# Read in growth rates from the main Ke spreadsheet and create Figure 10

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library(tidyverse)

library(lubridate)

library(readxl)

# Color palette for plots.

colPalette <- c("#156082", "#E97132","#4EA72E", "#0F9ED5", "#A02B93",

 "#196B24", "#E69F00", "#CC79A7")

# User should replace these paths with his or her own paths.

pathIn<-"C:/Users/frank/OneDrive/Ontario Energy Board/Work Product"

fileIn<-"NAICS 2211 v04.xlsx"

pathOut<-"C:/Users/frank/OneDrive/Ontario Energy Board/R\_analysis/Rdata"

pathTemp<-"C:/Users/frank/OneDrive/Ontario Energy Board/R\_analysis(final)/Plots"

# These are the unfiltered raw growth rates from the main cost of

# equity spreadsheet.

data1<-read\_xlsx(path=paste(pathIn,fileIn,sep="/"),

 sheet="Ke Analysis",na=" ",col\_names=TRUE,

 #col\_types="numeric",

 range=c("A6:AC123"))

data1<-data1%>%

 select(Ticker,WebScrape,`g Yahoo`,`g Zacks`,`g1 CapIQ`,`g1 stockAnalysis`)

names(data1)<-c("Ticker","webscrape","yahoo","zacks","capiq","sa")

# Pull the growth rates and keep only those that are within 2 standard

# deviations of the mean.

gRates<-data1%>%

 filter(webscrape==1)%>%

 select(Ticker,yahoo,zacks,sa,capiq)%>%

 mutate(yahoo=as.numeric(yahoo),

 zacks=as.numeric(zacks),

 capiq=as.numeric(capiq),

 sa=as.numeric(sa),

 yahoo=ifelse(yahoo<.014 | yahoo>.174,NA,yahoo),

 zacks=ifelse(zacks<.014 | zacks>.174,NA,zacks),

 capiq=ifelse(capiq<.014 | capiq>.174,NA,capiq),

 sa=ifelse(sa<.014 | sa>.174,NA,sa))%>%

 rowwise()%>%

 mutate(miny=min(yahoo,zacks,sa,capiq,na.rm=TRUE)\*100,

 maxy=max(yahoo,zacks,sa,capiq,na.rm=TRUE)\*100,

 miny=ifelse(miny==Inf | miny==-Inf,NA,miny),

 maxy=ifelse(maxy==Inf | maxy==-Inf,NA,maxy))%>%

 ungroup()

 # Get rid of any miny or maxy that are -Inf or Inf

gRates<-gRates%>%

 filter(!is.na(miny))

gRates$avg=rowMeans(gRates[,2:5],na.rm=TRUE)

# Create the input dataset for ggplot

plotData<-gRates%>%

 pivot\_longer(names\_to="source",values\_to="growth",-c(miny,maxy,avg,Ticker))%>%

 mutate(growth=growth\*100,

 avg=avg\*100)

# Create Figure 10

ggplot(plotData,aes(x=Ticker,y=growth,colour=source))+

 geom\_point(size=2,shape=15)+

 geom\_segment(aes(x=Ticker,y=miny,yend=maxy),colour="grey40",linewidth=.5)+

 #geom\_point(aes(x=Ticker,y=avg),size=2,shape=9,colour="black")+

 scale\_color\_manual(values=colPalette,labels=c("CapIQ","StockAnalysis",

 "Yahoo","Zacks"))+

 ylab("Projected EPS Growth (Percent)")+

 theme\_bw()+

 theme(legend.position="bottom",

 axis.text.x=element\_text(angle=0,vjust=0.4,size=9),

 axis.text.y=element\_text(size=7),

 legend.title=element\_blank(),

 legend.background = element\_rect(fill="white"),

 axis.title.x=element\_text(face="bold",color="grey34",size=9),

 axis.title.y=element\_blank())+

 coord\_flip()+

 scale\_y\_continuous(labels = function(x) format(x, nsmall = 1),limits=c(2,17))+

 scale\_x\_discrete(limits=rev)

# Save the graphic

ggsave("g\_for\_esps.jpg",path=paste(pathTemp,"/",sep=""),

 width=6,height=5,units="in")