -0.514603397          0.803117431
## EarningsStreak                 0.774117065          1.809636832
## EarningsSurprise               0.882390860          1.080719073
## EarnSupBig                    -0.288222233          0.822033470
## EBM                            0.108006646         -0.107927679
## EntMult                        1.078951380         -0.239098447
```

```
## EP                           0.783079275          -0.372837260
## EquityDuration               0.745122536           0.386902734
## ExchSwitch                   0.365284673           0.189953571
## ExclExp                      0.356105873          -0.090557778
## FEPS                         0.229296846           0.662703654
## fgr5yrLag                   -0.181764820           0.138106962
## FirmAge                      0.186200953          -0.180195917
## FirmAgeMom                   0.472386331           1.875220852
## ForecastDispersion           0.992798446           0.542481654
## FR                           0.451181922           0.055637242
## Frontier                     1.034251188           0.497339030
## Governance                   0.205491828          -0.932220859
## GP                           0.568229503           0.184732413
## GrAdExp                     -0.143151268           0.926948502
## grcapx                       0.188462548           0.372007469
## grcapx3y                     0.341911313           0.491742185
## GrLTNOA                      0.045384632           0.405409650
## GrSaleToGrInv                0.243276692           0.203176658
## GrSaleToGrOverhead          -0.192880398           0.076021974
## Herf                         0.114710476          -0.349288803
## HerfAsset                    0.093069201          -0.378403056
## HerfBE                       0.149696186          -0.298259016
## High52                       0.095888362           0.842947097
## hire                         0.265084934           0.243607768
## IdioRisk                     1.145877266           0.102171295
## IdioVol3F                    1.077830560           0.177894210
## IdioVolAHT                   1.096404643          -0.116913806
## Illiquidity                  0.538326805           0.615484506
## IndIPO                       0.265293714           0.498252654
## IndMom                      -0.311660434           0.647810260
## IndRetBig                    1.604522547           1.477654015
## inflation_change             0.000000000           1.000000000
## inflation_regime             4.000000000           4.000000000
## IntanBM                      0.814392512          -0.422630184
## IntanCFP                     0.742064495          -0.271377716
## IntanEP                      0.674188993          -0.325522172
## IntanSP                      0.405658024          -0.164499896
## IntMom                       1.766193488           2.647695318
## Investment                   0.319361680          -0.037145095
## InvestPPEInv                 0.678036539           0.455002767
## InvGrowth                    0.810324872           0.793664661
## IO_ShortInterest             1.882153541           2.893630003
## iomom_cust                   1.007717686           0.573778042
## iomom_supp                   0.727596190          -0.147342528
## Leverage                     0.670087087           0.158787696
## LRreversal                   0.371869047           0.146233329
## MaxRet                       1.609709555          -0.051547932
## MeanRankRevGrowth            0.263864816           0.639322284
## Mom12m                       0.584627716           1.767367247
## Mom12mOffSeason              0.191644671           2.301147830
## Mom6m                       -0.018514039           1.307121466
## Mom6mJunk                    0.283545262           1.505587204
## MomOffSeason                 1.362236972           0.542704315
## MomOffSeason06YrPlus         0.215606461           0.881355721
```

```
## MomOffSeason11YrPlus           0.074356481          -0.239694927
## MomOffSeason16YrPlus           0.451239978           0.631535577
## MomRev                         0.443907707           0.885995132
## MomSeason                      0.057913596           0.440520891
## MomSeason06YrPlus              0.494662891           0.509645973
## MomSeason11YrPlus              0.705945534           0.712383582
## MomSeason16YrPlus              0.510187483           0.537697036
## MomSeasonShort                 1.231714335           1.044052917
## MomVol                         0.299753460           2.593810681
## MRreversal                     0.190832978          -0.157382240
## MS                             1.711747725           0.441466211
## NetDebtFinance                 0.661427068           0.839183617
## NetDebtPrice                   0.027691636           0.264524857
## NetEquityFinance               1.024380690           1.238728283
## NetPayoutYield                 0.984032025           0.807518120
## NOA                            0.823239885          -0.111727074
## NumEarnIncrease                0.461139204           0.759149650
## OperProf                       0.497490952           0.009883332
## OperProfRD                     0.326373865           0.153208053
## OPLeverage                     0.545830232           0.030836457
## OptionVolume1                  1.196053444           1.267272250
## OptionVolume2                  0.429647463          -1.536473625
## OrderBacklog                   0.076748159          -0.001086628
## OrderBacklogChg                0.046887728           1.149201849
## OrgCap                         0.201421380           0.780418466
## OScore                         0.595974357           0.463811998
## PatentsRD                     -0.157149034           0.034096544
## PayoutYield                    0.517082770          -0.278094432
## PctAcc                         0.246247360           0.343712739
## PctTotAcc                      0.251356106           0.561607773
## PredictedFE                    0.070357641           0.062164950
## Price                          0.161331496           0.611535650
## PriceDelayRsq                  0.068201380           0.550275548
## PriceDelaySlope               -0.055943756           0.098746363
## PriceDelayTstat                0.087120786          -0.064700896
## ProbInformedTrading            0.379219493           1.600441365
## PS                             0.526406050           0.935641365
## RD                             0.409254329           0.122099308
## RDAbility                      0.532402464          -0.018772712
## RDcap                          0.235643897          -0.771325452
## RDIPO                          0.259269723           1.812610848
## RDS                            0.393412067           0.186209421
## realestate                     0.286628094          -0.200729111
## Recomm_ShortInterest          -0.336937070           1.613124307
## ResidualMomentum               0.485659362           1.355956846
## retConglomerate                1.527539966           0.847864989
## ReturnSkew                     0.655559212           0.538235934
## ReturnSkew3F                   0.428243816           0.392246511
## REV6                           1.099218983           0.613807484
## RevenueSurprise                0.404062931           0.704629936
## RIO_Disp                       1.543336042           0.634693402
## RIO_MB                         0.739350305           0.722622872
## RIO_Turnover                   1.161623926           0.271923508
## RIO_Volatility                 1.610140864           0.786763121
```

```
## roaq                          2.011512910            0.707611485
## RoE                           0.320621594            0.018282903
## sfe                           0.874012154            1.569185795
## ShareIss1Y                    0.396599413            0.640136443
## ShareIss5Y                    0.287531579            0.671894317
## ShareRepurchase               0.283835109            0.265644961
## ShareVol                      0.769913737            0.603622311
## ShortInterest                 0.243042501            0.749468178
## sinAlgo                       0.028537570           -0.030848774
## Size                         -0.014083800            0.350376863
## skew1                        -0.770077265            2.266169728
## SmileSlope                    1.257598191            1.024920175
## SP                            1.022538359            0.618038604
## Spinoff                       0.263118065            0.505803009
## std_turn                      0.131553493            0.976771044
## STreversal                    3.518652140            2.977139061
## SurpriseRD                    0.033296012            0.033231825
## tang                          0.285355123           -0.310413809
## Tax                           0.555270754           -0.229442228
## TotalAccruals                -0.044884463            0.085711957
## TrendFactor                   1.641861398            1.788766975
## UpRecomm                     -0.299433798           -0.141319270
## VarCF                        -0.356499709           -0.549037944
## VolMkt                        0.284604999            0.354736421
## VolSD                         0.582290554            0.134431936
## VolumeTrend                   0.454506357            0.639164513
## XFIN                          0.882473029            1.603544993
## yield                         0.525641026            0.500000000
## zerotrade                     0.423934170            0.767053479
## zerotradeAlt1                 0.762738121            0.733076888
## zerotradeAlt12                0.575488787            0.286887833
```

Amundi asset management

```
PCE <- read.csv("PCE.csv")
PPI <- read.csv("PPI.csv")
CPI <- read.csv("CPIAUCSL.csv")
ULC <- read.csv("ULC.csv")
CPI$DATE <- CPI$DATE %>% as.Date()
PPI$DATE <- PPI$DATE %>% as.Date()
ULC$DATE <- ULC$DATE %>% as.Date()
PCE_list <- c(NA)
value_PCE <- c(NA)
ULC_list <- c(NA)
value_ULC <- c(NA)
for (i in (1:(nrow(PCE)-1))){

    PCE_list<- append(PCE_list,seq(as.Date(PCE$DATE[i]),as.Date(PCE$DATE[i+1]),by="month")[1:3])

    value_PCE <-append(value_PCE,c(PCE$DPCERD3Q086SBEA_PC1[i],PCE$DPCERD3Q086SBEA_PC1[i],PCE$DPCERD3Q086
```

```r
    }

for (i in (1:(nrow(ULC)-1))){

    ULC_list<- append(ULC_list,seq(as.Date(ULC$DATE[i]),as.Date(ULC$DATE[i+1]),by="month")[1:3])



    value_ULC <-append(value_ULC,c(ULC$ULCNFB_PC1[i],ULC$ULCNFB_PC1[i],ULC$ULCNFB_PC1[i]))


    }

value_PCE <- value_PCE %>% na.omit()
PCE_list <- PCE_list %>% na.omit() %>% as.Date(origin="1970-01-01")
PCE <- data.frame(PCE = value_PCE, DATE = PCE_list)

value_ULC <- value_ULC %>% na.omit()
ULC_list <- ULC_list %>% na.omit() %>% as.Date(origin="1970-01-01")
ULC <- data.frame(ULC = value_ULC, DATE = ULC_list)
ULC$DATE %>% duplicated() %>% sum()
```

```
## [1] 0
```

```r
PCE$DATE %>% duplicated() %>% sum()
```

```
## [1] 0
```

```r
PPI$DATE %>% duplicated() %>% sum()
```

```
## [1] 0
```

```r
CPI$DATE %>% duplicated() %>% sum()
```

```
## [1] 0
```

```r
amundi_paper <- PCE %>% inner_join(PPI) %>% inner_join(CPI)%>% inner_join(ULC)
```

```
## Joining, by = "DATE"
## Joining, by = "DATE"
## Joining, by = "DATE"
```

```r
amundi_paper$DATE %>% duplicated() %>% sum()
```

```
## [1] 0
```

```
amundi_paper$regime <-  ifelse(amundi_paper$ULC<1 & amundi_paper$CPI<2 & amundi_paper$PPI<1 & amundi_pap

        ifelse(amundi_paper$PCE>=2& amundi_paper$PCE<3 & amundi_paper$PPI>=2&amundi_paper$PPI<3 & amundi_

            ifelse(amundi_paper$ULC>=3&amundi_paper$ULC<6 & amundi_paper$PCE>=3&amundi_paper$PCE<6 & a

                ifelse(amundi_paper$ULC>=6&amundi_paper$ULC<=9 &
                    amundi_paper$PCE>=6&amundi_paper$PCE<=8 & amundi_paper$PPI>=6&amundi_paper$PPI<=

                    ifelse(amundi_paper$PCE>8 & amundi_paper$PPI>10 & amundi_paper$CPI>10 & amun
```

```
amundi_paper %>% ggplot(aes(DATE,CPIAUCSL_PC1,color=regime))+geom_point()+ggtitle("Amundi paper Inflati
```


Amundi paper Inflation definition
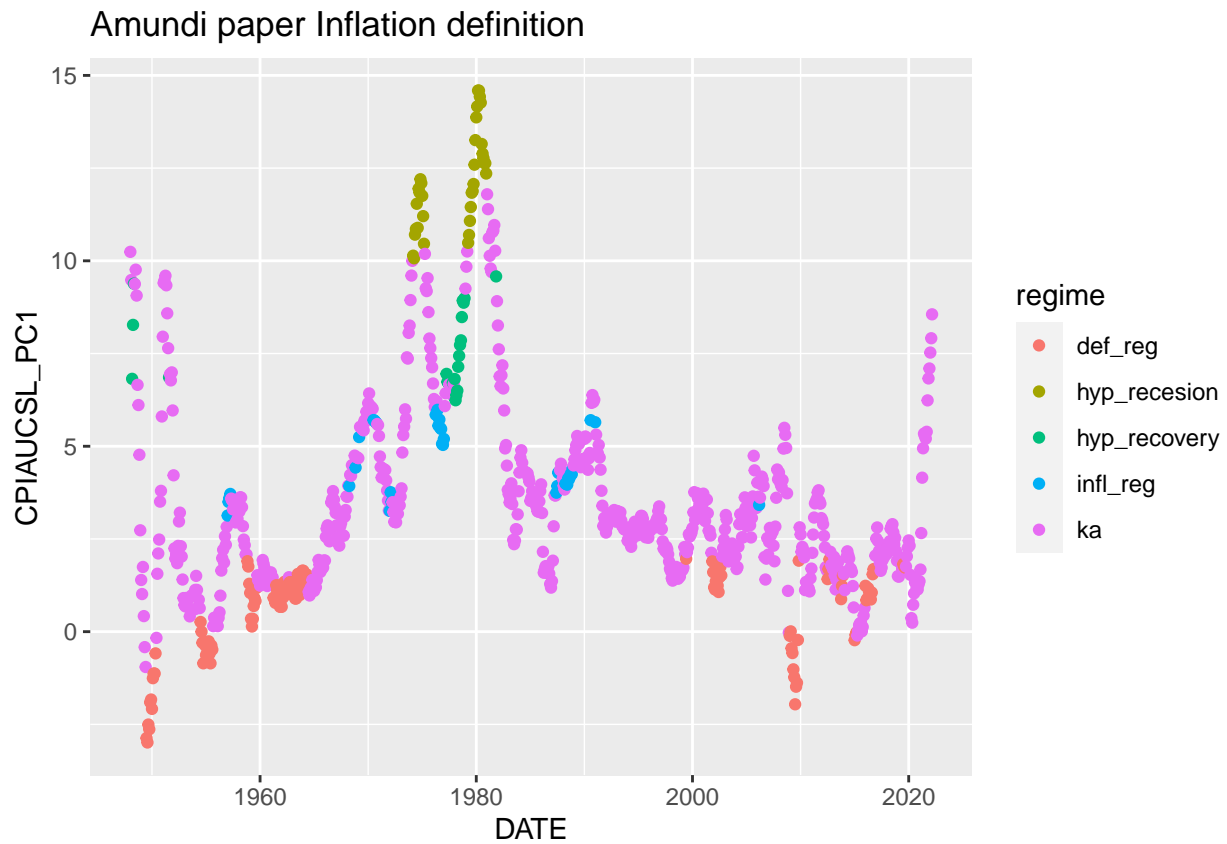
```
## Joining, by = "CPIAUCSL_PC1"
```

```
##                              V1            V2            V3            V4
## regime                  def_reg hyp_recesion hyp_recovery      infl_reg
## date                   3049.309      2925.529      1033.952      3177.725
## AbnormalAccruals     0.02633054    0.23014654    0.57025422    0.35096201
## Accruals              0.4210568     0.4899567     0.1553753     0.4305969
## AccrualsBM            3.1548933    -0.1322866     0.4146843     1.1541456
## Activism1           -0.49206514          <NA>          <NA>   -0.34829993
## Activism2             1.037857          <NA>          <NA>      2.092757
## AdExp                1.3581686    -1.1711213     0.2425836     0.8350237
```

```
## AgeIPO                     0.4362128     2.4119261    3.5482674    1.7300468
## AM                         0.8585583    -1.0609903    0.8540761    0.7335536
## AnalystRevision            0.1726677     1.2723115    0.7205468    0.6825464
## AnalystValue               1.2023151    -0.1418451    0.3010113    0.9341409
## AnnouncementReturn         0.9033905     0.7126264    0.6263243    1.3873237
## AOP                       -0.07905559   -1.39748227   0.20635107   0.54125787
## AssetGrowth                0.8564991     0.3334776    0.9862103    0.3051672
## Beta                       0.6147500     0.7113430    1.8114853    0.7985677
## BetaFP                     0.2682445     0.5391514    1.8689786    0.7666624
## BetaLiquidityPS            0.6848059     0.1498843    0.7721640   -0.5573313
## BetaTailRisk               0.6381617     0.3029363    2.0146498    0.2979128
## betaVIX                    0.2843519          <NA>         <NA>    0.6587090
## BidAskSpread               0.1505894     0.6313139    1.3415683    0.4092301
## BM                         0.8834670    -0.1301277    0.7658959    1.0843246
## BMdec                      0.9633204    -0.4403962    0.7518638    1.0907990
## BookLeverage               0.06779006    0.46317380  -0.14089365  -0.17602896
## BPEBM                     -0.03899244   -0.27754036   0.01650201  -0.32504822
## BrandInvest                0.4504883     0.5618952    1.4232984   -0.1061916
## Cash                      -0.68189137    0.36281038   0.26403032  -0.02497073
## CashProd                   0.7411735    -1.0068969    0.3631705    0.5893482
## CBOperProf                 0.9088907    -0.4617247    0.2312647   -0.4226560
## CF                         0.4262461    -0.6218045    0.8450171    0.6351297
## cfp                        0.76191851    0.05795428  -0.36544884   0.43030033
## ChangeInRecommendation     0.44701826         <NA>         <NA>   -0.05768846
## ChAssetTurnover            0.13939492    0.35429828   0.30300883  -0.04483864
## ChEQ                       0.36179263   -0.14818368   0.31596207   0.03577742
## ChForecastAccrual          0.3939623     0.7718566   -0.1942280    0.3682252
## ChInv                      0.4523719     0.2202849    0.7372451    0.4201985
## ChInvIA                    0.3610487     0.2428946    0.6525690    0.4142033
## ChNAnalyst                 0.6127473     0.4726038   -0.3434360   -1.5326709
## ChNNCOA                    0.24936001    0.32164370   0.06163533  -0.11974358
## ChNWC                      0.20837498    0.15640340   0.21335050   0.01339356
## ChTax                      0.8890405     1.4493091    1.5669573    1.1693510
## CitationsRD                0.8368720    -0.1559518   -0.2406336    0.5024298
## CompEquIss                 0.2807450     0.9528228   -0.2584478    0.2844608
## CompositeDebtIssuance      0.17719613   -0.04269235   0.49443497  -0.26278319
## ConsRecomm                -0.03974495         <NA>         <NA>   -1.10246047
## ConvDebt                   0.27168025   -0.10745477  -0.35776876  -0.04354383
## CoskewACX                  0.5931348     0.4681350    0.4019304    0.2571916
## Coskewness                 0.006008876   1.190383815  0.181158989  0.179604445
## CredRatDG                 -0.3517792          <NA>         <NA>    0.1315265
## CustomerMomentum           0.7066689     0.6105816    0.7684233    0.6890657
## DebtIssuance               0.15262147   -0.15359740  -0.01738873  -0.17380952
## DelBreadth                -0.1747739     1.6698221   -0.5895384    0.1232352
## DelCOA                     0.5321568    -0.2805373    0.5240352    0.1634550
## DelCOL                     0.22779075   -0.24501843   0.05601313   0.32844668
## DelDRC                     0.5154882          <NA>         <NA>   -1.3917692
## DelEqu                     0.90006164   -0.54822755   0.33380166   0.04223031
## DelFINL                    0.4057045     0.5203343    0.7618665    0.3377018
## DelLTI                     0.04634503    0.19891605   0.22833105  -0.05237321
## DelNetFin                  0.1557908     0.3115599    0.3436389    0.2197873
## DivInit                    0.08122572    0.52538813   0.69526102   0.51437379
## DivOmit                    0.05963606    0.74023098   0.28379173  -0.06451629
## DivSeason                  0.06598901    0.45228332   0.51437899   0.17949531
```

```
## DivYieldST                      0.2980961    0.3801269    0.3173352    0.0281873
## dNoa                            0.3709326    0.4527493    0.7262281    0.3575118
## DolVol                          0.39442929   0.09542962   0.65980785   0.06849508
## DownRecomm                      0.2604120         <NA>         <NA>    0.4028521
## EarningsConsistency             0.20763039   0.23178081  -0.02615184   0.36198894
## EarningsForecastDisparity       0.3388854         <NA>         <NA>    0.3262336
## EarningsStreak                  0.3672596         <NA>         <NA>    0.9180982
## EarningsSurprise               -0.1839735    1.1744681    0.9547711    0.8040650
## EarnSupBig                     -0.262313007   0.243606464  0.508608866  0.001115107
## EBM                             0.17663545  -0.63404012   0.05434456   0.16350515
## EntMult                         1.19052583  -1.35658753   0.01847978   0.37482802
## EP                              0.7055236   -0.5362255    0.4448284   -0.1717024
## EquityDuration                  0.8429597   -0.2303490    1.0601971    0.9326914
## ExchSwitch                      1.0513657   -0.6101223   -0.1880780   -0.4294102
## ExclExp                         0.2115920         <NA>         <NA>    0.2331772
## FEPS                            1.8518600    0.4522948   -0.5265040    0.6323286
## fgr5yrLag                       1.09927662        <NA>         <NA>    0.39229498
## FirmAge                        -0.12033672    0.20201669   0.58250372   0.05043775
## FirmAgeMom                      0.9209487    0.8304259    1.0792896    0.5172160
## ForecastDispersion              0.02870313  -0.20433874  -0.13597051   0.45239165
## FR                             -1.489665649        <NA>    0.501903461 -0.608153519
## Frontier                        2.3760217   -0.1942172    0.6223174    1.9171860
## Governance                     -1.91984051        <NA>         <NA>    0.64578116
## GP                              0.4751555   -0.5343934   -0.2472036    0.2392987
## GrAdExp                         0.4020626   -0.2585725    0.2377001    1.2513822
## grcapx                          0.5128402    0.1825007    0.4065152    0.1032979
## grcapx3y                        0.4346431    0.3178395    0.5995467    0.1912779
## GrLTNOA                         0.18403763  -0.07667498   0.40183984   0.41103745
## GrSaleToGrInv                   0.23855485   0.14772993   0.22001699  -0.03947526
## GrSaleToGrOverhead              0.02532743  -0.10414963   0.05413853   0.02682901
## Herf                           -0.29488403  -0.10850803   0.23224989  -0.35511106
## HerfAsset                      -0.31277648  -0.16150941   0.39516745  -0.48016078
## HerfBE                         -0.20417762  -0.06671533   0.09613085  -0.50336778
## High52                         -0.2211299   -0.2901302    0.1058706    0.1680186
## hire                            0.87989807  -0.28620731   0.02816518   0.30508207
## IdioRisk                        0.69304460  -1.16470914  -0.84156970   0.09733884
## IdioVol3F                       0.6194020   -1.1220110   -0.7015016    0.1513564
## IdioVolAHT                      0.2139808   -0.3226218   -1.3346196   -0.3567274
## Illiquidity                     0.2130148    0.1577644    1.1432501    0.3309129
## IndIPO                          0.9829594   -0.9962528   -0.9266612    0.7760464
## IndMom                          0.6816334   -0.2418596    0.4982168   -0.1491234
## IndRetBig                       1.0870101    1.6631855    0.6565624    1.5401219
## IntanBM                         1.1692514   -0.3864607    0.4341717    0.3612261
## IntanCFP                        0.6340195   -0.1868784    0.8819794    0.2259202
## IntanEP                         0.399106765 -0.952931097  0.783647104 -0.004496466
## IntanSP                         0.82219363  -0.33288804   1.24208351   0.06364209
## IntMom                          0.6056985    3.1642388    1.8912606    2.3059434
## Investment                      0.50500924   0.30216720   1.01435481  -0.02725216
## InvestPPEInv                    0.4547203    0.2126179    0.4823930    0.4442079
## InvGrowth                       0.5330302    0.2481701    0.6818387    0.4646191
## IO_ShortInterest                3.8151797    0.8632779    1.5713305    6.4991268
## iomom_cust                      0.1059956         <NA>         <NA>    0.4572890
## iomom_supp                     -0.7649390         <NA>         <NA>    0.2413446
## Leverage                        0.7438241   -0.9830954    0.7653682    0.6394837
```

```
## LRreversal                  0.8456871    0.1105182    0.3006160    0.4306975
## MaxRet                      0.79462101  -0.95309177  -1.05871303  -0.02844093
## MeanRankRevGrowth           0.1627314   -0.2124493    0.6694053    0.1463517
## Mom12m                     -0.01411571   1.03324535   1.26577892   0.76004951
## Mom12mOffSeason            0.01740477   0.58417668   1.31867159   0.56323460
## Mom6m                      0.02996198  -0.08845327   1.07005401   0.20734415
## Mom6mJunk                  -0.3163612    1.0797699    0.3269317    0.4846318
## MomOffSeason                1.4265597    0.6193408    1.0537566    0.6051177
## MomOffSeason06YrPlus        0.6538721   -0.6076008    0.5397740    0.5121762
## MomOffSeason11YrPlus       0.01265773   0.10934613  -0.90989253  -0.07552655
## MomOffSeason16YrPlus        0.2817510    0.5995749    0.2546983    0.6181647
## MomRev                      0.4708548   -0.1489987    0.7625229    0.4690272
## MomSeason                   0.6762376    0.5263799    0.3100327    1.4730175
## MomSeason06YrPlus          0.79361623   0.51130119  -0.05010614   0.95737209
## MomSeason11YrPlus           0.3240026    0.4913190    0.9544558    0.4913623
## MomSeason16YrPlus           0.3525067    0.4739080    0.1470285    0.8142904
## MomSeasonShort              0.3673853    2.5018549    0.7771047    1.3061355
## MomVol                      0.4443748    0.5912402    1.7235938    1.0098414
## MRreversal                 -0.03272277   0.05750855  -0.71200283   0.50379382
## MS                         0.03805596   2.13789862  -0.74260694   1.41724186
## NetDebtFinance              0.6258270    0.2801121    0.6280199    0.4089119
## NetDebtPrice               -0.2217739    0.4028793   -0.4652624    0.2145390
## NetEquityFinance            0.8772152    0.3844255    1.2084037    1.2041431
## NetPayoutYield              0.8433844   -0.2816154    0.4012785    0.2711820
## NOA                        0.25599131  -0.72170053   0.05286028   0.16174524
## NumEarnIncrease             0.3342072    0.4659587    0.6119994    0.1652346
## OperProf                    0.7734056    0.1285619    0.3151741    0.4076534
## OperProfRD                 0.38769295  -0.34861506  -0.33463790  -0.06229631
## OPLeverage                  0.4372379    0.1290912    0.3689537    0.3410769
## OptionVolume1               1.0195722         <NA>         <NA>    1.4240020
## OptionVolume2               0.5756316         <NA>         <NA>   -1.0608608
## OrderBacklog                0.2291194   -1.0522364    0.1179737    0.0471899
## OrderBacklogChg             0.6654142    0.1008001    0.6144336    0.3548762
## OrgCap                     -0.02034731   0.51957117   0.79215934   0.73394553
## OScore                      2.2556197    0.2824098   -0.2801180   -0.2629791
## PatentsRD                 0.001253668 -0.323716513 -0.031310479 0.539484449
## PayoutYield                 0.7541172   -1.2360967   -0.8463377    0.7138553
## PctAcc                     0.33428935  -0.03767369   0.06873758   0.63630596
## PctTotAcc                   0.1186640         <NA>         <NA>    0.2612907
## PredictedFE               0.229844497         <NA>         <NA>  0.157832914
## Price                       0.6393446    1.5162819    1.7252378    0.3765351
## PriceDelayRsq              0.36216641  -0.28249098   0.05831311  -0.09527453
## PriceDelaySlope            0.21472134   0.04585773  -0.21574912   0.01238821
## PriceDelayTstat           -0.01216845  -0.37152141  -0.04608572  -0.04344528
## ProbInformedTrading         3.5251462         <NA>         <NA>   -0.5459956
## PS                          3.0135648    0.2990354    1.7996520   -0.2752636
## RD                          0.6592508    0.1158196    1.0168673    0.5462259
## RDAbility                  -0.32224813  -0.07671407   0.12271532  -0.19929275
## RDcap                     0.236211796   1.913679524 -0.024006164 0.007765402
## RDIPO                       0.49692284   0.21153875  -1.04502700  -0.06248682
## RDS                         0.2161752   -0.5843259    0.7684089    0.4246607
## realestate                 -0.22440194   0.42499477  -0.16771727  -0.06812877
## Recomm_ShortInterest        1.5091781         <NA>         <NA>    1.7626635
## ResidualMomentum            0.5359980    0.9398925    0.4547066    1.0104812
```

```
## retConglomerate              0.8562204     1.3497228     0.9437288     0.9332994
## ReturnSkew                    0.4523926     0.5096781     0.4414329     0.1441451
## ReturnSkew3F                  0.31386207    0.32489395    0.03653034    0.32103055
## REV6                         -0.61882773    1.33146326   -0.05323228    0.37688304
## RevenueSurprise              -0.03248414    0.34383999    0.71811300    0.77603490
## RIO_Disp                      0.2212994    -0.2226362     4.4819091     0.9618043
## RIO_MB                        0.9728107     0.3763341     1.0811062     0.9117922
## RIO_Turnover                  0.4309456     0.3466555     0.6939265     0.2703134
## RIO_Volatility                0.2387561     0.3541348    -0.1391281     0.4901496
## roaq                          1.1565715     1.3474772     0.9033452     1.7663673
## RoE                           0.99662133    0.26676701    0.05406811   -0.14406203
## sfe                           1.5133062    -0.7233243     0.9060949     0.9625681
## ShareIss1Y                    0.5782494    -0.1938057     0.4222871     0.5299166
## ShareIss5Y                    0.5522308    -0.1767747     0.8508552     0.5629957
## ShareRepurchase               0.02696301    0.06072257    0.06432575    0.29197183
## ShareVol                      0.61461466    0.40483239   -0.05748689    0.08546658
## ShortInterest                 1.5425117    -0.2256040     0.4103613     0.8536728
## sinAlgo                       0.6910382     0.1866812    -0.9221614    -0.1230895
## Size                          0.3219998     0.3475737     0.6673240     0.2367773
## skew1                         0.6970731          <NA>          <NA>     1.4480000
## SmileSlope                    0.8556539          <NA>          <NA>     0.9681559
## SP                            1.2204927    -0.6852198     1.0715064     1.1306510
## Spinoff                      -0.2741458     0.2036511     1.4708104    -0.0476615
## std_turn                     -0.3377809    -0.1157104    -1.1016520     0.5634795
## STreversal                    1.440729      4.057694      3.243557      2.784767
## SurpriseRD                   -0.19169312    0.19700998   -0.05937370   -0.20124732
## tang                          0.29577329    0.08995939   -0.63052792   -0.30367551
## Tax                           0.302345519  -0.002416119   0.063418753   0.136688382
## TotalAccruals                 0.28028863   -0.21943478    0.22803895    0.01050826
## TrendFactor                   1.0461632     2.1022629     2.1354691     0.7854414
## UpRecomm                      0.26779392         <NA>          <NA>    -0.04436329
## VarCF                        -0.8674136    -0.8190365    -1.8700634    -0.6531240
## VolMkt                        0.1937865    -0.5294824    -1.0110921    -0.5827302
## VolSD                         0.1359140    -0.2057433    -0.4859120    -0.1068988
## VolumeTrend                   0.7210125     0.1720886     0.8808020     0.2887438
## XFIN                          0.95553822   -0.05367808    0.68226305    1.31499769
## zerotrade                     0.1448306    -0.1925452    -1.0868737    -0.1176449
## zerotradeAlt1                 0.0539797     0.1722209    -0.8381132    -0.5164747
## zerotradeAlt12                0.05279821   -0.31204614   -0.64595777   -0.27051664
## CPIAUCSL_PC1                  0.5748973    12.1581894     7.5898414     4.5867475
## PCE                           0.640187     10.296030      6.841993      4.231312
## PPIACO_PC1                   -2.225997     15.294938      7.655900      4.048700
## ULC                          -0.9202023    11.0827768     7.0898938     4.1421507
##                                     V5
## regime                              ka
## date                          6097.453
## AbnormalAccruals            0.09105758
## Accruals                     0.3320061
## AccrualsBM                   1.2036662
## Activism1                   0.09257048
## Activism2                    0.447442
## AdExp                        0.4200381
## AgeIPO                       0.6769359
## AM                           0.4333835
```

```
## AnalystRevision          0.5964380
## AnalystValue             0.1188120
## AnnouncementReturn        1.0711971
## AOP                       0.18143230
## AssetGrowth               0.9000433
## Beta                     -0.0906779
## BetaFP                   -0.5516538
## BetaLiquidityPS           0.2924768
## BetaTailRisk              0.1451798
## betaVIX                   0.5594740
## BidAskSpread              0.1103219
## BM                        0.9403808
## BMdec                     0.6534744
## BookLeverage              0.02096900
## BPEBM                     0.17956168
## BrandInvest               0.2199584
## Cash                      0.61730496
## CashProd                  0.3030874
## CBOperProf                0.5836953
## CF                        0.3232989
## cfp                       0.31680108
## ChangeInRecommendation    0.55699322
## ChAssetTurnover           0.14429140
## ChEQ                      0.52162178
## ChForecastAccrual         0.1344884
## ChInv                     0.5987229
## ChInvIA                   0.2755363
## ChNAnalyst                0.8991019
## ChNNCOA                   0.19839446
## ChNWC                     0.10952466
## ChTax                     0.7945339
## CitationsRD               0.1353830
## CompEquIss                0.2069181
## CompositeDebtIssuance     0.22745880
## ConsRecomm                0.54830987
## ConvDebt                  0.22787101
## CoskewACX                 0.2752906
## Coskewness                0.029296594
## CredRatDG                 0.7726425
## CustomerMomentum          0.6984864
## DebtIssuance              0.30058699
## DelBreadth                0.6169475
## DelCOA                    0.3734112
## DelCOL                    0.18523686
## DelDRC                    0.5601164
## DelEqu                    0.50769985
## DelFINL                   0.4482174
## DelLTI                    0.14042625
## DelNetFin                 0.2888160
## DivInit                   0.23524192
## DivOmit                   0.57806686
## DivSeason                 0.23708895
## DivYieldST                0.4801944
## dNoa                      0.8142712
```

```
## DolVol                   0.44738574
## DownRecomm               0.3584973
## EarningsConsistency      0.21893697
## EarningsForecastDisparity 0.3996814
## EarningsStreak           0.9253554
## EarningsSurprise         0.6420683
## EarnSupBig               0.382280835
## EBM                      0.24495748
## EntMult                  0.69503872
## EP                       0.2661944
## EquityDuration           0.3181311
## ExchSwitch               0.7394125
## ExclExp                  0.0646819
## FEPS                     0.7098153
## fgr5yrLag                0.03495349
## FirmAge                  -0.12983692
## FirmAgeMom               1.7366662
## ForecastDispersion       0.45049351
## FR                       0.007689619
## Frontier                 1.2311439
## Governance               -0.04909174
## GP                       0.4440338
## GrAdExp                  0.1371478
## grcapx                   0.2981525
## grcapx3y                 0.3297430
## GrLTNOA                  0.10112106
## GrSaleToGrInv            0.21538930
## GrSaleToGrOverhead       -0.06433602
## Herf                     0.09315307
## HerfAsset                0.07303777
## HerfBE                   0.10097445
## High52                   0.4373528
## hire                     0.43645427
## IdioRisk                 0.86172557
## IdioVol3F                0.8430268
## IdioVolAHT               0.4924801
## Illiquidity              0.2250501
## IndIPO                   0.4514838
## IndMom                   0.3566637
## IndRetBig                1.5806057
## IntanBM                  0.1512955
## IntanCFP                 0.2309149
## IntanEP                  0.301235854
## IntanSP                  0.34203530
## IntMom                   0.9707825
## Investment               0.02156924
## InvestPPEInv             0.5178195
## InvGrowth                0.6337403
## IO_ShortInterest         3.2072265
## iomom_cust               0.6046227
## iomom_supp               0.6697496
## Leverage                 0.3506582
## LRreversal               0.3895934
## MaxRet                   0.81812027
```

```
## MeanRankRevGrowth            0.1921459
## Mom12m                       1.03209576
## Mom12mOffSeason              1.25931459
## Mom6m                        1.06867457
## Mom6mJunk                    1.0984794
## MomOffSeason                 0.6674095
## MomOffSeason06YrPlus         0.6284383
## MomOffSeason11YrPlus         0.24587683
## MomOffSeason16YrPlus         0.1712733
## MomRev                       0.9960005
## MomSeason                    0.6566663
## MomSeason06YrPlus            0.51616328
## MomSeason11YrPlus            0.5074241
## MomSeason16YrPlus            0.4813496
## MomSeasonShort               0.6836743
## MomVol                       1.5142196
## MRreversal                   0.29872382
## MS                           0.85577624
## NetDebtFinance               0.6624130
## NetDebtPrice                 0.5381644
## NetEquityFinance             0.8820865
## NetPayoutYield               0.6849279
## NOA                          1.00067856
## NumEarnIncrease              0.4038620
## OperProf                     0.3627738
## OperProfRD                   0.48179861
## OPLeverage                   0.3659825
## OptionVolume1                0.2283637
## OptionVolume2                0.1960664
## OrderBacklog                 0.1183697
## OrderBacklogChg              0.2736853
## OrgCap                       0.34947283
## OScore                       0.6746424
## PatentsRD                    0.238393609
## PayoutYield                  0.2270352
## PctAcc                       0.38775781
## PctTotAcc                    0.3920791
## PredictedFE                  0.003929065
## Price                        0.1402833
## PriceDelayRsq                0.37605932
## PriceDelaySlope              0.07886039
## PriceDelayTstat              0.07931134
## ProbInformedTrading          1.2513255
## PS                           0.5736219
## RD                           0.8238680
## RDAbility                    0.07588159
## RDcap                        0.331896061
## RDIPO                        0.73058959
## RDS                          0.2667755
## realestate                   0.25266792
## Recomm_ShortInterest         0.4994125
## ResidualMomentum             0.9312448
## retConglomerate              1.1351242
## ReturnSkew                   0.3177311
```

```
## ReturnSkew3F             0.18839757
## REV6                     0.68306344
## RevenueSurprise          0.56802997
## RIO_Disp                  0.4805761
## RIO_MB                    0.5124134
## RIO_Turnover              0.4495709
## RIO_Volatility            0.6593872
## roaq                      0.9979566
## RoE                      0.12682728
## sfe                       0.4573849
## ShareIss1Y                0.4537348
## ShareIss5Y                0.3033188
## ShareRepurchase          0.15116165
## ShareVol                 0.30827526
## ShortInterest             0.7487663
## sinAlgo                   0.1904260
## Size                      0.1154701
## skew1                     0.4579236
## SmileSlope                1.2616213
## SP                        0.6847448
## Spinoff                   0.1702715
## std_turn                  0.5132166
## STreversal                1.915060
## SurpriseRD               0.07441064
## tang                     0.33090059
## Tax                     0.342155905
## TotalAccruals            0.31629193
## TrendFactor               1.3189003
## UpRecomm                 0.32316726
## VarCF                    -0.3801648
## VolMkt                    0.4707255
## VolSD                     0.1986657
## VolumeTrend               0.4847403
## XFIN                      1.05004099
## zerotrade                 0.3686882
## zerotradeAlt1             0.5544981
## zerotradeAlt12           0.27512142
## CPIAUCSL_PC1              3.3323047
## PCE                       2.951492
## PPIACO_PC1                3.200651
## ULC                       2.7921798
```