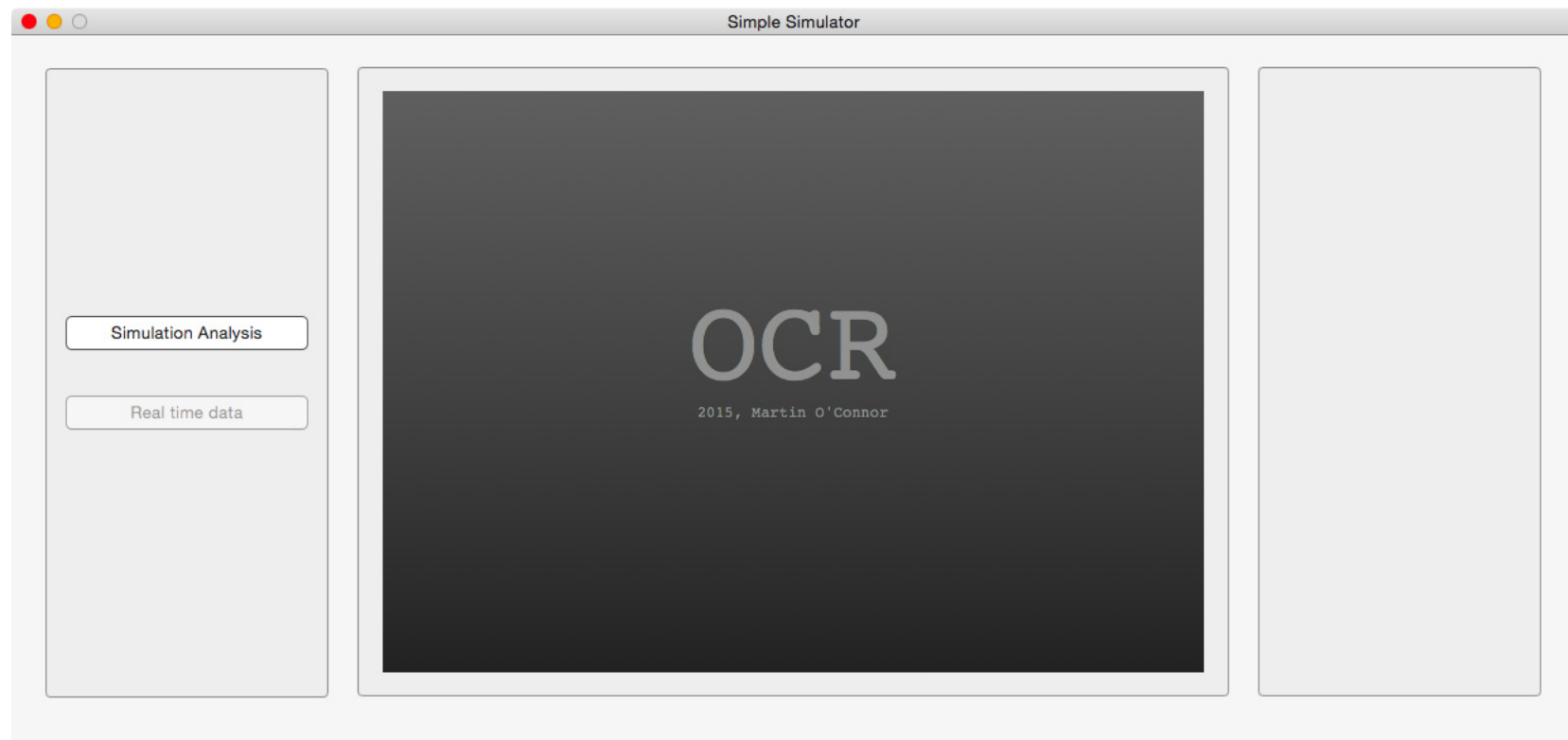


Fx Strategy Backtest

Martin O'Connor

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Front

- Purpose of this application was to test currency trading strategies in simulation as well as a coding exercise (it was fun to do).
- I acquired good quality bid/ask data for a number of currency trading pairs and interest rate data with which to calculate p&l. P&l calculations follow those used by one of the well known retail FX trading platforms.
- The most granular price update is 1 second. I was working with much slower strategies.
- The basic framework of a strategy has to be coded in Objective-C, but the code is structured to make this straightforward to do this, and if done right the application already should do a lot of figuring out of dependencies etc. itself.
- A simulation run:
 - first figure out what time-series are needed from the database.
 - what series need deriving (e.g. EWMA or something more complicated).
 - with these, a Signal series is calculated which may be continuous (with [possibly dynamic] thresholds) or if very involved, and doesn't fit that scheme, it can be distilled into a trinary sell-neutral-buy signal.
 - from the Signal series and thresholds, positions are created depending on the rules of positioning/trading and also on path dependencies (current state of cash or risk appetite etc.).
 - the simulation can accept one initial capitalisation, no cash top-ups, but for simulation comparison it is more useful to use the mode with 0 cash at the start and see how the p&l goes.
- There are some assumptions made about how well a price can be obtained in trading. I was looking at major pairs with almost always deep markets. In practice trading will be lagged conservatively in simulation.
- It was important to have the application visually quite interactive, there are numerous ways to interact with the plots etc.
- External libraries used are Coreplot for graphics and FMDB to interface with the database.
- Objective-C & Apple libraries update often and also how the visual library (Coreplot) reacts to these, mean that this code may be buggy. Occasionally I try to bring it up to date but I don't use it.

Working Simulation:
EF1412

Simulation Analysis

Real time data

Simple Simulator

Simulation NameEF1412
Trading PairUSDJPY
Pip Size0.0100
Account CurrencyUSD
Start Balance0.00USD
Start TimeThu29/ 1/2004
Min2004-01-01
End TimeFri29/12/2004
Max2010-08-31
Data Rate30
H
M
S
Input Extra DataImport Data

Signal SystemAEMBD/2/4/0.98/14/30/
Extra SeriesATR/16;ATR/189;EM/
PositioningSTAT/0.5/75000
RulesFRI/12
Max Leverage
Trading time from06:00to16:30
Weekend trading
Sampling Rate30 minutes
Trading Lag30 minutes
Warm Up Time20 days

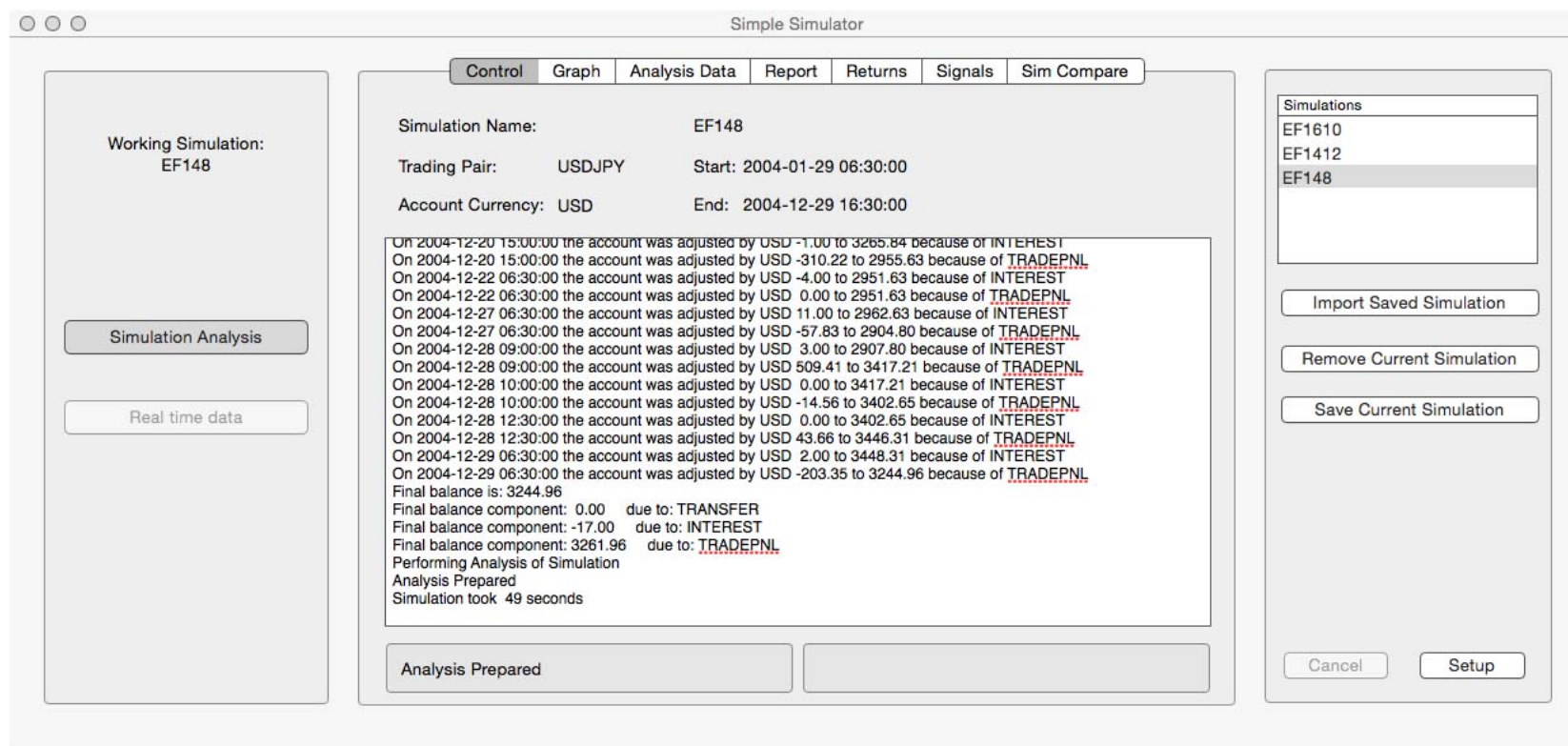
SECO/A/B
MACD/A/B/C
EMAD/A/B
MCD2/A/B/C
EMA/A/B
REMA/A/B
AEMAD/A/B/C/D
AEMBD/A/B/C/D/E/F/G
PACS/A/B/C
EMB/A/B/C/D
EMBD/A/B/C/D/E

CancelSimulation

Cancel

Setup

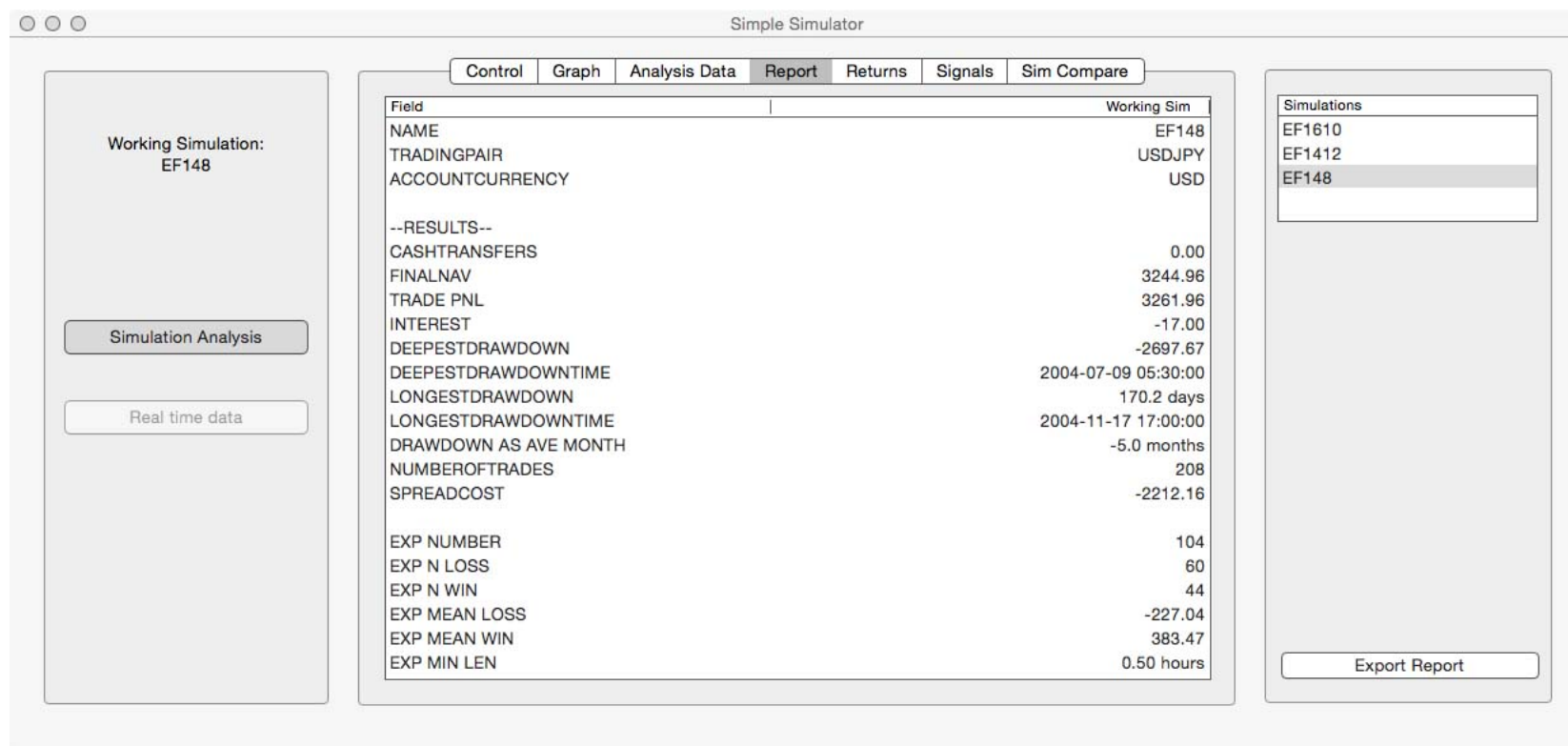
Setup screen. Tooltips give (minimal) parameter formatting information. A signal and positioning rules are specified; also general trading rules like when to trade and leverage.



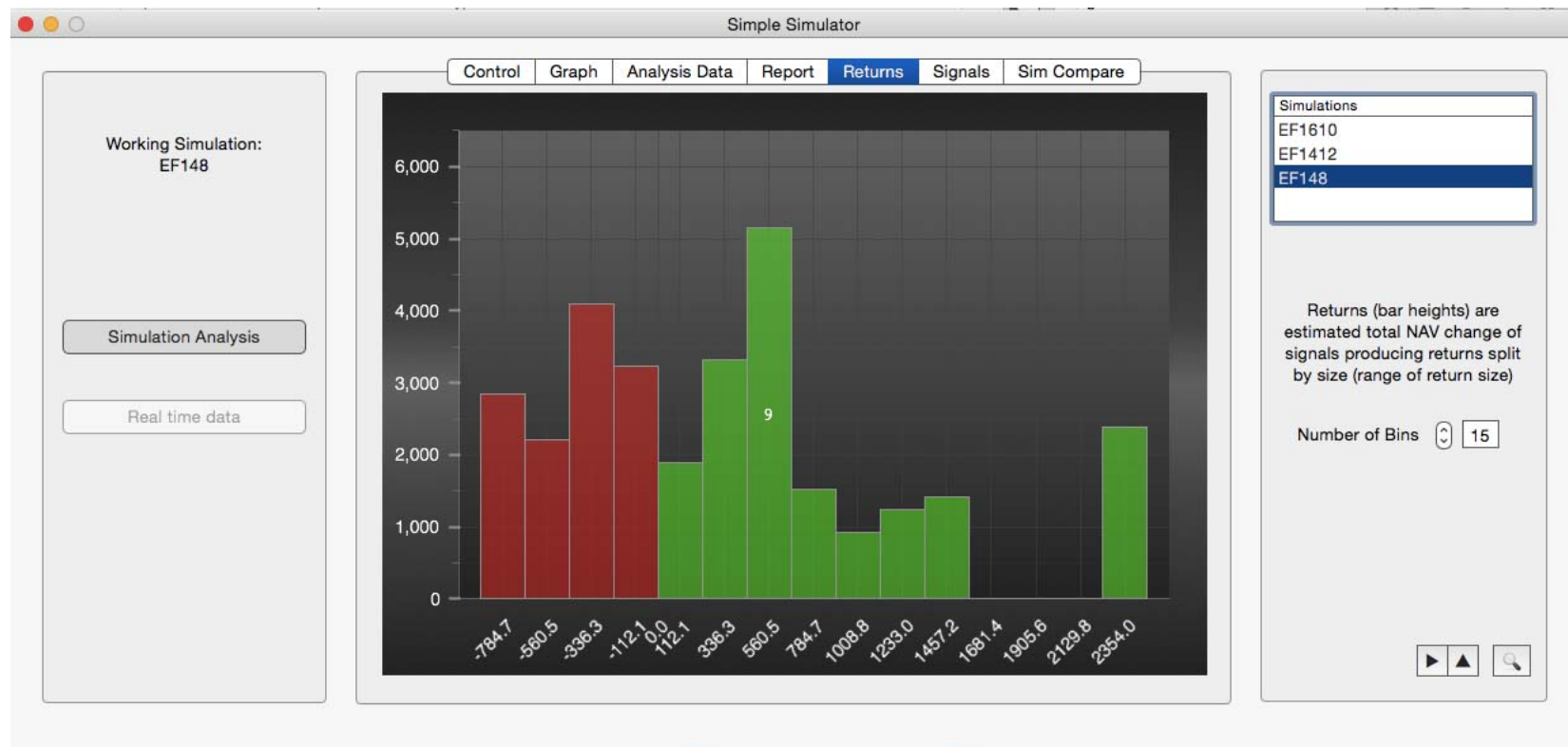
Simulation log outputs information as the simulation and analysis are running.



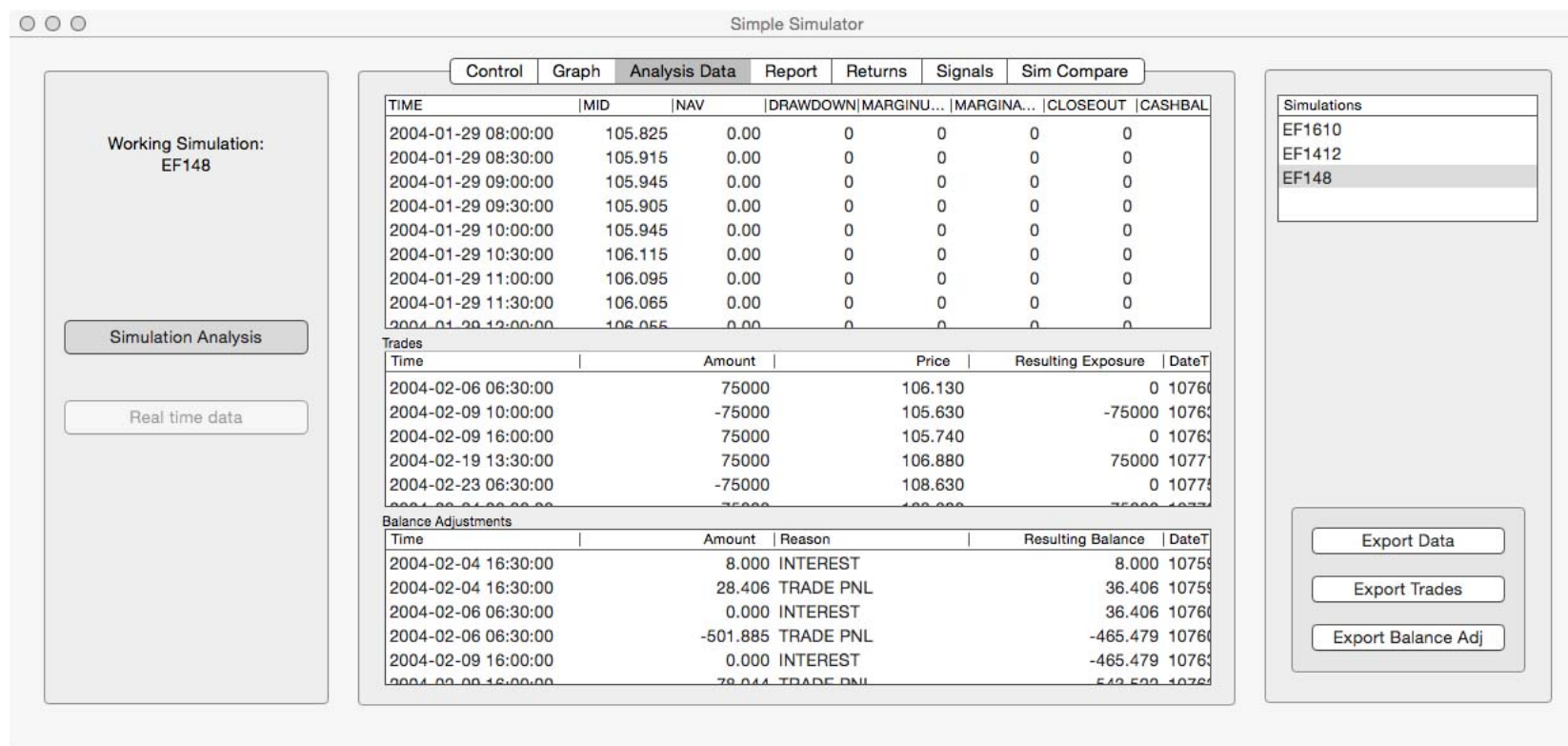
Basic simulation plot. All the related time-series can be viewed and up to 3 y-axes can be used



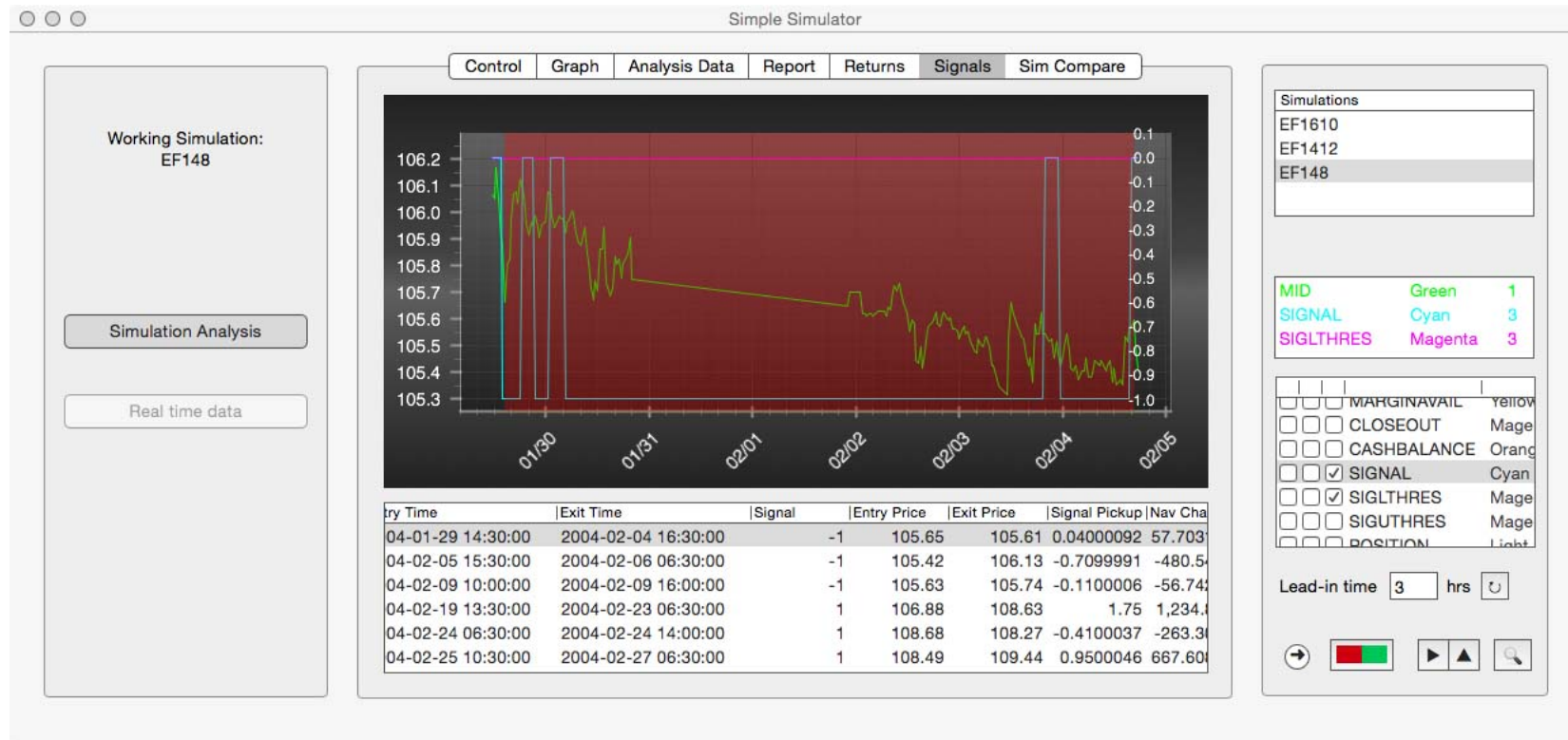
Simulation report; can be output as csv. (A lot more information off-screen)



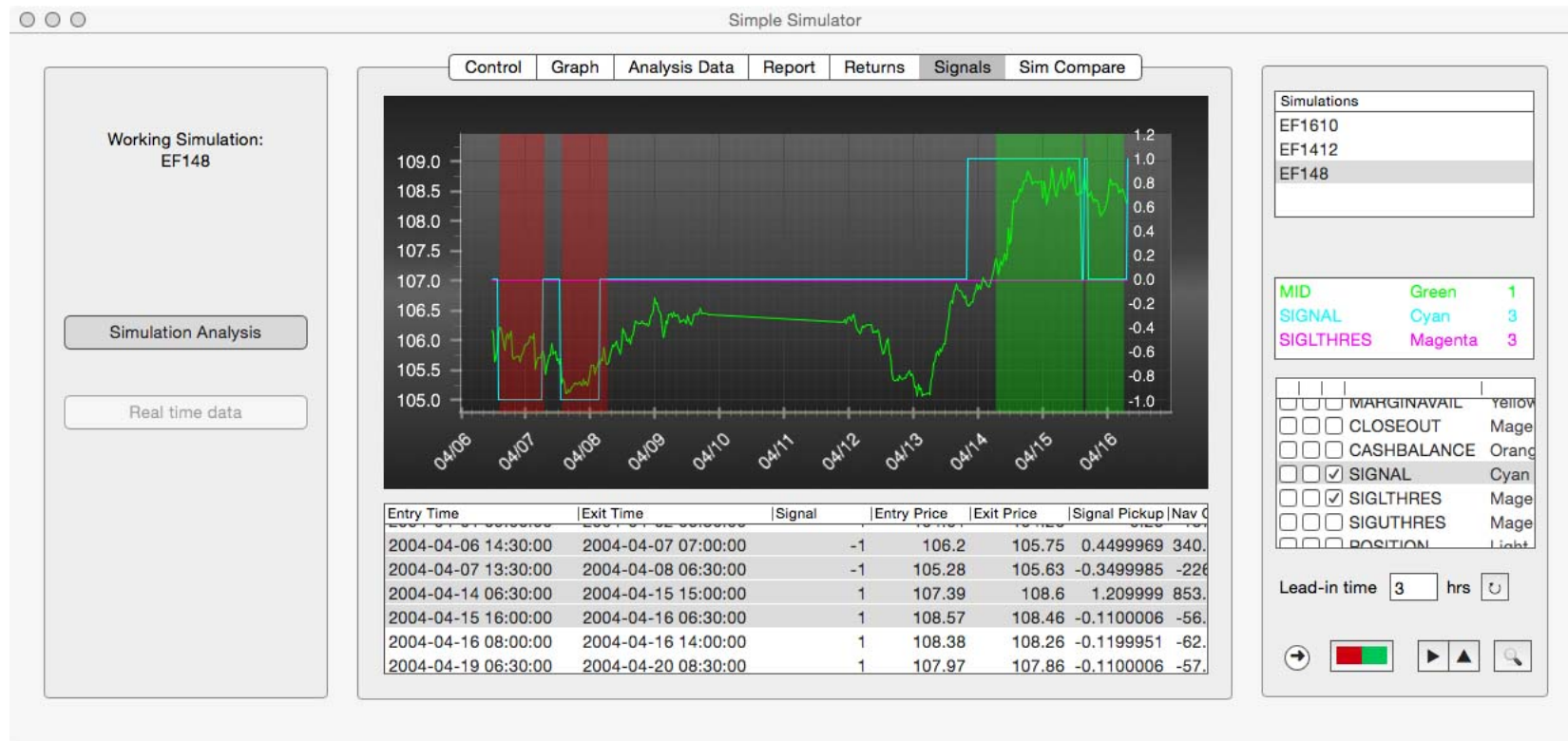
Simulation returns histogram



Simulation data as used; can be output as csv



Looking at individual 'Market Positions' (Market Position = from flat to long or short and back to flat). Lead-in time can be adjusted, and you can expand the plot forward in time to see what happened next. Positions can be ordered in the scroll box to look at, say, worst or best by NAV change or Price move



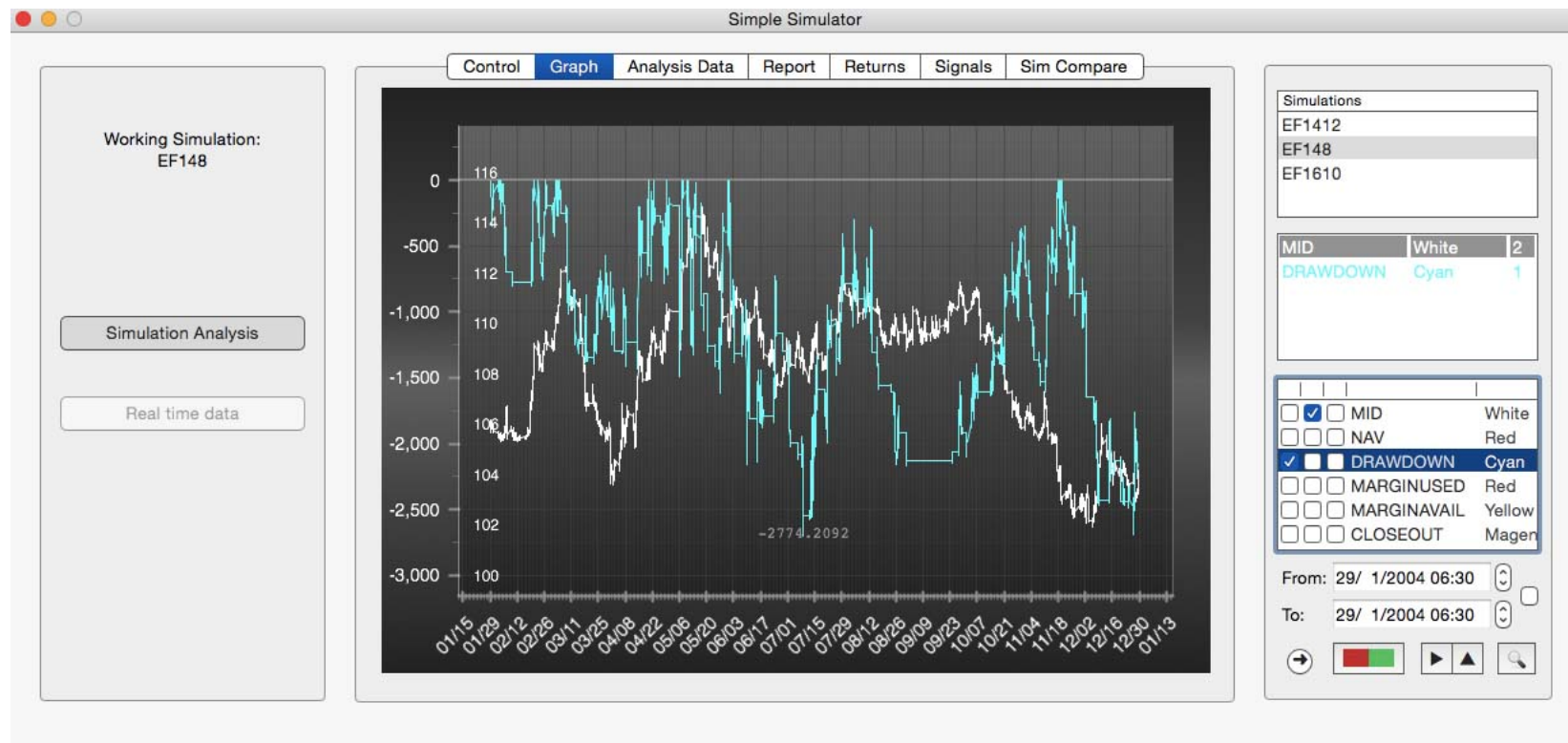
Selecting more than one 'Market Position' will daisy chain them across their full date range



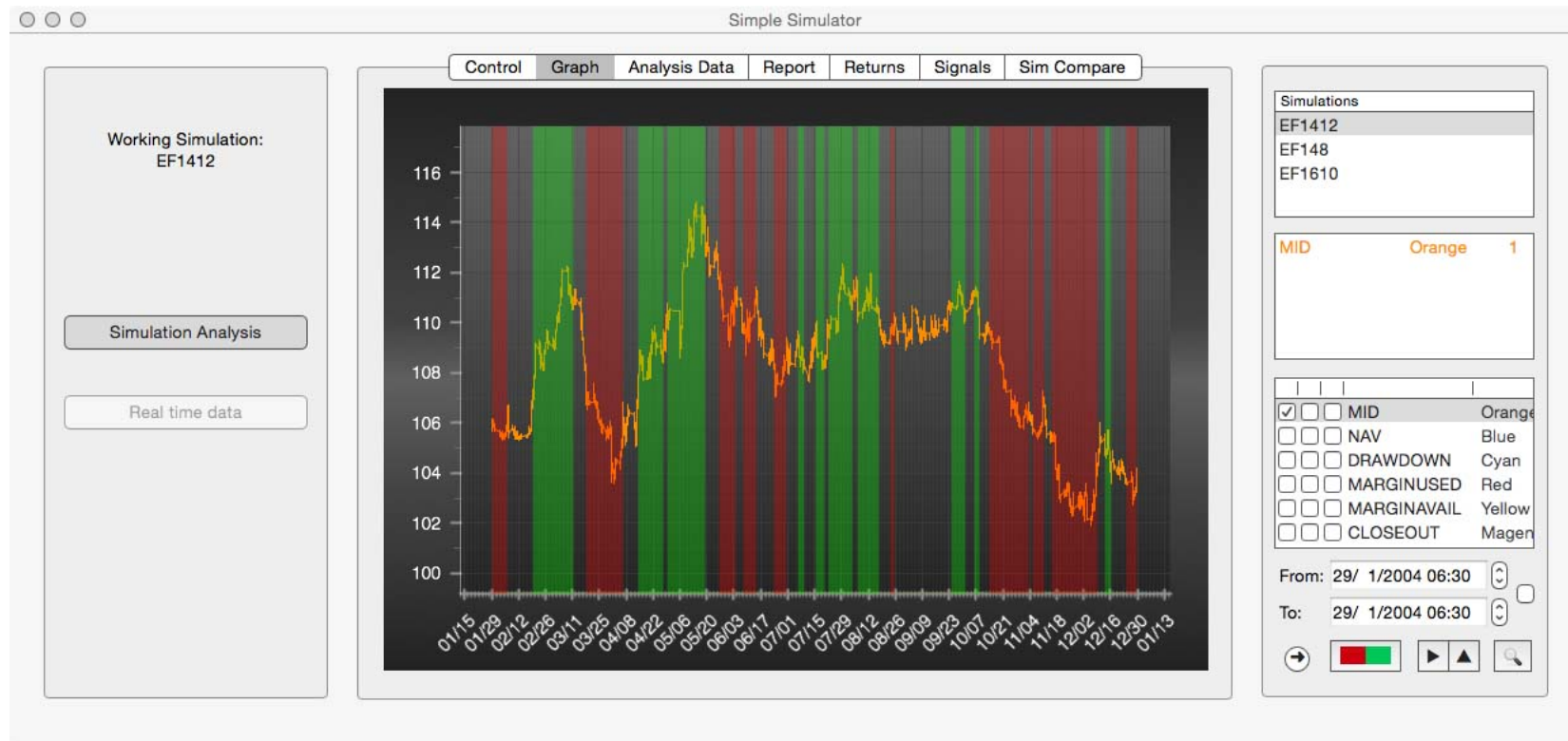
Drag zoom is available, either at vertical band or (next plot) a box



Drag zoom on both time and price range, by holding the alt key



A graph can be examined with a click (to show price) or shift-click (to show date). Lines can be added with command click and removed with shift-command click. Lines with typed-in y-value can be added with alt-command-click



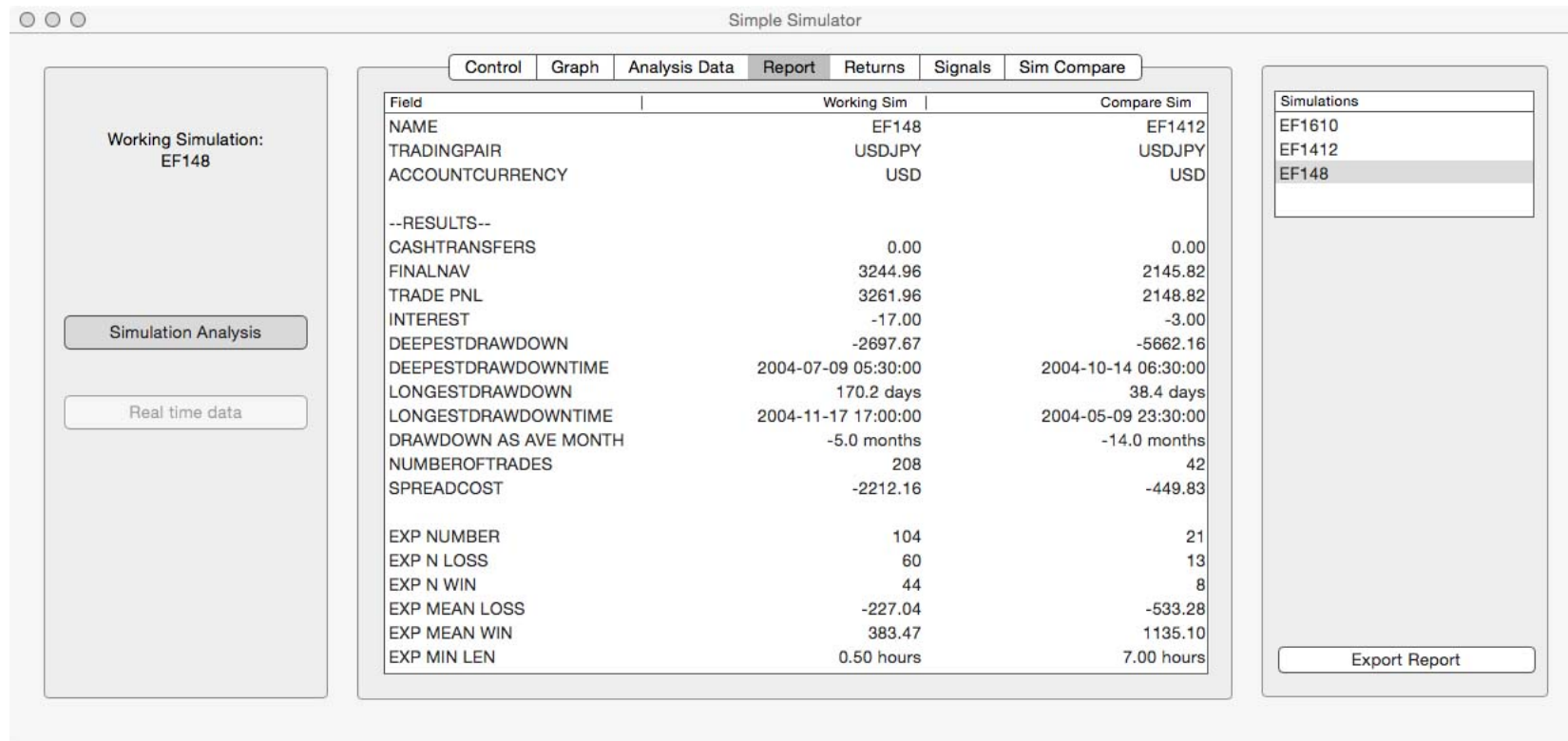
Position indicator can be toggled on/off for any plot. It shows where the simulation held long (green) or short (red) positions



Compare the 'working simulation' against another that was calculate or loaded in from previous session. You can set the date range or even pull in a date range from the 'signal analysis' plot if there is a particular date range of interest found there.



When 'compare simulations' is active, a returns 'histogram' of both can be compared



When 'compare simulations' is active, returns histograms of both can be compared