Backtesting Results

```
source("main.R")
rbind(emaF,emaM, emaS)
```

```
##       [,1]
## emaF    3
## emaM   44
## emaS  200
```

```
cbind(wdayBuy)
```

```
##      wdayBuy
## [1,]       2
## [2,]       4
## [3,]       5
## [4,]       7
```

```
cbind(wdaySell)
```

```
##      wdaySell
## [1,]        1
## [2,]        6
```

Obs:

Table 1:

	EURUSD
Portfolio	Port.Luxor
Symbol	EURUSD
Num.Txns	475
Num.Trades	237
Net.Trading.PL	228.1967
Avg.Trade.PL	0.958256
Med.Trade.PL	-1
Largest.Winner	24
Largest.Loser	-7.676667
Gross.Profits	433.3967
Gross.Losses	-206.29
Std.Dev.Trade.PL	5.398699
Std.Err.Trade.PL	0.3506832
Percent.Positive	19.40928
Percent.Negative	80.59072
Profit.Factor	2.10091
Avg.Win.Trade	9.421667
Med.Win.Trade	6
Avg.Losing.Trade	-1.080052
Med.Losing.Trade	-1
Avg.Daily.PL	0.978908
Med.Daily.PL	-1
Std.Dev.Daily.PL	5.459405
Std.Err.Daily.PL	0.3584275
Ann.Sharpe	2.846406
Max.Drawdown	-32.00333
Profit.To.Max.Draw	7.130403
Avg.WinLoss.Ratio	8.723343
Med.WinLoss.Ratio	6
Max.Equity	228.61
Min.Equity	-29.80333
End.Equity	228.1967

Table 2:

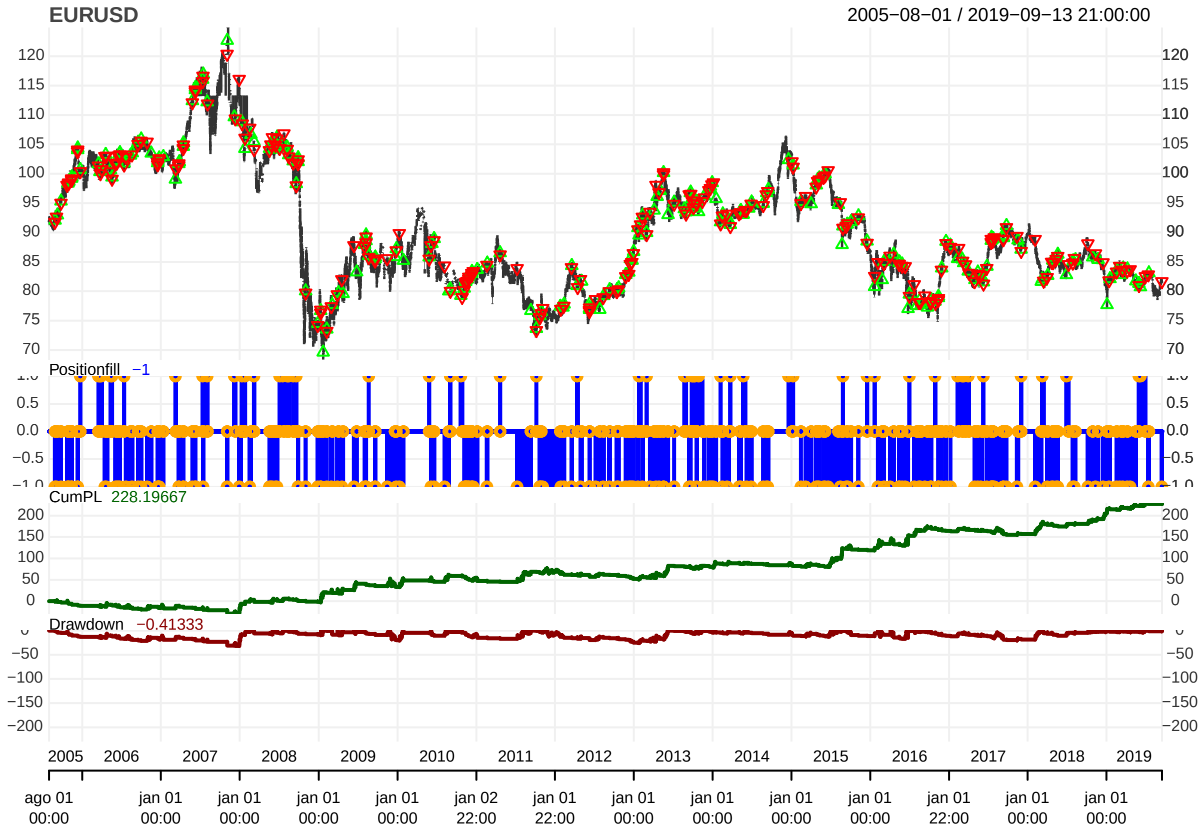
	EURUSD.DailyEqPL
Total.Net.Profit	228.20
Total.Days	1241.00
Winning.Days	620.00
Losing.Days	621.00
Avg.Day.PL	0.18
Med.Day.PL	0.00
Largest.Winner	19.77
Largest.Loser	-7.76
Gross.Profits	948.61
Gross.Losses	-720.41
Std.Dev.Daily.PL	1.99
Percent.Positive	49.96
Percent.Negative	50.04
Profit.Factor	1.32
Avg.Win.Day	1.53
Med.Win.Day	1.00
Avg.Losing.Day	-1.16
Med.Losing.Day	-0.97
Avg.Daily.PL	0.18
Med.Daily.PL	0.00
Std.Dev.Daily.PL.1	1.99
Skewness	3.33
Kurtosis	48.71
Ann.Sharpe	1.47
Max.Drawdown	-31.27
Profit.To.Max.Draw	7.30
Avg.WinLoss.Ratio	1.32
Med.WinLoss.Ratio	1.03
Max.Equity	228.54
Min.Equity	-29.80
End.Equity	228.20

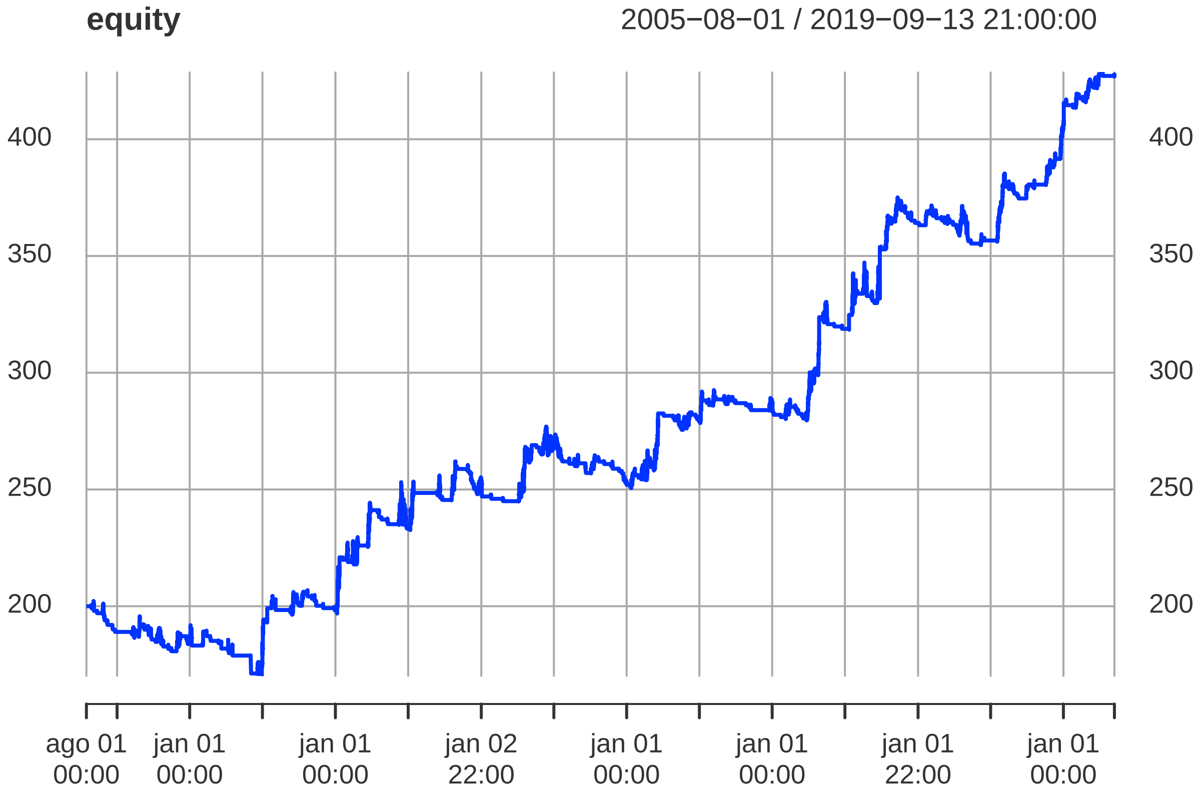
Table 3:

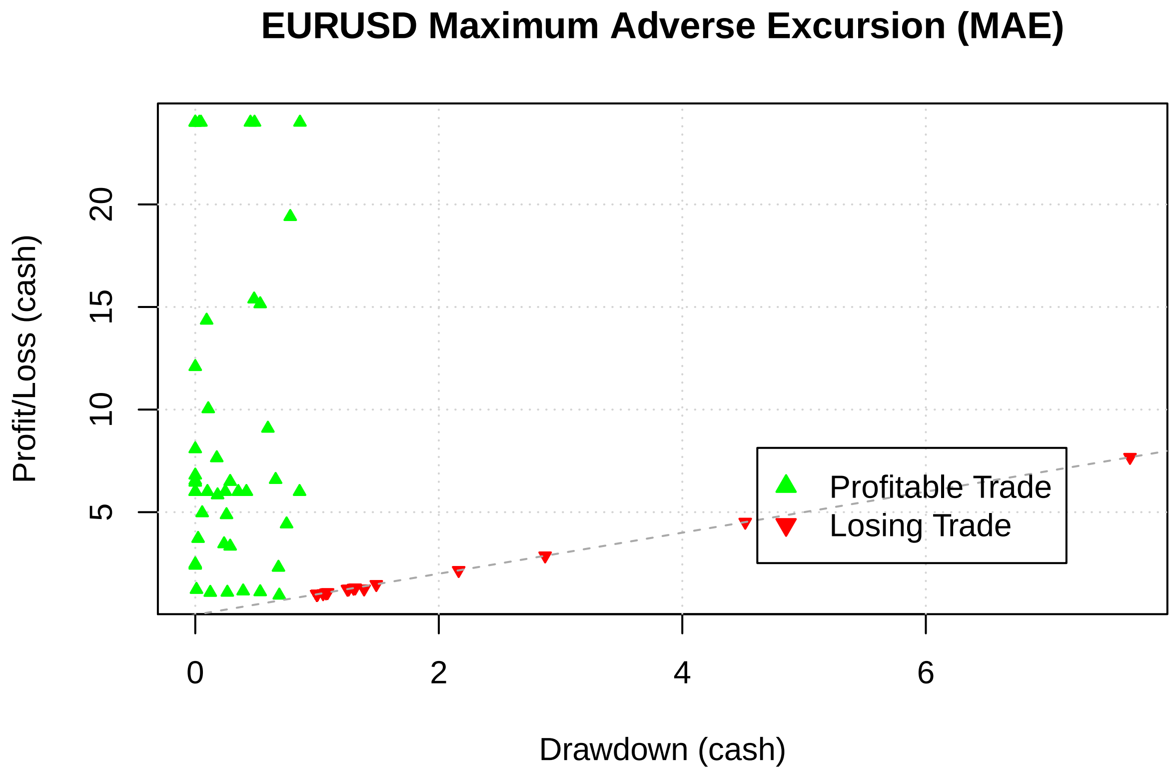
TotalStats	Values
Total (Long)	13.390000
SumProfit (Long)	59.993333
SumLoss (Long)	-46.603333
ProfitFactor (Long)	1.287319

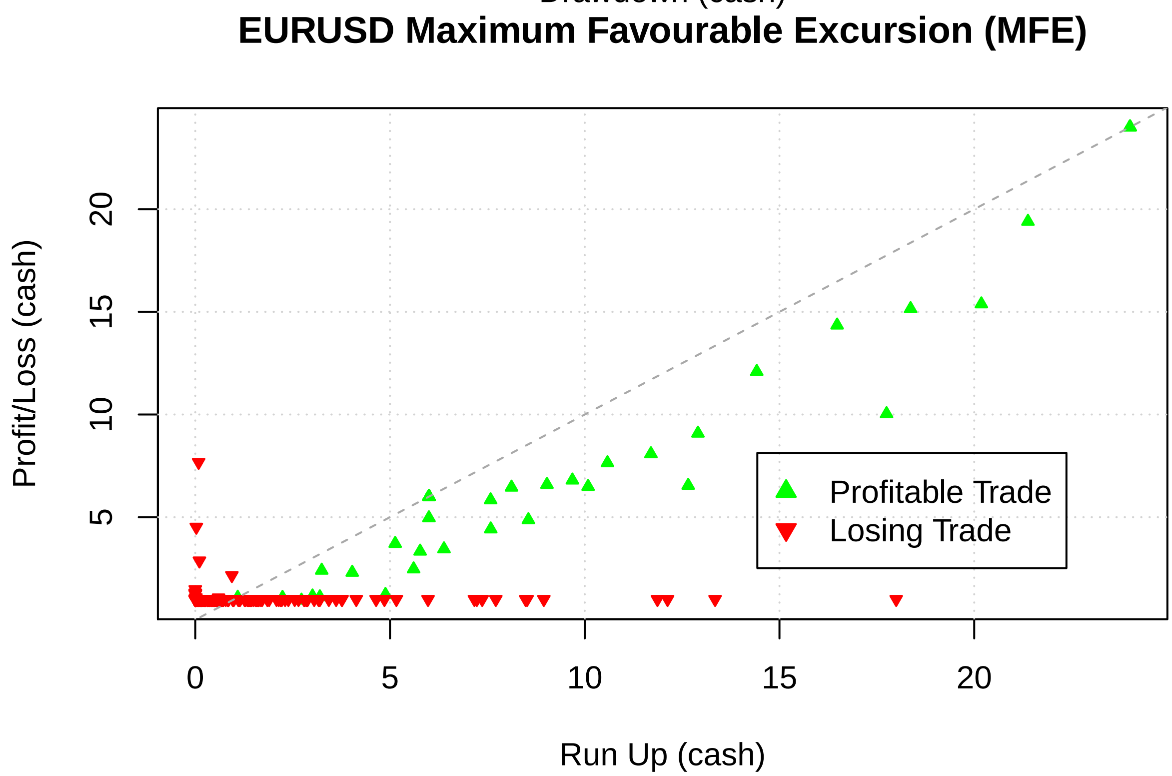
Table 4:

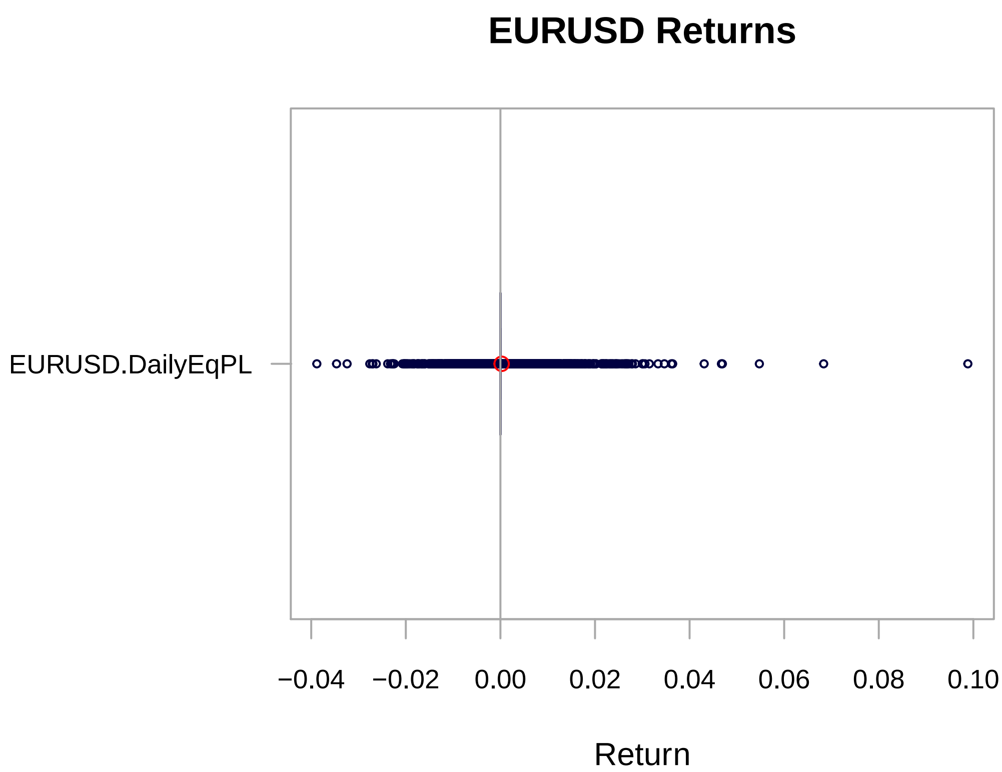
TotalStats	Values
Total (Short)	213.71667
SumProfit (Short)	373.40333
SumLoss (Short)	-159.68667
ProfitFactor (Short)	2.33835

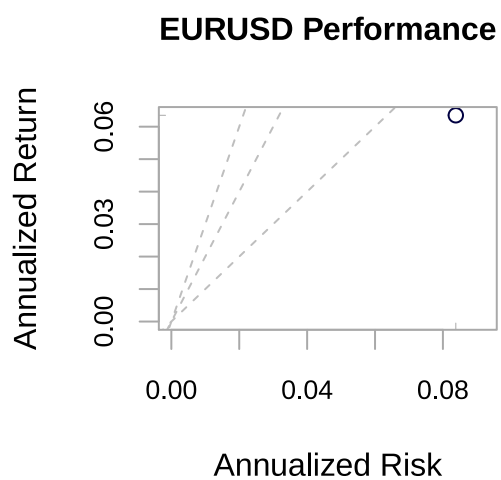

EURUSD
2005−08−01 / 2019−09−13 21:00:00
Positionfill −1
CumPL 228.19667
Drawdown −0.41333
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
ago 01 00:00
jan 01 00:00
jan 02 22:00
jan 01 22:00

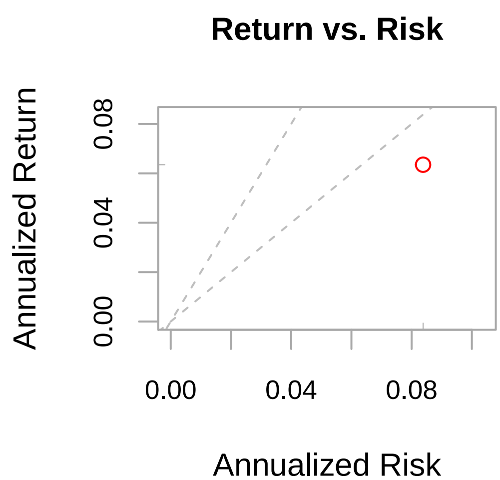

equity
2005−08−01 / 2019−09−13 21:00:00
ago 01 00:00
jan 01 00:00
jan 02 22:00
jan 01 22:00


EURUSD Maximum Adverse Excursion (MAE)
Profit/Loss (cash)
Drawdown (cash)
Profitable Trade
Losing Trade
0
2
4
6
5
10
15
20


EURUSD Maximum Favourable Excursion (MFE)
Profit/Loss (cash)
Run Up (cash)
Profitable Trade
Losing Trade
0
5
10
15
20
5
10
15
20


EURUSD Returns
EURUSD.DailyEqPL
−0.04
−0.02
0.00
0.02
0.04
0.06
0.08
0.10
Return


EURUSD Performance
Annualized Return
0.00
0.03
0.06
0.00
0.04
0.08
Annualized Risk


Return vs. Risk
Annualized Return
0.00
0.04
0.08
0.00
0.04
0.08
Annualized Risk

Trade Journal

Start	End	Position	Entry.Rule	PL	Close Rule
2005-08-26 12:00:00	2005-08-29 00:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-09-02 14:00:00	2005-09-07 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-09-23 12:00:00	2005-09-23 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-10-21 12:00:00	2005-10-26 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-10-28 12:00:00	2005-10-28 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-10-28 14:00:00	2005-10-31 11:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-11-11 14:00:00	2005-11-11 17:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-11-11 18:00:00	2005-11-14 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-12-09 12:00:00	2005-12-09 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-12-09 16:00:00	2005-12-12 00:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2005-12-22 11:00:00	2005-12-22 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2006-03-16 11:00:00	2006-03-16 12:00:00	long	EnterLONG	-1.0	StopLossLONG
2006-03-23 11:00:00	2006-03-27 02:00:00	long	EnterLONG	-1.0	StopLossLONG
2006-03-29 11:00:00	2006-03-31 19:00:00	long	EnterLONG	1.1	EnterSHORT
2006-04-14 18:00:00	2006-04-19 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-04-21 12:00:00	2006-04-27 11:00:00	short	EnterSHORT	4.9	EnterLONG
2006-05-11 11:00:00	2006-05-11 16:00:00	long	EnterLONG	-1.0	StopLossLONG
2006-05-18 11:00:00	2006-05-18 14:00:00	long	EnterLONG	-1.0	StopLossLONG
2006-06-02 14:00:00	2006-06-07 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-06-09 12:00:00	2006-06-09 13:00:00	short	EnterSHORT	-1.3	StopLossSHORT
2006-06-16 12:00:00	2006-06-21 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-06-23 16:00:00	2006-06-23 18:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-07-13 11:00:00	2006-07-13 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2006-07-21 12:00:00	2006-08-11 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-08-18 12:00:00	2006-08-21 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-09-15 12:00:00	2006-09-15 17:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-09-29 14:00:00	2006-10-02 02:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-10-27 12:00:00	2006-11-16 11:00:00	short	EnterSHORT	6.5	EnterLONG
2006-12-15 16:00:00	2006-12-15 17:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-12-15 18:00:00	2006-12-18 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-12-22 14:00:00	2006-12-22 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2006-12-22 16:00:00	2007-01-11 09:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-03-08 11:00:00	2007-03-09 16:00:00	long	EnterLONG	6.0	ProfitLONG
2007-03-23 13:00:00	2007-03-23 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-03-23 15:00:00	2007-03-27 07:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-04-13 12:00:00	2007-04-13 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-04-13 16:00:00	2007-04-15 23:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-05-25 12:00:00	2007-05-25 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-06-08 12:00:00	2007-06-08 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-06-08 14:00:00	2007-06-08 15:00:00	short	EnterSHORT	-1.3	StopLossSHORT
2007-07-12 11:00:00	2007-07-13 03:00:00	long	EnterLONG	-1.0	StopLossLONG
2007-07-13 16:00:00	2007-07-16 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2007-08-02 11:00:00	2007-08-03 20:00:00	long	EnterLONG	-1.0	StopLossLONG
2007-11-02 11:00:00	2007-11-04 22:00:00	short	EnterSHORT	-7.7	StopLossSHORT
2007-12-06 11:00:00	2007-12-11 22:00:00	long	EnterLONG	-1.0	StopLossLONG
2007-12-28 12:00:00	2008-01-04 21:00:00	short	EnterSHORT	24.0	ProfitSHORT
2008-01-10 11:00:00	2008-01-11 21:00:00	long	EnterLONG	-1.0	StopLossLONG
2008-01-24 11:00:00	2008-01-25 00:00:00	long	EnterLONG	6.0	ProfitLONG
2008-02-15 12:00:00	2008-02-21 11:00:00	short	EnterSHORT	3.7	EnterLONG
2008-03-06 11:00:00	2008-03-07 00:00:00	long	EnterLONG	-4.5	StopLossLONG
2008-05-16 18:00:00	2008-05-19 05:00:00	short	EnterSHORT	-1.0	StopLossSHORT

Start	End	Position	Entry.Rule	PL	Close Rule
2008-05-23 12:00:00	2008-05-27 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2008-05-30 16:00:00	2008-06-05 11:00:00	short	EnterSHORT	6.8	EnterLONG
2008-06-13 18:00:00	2008-06-13 21:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2008-06-20 14:00:00	2008-06-23 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2008-07-03 11:00:00	2008-07-03 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2008-07-17 11:00:00	2008-07-23 12:00:00	long	EnterLONG	6.0	ProfitLONG
2008-08-07 11:00:00	2008-08-07 14:00:00	long	EnterLONG	-1.0	StopLossLONG
2008-08-14 11:00:00	2008-08-15 01:00:00	long	EnterLONG	-1.0	StopLossLONG
2008-09-04 11:00:00	2008-09-04 15:00:00	long	EnterLONG	-1.0	StopLossLONG
2008-09-18 11:00:00	2008-09-18 15:00:00	long	EnterLONG	-1.0	StopLossLONG
2008-09-26 12:00:00	2008-09-26 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2008-09-26 16:00:00	2008-09-26 17:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2008-10-31 11:00:00	2008-10-31 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2008-12-26 12:00:00	2008-12-28 23:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-01-09 12:00:00	2009-01-09 13:00:00	short	EnterSHORT	-1.2	StopLossSHORT
2009-01-09 14:00:00	2009-01-21 15:00:00	short	EnterSHORT	24.0	ProfitSHORT
2009-02-06 14:00:00	2009-02-06 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-02-27 12:00:00	2009-03-04 16:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-03-27 11:00:00	2009-04-02 11:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-04-17 12:00:00	2009-04-23 11:00:00	short	EnterSHORT	8.1	EnterLONG
2009-06-12 12:00:00	2009-06-25 11:00:00	short	EnterSHORT	15.2	EnterLONG
2009-07-31 18:00:00	2009-07-31 19:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-08-07 12:00:00	2009-08-07 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-08-07 14:00:00	2009-08-07 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-08-20 11:00:00	2009-08-20 12:00:00	long	EnterLONG	-1.0	StopLossLONG
2009-09-18 12:00:00	2009-09-18 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-09-18 14:00:00	2009-09-21 06:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-11-13 12:00:00	2009-12-21 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2009-12-25 12:00:00	2009-12-27 22:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-01-08 16:00:00	2010-01-28 11:00:00	short	EnterSHORT	15.4	EnterLONG
2010-05-27 11:00:00	2010-05-27 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2010-06-04 14:00:00	2010-06-09 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-06-18 16:00:00	2010-06-21 00:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-08-06 12:00:00	2010-08-26 11:00:00	short	EnterSHORT	14.3	EnterLONG
2010-09-02 11:00:00	2010-09-03 01:00:00	long	EnterLONG	-1.1	StopLossLONG
2010-10-21 11:00:00	2010-10-27 16:00:00	long	EnterLONG	-1.0	StopLossLONG
2010-11-05 11:00:00	2010-11-05 12:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-11-12 12:00:00	2010-11-12 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-11-12 14:00:00	2010-11-12 15:00:00	short	EnterSHORT	-1.3	StopLossSHORT
2010-11-12 16:00:00	2010-11-15 01:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-11-19 12:00:00	2010-11-19 21:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-11-26 14:00:00	2010-11-26 15:00:00	short	EnterSHORT	-1.5	StopLossSHORT
2010-11-26 16:00:00	2010-11-29 20:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-12-10 12:00:00	2010-12-10 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-12-10 14:00:00	2010-12-13 07:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2010-12-17 12:00:00	2011-01-05 16:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2011-02-18 18:00:00	2011-02-21 22:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2011-04-21 11:00:00	2011-04-21 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2011-07-08 18:00:00	2011-09-12 08:00:00	short	EnterSHORT	24.0	ProfitSHORT
2011-10-06 11:00:00	2011-10-06 12:00:00	long	EnterLONG	-1.0	StopLossLONG
2011-10-21 12:00:00	2011-10-21 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2011-10-21 16:00:00	2011-10-24 00:00:00	short	EnterSHORT	-1.0	StopLossSHORT

Start	End	Position	Entry.Rule	PL	Close Rule
2011-10-28 18:00:00	2011-10-31 01:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2011-11-04 11:00:00	2012-01-25 19:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-01-27 12:00:00	2012-02-07 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-02-10 14:00:00	2012-02-13 08:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-03-16 17:00:00	2012-03-19 16:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-04-12 11:00:00	2012-04-16 06:00:00	long	EnterLONG	-1.0	StopLossLONG
2012-04-27 14:00:00	2012-05-03 11:00:00	short	EnterSHORT	1.2	EnterLONG
2012-06-08 12:00:00	2012-06-08 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-06-08 14:00:00	2012-06-08 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-06-08 16:00:00	2012-06-10 22:00:00	short	EnterSHORT	-2.2	StopLossSHORT
2012-07-06 12:00:00	2012-07-26 11:00:00	short	EnterSHORT	5.8	EnterLONG
2012-08-10 12:00:00	2012-08-14 07:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-09-07 18:00:00	2012-09-11 07:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-10-12 18:00:00	2012-10-15 08:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-10-19 12:00:00	2012-10-22 21:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-11-23 12:00:00	2012-11-23 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-12-07 12:00:00	2012-12-07 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-12-14 16:00:00	2012-12-16 22:00:00	short	EnterSHORT	-2.9	StopLossSHORT
2012-12-21 12:00:00	2012-12-24 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2012-12-28 16:00:00	2012-12-31 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-01-18 16:00:00	2013-01-18 20:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-01-24 11:00:00	2013-01-31 15:00:00	long	EnterLONG	6.0	ProfitLONG
2013-02-08 12:00:00	2013-02-11 18:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-02-28 11:00:00	2013-02-28 15:00:00	long	EnterLONG	-1.0	StopLossLONG
2013-03-15 15:00:00	2013-04-04 07:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-04-12 12:00:00	2013-04-18 11:00:00	short	EnterSHORT	6.5	EnterLONG
2013-04-26 12:00:00	2013-05-02 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-05-17 12:00:00	2013-05-17 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-05-17 16:00:00	2013-06-07 12:00:00	short	EnterSHORT	24.0	ProfitSHORT
2013-07-05 12:00:00	2013-07-05 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-08-22 11:00:00	2013-08-22 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2013-08-29 11:00:00	2013-08-30 02:00:00	long	EnterLONG	-1.0	StopLossLONG
2013-09-13 12:00:00	2013-09-19 08:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-09-20 12:00:00	2013-09-20 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-09-26 11:00:00	2013-09-27 11:00:00	long	EnterLONG	-1.0	StopLossLONG
2013-10-03 11:00:00	2013-10-03 15:00:00	long	EnterLONG	-1.0	StopLossLONG
2013-10-10 11:00:00	2013-10-18 12:00:00	long	EnterLONG	2.5	EnterSHORT
2013-10-18 14:00:00	2013-10-21 01:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-10-28 12:00:00	2013-11-14 08:00:00	long	EnterLONG	6.0	ProfitLONG
2013-11-22 12:00:00	2013-11-22 20:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-12-13 16:00:00	2013-12-13 17:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-12-20 18:00:00	2013-12-20 21:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2013-12-27 16:00:00	2013-12-30 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-01-03 18:00:00	2014-01-16 11:00:00	short	EnterSHORT	9.1	EnterLONG
2014-02-06 11:00:00	2014-02-06 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2014-02-14 14:00:00	2014-02-17 23:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-03-07 18:00:00	2014-03-17 12:00:00	short	EnterSHORT	3.4	EnterLONG
2014-03-24 12:00:00	2014-03-24 16:00:00	long	EnterLONG	-1.0	StopLossLONG
2014-05-02 18:00:00	2014-05-07 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-05-09 18:00:00	2014-05-12 12:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-05-22 11:00:00	2014-05-30 18:00:00	long	EnterLONG	2.4	EnterSHORT
2014-06-06 16:00:00	2014-06-17 16:00:00	short	EnterSHORT	-1.0	StopLossSHORT

Start	End	Position	Entry.Rule	PL	Close Rule
2014-06-27 12:00:00	2014-07-01 03:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-08-22 12:00:00	2014-08-22 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-09-05 14:00:00	2014-09-09 10:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-09-12 12:00:00	2014-09-16 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2014-12-18 11:00:00	2015-01-04 22:00:00	long	EnterLONG	-1.0	StopLossLONG
2015-01-08 11:00:00	2015-01-08 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2015-02-13 12:00:00	2015-02-13 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-03-06 16:00:00	2015-04-02 11:00:00	short	EnterSHORT	4.4	EnterLONG
2015-04-24 16:00:00	2015-04-27 11:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-05-01 16:00:00	2015-05-04 10:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-05-08 18:00:00	2015-05-11 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-05-29 16:00:00	2015-05-29 19:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-06-05 12:00:00	2015-06-05 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-06-19 12:00:00	2015-08-06 11:00:00	short	EnterSHORT	19.4	EnterLONG
2015-08-14 16:00:00	2015-08-24 14:00:00	short	EnterSHORT	24.0	ProfitSHORT
2015-08-27 11:00:00	2015-08-27 13:00:00	long	EnterLONG	-1.0	StopLossLONG
2015-09-11 12:00:00	2015-09-16 16:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-09-18 12:00:00	2015-10-05 10:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-11-06 14:00:00	2015-11-09 01:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2015-12-17 11:00:00	2015-12-17 14:00:00	long	EnterLONG	-1.0	StopLossLONG
2016-01-21 11:00:00	2016-01-21 16:00:00	long	EnterLONG	6.0	ProfitLONG
2016-02-05 12:00:00	2016-02-25 11:00:00	short	EnterSHORT	10.0	EnterLONG
2016-03-04 12:00:00	2016-03-04 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-04-01 12:00:00	2016-04-19 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-05-13 12:00:00	2016-05-13 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-05-13 14:00:00	2016-05-17 07:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-05-27 16:00:00	2016-05-27 19:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-06-10 14:00:00	2016-06-24 03:00:00	short	EnterSHORT	24.0	ProfitSHORT
2016-06-30 11:00:00	2016-06-30 14:00:00	long	EnterLONG	-1.0	StopLossLONG
2016-07-22 14:00:00	2016-08-04 11:00:00	short	EnterSHORT	12.1	EnterLONG
2016-08-12 18:00:00	2016-08-17 06:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-08-19 12:00:00	2016-08-25 11:00:00	short	EnterSHORT	1.1	EnterLONG
2016-09-09 12:00:00	2016-09-22 11:00:00	short	EnterSHORT	6.5	EnterLONG
2016-10-07 12:00:00	2016-10-07 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-10-07 14:00:00	2016-10-10 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-10-27 11:00:00	2016-10-28 18:00:00	long	EnterLONG	-1.0	StopLossLONG
2016-11-11 12:00:00	2016-11-11 13:00:00	short	EnterSHORT	-1.3	StopLossSHORT
2016-11-11 14:00:00	2016-11-13 22:00:00	short	EnterSHORT	-1.1	StopLossSHORT
2016-11-25 16:00:00	2016-11-28 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2016-12-16 18:00:00	2016-12-16 21:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-01-06 12:00:00	2017-01-06 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-02-09 11:00:00	2017-02-14 15:00:00	long	EnterLONG	6.0	ProfitLONG
2017-03-02 11:00:00	2017-03-03 19:00:00	long	EnterLONG	-1.0	StopLossLONG
2017-03-09 11:00:00	2017-03-17 14:00:00	long	EnterLONG	-1.0	StopLossLONG
2017-03-30 11:00:00	2017-04-03 15:00:00	long	EnterLONG	-1.0	StopLossLONG
2017-04-28 12:00:00	2017-05-01 16:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-05-12 12:00:00	2017-05-15 07:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-05-26 18:00:00	2017-06-01 11:00:00	short	EnterSHORT	1.2	EnterLONG
2017-06-08 11:00:00	2017-06-08 22:00:00	long	EnterLONG	-1.0	StopLossLONG
2017-06-23 16:00:00	2017-06-26 09:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-07-14 14:00:00	2017-07-14 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-07-14 16:00:00	2017-07-17 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT

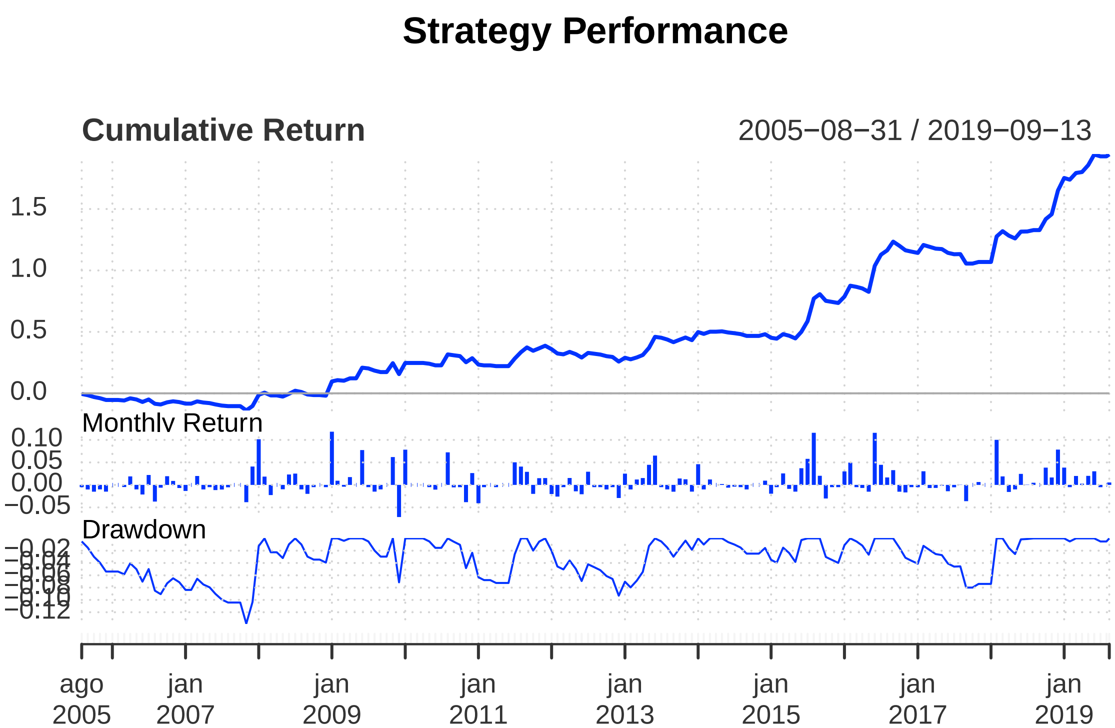
Start	End	Position	Entry.Rule	PL	Close Rule
2017-07-21 12:00:00	2017-07-21 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-07-21 14:00:00	2017-07-25 01:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-07-28 14:00:00	2017-09-06 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-09-08 12:00:00	2017-09-08 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-09-08 14:00:00	2017-09-10 23:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-09-22 18:00:00	2017-09-25 01:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2017-11-10 16:00:00	2017-11-16 11:00:00	short	EnterSHORT	2.3	EnterLONG
2017-11-30 11:00:00	2017-11-30 16:00:00	long	EnterLONG	-1.0	StopLossLONG
2018-02-02 18:00:00	2018-03-05 07:00:00	short	EnterSHORT	24.0	ProfitSHORT
2018-03-08 11:00:00	2018-03-15 00:00:00	long	EnterLONG	-1.0	StopLossLONG
2018-03-30 14:00:00	2018-04-03 13:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2018-04-20 12:00:00	2018-04-26 02:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2018-04-27 12:00:00	2018-04-30 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2018-05-11 18:00:00	2018-05-14 08:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2018-05-18 16:00:00	2018-05-21 03:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2018-06-28 11:00:00	2018-07-09 14:00:00	long	EnterLONG	6.0	ProfitLONG
2018-07-27 18:00:00	2018-07-30 12:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2018-08-03 16:00:00	2018-08-09 11:00:00	short	EnterSHORT	0.9	EnterLONG
2018-10-05 12:00:00	2018-10-29 12:00:00	short	EnterSHORT	7.6	EnterLONG
2018-11-09 14:00:00	2018-11-22 11:00:00	short	EnterSHORT	3.3	EnterLONG
2018-12-14 14:00:00	2019-01-02 22:00:00	short	EnterSHORT	24.0	ProfitSHORT
2019-01-11 16:00:00	2019-01-16 14:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2019-02-15 14:00:00	2019-02-18 08:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2019-03-01 18:00:00	2019-03-11 12:00:00	short	EnterSHORT	5.0	EnterLONG
2019-03-15 17:00:00	2019-03-19 12:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2019-04-05 14:00:00	2019-04-08 18:00:00	short	EnterSHORT	-1.0	StopLossSHORT
2019-04-19 12:00:00	2019-05-16 11:00:00	short	EnterSHORT	6.6	EnterLONG
2019-05-30 11:00:00	2019-05-30 20:00:00	long	EnterLONG	-1.0	StopLossLONG
2019-06-06 11:00:00	2019-06-30 22:00:00	long	EnterLONG	6.0	ProfitLONG
2019-07-12 16:00:00	2019-07-16 15:00:00	short	EnterSHORT	-1.0	StopLossSHORT

Table 6:

	EURUSD
Min	1
Q1	3
Med	65
Mean	129
Q3	134
Max	1976
WMin	5
WQ1	143
WMed	252
WMean	333
WQ3	478
WMax	1574
LMin	1
LQ1	2
LMed	55
LMean	80
LQ3	80
LMax	1976

Table 7:

yearDates	yearReturns
2005-12-30 21:00:00	-11
2006-12-31 23:00:00	-3.38
2007-12-31 23:00:00	-6.78
2008-12-31 23:00:00	20.82
2009-12-31 23:00:00	35.27
2010-12-31 21:00:00	18.94
2011-12-30 21:00:00	12.55
2012-12-31 23:00:00	-14.17
2013-12-31 23:00:00	21.44
2014-12-31 23:00:00	4.91
2015-12-31 23:00:00	23.02
2016-12-30 21:00:00	28.46
2017-12-31 23:00:00	-4.14
2018-12-31 23:00:00	28.13
2019-09-13 21:00:00	10.53



Session Info

```
## R version 3.6.1 (2019-07-05)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Manjaro Linux
##
## Matrix products: default
## BLAS:   /usr/lib/libblas.so.3.8.0
## LAPACK: /usr/lib/liblapack.so.3.8.0
##
## attached base packages:
## [1] parallel  stats     graphics  grDevices utils     datasets  methods
## [8] base
##
## other attached packages:
##  [1] xtable_1.8-4              doParallel_1.0.15
##  [3] iterators_1.0.12          IKTrading_1.0
##  [5] roxygen2_6.1.1            digest_0.6.22
##  [7] Rcpp_1.0.2                highcharter_0.7.0
##  [9] quantstrat_0.16.6         foreach_1.4.7
## [11] blotter_0.14.7            PerformanceAnalytics_1.5.3
## [13] FinancialInstrument_1.3.1  quantmod_0.4-15
## [15] TTR_0.23-5                xts_0.11-2
## [17] zoo_1.8-6                 forcats_0.4.0
## [19] stringr_1.4.0             dplyr_0.8.3
## [21] purrr_0.3.3               readr_1.3.1
## [23] tidyr_1.0.0               tibble_2.1.3
## [25] ggplot2_3.2.1             tidyverse_1.2.1
## [27] lubridate_1.7.4           knitr_1.23
##
## loaded via a namespace (and not attached):
##  [1] httr_1.4.0        jsonlite_1.6      modelr_0.1.5
##  [4] assertthat_0.2.1  highr_0.8         cellranger_1.1.0
##  [7] yaml_2.2.0        pillar_1.4.2      backports_1.1.5
## [10] lattice_0.20-38   glue_1.3.1        rlist_0.4.6.1
## [13] quadprog_1.5-7    rvest_0.3.4       colorspace_1.4-1
## [16] htmltools_0.4.0   pkgconfig_2.0.3   broom_0.5.2
## [19] haven_2.1.1       scales_1.0.0      whisker_0.4
## [22] generics_0.0.2    withr_2.1.2       lazyeval_0.2.2
## [25] cli_1.1.0         magrittr_1.5      crayon_1.3.4
## [28] readxl_1.3.1      evaluate_0.14     nlme_3.1-140
## [31] MASS_7.3-51.4     xml2_1.2.2        tools_3.6.1
## [34] data.table_1.12.6 hms_0.4.2         lifecycle_0.1.0
## [37] munsell_0.5.0     compiler_3.6.1    rlang_0.4.1
## [40] grid_3.6.1        rstudioapi_0.10   htmlwidgets_1.5.1
## [43] igraph_1.2.4.1    rmarkdown_1.13    boot_1.3-22
## [46] gtable_0.3.0      codetools_0.2-16  curl_4.2
## [49] R6_2.4.0          zeallot_0.1.0     commonmark_1.7
## [52] stringi_1.4.3     vctrs_0.2.0       tidyselect_0.2.5
## [55] xfun_0.8
```

Strategy Input

```
add.indicator(strategy.st, name = "EMA",
              arguments = list(x = quote(Cl(market(ha_EURUSD, 1))),
                               n = emaF),
              label = "nFast")

add.indicator(strategy.st, name = "EMA",
              arguments = list(x = quote(Cl(market(ha_EURUSD, 1))),
                               n = emaM),
              label = "nMed")

add.indicator(strategy.st, name = "EMA",
              arguments = list(x = quote(Cl(market(ha_EURUSD, 1))),
                               n = emaS),
              label = "nSlow")

buysig <- function(data) {
  sig <- data[, "EMA.nSlow"] > market(ha_EURUSD$ha.Close, 1) & EURUSD$weekday == wdayBuy
  colnames(sig) <- "upSig"
  sig
}

sellsig <- function(data) {
  sig <- data[, "EMA.nSlow"] < market(ha_EURUSD$ha.Close, 1) & EURUSD$weekday == wdaySell
  colnames(sig) <- "downSig"
  sig
}

# closeSig <- function(data) {
#   sig <- EURUSD$endYear == c(1)
#   colnames(sig) <- "closeSig"
#   sig
# }

add.signal(strategy.st, name="buysig",
           arguments = list(data = quote(mktdata)),
           label = "long")

add.signal(strategy.st, name="sellsig",
           arguments = list(data = quote(mktdata)),
           label = "sell")

add.signal(strategy.st, name="sigComparison",
           arguments = list(columns = c("nFast", "nMed"),
                            relationship = "gt"),
           label = "longsig2")

add.signal(strategy.st, name="sigComparison",
           arguments = list(columns = c("nFast", "nMed"),
                            relationship = "lt"),
           label = "shortsig2")

add.signal(strategy.st, name = "sigFormula",
```

```
           arguments = list(formula = "upSig.long & longsig2",
                            cross = TRUE),
           label = "longentry")

add.signal(strategy.st, name = "sigFormula",
           arguments = list(formula = "downSig.sell & shortsig2",
                            cross = TRUE),
           label = "shortentry")

# add.signal(strategy.st, name="closeSig",
#            arguments = list(data = quote(mktdata)),
#            label = "loopy")
#
# add.signal(strategy.st, name = "sigFormula",
#            arguments = list(formula = "closeSig.loopy",
#                             cross = TRUE),
#            label = "longExit")
```

Rules Input

```
add.rule(strategy.st, name = "ruleSignal",
         arguments = list(sigcol = "longentry",
                          sigval = TRUE,
                          orderqty = 1,
                          ordertype = "market",
                          orderside = "long",
                          TxnFees = 0,
                          prefer= "Open",
                          osFUN=osMaxPos,
                          replace = FALSE),
         type = "enter",
         timespan = "T10:00/T11:00",
         label = "EnterLONG")

    # add.rule(strategy.st, name = "ruleSignal",
    #          arguments = list(sigcol = "longExit",
    #                           sigval = TRUE,
    #                           orderqty = "all",
    #                           ordertype = "market",
    #                           orderside = "long",
    #                           TxnFees = 0,
    #                            prefer= "Open",
    #                           replace = FALSE),
    #          type = "exit",
    #          label = "Exit2SHORT")

add.rule(strategy.st, name = "ruleSignal",
         arguments = list(sigcol = "longentry" ,
                          sigval = TRUE,
                          orderqty = "all",
                          ordertype = "stoplimit",
                          orderside = "long",
                          TxnFees = 0,
                          threshold = quote(stoploss),
                          replace = TRUE),
         type = "chain",
         parent = "EnterLONG",
         label = "StopLossLONG",
         enabled = TRUE)

add.rule(strategy.st, name = "ruleSignal",
         arguments = list(sigcol = "longentry" ,
                          sigval = TRUE,
                          orderqty = "all",
                          ordertype = "limit",
                          orderside = "long",
                          TxnFees = 0,
                          threshold = quote(profitLong),
                          replace = FALSE),
         type = "chain",
         parent = "EnterLONG",
         label = "ProfitLONG",
```

```r
         enabled = TRUE)

add.rule(strategy.st, name = "ruleSignal",
         arguments = list(sigcol = "shortentry",
                          sigval = TRUE,
                          orderqty = -1,
                          ordertype = "market",
                          orderside = "short",
                          TxnFees = 0,
                          prefer= "Open",
                          osFUN=osMaxPos,
                          replace = FALSE),
         type = "enter",
         timespan = "T10:00/T18:00",
         label = "EnterSHORT")

# add.rule(strategy.st, name = "ruleSignal",
#          arguments = list(sigcol = "longExit",
#                           sigval = TRUE,
#                           orderqty = "all",
#                           ordertype = "market",
#                           orderside = "short",
#                           TxnFees = 0,
#                            prefer= "Open",
#                           replace = FALSE),
#          type = "exit",
#          label = "Exit2LONG")

add.rule(strategy.st, name = "ruleSignal",
         arguments = list(sigcol = "shortentry",
                          sigval = TRUE,
                          orderqty = "all",
                          ordertype = "stoplimit",
                          orderside = "short",
                          TxnFees = 0,
                          threshold = quote(stoploss),
                          replace = TRUE),
         type = "chain",
         parent = "EnterSHORT",
         label = "StopLossSHORT",
         enabled = TRUE)

add.rule(strategy.st, name = "ruleSignal",
         arguments = list(sigcol = "shortentry" ,
                          sigval = TRUE,
                          orderqty = "all",
                          ordertype = "limit",
                          orderside = "short",
                          TxnFees = 0,
                          threshold = quote(profitSell),
                          replace = FALSE),
         type = "chain",
         parent = "EnterSHORT",
```

```r
         label = "ProfitSHORT",
         enabled = TRUE)

results_file <- paste("results", strategy.st, "RData", sep = ".")
if( file.exists(results_file) ) {
    load(results_file)
} else {
    results <- applyStrategy(strategy.st, portfolios = portfolio.st)
    updatePortf(portfolio.st)
    updateAcct(account.st)
    updateEndEq(account.st)
    if(checkBlotterUpdate(portfolio.st, account.st, verbose = FALSE)) {
        save(list = "results", file = results_file)
        save.strategy(strategy.st)
    }
}

suppressWarnings({applyStrategy(strategy.st, portfolios = portfolio.st, verbose=FALSE)})
suppressWarnings({updatePortf(portfolio.st)})
updateAcct(account.st)
updateEndEq(account.st)
```

```
## Time difference of 1.469763 mins
```

```
## [1] "2019-11-14 22:32:56 UTC"
```