Analyzing your strategy

Our strategy

- Buy when:
  - 50-day moving average > 200-day moving average
  - *and* dvo < 20
- Sell when:
  - 50-day moving average < 200-day moving average
  - *or* dvo > 80

Run your strategy

- Apply your strategy

```
> applyStrategy(strategy = strategy.st,
                portfolios = portfolio.st)
```

- Update the portfolio

```
> updatePortf(portfolio.st)
> daterange <- time(getPortfolio(portfolio.st)$summary)[-1]
```

- Update the account

```
> updateAcct(account.st, daterange)
> updateEndEq(account.st)
```

Trade statistics

```
> tStats  <- tradeStats(Portfolios = portfolio.st)
> tStats
    Portfolio    Symbol    Num.Txns    Num.Trades    Net.Trading.PL    Avg.Trade.PL
LQD firstStrat   LQD        382         156          25681.09          164.6223

    Med.Trade.PL    Largest.Winner   Largest.Loser   Gross.Profits    Gross.Losses
LQD  363.0143        2981.424        -7012.523        77251.33         -51570.24

   Std.Dev.Trade.PL  Percent.Positive   Percent.Negative   Profit.Factor   Avg.Win.Trade
LQD  1174.442           66.66667           32.69231          1.497983        742.8012

     Med.Win.Trade   Avg.Losing.Trade   Med.Losing.Trade   Avg.Daily.PL   Med.Daily.PL
LQD   624.5683         -1011.181          -660.7456          164.6223       363.0143

     Std.Dev.Daily.PL  Ann.Sharpe   Max.Drawdown   Profit.To.Max.Draw   Avg.WinLoss.Ratio
LQD    1174.442         2.225141    -10625.62          2.416903            0.7345877

    Med.WinLoss.Ratio   Max.Equity   Min.Equity    End.Equity
LQD       0.9452477      27567.98    -1550.332     25681.09
```

Characteristics of Trading Systems

- Systems based on moving average/trend signals:
    - High average win/loss ratio (greater than 1)
    - Low percent positive (less than 50%)
- Systems based on oscillation/reversion signals:
    - High percent positive (greater than 50%)
    - Low average win/loss ratio (less than 1)

Let’s practice!

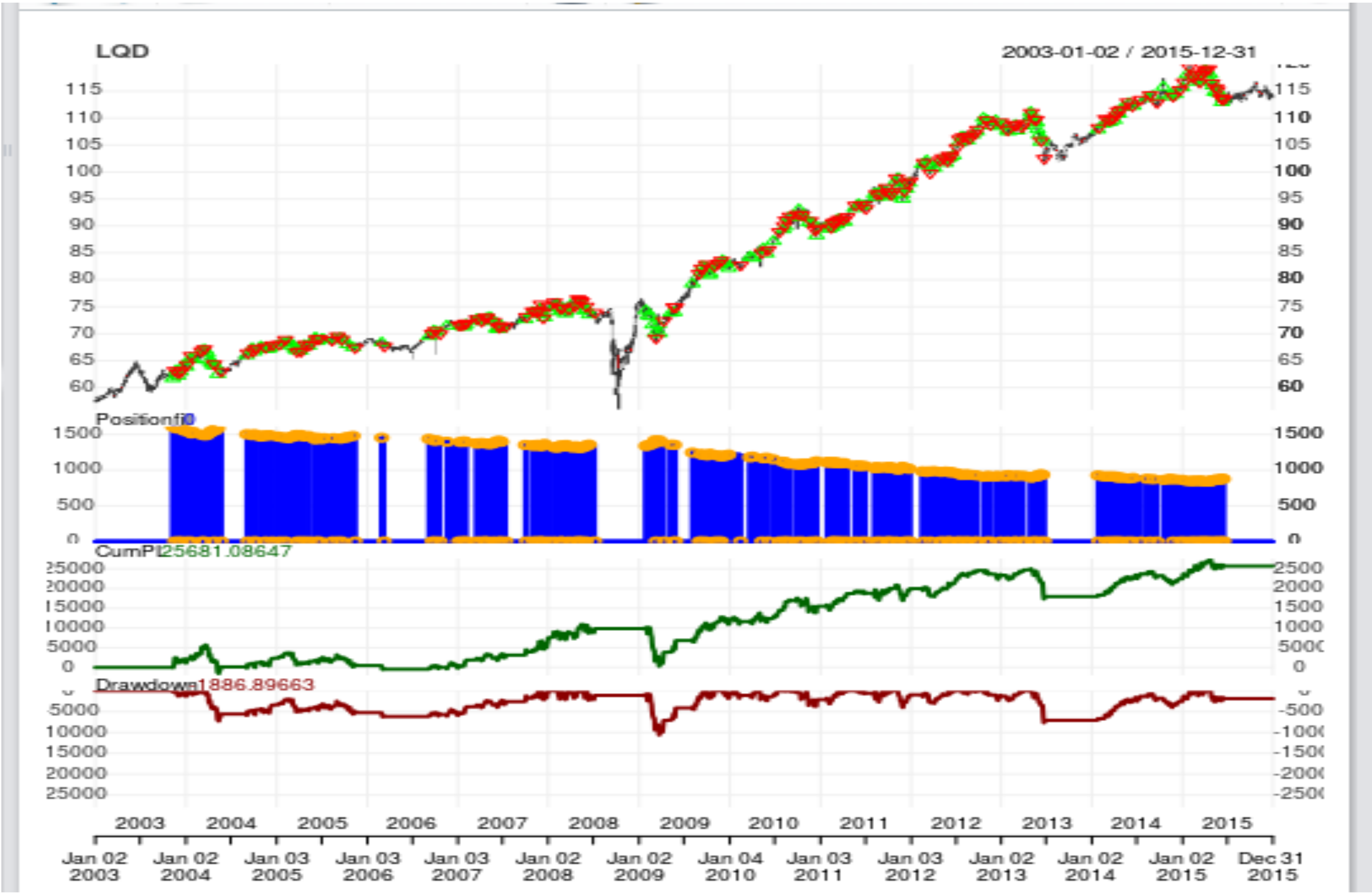
Visualizing your strategy

The chart.Posn function

- The `chart.Posn()` function is a good first glance at the performance of your strategy

```
> chart.Posn(portfolio = portfolio.st, Symbol = "LQD")
```

chart.Posn output



Adding indicators to chart

- Recalculate indicators outside of strategy to add to chart

```
> sma50 <- SMA(x = Cl(LQD), n = 50)
> sma200 <- SMA(x = Cl(LQD), n = 200)
> dvo <- DVO(HLC = HLC(LQD), nAvg = 2, percentLookback = 126)
```

- Add indicators with `add_TA()` command. Use `on = 1` to add to price plot

```
> chart.Posn(Portfolio = portfolio.st, symbol = "LQD")
> add_TA(sma50, on = 1, col = "blue")
> add_TA(sma200, on = 1, col = "red")
> add_TA(dvo)
```

Zoomed in

- Use `zoom_Chart("date1/date2")` to get a closer look
- Ex. `zoom_Chart("2007-08/2007-12")` results in:

Let's practice!

Additional analytics

Generate profit & loss (P&L) series

- The blotter environment contains history of transactions
- Syntax for P&L:

```
> portPL <- .blotter$portfolio.firstStrat$summary$Net.Trading.PL
> head(portPL)
                Net.Trading.PL
    1999-01-01           0
    2003-01-02           0
    2003-01-03           0
    2003-01-06           0
    2003-01-07           0
    2003-01-08           0
```

Sharpe ratio

- Ratio of reward to risk from your strategy
- Can be obtained using P&L from your strategy

```
> SharpeRatio.annualized(portPL, geometric = FALSE)

                                Net.Trading.PL
Annualized Sharpe Ratio (Rf=0%)     0.04879364
```

Getting returns

- Ratio between profit or loss on a given trade, divided by initial equity
- Obtaining portfolio returns:

```
> instrets <- PortfReturns(account.st)
> head(instrets, n = 3)
                     LQD.DailyEndEq
    2003-01-02                    0
    2003-01-03                    0
    2003-01-06                    0

> tail(instrets, n = 3)
                     LQD.DailyEndEq
    2015-12-29                    0
    2015-12-30                    0
    2003-12-31                    0
```

Getting Sharpe Ratio for returns

```
> SharpeRatio.annualized(instrets, geometric = FALSE)

                                 LQD.DailyEndEq
Annualized Sharpe Ratio (Rf=0%)    0.488011
```

Let's practice!