FTS Interactive Markets: Individual, Position-Dependent Payoffs

The FTS Interactive Markets permit payoffs on securities to depend on trader positions. This feature was initially added to the system to allow trading an IPO. In that simulation, the payoff on the IPO depended on the level of subscription to the IPO, and so depended on the amount bought (or subscribed) by all traders.

But the feature goes far beyond that specific case. Here is what you can do (with a full example for case B02 below):

- You specify a case type "indiv/row=xxx" The abbreviation "xxx" signifies that payoffs are "individual" so different traders can receive different payoffs on the same security.
- At the end of every period, the FTS Market writes out the initial position (at the start of the trial) and the current position for every trader starting at row xxx in the case spreadsheet. (xxx has to be sufficiently large; if you specify an incorrect number, you are told how to correct it when you initialize the case).
- The Market pauses for you to complete calculations of the payoffs (for instance, if you are running a macro to calculate them or you need to make any adjustments by hand)
- Once you click OK, it reads the payoffs per trader and per security from a specific column of the case worksheet.
- If you combine this with the grade cash calculation region, you can essentially create any payoff profile you want, by trader.

Example of uses:

- You want to penalize no trade: make the payoff zero or negative if the current position is the same as the position at the start of the trial
- You want traders to hedge so the payoff depends on how far you are from the hedged position
- You want trading targets, and penalize the trader if the target is not reached
- As above, the payoff depends on the overall position of all the traders
- Penalize ending with a short position
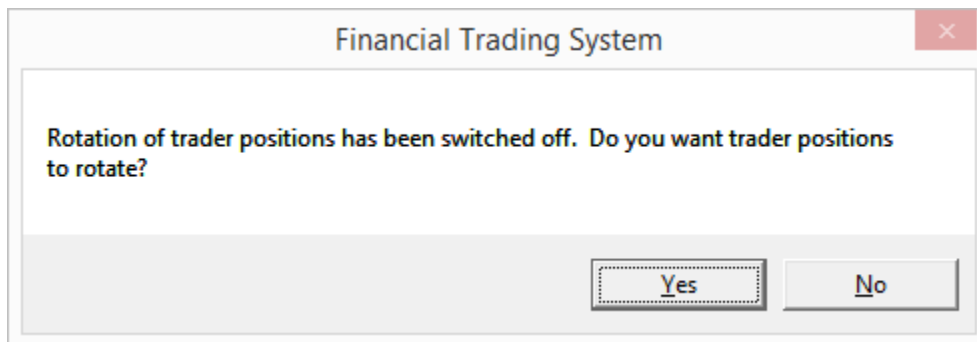
Operations Details for Case B02

Step 1: Specify the case type as indiv/row=120 on row 13:

Number of Securities	4
Maximum Number of Trials	3
Number of Periods per Trial	3
Period Length (seconds)	240
Maximum Number of Traders	60
Number of Trader Types	2
Market Depth	10
Depth Displayed	10
Borrowing Allowed	Yes
Last Row with Exogenous Prices	
Number of Information Types	0
Last Row with Information	
Case type	**indiv/row=120**

Step 2: Run the case as normal

If the row has to be greater than 120 because of the space required by the rest of the case, you will be asked to correct it before proceeding.
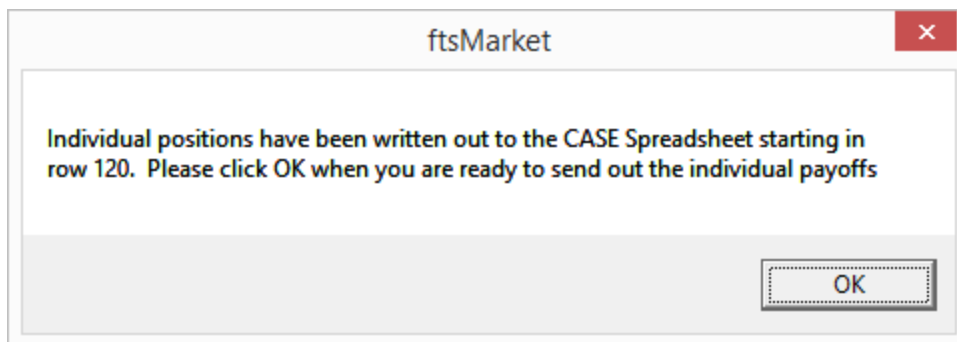
One more message will come up:

The reason for this is related to the IPO case: it needed the sellers of the stock to remain the same across trials, and so the positions of the traders across trials had to remain fixed. If you don't need this feature, just say Yes at this step.

Step 3: At the end of the period

The Market will show:

Individual positions have been written out to the CASE Spreadsheet starting in row 120. Please click OK when you are ready to send out the individual payoffs

OK

Look at the spreadsheet, and you will see:

Trial	1	Period	1												
	Cash 0	Cp Bnd 0	Zero 1 0	Zero 2 0	Zero 3 0	Cash 1	Cp Bnd	Zero 1 1	Zero 2 1	Zero 3 1	Cp Bnd P	Zero 1 P	Zero 2 P	Zero 3 P
Trader 1	10000	100	500	500	400	10000	100	500	500	400				
Trader 2	10000	100	500	500	400	10000	100	500	500	400				
Trader 3	10000	100	500	500	400	10000	100	500	500	400				

In this example, we have not traded so the initial positions (marked with a 0 at the end) are the same as the current position (marked with a 1 at the end).

Note: the current positions are over0-written at the end of every period. The "1" at the end does not mean at the end of period 1, it just means the current position.

The yellow area, where the name of the security has a P added at the end, is where you calculate the payoffs per security. You can use any technique for this: by hand, a macro, cell formulas. Of course, you want to pre-prepare the spreadsheet before you run the case so you have all the calculations ready.

Once you click OK to the window above, the payoffs are read, by trader, and sent.

Additional notes:

- Since everyone's initial and current positions are written out, the payoffs by trader can depend on everyone's positions.
- To simplify the grade cash calculation, you may want a very simple conversion from market cash to grade cash (e.g. make the linear coefficient 1 so that all the complexity of the conversion is embedded in your payoff calculation):
- Finally, the Market also writes out the Last traded price, the VWAP, and the mid-point of the closing bid-ask spread at the end of every period (this is done for every case type). This allows you create price-dependent payoffs as well.