October and December have been devastating for stocks. It wasn’t until Friday though that we officially reached the depths of a bear market.

There are different theories, the most common is 20% pullback in an index. Based on this definition, a bear market is official when two of the three major indexes (Dow Jones Industrial, S&P 500 and Dow Jones Transportation) reach a 16% decline of the most recent high. For the mathematically inclined, the 16% is not random – simply it takes about 19% gain off the bottom of a 16% decline to reach the same level. Thus, a bear market is official at 16%, and a bull market – at 19%.

Friday was significant on these metrics. Here is the situation on the S&P 500:

require(quantmod)

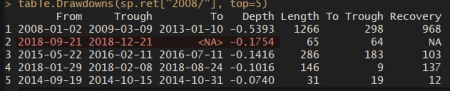
require(PerformanceAnalytics)

sp = getSymbols("^GSPC", from="1900-01-01", auto.assign=F)

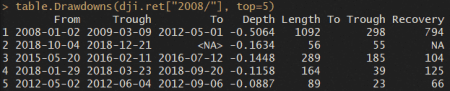
sp.ret = ROC(Cl(sp), type="discrete")

table.Drawdowns(sp.ret["2008/"], top=5)

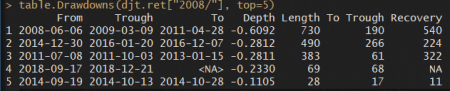
This has the following output:

[](https://i1.wp.com/www.quintuitive.com/wp-content/uploads/2018/12/spbear.png)

The current pullback is the first 16+% correction since 2008. The story is the same on the Dow Jones Industrial:

[](https://i2.wp.com/www.quintuitive.com/wp-content/uploads/2018/12/djibear.png)

And slightly different on the Down Jones Transportation:

[](https://i1.wp.com/www.quintuitive.com/wp-content/uploads/2018/12/djtbear.png)

This is certainly the most cherished bear market in US history, but that won’t make it less painful or less damaging. A recession does not always follow a bear market, but does quite often. How often – check Jack Schannep’s book. There are a few interesting statistics, like the average bear market decline and duration. Let’s take the S&P 500 (history from 1950) and do the math:

dd = table.Drawdowns(sp.ret, top=20)

print(dd)

# A visual inspection shows that we

# 11 previous bear markets

mean(head(dd, 11)[,'Depth'])

# [1] -0.3288091 - 33%

median(head(dd, 11)[,'Depth'])

# [1] -0.2797 - 28%

max(head(dd, 11)[,'Depth'])

# [1] -0.1934 - 19%

A gloomy picture. The average bear market is 33%, the median bear market – 28% and the smallest – 19%. In other words, if history repeats itself, there is more pain to come. Significantly more on average.

The last piece of the puzzle (mine puzzle, Jack Schannep has a lot more), is to check the market for oversold signs. For this, Schannep has proposed a simple, yet powerful, indicator to forecast market bottoms. [It was extremely precise](https://theaverageinvestor.wordpress.com/2011/08/) in the 2011 pullback. Here is the code:

capitulation = function(spx=NULL, dji=NULL, nyse=NULL)

{

require(quantmod)

spx = if(is.null(spx)) na.fill(Ad(getSymbols("^GSPC", from="1900-01-01", auto.assign=F)), "extend") else spx

dji = if(is.null(dji)) na.fill(Ad(getSymbols("^DJI", from="1900-01-01", auto.assign=F)), "extend") else dji

nyse = if(is.null(nyse)) na.fill(Ad(getSymbols("^NYA", from="1900-01-01", auto.assign=F)), "extend") else nyse

spx.macd = MACD(spx, nFast=1, nSlow=50, maType=EMA)

dji.macd = MACD(dji, nFast=1, nSlow=50, maType=EMA)

nyse.macd = MACD(nyse, nFast=1, nSlow=50, maType=EMA)

merged = merge(spx.macd[,1], dji.macd[,1], nyse.macd[,1], spx, dji, nyse, all=FALSE)

merged = cbind(ifelse(merged[,1] <= -10 & merged[,2] <= -10 & merged[,3] <= -10, 1, 0), merged)

colnames(merged) = c("ind", "spx.ind", "dji.ind", "nyse.ind", "spx.close", "dji.close", "nyse.close")

capitulation = merged[merged[,1] == 1,2:NCOL(merged)]

return(list(capitulation=capitulation, details=merged))

}

cap = capitulation()

tail(cap$capitulation)

# spx.ind dji.ind nyse.ind spx.close dji.close nyse.close

# 2009-03-05 -16.48942 -16.15225 -16.95556 682.55 6594.44 4267.60

# 2009-03-06 -15.84705 -15.21571 -16.07971 683.38 6626.94 4284.49

# 2009-03-09 -16.14169 -15.70102 -16.65649 676.53 6547.05 4226.31

# 2009-03-10 -10.42353 -10.43552 -10.87757 719.60 6926.49 4499.38

# 2011-08-08 -13.47900 -11.42400 -14.88095 1119.46 10809.85 6895.97

# 2011-08-10 -12.61128 -11.47501 -11.57217 1120.76 10719.94 7101.24

The above table shows that there is no extreme selling in the current recess. All in all – more troubles ahead.