

## DESCRIPTION & LEARNING OBJECTIVES

You are about to embark on an exciting journey in the world of experiential learning. 'Crude Sensibilities' is an interactive on-line simulation game that will help you experience volatile commodity markets. The game requires you to apply derivative concepts in a trading environment to achieve the objectives of the firm – arbitrage profiting or volatility profiting. As a top-level management executive you would have to decide the objective of the firm and also execute it in the dynamic world environment. The learning objectives of the simulation experience are to-

1. Apply management decisions in a simulated marketplace
2. Understand the “macro picture” of managing a firm and importance of cohesion of all the functional areas for deliverance of outstanding business results
3. Experience the difficulty of making short & long run decisions in face of uncertainty and learn the importance of prudent risk taking
4. Have fun competing against your peers

The mechanics of playing the game are very simple. The game is based on the simplistic economic concepts of demand and supply. On one side we have the Producers – The OPEC producing 40% of the world's oil and on the other hand are the Consumers represented by countries of Asia, Africa, USA and Europe. The game players i.e. Traders have trading instruments in the form of underlying, futures and options and four commodities – crude oil, natural gas, heating oil and jet fuel. The contract and margin on Futures and Options will mimic NYMEX contracts. Each round is equivalent to an earth year. There would 1 and 2 year futures contracts available along with eleven options contracts – 5 in-the-money, 1 at-the-money and 5 out-of-the-money.

The price movement will move as said earlier according to rules of demand and supply. In each round, the simulator will generate expected demand and expected supply figures. The traders have to buy or sell the underlying to inflate or deflate the demand figure and hence end up moving the price of the commodity finally resulting in gains or losses on futures and options positions. The game will go on for 5 rounds at the end of which the winners will be decided on the basis of portfolio value.

## DESCRIPTION OF GAME DECISIONS

The purpose of this section is to describe the game decisions and their effects on the firm in the simulation.

### Underlying

This is the quantity of a commodity which you want to buy or sell in the physical market. If you buy then you will help in creating demand in the real markets, whereas if you sell then you will help in creating supply in the real markets.

### 1-Year Future

This is the quantity of 1-Year Futures of a commodity on which you can go long or short for a 1-Year horizon. You go long on something when you think the price is going to increase and similarly you go short on something when you think the price is going to decrease.

### 2-Year Future

This is the quantity of 2-Year Futures of a commodity on which you can go long or short for a 2-Year horizon. You can square-off these in the next year if the following year expectations are different from the existing position. You go long on something when you think the price is going to increase and similarly you go short on something when you think the price is going to decrease.

### 25% ITM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 25% ITM Call is 25% less than the current market price. The movement of such a Call is almost identical with the underlying price for sometime because it is deep in the money and hence its delta is almost 1.

### 20% ITM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 20% ITM Call is 20% less than the current market price. The movement of such a Call is lesser than change in 25% ITM Call vis-a-vis change in underlying price.

### 15% ITM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 15% ITM Call is 15% less than the current market price. The movement of such a Call is lesser than change in 20% ITM Call vis-a-vis change in underlying price.

### 10% ITM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 10% ITM Call is 10% less than the current market price. The movement of such a Call is lesser than change in 15% ITM Call vis-a-vis change in underlying price.

### 5% ITM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 5% ITM Call is 5% less than the current market price. The movement of such a Call is lesser than change in 10% ITM Call vis-a-vis change in underlying price.

### ATM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a ATM Call is same as current market price. The movement of such a Call is lesser than change in 5% ITM Call vis-a-vis change in underlying price and its delta is 0.5.

### 5% OTM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 5% OTM Call is 5% more than the current market price. The movement of such a Call is lesser than change in ATM Call vis-a-vis change in underlying price.

### 10% OTM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 10% OTM Call is 10% more than the current market price. The movement of such a Call is lesser than change in 5% OTM Call vis-a-vis change in underlying price.

### 15% OTM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 15% OTM Call is 15% more than the current market price. The movement of such a Call is lesser than change in 10% OTM Call vis-a-vis change in underlying price.

### 20% OTM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 20% OTM Call is 20% more than the current market price. The movement of such a Call is lesser than change in 15% OTM Call vis-a-vis change in underlying price.

### 25% OTM Call

This is the quantity of Call of a commodity which you can buy or sell. The strike price of a 25% OTM Call is 25% more than the current market price. The movement of such a Call is almost negligible with underlying price as its delta is almost 0.

### 25% ITM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 25% ITM Put is 25% more than the current market price. The movement of such a Put is almost opposite with the underlying price for sometime because it is deep in the money and hence its delta is almost -1.

### 20% ITM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 20% ITM Put is 20% more than the current market price. The movement of such a Put is lesser than change in 25% ITM Put vis-a-vis change in underlying price.

### 15% ITM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 15% ITM Put is 15% more than the current market price. The movement of such a Put is lesser than change in 20% ITM Put vis-a-vis change in underlying price.

### 10% ITM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 10% ITM Put is 10% more than the current market price. The movement of such a Put is lesser than change in 15% ITM Put vis-a-vis change in underlying price.

### 5% ITM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 5% ITM Put is 5% more than the current market price. The movement of such a Put is lesser than change in 10% ITM Put vis-a-vis change in underlying price.

### ATM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a ATM Put is same as current market price. The movement of such a Put is lesser than change in 5% ITM Put vis-a-vis change in underlying price and its delta is -0.5.

### 5% OTM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 5% OTM Put is 5% less than the current market price. The movement of such a Put is lesser than change in ATM Put vis-a-vis change in underlying price.

### 10% OTM Put

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 10% OTM Put is 10% less than the current market price. The movement of such a Put is lesser than change in 5% OTM Put vis-a-vis change in underlying price.

**15% OTM Put**

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 15% OTM Put is 15% less than the current market price. The movement of such a Put is lesser than change in 10% OTM Put vis-a-vis change in underlying price.

**20% OTM Put**

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 20% OTM Put is 20% less than the current market price. The movement of such a Put is lesser than change in 15% OTM Put vis-a-vis change in underlying price.

**25% OTM Put**

This is the quantity of Put of a commodity which you can buy or sell. The strike price of a 25% OTM Put is 25% less than the current market price. The movement of such a Put is almost negligible with underlying price as its delta is almost 0.

**Lot Size and Position Limits**

'Lot Size' is used in calculating the 'Contract Value', which is equal to  $(\text{Strike}) * (\text{Lot Size})$ . Along with 'Margin Exposure', you calculate Margin Required for shorting an option or taking any position in a future contract, which is equal to  $(\text{Strike}) * (\text{Lot Size}) * (\text{Margin Exposure})$ .

'Position Limit' is the maximum number of contracts you can trade in a particular round.

The Lot Size and Position Limits for each of the commodity is as follows-

| <b>Commodity Name</b> | <b>Lot Size</b> | <b>Position Limit</b> |
|-----------------------|-----------------|-----------------------|
| Crude Oil             | 1000            | 500                   |
| Jet Fuel              | 1000            | 500                   |
| Natural Gas           | 10000           | 200                   |
| Heating Oil           | 42000           | 200                   |

## DESCRIPTION OF REPORTS

You are provided with a set of reports at beginning of each period. These reports will help you understand your performance and ways to improve the same. It is critical to clearly understand the reports before you make any decision.

### Portfolio Statement

The portfolio statement, as suggested by its name, will list the quantities of all the commodities in your portfolio. It will also give the total Portfolio Value and also the Cash in Hand.

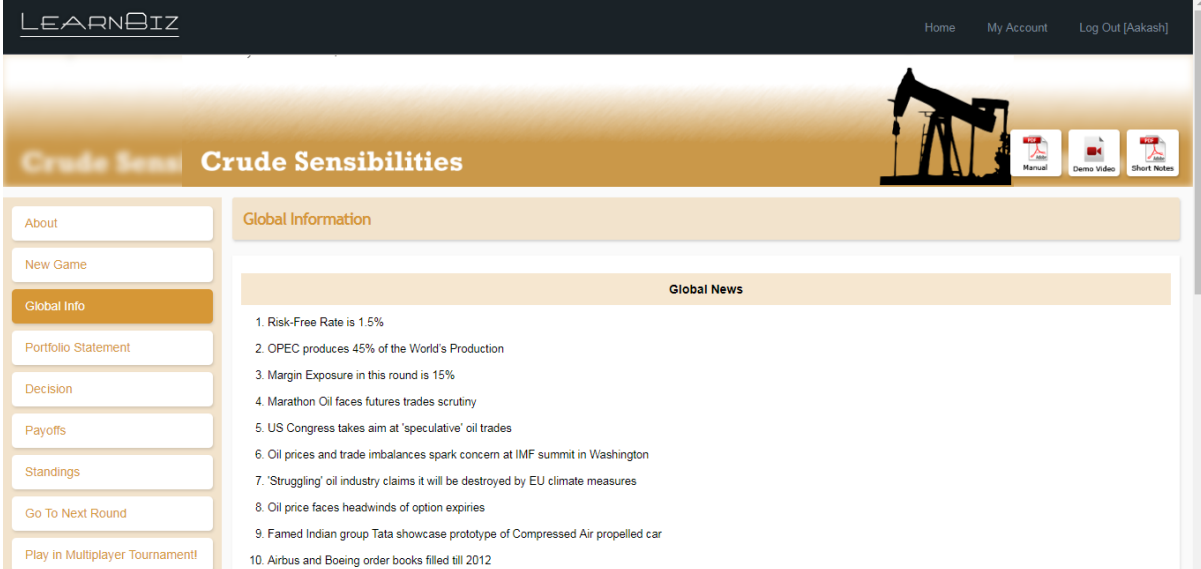
The screenshot shows the 'Crude Sensibilities' report interface. At the top, the 'LEARNBIZ' logo is on the left, and navigation links for 'Home', 'My Account', and 'Log Out [Aakash]' are on the right. Below the logo is a banner with an oil pumpjack icon and links for 'Manual', 'Demo Video', and 'Short Notes'. The main content area is titled 'Portfolio Statement' and displays the following data:

| Portfolio Value: 500,011 |                     | Cash in Hand: 498,930 |
|--------------------------|---------------------|-----------------------|
| Commodity                | Underlying Quantity | 1 Year Futures        |
| Crude Oil                | 0                   | 0                     |
| Jet Fuel                 | 10                  | 0                     |
| Natural Gas              | 0                   | 0                     |
| Heating Oil              | 0                   | 0                     |

On the left side of the interface, there is a vertical menu with buttons for: About, New Game, Global Info, Portfolio Statement (highlighted), Decision, Payoffs, Standings, Go To Next Round, and Play in Multiplayer Tournament!

## Global Information

Global Information is important to understand the global economy and the likely macro changes. Your decisions concerning buy and sell of specific commodity should be based on your assessment of the global conditions. The Global Information Report includes Global News, Global Demand and OPEC Supply Reports.



The screenshot shows the LearnBiz website interface. At the top, there is a navigation bar with the LearnBiz logo on the left and links for Home, My Account, and Log Out [Aakash] on the right. Below the navigation bar is a header section with a gradient background. On the left side of the header, there is a menu with options: About, New Game, Global Info (highlighted), Portfolio Statement, Decision, Payoffs, Standings, Go To Next Round, and Play in Multiplayer Tournament!. On the right side of the header, there is an image of an oil pumpjack and three icons labeled Manual, Demo Video, and Short Notes. The main content area is titled "Global Information" and contains a sub-section titled "Global News" with a list of 10 items:

1. Risk-Free Rate is 1.5%
2. OPEC produces 45% of the World's Production
3. Margin Exposure in this round is 15%
4. Marathon Oil faces futures trades scrutiny
5. US Congress takes aim at 'speculative' oil trades
6. Oil prices and trade imbalances spark concern at IMF summit in Washington
7. 'Struggling' oil industry claims it will be destroyed by EU climate measures
8. Oil price faces headwinds of option expiries
9. Famed Indian group Tata showcase prototype of Compressed Air propelled car
10. Airbus and Boeing order books filled till 2012

## Global News

The Global News will cover interest rates, percentage of OPEC production as a percentage of world's production, margin requirements of commodity contracts and also the oil-relevant news across the globe.

## Global Demand

The Global Demand report will give a break-up of the real demand across the regions. This in conjunction with the Global News should give a qualitative assessment about the demand in the future.

## OPEC Production

The OPEC Production report will give you the break-up of various oil-derivatives which would be supplied by them in the current year. This in conjunction with the Global News should give a qualitative assessment about the supply in the future.

## Payoffs - Previous Round

The Payoffs page provides cash flowing in or flowing out of the firm because of various trading activities.

The screenshot shows the LEARNBIZ website interface. The header includes the LEARNBIZ logo, navigation links (Home, My Account, Log Out [Aakash]), and a banner for 'Crude Sensibilities' featuring an oil pump icon and links to Manual, Demo Video, and Short Notes. The main content area is titled 'Payoffs - Previous Round' and contains four buttons: Crude Oil, Jet Fuel, Natural Gas, and Heating Oil. Below these buttons are two tables:

**Underlying**

|  | Previous Price | Previous Input | Cash Inflow |
|--|----------------|----------------|-------------|
|  | 102.50         | 0              | 0           |

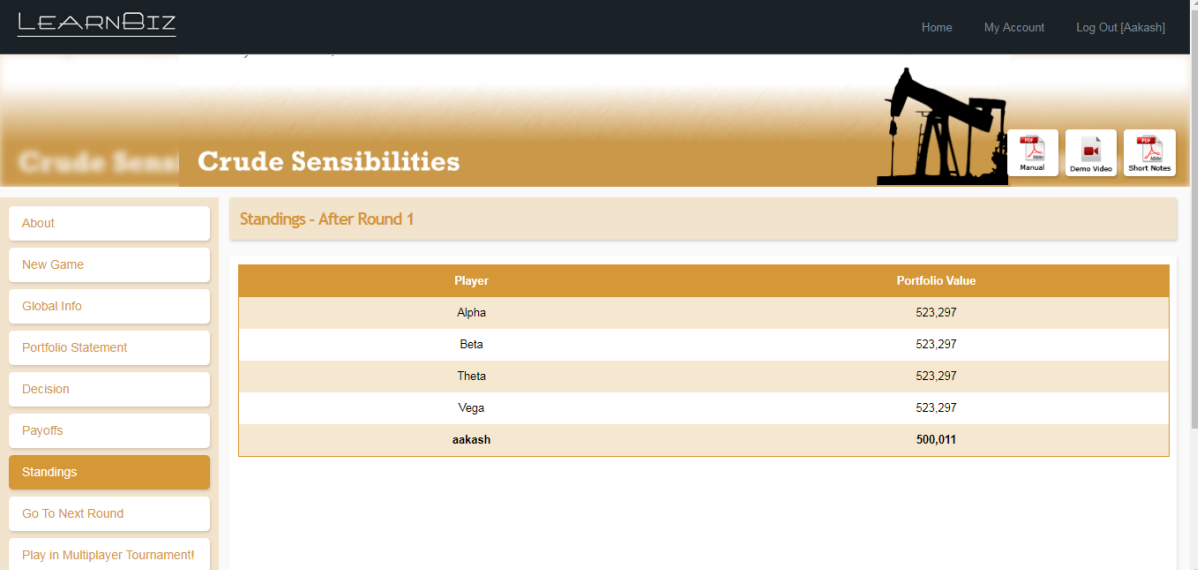
**Futures**

|               | Previous Price | Previous Input | Lot Size | Cash Inflow |
|---------------|----------------|----------------|----------|-------------|
| 1 Year Expiry | 104.55         | 0              | 1000     | 0           |
| 2 Year Expiry | 106.64         | 0              | 1000     | 0           |



## Standings

Standings list the profit performance of each firm in the game. The firms are ranked by cumulative profit.



The screenshot shows the LEARNBIZ website interface for the 'Crude Sensibilities' game. The top navigation bar includes 'Home', 'My Account', and 'Log Out [Aakash]'. The main header features the game title 'Crude Sensibilities' and an oil pumpjack icon. Below the header, there are three icons for 'Manual', 'Demo Video', and 'Short Notes'. A left sidebar contains a menu with options: 'About', 'New Game', 'Global Info', 'Portfolio Statement', 'Decision', 'Payoffs', 'Standings' (highlighted), 'Go To Next Round', and 'Play in Multiplayer Tournament!'. The main content area is titled 'Standings - After Round 1' and displays a table with the following data:

| Player        | Portfolio Value |
|---------------|-----------------|
| Alpha         | 523,297         |
| Beta          | 523,297         |
| Theta         | 523,297         |
| Vega          | 523,297         |
| <b>aakash</b> | <b>500,011</b>  |