UNIVERSITY OF ROCHESTER

William E. Simon Graduate School of Business Administration

Finance 411 | **Professor G. William Schwert**
Investments | Spring 1997

<u>TRADING CASE RE3: June 2, 1997</u>

Part of your grade for this course will depend on trading sessions using the Financial Trading System (FTS). For the purpose of these trading sessions, you should divide your study group into two separate subgroups - append an A or B to your group name for this purpose (e.g., "WildcatA" or "WildcatB"). Each subgroup will be considered a single "trader." Maintain the same subgroups throughout the course. The system will assign each trader a certain amount of "grade cash" based on their trading performance, but the amount assigned is never less than zero. At the end of the course, the grade cash for the two subgroups will be averaged to determine the grade for the study group. This provides diversification (risk reduction) in case one trader makes a big mistake in one of the cases.

The trading session for this case will be conducted after class on Monday June 2 from 4-5 PM.

FTS has an online help feature you may want to look at (it's not essential). You get to it by going through the sequence: SIMON_STUDENT, SYS, PUBLIC, . . ., FTS. Once you're in the FTS folder, click on the file FTS with the book icon. Similarly, clicking on Fast! gives a description of all the available trading cases.

Note: don't assume information for trading sessions will be the same as that given in the case descriptions. The information (interest rates, etc.) will be displayed by the system at the beginning of the session.

TRADING CASE: RE3

OVERVIEW

RE3 is a trading exercise in which you will trade in both stock and option markets during a period in which significant information events occur. Different traders will receive different analyst projections regarding these informational events. With option markets open, you will have greater opportunities to exploit your information in stock and option trading strategies. Focus will be placed on arbitrage, market efficiency and the bets role of options.

THE MARKET ENVIRONMENT

In this economy, two stock markets are open for two trading periods, with a put and call option market defined on one of the stocks. The two stock markets trade shares in two firms that are located in different geographical locations. The path of future stock prices for each firm depends upon two rounds of announcements for awarding various bundles of defense contracts. Second round bundles are larger than first round bundles. Awarded contracts are critical to the future solvency of each firm. The government treats each region independently and therefore the realization for one firm is independent of the realization for the other firm. Different sets of contract bundles are labeled generically as "x, y or z" in each period.

ECONOMIC EVENTS

Firms 1 and 2 Events	Code
Year 1	
No defense contracts awarded	**x**
Existing 1 year contracts renewed	**y**
Existing 1 year contracts renewed plus	**z**
Year 2	
No defense contracts	**x**
Long term renewal of existing contracts	**y**
Long term renewal of existing plus new long term contracts awarded	**z**

FINANCIAL INFORMATION

The following event contingent information is a summary of both management's planned dividend policy for the end of year 1, and analyst expectations for the future value per share for each firm at the end of year 2. Dividends per share are paid to you at the end of year 1 in market cash. Both borrowing (lending) at a zero risk-free rate and shortselling are permitted. If you are short at the end of year 1 then the total dividend liability is subtracted from your market cash to cover your short position. At the end of year two your position is marked to the realized future value after the close of the second trading period.

ANALYST PROJECTIONS FOR FIRM 1				
Year 1 Event	Dividends per share	Future Value per share in Year 2 if Year 2 Event is:		
	Year 1	x	y	z
x	0	0	20	40
y	0	0	25	45
z	0	0	35	60

ANALYST PROJECTIONS FOR FIRM 2				
Year 1 Event	Dividends per share	Future Value per share in Year 2 if Year 2 Event is:		
	Year 1	x	y	z
x	0	0	20	40
y	0	0	25	45
z	0	0	35	60

PRIVATE INFORMATION

You may receive some information, from private sources, in advance of the public announcement that other traders in the market may or may not have. This information is never exact but can help you eliminate some outcomes from contention. For example, if you receive "Not x" at the beginning of period 1 for firm 1, then this reveals that the firm is to be awarded some contracts in round one. That is, only outcomes y and z are possible for period 1 for firm 1.

At the end of each year, after the trading period has closed, the realized event is disclosed to the market and values are determined as follows:

If event y is realized for firm 2 at the end of year 1, then the realized year 1 dividend per share is 0. Subsequently, if event z is realized at the end of year 2, then the realized future value is 45.

OPTION CONTRACTS

A put (call) option defined on stock 1 provides it's owner (the buyer) with the right, but not obligation, to sell (buy) stock 1 (shares in firm 1) for a price equal to the exercise price at the end of year 2. The put and call options on stock 1 have an exercise price equal to 30. That is, whether or not the options finish "in the money" or "out of the money" depends upon the realized value for shares in firm 1 at the end of year 2. The value of the option is determined as follows:

Put option value at the end of year 2 = Max{ 0, Exercise Price - Stock Price}.

Call option value at the end of year 2 = Max{ 0, Stock price - Exercise Price}

That is, if the value for shares in firm 1 is 60 then the call option finishes in the money, your position is marked at 30, and the put option finishes out of the money at 0.

Whether or not you made a profit from buying 1 call option in the above example depends upon whether you bought (i.e., accepted an ask, or made an accepted bid) for 1 call option at a price less than 30.

Finally, both the put and call options are "European options" which means that they can only be exercised at the end of year 2. In the FTS markets, European options are automatically exercised for you (as well as against you if you are the option writer) if they finish "in the money."

THE TRADING OBJECTIVE

The markets are open at the beginning of each year for two years. Each pair of trading periods is defined as one trial. Your objective is to accumulate as much grade cash as possible for each trial by managing the expected end of trial market cash value of your position.

The realized market cash value of your final position (after stocks have been marked-to-market cash) is automatically converted to grade cash.

EARNING GRADE CASH

Your grade cash in any trial is 0.0001 x market cash. That is, if you end up with negative wealth then you lose grade cash and if you make money then you gain grade cash.

Trading is conducted over a number of independent trials and a record of your cumulative grade cash is maintained.