Case Package 2012

Rotman European Trading Competition @ LUISS

Enel
FIFTY YEARS
1962 2012

Bloomberg

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PLUS24

Government of Canada
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Ambassade du Canada

CC&G
London Stock Exchange Group

ROMA CAPITALE

Table of Contents

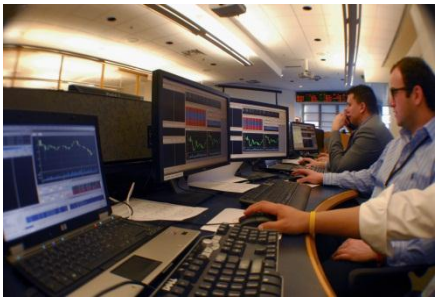
About RETC

RETC is a two and a half day event that allows teams from universities across Europe to participate in a simulated market. Its structure is similar to the very successful Rotman International Trading Competition (RITC) held annually in Toronto, where 50 schools from around the world meet and compete in simulated markets.

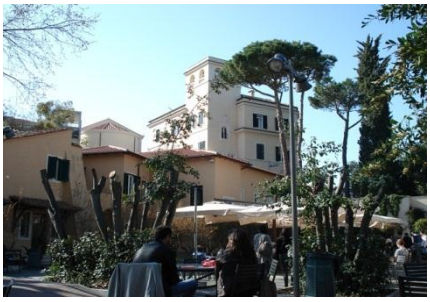
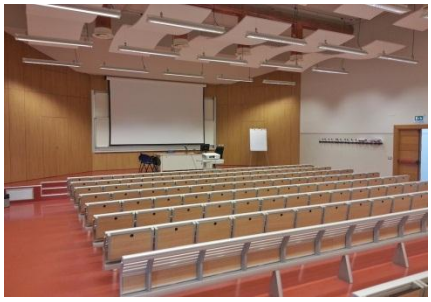
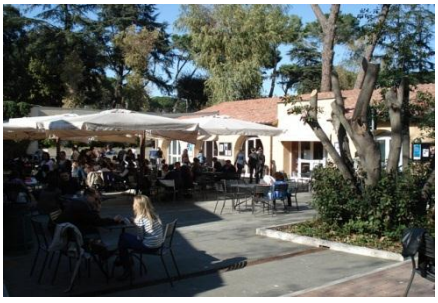
The competition is predominantly structured around the Rotman Interactive Trader platform, a software simulation that creates an electronic market which participants use to trade with each other. The platform is designed to run simulation cases that are designed to test traders' ability to handle a magnitude of market scenarios.

The following case package provides an overview of the content presented at the 2012 Rotman European Trading Competition. Each case has been specifically tailored to be linked to topics taught in university level classes and real-life trading situations. We hope you enjoy your experience at the competition.





See You in Rome

Important Information

Practice Servers

Practice servers will be online as of Monday, July 30th, 2012 and will operate 24 hours a day 7 days a week until the start of the competition.

Information on how to download and install the RIT v2.0 Client is available on the RETC website:

http://retc.luiss.it/software/

The follow table details the server IP & ports as well as the release dates for the RETC practice cases.

Case Name	Server IP	Port	Release date
Sales & Trader Case	flserver.rotman.utoronto.ca	16500	July 30th
CC&G Options Trading Case	flserver.rotman.utoronto.ca	16510	August 1st
Bloomberg M&A Case	flserver.rotman.utoronto.ca	16520	August 1st
Enel Energy Trading Case	flserver.rotman.utoronto.ca	16530	August 3rd

Practice servers will be made available starting the week of Monday, July 30th. The actual practice cases will be introduced in a staggered manner according to the release dates in the table above.

To login to any server port, you can type in any username and password and it will automatically create an account if it does not already exist. If you have forgotten your password or the username appears to be taken, simply choose a new username and password to create a new account.

The Enel Energy Trading Case and the CC&G Options Trading Case will be updated with a different set of news on Thursday, August 9th, 16th, and 23th at 5PM CEST. Teams wishing to trade against other participants are encouraged to login at this time. At each update, a new case file with different news items and randomized paths will be uploaded and will continue to run until the next update. As such, teams that continue to practice from the start of the practice server up to the competition will have traded 4 different iterations of each of the aforementioned cases. The Sales & Trader and the Bloomberg Mergers & Acquisitions cases randomize a new set of security paths and news each time they are run on the server.

Additional Support Files

Additional support files and other relevant documentation files will be provided on the RETC website.

Scoring and Ranking Methodology

The Scoring and Ranking Methodology document will be released prior to the start of the competition on the RETC website. An announcement will be sent out to competitors once the document becomes available.

Competition Schedule

This schedule is subject to change prior to the competition. Competitors can check on the RETC website for the most up-to-date schedule. Each competitor will also receive a personalized schedule when they arrive at the competition.

Competition Waivers

All participants are required to sign a competition waiver prior to their participation at RETC. These will be available online (to be sent in ahead of time) or at the registration desk when you arrive.

Case Summaries

Social Outcry

The opening event of the competition gives you your first opportunity to make an impression on the sponsors, faculty members, and other teams in this fun introduction to the Rotman European Trading Competition. Trade against experienced professionals from the industry, try to make your case against the professors, and show everyone your outcry skills by making fast and loud trading decisions.

Sales and Trader

The Sales and Trader Case challenges participants to put their critical thinking and analytical abilities to the test in an environment that allows traders to have significant flexibility on the trading strategy they choose to implement. Traders will be faced with multiple tender offers requiring participants to make rapid judgments on the profitability and subsequent execution of these offers. Profits can be generated by taking advantage of pricing discrepancies, large tender offers, and market-making opportunities.

Enel Energy Trading

The Enel Energy Trading Case will place competitors in a trading simulation in which they buy and sell power/electricity as well as raw materials in response to their analysis of various news releases. Traders will have different roles as consumers, producers, and speculators in different settings. They will also have the opportunity to generate profits from transportation arbitrage by analyzing and taking advantage of price changes of securities traded in two markets.

Quantitative Outcry Trading

Building on the experience of the frantic Social Outcry market, this case will require teams to optimize their trading, analytical, and risk management skills. Participants will use news releases that give quantitative economic forecasts, as well as qualitative micro and macro data, to predict the futures market on the RT100 index. Analyzing macroeconomic indicators, participants should be able to gain an understanding of the impact of the factors on the index and generate profitable trades.

CC&G Options Trading

The CC&G Options Trading case will challenge traders' ability to use options valuation models to forecast the future volatility of an underlying stock and trade options to profit from their views. The case is designed to rewards sound decision making abilities with regards to how an option is priced (overpriced or underpriced) rather than rewarding directional views on a stock (with leverage).

Bloomberg Mergers & Acquisitions

The Bloomberg M&A Case features various worldwide corporations that are competitively bidding on a number of targets. Traders are to evaluate the probability that takeover offers will occur, the approximate pricing of those offers, whether counter-offers will materialize, and finally gauge anti-trust sentiment regarding the pending acquisitions.

Social Outcry

Overview

The objective of the Social Outcry case is to allow competition participants to interact ("to break the ice") and to understand the progression of market technology. This segment of the competition is not included in the cumulative team score as scores are based on individual performance. This Social Outcry will be an exciting way for you to introduce yourself to the participants at RETC as well as great preparation for the Quantitative Outcry. You will be ranked based on your Net Liquidation Value at the end of the case.

Description

Each participant will start the session with a neutral futures position. Participants are allowed to go long (buy) or go short (sell). Contracts in hand at the end of trading will be marked-to-market at the closing price.

Market Dynamics

Participants will trade futures contracts on an index, the RT100. The futures price will be determined by the market's transactions while the spot price will follow a stochastic path subject to influence from qualitative news announcements which will be displayed on the ticker. One news announcement will be displayed at a time, and each news release will have an uncertain length and effect. Favourable news will result in an increase in the spot price while unfavourable news will cause a decrease in the spot price. These reactions may occur instantly or with lags. Participants are expected to trade based on how they interpret the news and their anticipation of the market reaction.

Trading Limits and Transaction Costs

There are no trading limits or trading commissions for the Social Outcry case.

Rules and Responsibilities

The following rules apply throughout the Social Outcry case:

- Market agents are RETC staff members at the front of the outcry pit collecting tickets.
- Maximum of 5 contracts per trade/ticket.
- All tickets must be filled out completely and legibly and verified by both parties with no portion of the ticket left blank. Illegible tickets may be ignored by the market agents!
- Both transacting parties are responsible to make sure that the white portion of the ticket is received by the market agent. The transaction will **not** be processed if the white portion is not handed in. Both trading parties must walk the ticket up to the market agent.
- Only the white portion of the ticket will be accepted by the market agent; trading receipts (pink and yellow) are for the team's records only.
- Once parties have verbally committed to a trade, they are required to transact.
- RETC staff reserve the right to break any unreasonable trades.
- Any breaches of the above stated rules and responsibilities are to be reported to the market agent or floor governors immediately.

Position Close-Out and Case Scoring

Each person's trades will be settled at the close of trading based on the final spot price. The ranking is based on the total P/L (profit/loss) from the trading session.

Example:
Throughout the trading session, one trader has made the following trades:

Buy 2 contracts @ 998
Sell 5 contracts @ 1007
Buy 1 contract @ 1004

The market closed out @ 1000. The P/L for the trader is then calculated as follows:

2 long contracts @ 998
P/L: (1000-998)*2*10 = $40

5 short contracts @ 1007
P/L: (1000-1007)*(-5)*10 = $350

1 long contract @ 1004
P/L: (1000-1004)*1*10 = ($40)

There are no commissions and fines in the Social Outcry.

The trader has made a total P/L of $350.

Complete Transaction and Social Outcry Language Example

To find the market, traders simply yell "What's the market?" If someone wants to make the market on the bid side, he/she can answer "bid 50" meaning they want to buy at a price ending with 50 (1050, 1150), whichever is closest to the last trade. If someone wants to make the market on the ask side, he/she will yell "at 51" meaning he/she wants to sell at a price ending with 51 (1051, 1151) closest to the last price. Note that so far, no quantity has been declared. Only two digits are required when calling the bid or ask. To complete a trade, someone willing to take the market can simply say "bought two" to the person selling. The seller's response must then be: "sold two" (or any other quantity below 2, but not 0, at the seller's discretion). After the seller and the buyer fill out the trade ticket and submit the white part to the ticket taker, the trade is complete. Please note that the market maker (trader announcing the price) gets to decide the quantity traded up to a maximum of the quantity requested by the market taker.

A complete transaction could run as follows:

Trader1	"What's the market?"
Trader2	"bid 70, at 72" or "70 at 72", (bid 1070, ask 1072, this trader wants to buy and sell)
Trader3	"at 71" (the new market is 1070 to 1071)
Trader 1 to Trader 3	"Bought 5" (he/she wants to buy 5 contracts at 1071)
Trader 3 to Trader 1	"Sold 3" (Although Trader 1 wanted to buy 5 contracts, Trader 3 only wants to sell 3 contracts so Trader 1 must accept the three contracts).
Trader 1 or Trader 3	He/she fills out the trade ticket with initials from both Trader 1 and Trader 3. The white portion of the ticket is submitted to the market agent by **both** traders (both traders walk the ticket up to the front of the trading floor). Trader 1(Buyer) keeps the yellow portion of the ticket and Trader 3(Seller) keeps the pink (red) portion of the ticket.

There will be a brief outcry practice and demonstration before the Social Outcry on the day of competition.

Sales & Trader Case

Overview

The Sales and Trader Case challenges participants to put their critical thinking and analytical abilities to the test in an environment that allows traders to have significant flexibility on the trading strategy they choose to implement. Traders will be faced with multiple tender offers requiring participants to make rapid judgments on the profitability and subsequent execution of these offers. Profits can be generated by taking advantage of pricing discrepancies, large tender offers, and market-making opportunities.

Description

The trading session will consist of ten, 10-minute heats with each heat to be independently traded and representing one month of calendar time. Each heat will have a unique objective and could involve up to four securities with different volatility and liquidity characteristics.

Parameter	Value
Number of trading heats	10
Trading time per heat	600 seconds (10 minutes)
Calendar time per heat	1 month (20 trading days)

Tender offers will be generated by computerized traders and distributed at random intervals to random participants. Traders must subsequently evaluate the profitability of these tenders when accepting or bidding on them. Trading from excel using Rotman API will be disabled. Real time data (RTD) links will be enabled.

Market Dynamics

There are ten heats each with unique market dynamics and parameters ranging from changes in the spread of tender orders to the liquidity and volatility of various stocks. Details regarding each heat will be distributed directly before the trading period allowing for participants to formulate trading strategies.

An example of trading heat details is shown below.

	RETC	COMP
Starting Price	$12	$15
Commission/share	$0.01	$0.01
Max order size	25000	25000
Trading Limit (Gross/Net)	250000/250000	250000/250000
Liquidity	High	High
Volatility	Medium	Medium
Tender frequency	Medium	Medium

During each heat, traders will occasionally receive one of three different types of tender offers: private tenders, competitive auctions and winner takes all. Tender offers are generated by the server and randomly

distributed to traders at different times. Each participant will get the same number of tender offers with variations in price and quantity.

Private tenders are routed to individual traders and are offers to purchase or sell a fixed volume of stock at a fixed price. The tender price is influenced by the same pre-generated path that the liquidity traders follow in an attempt to drive the market price towards that path. Private tenders will give a spread based on the mid-market price when the order was generated (if the mid-market price is $10, and the spread was 1-2%, the tender offer will offer to buy shares for an amount between $10.10 and $10.20).

Competitive auction offers will be sent to every participant at the same time. Traders will be required to determine a competitive, yet profitable price to submit for a given volume of stock from the auction. Any trader that submits an order that is better than the base-line reserve price (hidden from traders) will automatically have their order filled, regardless of other traders' bids. If accepted, the fills will occur at the price that the trader submits.

Winner takes all tenders request traders to submit bids to buy or sell a fixed volume of stock. After all prices have been received, the tender is awarded to the single highest bidder or lowest offer. The winning price however must meet a base-line reserve price. If no offer meets the reserve price, then the trade may not be awarded to anyone (i.e. if all traders bid $2.00 for a $10 stock, nobody will win).

Trading Limits and Transaction Costs

Each trader will be subject to gross and net trading limits to be specified in the case description distributed prior to the trading period. The gross trading limit reflects the sum of the absolute values of the long and short positions across all securities; while the net trading limit reflects the sum of long and short positions such that short positions negate any long positions. Trading limits will be strictly enforced and traders will not be able to exceed them.

The maximum trade size will be 25000 shares, restricting the volume of shares transacted per trade to 25000. Transaction fees will be specified in the case description distributed prior to the trading period.

Position Close-Out

Any non-zero position will be closed out at the end of trading based on the last traded price. This includes any long or short position open in any security. Computerized market makers will increase the liquidity in the market towards the end of trading to ensure the closing price cannot be manipulated.

Key Objectives

Objective 1:

Generate profits by market making in order to capture the bid-ask spread. Develop trading strategies based on the case descriptions to be distributed prior to the trading period in order to customize profitable trading strategies to each heat.

Objective 2:

Evaluate the profitability of tender offers and accept those that will generate profits while rejecting those that will create losses. Submit competitive, yet profitable, bids and offers on above reserve and winner takes all tenders in order to maximize potential profits.

Objective 3:

Limit market risk by managing open positions and optimally utilizing the gross and net trading limits to maximize profits. Maintaining large short or long positions may result in the market trading away from your transaction price, resulting in losses. Use a combination of limit and market orders to mitigate any liquidity and price risks from holding open positions.

Enel Energy Trading Case

Overview

The Enel Energy Trading case challenges traders' ability to respond to the highly dynamic world of energy trading. Primarily, traders will buy and sell raw materials necessary to generate power/electricity and the power itself in response to their analysis of various news releases affecting the price of both raw materials and power. In addition, traders will be challenged to take advantage of both transportation arbitrage opportunities occurring in two spot markets, Italy and France, and arbitrage opportunities generated by two different power plants. Lastly, traders will learn about the physical requirements to trade physical products, such as storage, pipeline (transportation) and power plant costs.

Description

The Enel Energy Trading case will consist of five 20-minute trading heats with all team members competing for the entire heat. Each heat will last 20 minutes and will represent two months, or 40 trading days, of calendar time. Trading from Excel using the Rotman API will be disabled. Real time data (RTD) links will be enabled.

Parameter	Value
Number of trading heats	5
Trading time per heat	1200 seconds (20 minutes)
Calendar time per heat	2 months
Max order size	30 contracts
Mark-to-market frequency	Daily (every 30 seconds)

Market Dynamics

Traders will be able to trade the following six securities and utilize the following six assets as listed below.

Securities	Description	Contract Size	Max order size
BRENT	Brent spot (in Italy)	10 Barrels	30
GASOIL	Gasoil spot (in Italy)	10 Tons	5
COAL	Coal spot (in Italy)	10 Tons	30
CO2	CO2 spot (in Italy)	10 Tons	50
Power-ITA	Power-ITA spot	10 MWatt	50
Power-FRA	Power-FRA spot	10 MWatt	50

Traders will also be able to utilize the following assets which are required for storing, moving, or producing power.

Assets				
Name	**Description**	**Capacity**	**Transport or Conversion Period**	**Cost**
BRENT-STORAGE	Storage for Brent Spot in Italy	500 Barrels	N/A	$2500/day
COAL-STORAGE	Storage for Coal Spot in Italy	750 Tons	N/A	$2500/day
GASOIL-STORAGE	Storage for Gasoil Spot in Italy	50 Tons	N/A	$2500/day
FRA-ITA TRANSPORT	Power transport from France to Italy	1500 MWatt	4 Day (120 seconds)	$25000/use
GAS-POWER PLANT	Power Plant using Brent and Gasoil	Brent(200 Barrels) Gasoil (20 Tons) CO_2 (200 Tons)	1.5 Days (45 seconds)	$20000 per 55 seconds
COAL-POWER PLANT	Power Plant using Coal	Coal (300 Tons) CO_2 (500 Tons)	1.5 Days (45 seconds)	$20000 per 55 seconds

*Note: There are no storage requirements for the physical products: CO_2, Power-ITA and Power-FRA. Automatic storage at no cost can be assumed for these products.

In this case, each trader will have a specific role. In particular, there are three different roles:

1. Producer
2. Consumer
3. Speculator

Each team will have 2 producers, 1 consumer and 1 speculator. Each team will have to decide the role that will be played by each member in every heat.

Example

The team ROME will have four trader IDs (ROME-1, ROME-2, ROME-3, ROME-4), and roles can be assigned according to the list below.

Trader-ID	Role
ROME-1	Consumer
ROME-2 and ROME-3	Producer
ROME-4	Speculator

Consumers will be able to trade the following securities and utilize the following assets listed below.

Securities	Shortable
Power-ITA	No
Power-FRA	No

Assets
FRA-ITA transport

Consumers are suggested to focus on the Transportation Model (see below in this document). During the case, Consumers will receive negative endowments (short position) of Power-ITA and they will have to decide how to close them. They can choose to buy either from the Italian market or from the French market (using the FRA-ITA transport). At the end of the case, any non-zero position will receive a fine of $1000 per contract. (Hence, it is highly recommended that Consumers close out their positions before the end of the case).

Producers are suggested to focus on 2 models: Storage Model and Production Model (see below in this document). Producers will be able to trade the following securities and utilize the following assets listed below.

Securities	Shortable
BRENT	Yes
GASOIL	Yes
COAL	Yes
CO_2	Yes

Assets
GAS-POWER PLANT
COAL-POWER PLANT

Producers will balance the costs of operation with expected returns to earn arbitrage profits. For example, based on the production's fixed cost to operate, traders can calculate when it's profitable to purchase raw materials, convert it into power, and sell the power. The power produced from the Power plants will be immediately sold at the current market bid price once the production process is completed.

Speculators are suggested to focus on 2 models: Storage Model and Transportation Model (see below in this document). Speculators will be able to trade the following securities and utilize the following assets listed below.

Securities	Shortable
BRENT	Yes
GASOIL	Yes
COAL	Yes
CO_2	Yes
Power-ITA	No
Power-FRA	No

Assets
FRA-ITA transport

Speculators will only have to concentrate on transportation arbitrage opportunities occurring between the Italian and French spot market as well as interpreting the price sensitive news that will be released during the case. Speculators can respond to the various news releases by buying and selling contracts of all the securities available.

Speculators will balance the costs of operation with expected returns to earn arbitrage profits. For example, based on the transportation's fixed cost, traders can calculate when it's profitable to purchase power in France (Power-FRA), transport it to Italy, and sell Power-ITA.

Storage Model

Traders must lease storage before buying spot Brent, Gasoil or Coal. A storage tank for Brent holds up to 500 barrels and costs $2500 per day (charged every 30 seconds). A storage tank for Gasoil holds up to 50 tons and costs $2500 per day (charged every 30 seconds). A storage tank for Coal holds up to 750 tons and costs $2500 per day (charged every 30 seconds). Each storage tank must be leased in its entirety (i.e. traders cannot lease half a tank).

Traders are limited to having up to 2 of each storage unit simultaneously.

Transportation Model

Traders are able to transport power from France to Italy using a transport asset (pipeline). Doing so effectively converts power-FRA to Power-ITA. For example, transporting 1500 MWatt of power from France to Italy converts 1500 MWatts of Power-FRA into 1500 MWatt of Power-ITA.

In order to transport power, traders must "lease and use" pipelines. Unlike storage, pipelines must be used immediately after lease. The transport process will take 120 seconds to complete. The pipeline will automatically be released at the end of the lease period.

A pipeline can transport up to 1500 MWatt of power at a time and costs $25000 per use. This cost is subject to change at random times during the case. Traders will be notified of changes to pipeline costs through news releases.

Traders are limited to leasing up to 2 of each pipeline simultaneously.

Production Model

Traders are able to produce power in Italy using two different power plants, Gas power plant and Coal power plant.

The Gas power plant converts 20 contracts (200 barrels) of Brent in Italy, 2 contract (20 tons) of Gasoil and 20 contracts (200 Tons) of CO_2 into 60 contracts (600 Mwatt) of power in Italy (Power-ITA). Each Producer will be limited to using only one Gas power plant at a time.

The Coal power plant converts 30 contracts (300 Tons) of Coal in Italy, 50 contracts (500 Tons) of CO_2 into 60 contracts (600 Mwatt) of power in Italy (Power-ITA). Each Producer will be limited to using only one Coal power plant at a time.

To produce power, traders must lease power plants. The lease price covers the cost of production, additives, and the facility. Each lease period is 55 seconds, and the production process will take 1.5 days (45 seconds) to complete for both power plants. Once the production process is complete, traders must "release" the power plants otherwise they will be continuously charged for the lease at every 55 seconds in the case. Both Gas and Coal power plant have a cost of $20000 per lease. This cost is subject to change at random times during the case. Traders will be notified of changes to power plants costs through news releases.

Trading Limits and Transaction Costs

Each trader will be subject to gross and net trading limits. The gross trading limit reflects the sum of the absolute values of the long and short positions across all securities and cannot exceed 1000 contracts. The net trading limit reflects the sum of long and short positions such that short positions negate any long positions and has an upper bound of 500 contracts. Trading limits will be strictly enforced and traders will not be able to exceed them.

There will be a maximum trade size for each security (please see the table below).

Security	Max Trade Size
BRENT	30
GASOIL	5
COAL	30
CO_2	50
Power-ITA	50
Power-FRA	50

For example, maximum trade size for Brent is 30 contracts, restricting the volume of contracts transacted per trade to 30. Any attempt to transact more than 30 contracts per trade will result in a pop-window saying that the trader cannot submit more than the maximum trade size. Transaction fees will be set at $1 per contract traded for each security.

Position Close-Out

Any non-zero position will be closed out at the end of trading based on the last traded price. This includes any long or short position open in any security. Computerized market makers will increase the liquidity in the market towards the end of trading to ensure the closing price cannot be manipulated.

Key Objectives

Consumer Objective:

Decide how to handle endowments of power they will receive during the case. Traders can also find and capitalize on transportation arbitrage opportunities between Italy and France.

Producer Objective:

Find and capitalize on arbitrage opportunities between different types of power plants. Traders will be provided with a basic RIT-linked Excel model which provide arbitrage indicators to notify them of arbitrage opportunities in order to maximize potential profits. It is highly recommended that traders enhance this basic model or design one from scratch in order to more effectively trade and understand the case.

Speculator Objective:

Generate profits by reacting to news headlines and going long on raw materials during supply shortfalls and shorting them during times of supply excess. This will create profits from changes in the price of all raw materials. Traders can also find and capitalize on transportation arbitrage opportunities between Italy and France. There will also be bid-ask spreads observable in the market from which traders may profit.

Quantitative Outcry Case

Overview

The Quantitative Outcry case challenges competitors to apply their understanding of macroeconomics to determine the effect news releases will have on the European economy as captured by the Rotman Index (RT100). The RT100 index is a composite index reflective of European political, economic, and market conditions. Traders will be required to interpret and react to news releases in trading RT100 index futures based on their analysis of the news' impact on the index.

Description

There will be 2 heats with 4 team members competing for the entire heat. The 4 team members will comprise of 1 analyst, 1 risk manager, and 2 traders who will rotate positions for the second heat. Each heat will last 30 minutes representing six months of calendar time. Traders will be trading futures contracts on the RT100 index.

Parameter	Value
Number of trading heats	2
Trading time per heat	30 minutes
Calendar time per heat	6 months

All 4 team members will be located in the trading pit. They can freely communicate with one another throughout the trading heat. Electronic devices are not permitted on the trading floor.

Market Dynamics

The quarterly GDP growth (in billions) of 4 Eurozone economies (Germany, France, UK, and Italy) determines the value of the RT100. Economic statistics for each of the countries are collected and released throughout the trading session, and will determine the exact trading level of the RT100 at the midpoint and at the end of the trading period (3 month and 6 months in real calendar time).

$$RT100_{Value\ at\ t=15} = 1000 + Germany_{(Actual\ Q1\ GDP - Previous\ Q1\ GDP)} + \cdots + Italy_{(Actual\ Q1\ GDP - Previous\ Q1\ GDP)}$$

In other words, every 1 billion of actual year-over-year GDP growth will cause a 1 point increase in the RT100 index. Consequently every 1 billion of actual GDP shortfall will cause a 1 point decrease in the RT100 index.

The quarterly GDP for each country is comprised of aggregate production in three independent sectors: Manufactured Goods, Services, and Raw Materials. At the beginning of the outcry case, estimates for the aggregate quarterly GDP of each country and sector will be released. Throughout the quarter, news releases will provide estimates and information that will allow analysts to construct expectations for each country and each sector.

The following is a sample series of data for Q1 Italy.

- Italian Q1 GDP last year was $72 Billion. This year, the market sees manufactured goods of 22B, services of 36B, and raw materials of 30B.
- General workers protest hits Italian manufacturing sector, causing minor production delays.
- Strong global commodities prices lift raw materials output across the globe by as much as 10%.
- VAT exemption policies cause increase in services spending.
- RELEASE - Italian Manufacturing for Q1 : 20B
- RELEASE - Italian Raw Materials for Q1 : 33.8B
- RELEASE - Italian Services for Q1 : 41B

The above releases would cause the RT100 to increase by 22.8 points. This, plus the effects of the other 3 countries, will determine the RT100 at the 15 minute mark (and then 30 minute mark).

Analyst Estimates

Throughout the trading heat, analysts will be required to submit a point estimate of where they believe the RT100 will settle at 15 and 30 minute marks. These estimates are due by 10 and 25 minutes of trading, respectively (i.e. 5 minutes before the end of the quarter). Analysts will be graded based on their prediction accuracy and bonus cash will be allocated to the teams with the most accurate analysts.

Risk Management Tracking

Throughout the trading heat, teams will be called at random times and required to report their aggregate position. This will be compared to their actual trading position (based on submitted tickets) and teams will be awarded bonus cash based on the accuracy of their position tracking.

Traders and Counterparties

At the end of trading, all submitted tickets will be reviewed and each team will be given a counterparty score based on the number of different trading counterparties they transacted with throughout the trading session (the maximum is 25). Teams will be awarded bonus cash based on the number of counterparties they transacted with.

Bonus Cash Calculations

For all three bonus calculations, all teams will be ranked based on their performance and split into quintiles except for the last team (26^{th}). The top quintile will be assigned a 5% bonus, the second 4%, and so on until the last quintile is assigned a 1% bonus, while the last team (26^{th}) is assigned a 0% bonus. Bonuses are never negative, and they are applied at the end of the heat based on the team's performance throughout the heat.

Trading P&L

Trading P&L will be calculated in a similar fashion as the social outcry case (with trading fines described below). Trading P&L will then be modified by all bonuses (Analyst Estimate, Risk Management, and Counterparties).

Trading Limits and Transaction Costs

Each team has a starting position of 0 contracts, a soft trading limit of 200 contracts and a fixed hard trading limit of 500 contracts on their net positions. Teams will be notified as they approach their soft and hard limits on a best efforts basis. If a team exceeds its soft limit, it will be charged a fee proportional to how much they exceed the soft limit. The amount by which a team exceeds the initial soft limit of 200 will become their new soft limit. The fee per contract above the soft limit is $250.

For instance, if Team A's net position is at 220, they will be charged a fee of $250 * 20 = $5000 (they have exceeded their soft limit of 200 by 20 contracts). For Team A, 220 is now the new soft limit. As long as Team A's position remains below 220, there will be no additional fees. If Team A bought more and had a new net position of 280, then they would be charged an additional fee of $250 * 60 = $15000 (The difference between the new net position and new soft limit). If a team does not exceed its soft limit, it will not be charged any fees.

Any team that exceeds the hard limit of 500 will be automatically disqualified from the outcry. They will be given a rank equal to that of last place for that outcry. In addition, there is a zero tolerance policy in regards to electronic communication. Any trader or analyst seen (by an RETC staff member) using or holding a cell phone during the trading heats will be immediately disqualified. RETC staff will be positioned throughout the trading pit and the Analysts' Room to police this.

Each contract will be charged a brokerage commission of $1 per contract.

Position Close-Out

Each team's position will be settled at the end of the trading session by closing out their remaining positions at the final spot price.

Key Objectives

Objective 1:

Generate profits by interpreting news headlines and going long on positive news and short on negative news. Try to trade with as many counterparties as possible.

Objective 2:

The analyst should track news releases and estimate the RT100 and submit their estimate in a timely manner.

Objective 3:

The risk manager should track the position of the traders and report them in a timely manner.

CC&G Options Trading Case

Overview

The CC&G Options Trading Case gives traders the opportunity to generate profits by applying options trading strategies. The underlying asset of the options is an Exchange Traded Fund (ETF) called MIB that mimics FTSE MIB, the main benchmark index of the Italian equity markets, which represents about 80% of domestic market capitalization*. Traders will be able to trade shares of the ETF and 1-month call/put options with 10 different strike prices. Information including the stock price, option prices, and news releases will be provided. Participants are encouraged to use the information provided to forecast the future volatility of the underlying MIB and construct options strategies that will profit from the volatility of the underlying.

Description

The trading session will consist of ten 10-minute heats with each heat to be independently traded and representing one month of calendar time.

Parameter	Value
Number of trading heats	10
Trading time per heat	600 seconds
Calendar time per heat	1 month (20 days)

During the case, news will be released and traders will be able to transact shares of MIB or options. Trading from excel using Rotman API will be disabled. Real time data (RTD) links will be enabled.

Market Dynamics

Traders will be able to the MIB stock index, or twenty separate options contracts on the MIB.

Price	Call Ticker	Strike Price	Put Ticker	Price
$5.05	MIBO45C	45	MIBO45P	$0.05
$4.11	MIBO46C	46	MIBO46P	$0.11
$3.22	MIBO47C	47	MIBO47P	$0.22
$2.42	MIBO48C	48	MIBO48P	$0.42
$1.72	MIBO49C	49	MIBO49P	$0.72
$1.16	MIBO50C	50	MIBO50P	$1.16
$0.74	MIBO51C	51	MIBO51P	$1.74
$0.45	MIBO52C	52	MIBO52P	$2.45
$0.26	MIBO53C	53	MIBO53P	$3.26
$0.14	MIBO54C	54	MIBO54P	$4.14

*In particular, the FTSE MIB Index measures the performance of 40 Italian equities and seeks to replicate the broad sector weights of the Italian stock market. The Index is derived from the universe of stocks traded on the main Italian Stock Exchange (BIt). Each stock is analyzed by size and liquidity, and hence, the overall Index appropriately represents each sector.

All securities are priced by a very large market-maker that will always quote a bid-ask spread of 2 cents (i.e. $50.00x50.02 for the MIB, or $4.14x$4.16 for the MIBO46C). The bids and asks are for an infinite quantity (there are no liquidity constraints in this case).

The price of the underlying stock index, MIB, is a random-walk and the path is generated using the following process:

$$P_{MIB,t} = P_{MIB,t-1} * (1 + r_t); where\ r_t = N(0, \sigma)$$

The price of the stock is based on the previous price multiplied by a return which is drawn from a normal distribution with a mean of zero and standard deviation (volatility) of sigma. Sigma's starting value is 20% (on an annualized basis).

The trading period is divided into 4 weeks, with t=1…150 being week one, t = 151…300 week two, and so on. At the beginning of each week, the volatility value (sigma) will shift, and the new value will be provided to traders. In addition, at the middle of each week (i.e. t=75) an estimate of next week's volatility value will be announced.

The observed and tradable prices of the options will be based on a computerized market-maker posting bids and offers for all options. The market maker will price the options using the Black-Scholes pricing model. The volatility forecasts made by the market maker are uninformed, and therefore will not accurately reflect the future volatility of the underlying MIB. Mispricing will occur, creating trading opportunities for market participants. These opportunities could be between specific options with respect to other options, specific options with respect to the underlying, or all options with respect to the underlying.

Information Release Schedule

Time	Week	Release
1	Week 1	The volatility of MIB for this week is 20%
75	Week 1	The forecast for MIB's volatility next week is 24-27%
150	Week 2	The volatility of MIB for this week is 25%
….		
450	Week 4	The volatility of MIB for this week is 32%

Trading Limits and Transaction Costs

Each trader will be subject to gross and net trading limits specific to the security type and specified below. The gross trading limit reflects the sum of the absolute values of the long and short positions across all securities while the net trading limit reflects the sum of long and short positions such that short positions negate any long positions. Trading limits will be strictly enforced and traders will not be able to exceed them.

Security Type	Gross Limit	Net Limit
MIB Equity	50000 Shares	50000 Shares
MIB Options	2500 Contracts	1000 Contracts

The maximum trade size will be 10,000 shares for MIB equity and 100 contracts for MIB options, restricting the volume of shares and contracts transacted per trade to 10000 and 100 respectively. Transaction fees will be set at $0.02 per share traded for MIB equity and $2.00 per contract traded for MIB options. As with standard options markets, each contract represents 100 shares (purchasing 1 contract for $0.35 will actually cost $35 plus a $2 commission, and settle based on the exercise value of 100 shares).

Position Close-Out

Any outstanding position in the MIB index will be closed at the end of trading based on the last-traded price. Computerized market makers will increase the liquidity in the market towards the end of trading to ensure the closing price cannot be manipulated. All options will be cash-settled based on their exercise value.

Key Objectives

Objective 1:

Build a model to forecast the future volatility of the underlying stock based on known information and given forecasts. Traders should use this model with an options pricing model to determine whether the market prices for options are currently overvalued or undervalued. They should then make trades in the specific options accordingly.

Objective 2:

Consider using options Greeks to calculate their portfolio exposure and hedge their position to reduce the risk of their portfolio while capturing volatility differentials across options. Traders should also look for arbitrage opportunities across different options strikes/series.

Bloomberg Mergers & Acquisitions Case

Overview

The Bloomberg Mergers & Acquisitions case is designed to test competitors' ability to track various "in-play" M&A deals and devise risk-taking strategies to generate profit from the deals succeeding or failing. The case will involve a dozen struggling companies, and during each iteration, some (or none) of the companies will be the target of takeover offers. The offers may ultimately succeed or fail, and traders can generate profits by being long or short the target.

Description

The Bloomberg M&A Case will consist of five 20-minute trading heats. Each heat will be independent of one another and will represent one year of calendar time. Trading from Excel using the Rotman API will be disabled. Real time data (RTD) links will be enabled.

Parameter	Value
Number of trading heats	5
Trading time per heat	1200 seconds (20 minutes)
Calendar time per heat	1 year

Market Dynamics

There are twelve companies available to be traded, each with the following starting price:

Company Ticker	Starting Price
QBB	$25.00
LUI	$20.00
REC	$15.00
VEN	$30.00
TAA	$35.00
BMV	$40.00
GXA	$45.00
JKM	$20.00
BOA	$30.00
SEM	$10.00
TRO	$15.00
UDP	$25.00

All twelve companies are currently considered to be undergoing financial distress and they will struggle to the point of eventual bankruptcy. As such, the stock price of each of the companies is expected to decline this year, unless an acquirer for the company is found and a deal is successful.

During the trading case, there are a variety of different types of news events that can occur. They are briefly outlined below:

- Company announces a strategic review of its operations.
- Acquirer announces a friendly take-over offer to purchase one of the companies.
- Acquirer announces a hostile take-over offer to purchase one of the companies.
- A second acquirer announces a competitive bid to purchase a company already in-talks.
- The government announces anti-trust review of a deal.

Competitors should take note of the following points when modelling the market dynamics:

- All companies have the same probability of any of the events above occurring. For modelling purposes, all companies should be considered to be identical (with the exception of starting price).
- There are no intra-company transactions, all acquisition offers will come from outside firms not listed in the simulation.
- All events in each case are based on independent random draws. (i.e. Company Y has a n% chance of receiving a takeover offer in the case, regardless of whether 1 or 5 acquisitions have already been announced during that iteration.)
- Probabilities of events occurring are persistent from one iteration to the next. It is highly advised that competitors review multiple iterations of the case running on the practice server to estimate the probabilities of events occurring, and average acquisitions premiums.
- Deals that have been accepted, that are not subject to regulatory scrutiny, are guaranteed to close at the agreed upon price (there is no further deal risk).

Computerized traders labelled ANON will react to the news events and will buy or sell each of the stocks depending on the direction and magnitude of each news event. They have been designed to occasionally misprice their reactions to the news (by overreacting or under reacting).

Trading Limits and Transaction Costs

The gross trading limit for this case is 500,000 shares, and the net trading limit for the case is 100,000 shares. There is a transaction cost of 2 cents per share for all trades. The maximum trade size will be 10,000 shares, restricting the volume of shares transacted per trade to 10,000.

Position Close-Out

Any non-zero position in any stock will be closed out at one of two possible prices. If the company was acquired, and the transaction is closed, the stock will close-out at the final deal price, regardless of the last trading price. If the company was not acquired, it will be closed out at the last traded price.

Key Objectives

Objective 1:

Generate trading profits by assessing the probability of an acquisition succeeding versus the probability of the deal succeeding implied by the market price. Take trading positions that reflect your view on whether the market is currently overpricing or underpricing the probability of the deal closing.

Objective 2:

Review the data from the practice server to estimate the probabilities of various M&A scenarios occurring and the magnitudes of their price shocks.

Objective 3:

Capture a positive bid-ask spread via market making activities. Seek out stocks with less liquidity and wider bid-ask spreads.

Appendix

Some supplementary files will be released prior to the competition as they are available. Announcements will be made on the RETC website (http://retc.luiss.it) these files are released.

Please send any case-related questions to retc@luiss.it. To ensure the fair dissemination of information, responses to your questions will be posted online for all participants to see.