# Read in betas from the Ke spreadsheet and create Figure 9

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library(tidyverse)

library(lubridate)

library(readxl)

# Color palette for plots.

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

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

# Insert your own paths here.

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"

tickers<-read\_excel(path=paste(pathIn,fileIn,sep="/"),

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

 range=c("A6:A123"))

# Read in raw betas from spreadsheet

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

 sheet="Betas & Table 8",na=" ",col\_names=TRUE,

 col\_types="numeric",

 range=c("D6:G123")))

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

data2<-data1%>%

 mutate(yahoo=ifelse(yahoo==0,NA,yahoo),

 zacks=ifelse(zacks==0,NA,zacks),

 capiq=ifelse(capiq==0,NA,capiq),

 sa=ifelse(sa==0,NA,sa))%>%

 rowwise()%>%

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

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

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

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

gRates<-cbind(tickers,data2)

gRates<-gRates%>%

 filter(!is.na(miny))

plotData<-gRates%>%

 pivot\_longer(names\_to="source",values\_to="beta",-c(miny,maxy,Ticker))

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

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

 geom\_segment(aes(x=Ticker,y=miny,yend=maxy),colour="grey10",size=.1)+

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

 "StockAnalysis",

 "Yahoo","Zacks"))+

 ylab("Beta")+

 theme\_bw()+

 #ggtitle("Beta Estimates for Electric Service Providers")+

 theme(legend.position="bottom",

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

 axis.text.y=element\_text(size=6),

 #plot.title=element\_text(face="bold",colour="grey34",hjust=.5,size=12),

 legend.title=element\_blank(),

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

 axis.title.x=element\_text(color="grey34"),

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

 coord\_flip()+

 scale\_y\_continuous(labels = function(x) format(x, nsmall = 1.75))+

 scale\_x\_discrete(limits=rev)

# Save the graphic

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

 width=5,height=4,units="in")