2008 Financial Crisis Change Point Analysis

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## January 2008

In January, home sales fell to the lowest level in 10 years after the housing boom in 2006. On January 22, the FOMC lowered the fed funds rate to 3.5%, and again to 3% a week later.

## Detect changes January 2008  
startDate <- as.Date("2008-01-01")  
endDate <- as.Date("2008-01-30")  
f\_t <- concatVectors(startDate, endDate, sector.df.list)  
  
# calculate p-value for each individual sector  
pval\_individual <- c(xlb=getPVals(f\_t, A=1), xle=getPVals(f\_t, A=2),  
 xlf=getPVals(f\_t, A=3), xli=getPVals(f\_t, A=4),  
 xlk=getPVals(f\_t, A=5), xlp=getPVals(f\_t, A=6),  
 xlu=getPVals(f\_t, A=7), xlv=getPVals(f\_t, A=8),  
 xly=getPVals(f\_t, A=9))  
pval\_individual <- sort(pval\_individual)  
newIndexes <- c(which(names(sectors)==names(pval\_individual)[1]),  
 which(names(sectors)==names(pval\_individual)[2]),  
 which(names(sectors)==names(pval\_individual)[3]),  
 which(names(sectors)==names(pval\_individual)[4]),  
 which(names(sectors)==names(pval\_individual)[5]),  
 which(names(sectors)==names(pval\_individual)[6]),  
 which(names(sectors)==names(pval\_individual)[7]),  
 which(names(sectors)==names(pval\_individual)[8]),  
 which(names(sectors)==names(pval\_individual)[9]))  
  
# identification procedure  
sectorsWithChange <- c()  
currentSectorHasChange <- T  
i <- 1  
while (currentSectorHasChange) {  
 if (getPVals(f\_t, A=newIndexes[i:9]) <= 0.05) {  
 sectorsWithChange <- c(sectorsWithChange, newIndexes[i])  
 } else currentSectorHasChange <- F  
 i <- i + 1  
}

The sectors that show a change in distribution in January are materials, energy, industrials, consumer staples, utilities, health care, consumer discretionary, financials.