

FTS Interactive Markets

- Markets with price discovery
 - Students bid, ask, buy, sell in a continuous double auction
 - a “true market” in that you cannot trade unless someone else in the market is willing to trade with you
- Based around trading cases
 - Describe the environment, trading and learning objectives

Requirements

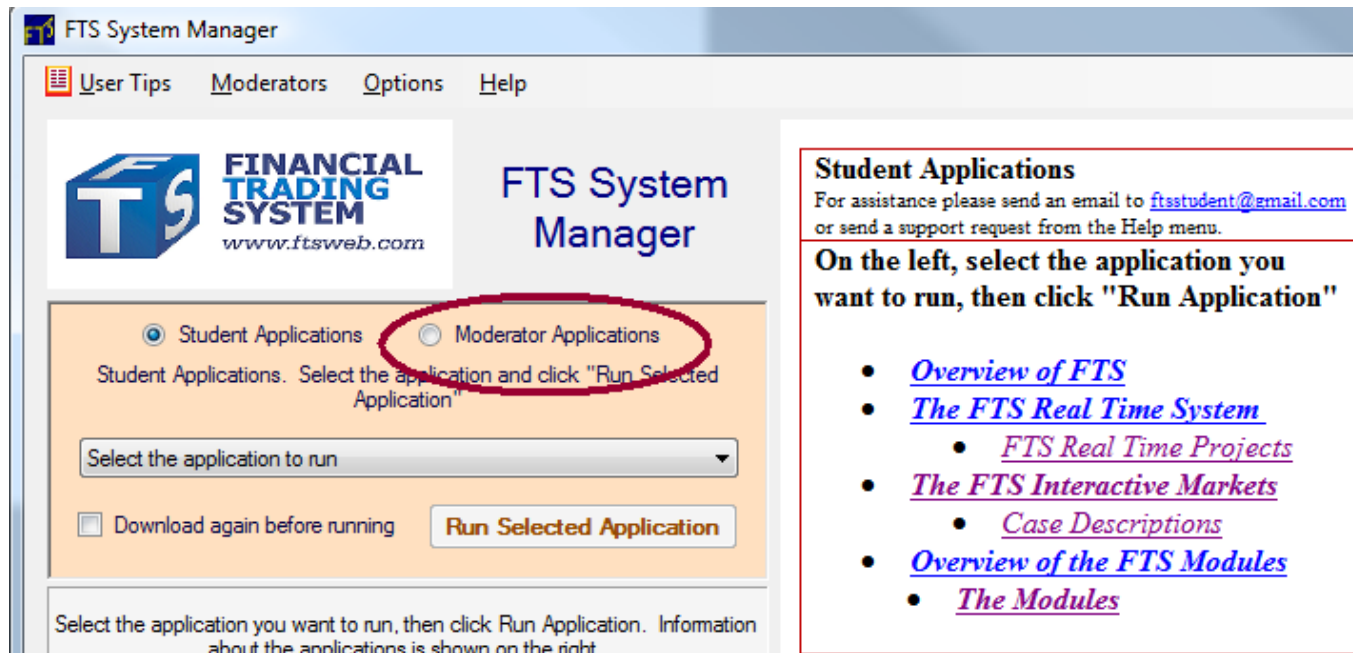
- Install the FTS System Manager, available at www.ftsmmodules.com
- This must be done on every computer running the system
- PLUS: Port 26888 must be open for two-way communication between all computers in the room

FTS Interactive Markets

- Moderator runs the **FTS Market** from the *FTS System Manager*
 - Selects the trading case
 - Allows connections (by students)
- Each student runs the **FTS Trader** from the *FTS System Manager*
 - Connects to the market
- Trading starts when moderator allows it
- All output is stored in a spreadsheet, easy to provide feedback or data for analysis

Instructor

- Run the FTS System Manager
- Click “Moderator Applications”



FTS System Manager

User Tips Moderators Options Help

FINANCIAL TRADING SYSTEM
www.ftsweb.com

FTS System Manager

Student Applications Moderator Applications

Student Applications. Select the application and click "Run Selected Application"

Select the application to run

Download again before running

Select the application you want to run, then click Run Application. Information about the applications is shown on the right

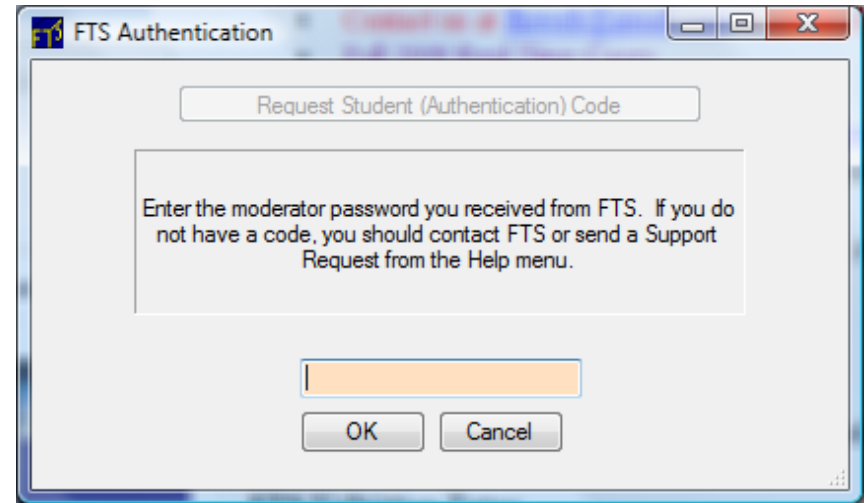
Student Applications
For assistance please send an email to ftsstudent@email.com or send a support request from the Help menu.

On the left, select the application you want to run, then click "Run Application"

- [Overview of FTS](#)
- [The FTS Real Time System](#)
 - [FTS Real Time Projects](#)
- [The FTS Interactive Markets](#)
 - [Case Descriptions](#)
- [Overview of the FTS Modules](#)
 - [The Modules](#)

Instructor


- Enter your moderator password in the little popup window
 - If you don't have a password, please contact FTS



FTS System Manager

User Tips Moderators Options Help

Back Forward Refresh Stop



FTS System Manager

Student Applications
 Moderator Applications

Moderator Mode


-- FTS Market Version 8.5 (Run price discovery Cases, e.g. B01, ▼

Download again before running

version 8.5

Security Name	Bid		Ask	
Cp Bnd	100.20/850.		100.90/500.	
Zero 1	95.00/2900.		96.40/9799.	
Zero 2	87.20/1000.		87.40/1000.	
Zero 3	71.14/1000.		77.00/1000.	

Configuration information received



❖ **Quick Start Instructions** for instructors
 ❖ **Announcement: two new cases:** [BE1](#) is the new ethics case, and [CT1](#) is our new systemic risk case.

- o Contact us to set up a web meeting on how to run these cases and to obtain the case spreadsheets.

❖ **Manuals, Cases, and Instructions**

- o [Instructions for Moderators](#).
- o [Explanation of End of Trial Trading Summary](#)
- o Links to [Files](#) referred to in the Operating Manual
- o [FTS Cases](#) all Excel work books
- o FTS Case [Descriptions](#)
- o [Student Case Preparation Manual](#)
- o FTS Case [Solutions Manual](#)

❖ **FTS Market: Replay**

- o The replay program lets you replay the session.
- o To run the application, click on [FTS Market Replay](#)
- o For instructions click on [How to Use the FTS Market Replay](#)

❖ **FTS Markets ---- Detailed Support Information**

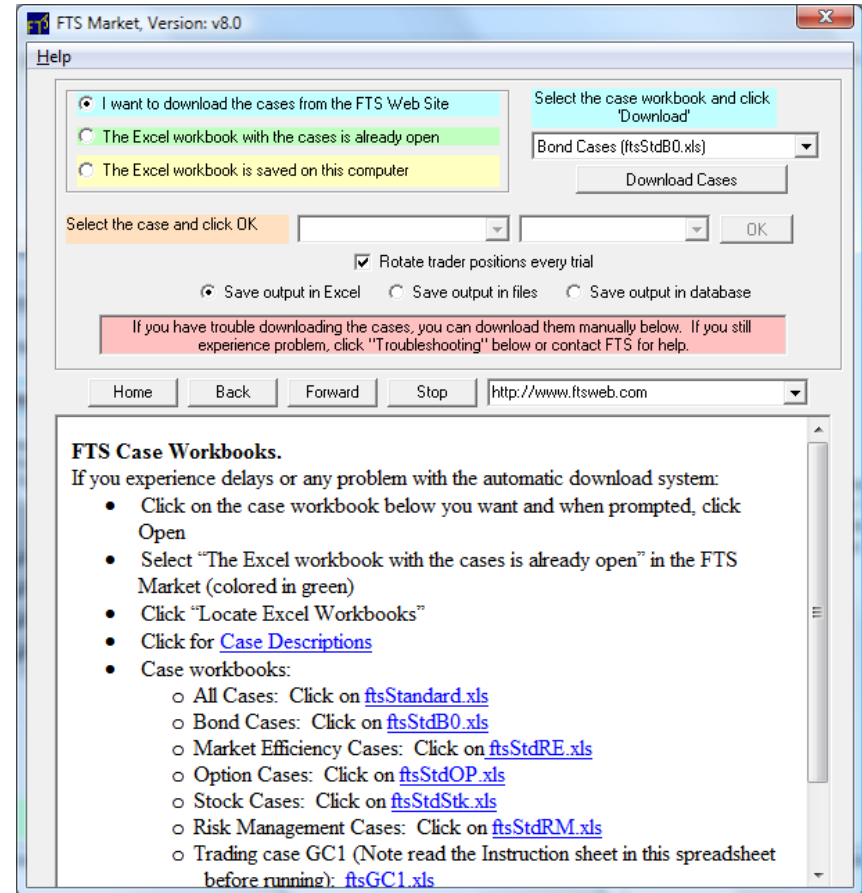
- o [Introduction to Running a Market: Conceptual Discussion](#)
- o [Teaching using a FTS Trading Case Approach](#)
- o [Anatomy of the FTS Trading Case Excel Spreadsheet File](#)
- o [Using real world market data in an FTS trading exercise](#)
- o [Control the market from a remote computer](#)

Instructor

Select the FTS Market version 8.X and click “Run Selected Application” The version numbers change as we add features, so just run the latest version.

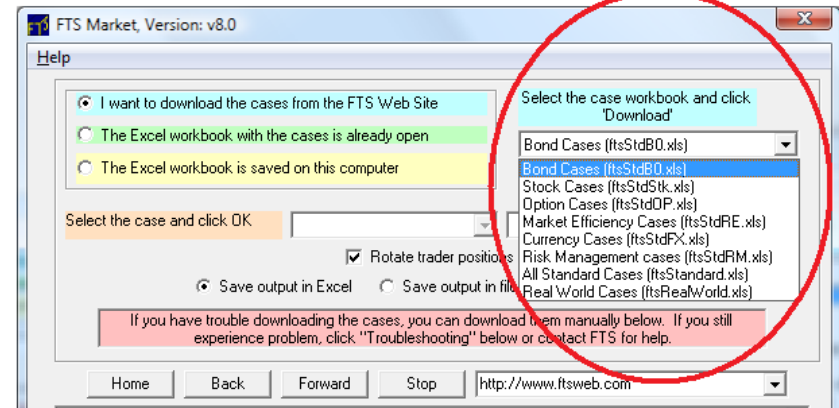
Instructor

- Once the application launches, the case selection window of the FTS Market will appear



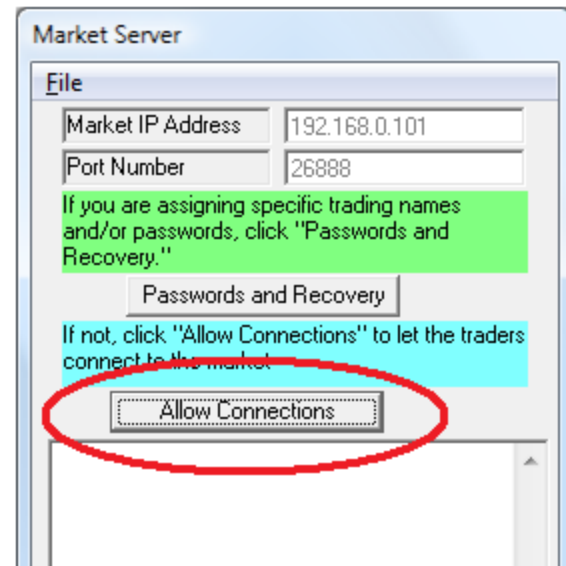
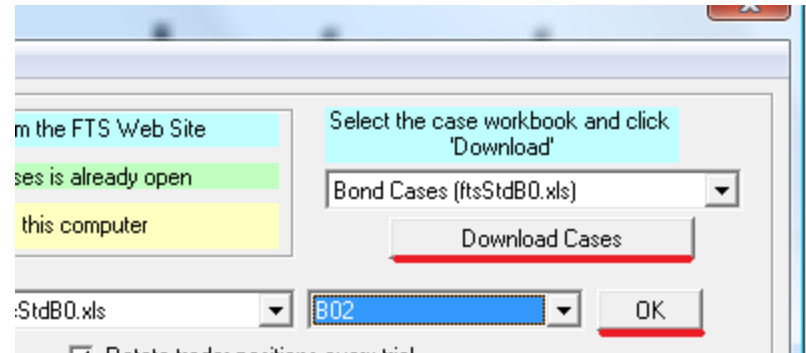
Instructor

- Select the subset of cases you want to download
 - Or, you can download All Standard Cases
 - You can also read in cases that you have saved on your computer



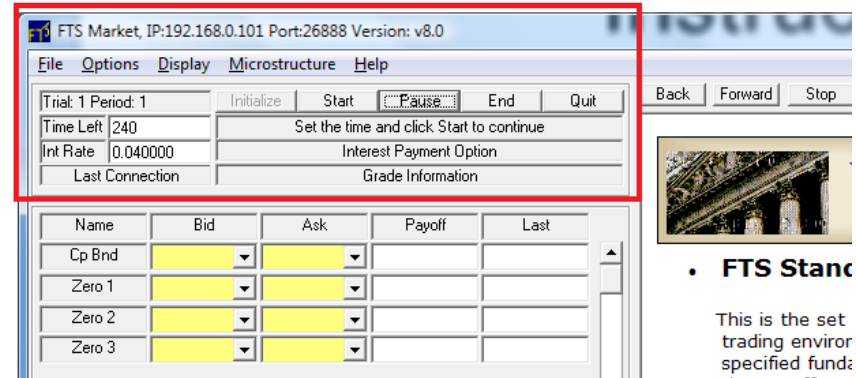
Instructor

- Click Download Cases
- Select the case and click OK
 - Answer questions that appear next (click No to keep defaults)
- In the window that appears next, click “Allow Connections”



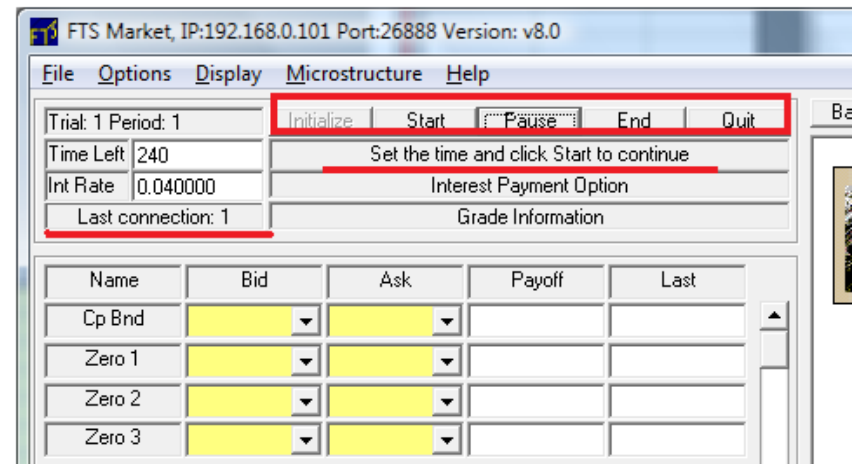
Instructor

- The main market window will appear
- Note the IP address at the top
 - Tell this IP address to every student, they need to know this to connect to the market



Instructor

- Once students have connected to the market, click Start to open the trading
 - You can pause/resume the trading, end a trading period
 - After this, follow the instructions in the status box

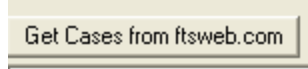


Instructor Summary

Launch FTS System manager; enter moderator password

Select FTS Market Version 8.X, then Run Selected Application

Download cases from ftsweb.com



Select Case and click OK



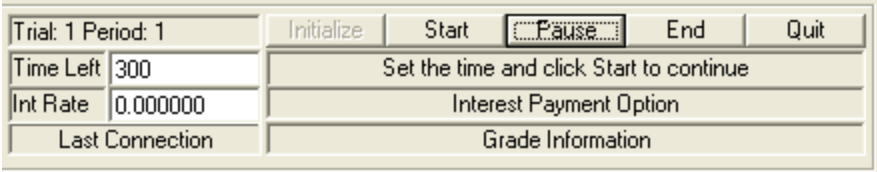
Click OK when asked, then Allow Connections



Wait for students to connect; they will need the IP address



Click Start to open the market



Follow instructions on screen

Students

- Select and Run the FTS Trader Version 8.0 from the System Manager
 - No password is needed
- They will need:
 - The IP address of the instructor's computer
 - A trading name (they can use their university email address or the instructor can assign each student a unique trading name)

Students

- Enter the IP Address of the instructor's computer and the trading name, then click Connect

Local IP=192.168.0.101 Version: v8.0

Connect to Demo

Connect to FTS Market

Market IP Address	192.168.0.101
Port Number	26888
Trading Name	student@university.edu
Password (if req)	
Trader 1	
Trader 2	
Trader 3	
Send Data	

Connect Cancel

Students

- The trading window for the students will appear
 - They trade:
 - Place bids and asks, hit bids and asks of others
 - The top right panel lets them enter their quotes and trades
 - They can also use the hand signals

Students

FTS Trader Number: 99, connected on: 10 Version: v8.0 Market IP: ftsmarket.homeip.net

File Edit Support Options Help

Trial: 2 Period: 1 Grade: 18.85064,Cum Grade: 18.85064
 Time Left: 162 Market Value: 150045
 Cash: 10000 Rank

Best bid and ask montage

Security Name	Bid	Ask	Position	Last	Payoff
Cp Bnd	100.90/6870	100.00/7610	100	100.9	
Zero 1	96.20/5000	97.40/200	500	96.3	
Zero 2	87.51/100	95.63/190	500	87.61	
Zero 3	95.00/3680	97.00/4220	400	95	

Click on a security name to trade it

Hand signals

Your portfolio

Trade entry area

Price	Submit Bid	Sell to Bid	Raise .01	Raise 0.1	Raise 1.0
Quantity	Submit Ask	Buy at Ask	Lower 0.01	Lower 0.1	Lower 1.0
Exercise Options	Clear Bids	Clear Asks	Clear All		
Private Trade	Transfer	Cash Out			

Mkt VWAP: 100.3551 My Buy VWAP My Sell VWAP

Limit order book

Bid ID	Bid Qty	Bid	Ask	Ask Qty	Ask ID
100.90	6870	asdf	100.00	7610	asdf
99.90	100	Tapper Johr	100.00	10000	asdf
99.90	500			9930	bn
99.90	100			200	Elvis
99.90	100			100	lb
99.80	65	Tapper Johr	101.90	100	lb
99.70	5	BMS			
99.70	500	Penn State			
99.60	5	BMS			

Trade Confirmations

Trial	Period	Time	Security	Trade	Price	Quantity	My Buy VWAP	My Sell VWAP	Market VWAP

Trade Confirmations Shown Above

Real time charts

108.47

95.00

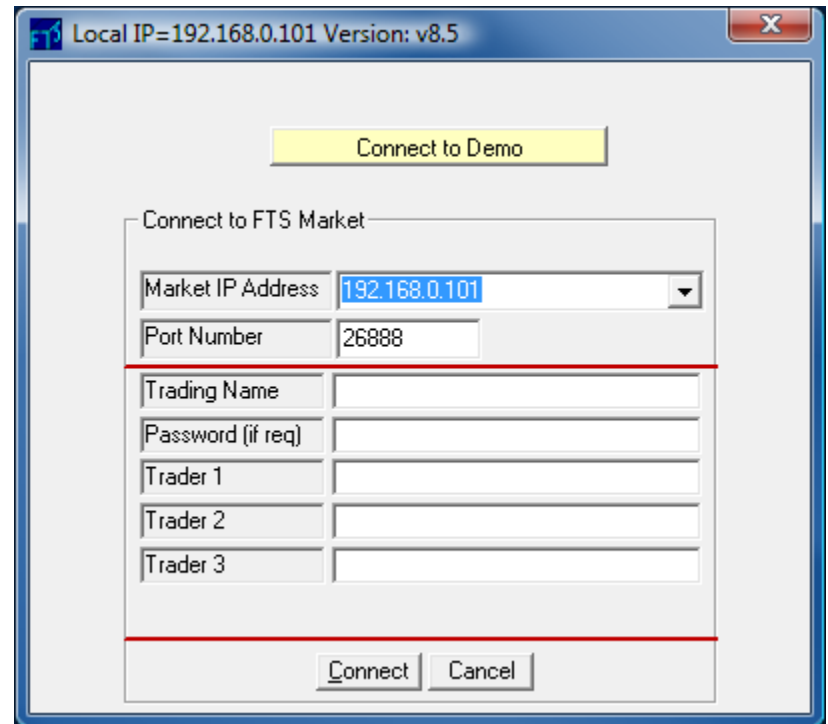
1 Bid: 100.90 Ask: 100.00 Last: 100.90 240

Student Practice

- We run a demo all the time of case B02
- It has prices and trades from a previous session
- You can interact
 - Enter quotes, trade
 - Practice all the mechanics

Student Practice

- Launch the FTS Trader and click the yellow Connect to Demo button



The screenshot shows a software window titled "Local IP=192.168.0.101 Version: v8.5". At the top center is a yellow button labeled "Connect to Demo". Below it is a section titled "Connect to FTS Market" containing several input fields:

Market IP Address	192.168.0.101
Port Number	26888
Trading Name	
Password (if req)	
Trader 1	
Trader 2	
Trader 3	

At the bottom of the dialog are two buttons: "Connect" and "Cancel".

Student Practice

FTS Trader Number: 98, connected on: 74 Version: v8.5 Market IP: ftsmarket1.dyndns.org

File Edit Support Options Book Messaging Help

Trial: 1 Period: 1 Trading Name: Trader98 Grade: 0, Cum Grade: 0
 Time Left: 228 Case Name: B02 Market Value: 146700
 Cash: 10000 Risk Free Rate: 0.040000 Ranks: 0.0, 00

Security Name	Bid	Ask	Position	Last	Payoff
Cp Bnd	99.1/10		100	100	
Zero 1	96.2/10	97./100	500	96.3+	
Zero 2	87.5/90		500	87.5-	
Zero 3	77./100		400	87.+	

Trial	Period	Time	Security	Last Price	Last Qty
1	1	228	Zero 1	96.3	10.
1	1	239	Zero 2	87.5	100.
1	1	239	Zero 2	87.6	10.
1	1	239	Cp Bnd	100.	90.
1	1	239	Zero 3	87.	100.
1	1	239	Zero 2	87.5	10.
1	1	239	Cp Bnd	100.	10.

Trial	Period	Time	Security	Trade	Price	Quantity	My Buy VWAP	My Sell VWAP	Market VWAP

All trades are shown in the middle; your trades are shown above

Cp Bnd

Price: Submit Bid Sell to Bid Raise .01 Raise 0.1 Raise 1.0
 Quantity: Submit Ask Buy at Ask Lower 0.01 Lower 0.1 Lower 1.0
 Exercise Options Clear Bids Clear Asks Clear All
 Private Trade Transfer Cash Out

Mkt VWAP: 100. My Buy VWAP: 0. My Sell VWAP: 0.

Bid	Bid Qty	Bid ID	Ask	Ask Qty	Ask ID
99.1	10	R&B			
99.	100	Tree			
98.	1,000	Earth Trader			
98.	10	he DONALD			
90.	100	Tapper John			
80.	10	he DONALD			
64.54	1,000	asdf			

107.50

94.15

1 Bid: 99.10 Ask: 100.00 Last: 100.00 240

Running a continuous practice market

- You can run your own “unattended” market that runs all the time and that students can log in out as they want
 - Run a market as usual
 - Require students to login with the first part of their email address, so when they login again, they re-use their trading name
 - If they login with a different name every time, you will soon exceed the maximum number of traders
 - Start the market
 - From the Market’s Options menu,
 - Check on “Cycle mode”
 - This means that when it reaches the end of the trials, its starts over with trial 1
 - Check on “Auto mode”
 - This means that you don’t have to click Initialize or Start in between periods
 - Check on “Don’t write trading history”
 - Otherwise your output spreadsheet can get very large
 - The market will now run keep running, students can login and logout, and practice any case you want.

Trading Basics: Bids

- A bid is an offer to buy
 - The highest bid is the most anyone is willing to pay
 - The highest bid is shown in the montage
 - If someone else posts a bid, what can I do?
 - I can sell to them if I think the price is high enough
 - I can raise the bid if I am prepared to pay more
 - If I post a bid, what can happen?
 - Someone else can hit my bid, so they will sell to me and I will buy
 - They can raise the bid if they are prepared to buy at a higher price

The Basics: Bids

- Everyone put in a bid
 - Click on a security name, then enter a price and a quantity, then click Submit Bid
- See the bids in the book
- Sell to the bid
 - Enter a quantity, click Sell to Bid

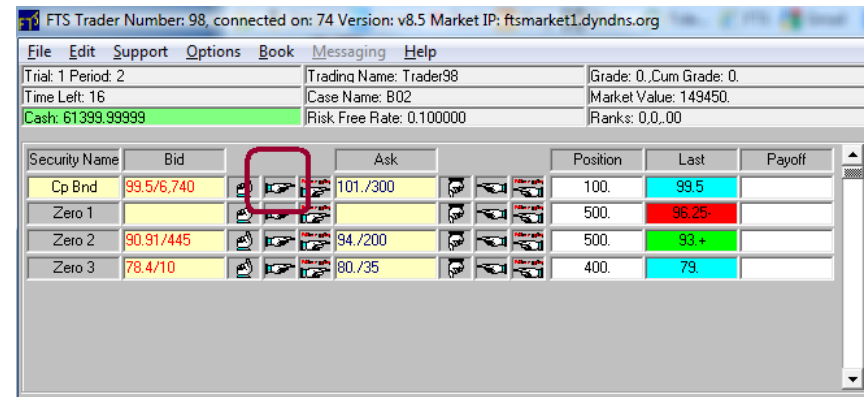
The screenshot shows a trading interface window titled 'Cp Bnd'. A red box highlights a control panel with the following buttons: Price, Quantity, Submit Bid, Submit Ask, Exercise Options, Private Trade, Sell to Bid, Buy at Ask, Clear Bids, Transfer, Raise .01, Lower 0.01, Clear Asks, Cash Out, Raise 0.1, Lower 0.1, and Raise 1.0, Lower 1.0. Below the control panel is a green bar. At the bottom, there are three summary boxes: 'Mkt VWAP: 87.89753', 'My Buy VWAP: 0.', and 'My Sell VWAP: 0.'. Below these are two tables: a bid table on the left and an ask table on the right.

Bid	Bid Qty	Bid ID
99.5	6,740	asdf
95.1	100	nbeers
95.1	10	mikek
95.05	50	tr1
95.04	50	tr1
95.03	50	tr1

Ask	Ask Qty	Ask ID
101.	300	watch007
101.	500	watch007
101.	500	watch007
101.	500	watch007
103.	10,000	teamtrek2
103.	10,000	teamtrek2

The Basics: Bids









- Best bid is shown in the montage
- Hand signals provide an easy way to trade
 - Just click on the hand pointing away from you to sell to the bid
 - Your position will change as you trade, and you can see the last traded price next to it



FTS Trader Number: 98, connected on: 74 Version: v8.5 Market IP: ftsmarket1.dyndns.org

File Edit Support Options Book Messaging Help

Trial: 1 Period: 2 Trading Name: Trader98 Grade: 0, Cum Grade: 0
Time Left: 16 Case Name: B02 Market Value: 149450
Cash: 61399.99999 Risk Free Rate: 0.100000 Ranks: 0.0, .00

Security Name	Bid		Ask		Position	Last	Payoff
Cp Bnd	99.5/6,740		101./300		100.	99.5	
Zero 1					500.	96.25-	
Zero 2	90.91/445		94./200		500.	93 +	
Zero 3	78.4/10		80./35		400.	79.	

The Basics: Asks

- An ask is an offer to sell
 - The lowest ask is the least anyone is willing to get
 - The lowest ask is shown in the montage
 - If someone else posts an ask, what can I do?
 - I can buy from them if I think the price is low enough
 - I can lower the ask if I am prepared to accept less
 - If I post an ask, what can happen?
 - Someone else can hit my ask, so they will buy from me and I will sell
 - They can lower the ask if they are prepared to sell at a lower price

The Basics: Asks

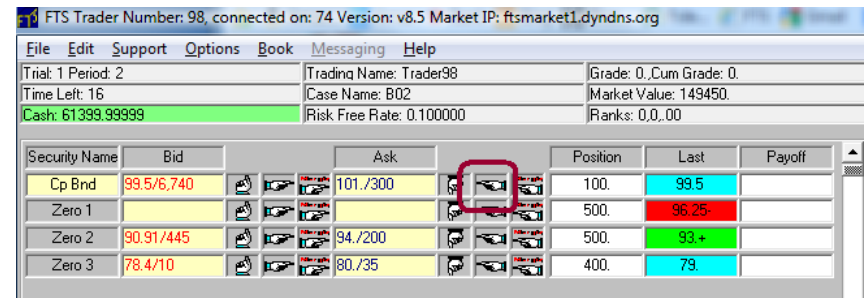
- Everyone put in an ask
 - Click on a security name, then enter a price and a quantity, then click Submit Ask
- See the asks in the book
- Buy from the ask
 - Enter a quantity, click Buy At Ask

The screenshot shows a trading interface for 'Cp Bnd'. A red box highlights the 'Submit Ask' and 'Buy at Ask' buttons. Below the buttons is a table of market data with bid and ask columns.

Bid	Bid Qty	Bid ID	Ask	Ask Qty	Ask ID
99.5	6,740	asdf	101.	300	watch007
95.1	100	nbeers	101.	500	watch007
95.1	10	mikek	101.	500	watch007
95.05	50	tr1	101.	500	watch007
95.04	50	tr1	103.	10,000	teamtrek2
95.03	50	tr1	103.	10,000	teamtrek2

The Basics: Asks

- Best ask is shown in the montage
- Hand signals provide an easy way to trade
 - Just click on the hand pointing toward you to buy at the ask
 - Your position will change as you trade, and you can see the last traded price next to it



FTS Trader Number: 98, connected on: 74 Version: v8.5 Market IP: ftsmarket1.dyndns.org

File Edit Support Options Book Messaging Help

Trial: 1 Period: 2 Trading Name: Trader98 Grade: 0_Cum Grade: 0
Time Left: 16 Case Name: B02 Market Value: 149450
Cash: 61399.99999 Risk Free Rate: 0.100000 Ranks: 0.0,00

Security Name	Bid	Ask	Position	Last	Payoff
Cp Bnd	99.5/6,740	101./300	100.	99.5	
Zero 1			500.	96.25	
Zero 2	90.91/445	94./200	500.	93.	
Zero 3	78.4/10	80./35	400.	79.	

Practice Trading

- Enter bids and asks
 - Hand signals can be used to quickly raise bids (hand pointing up)/lower asks (pointing down)
- Sell to the bids and buy at the asks of others
 - See how your position changes
 - See how your cash changes
- At the end of the period
 - Interest is paid on cash
 - Then any payoffs from the securities are distributed
 - E.g. coupon payments, dividends
 - All this is added to your cash
- At the end of the trial
 - After interest and payoffs, your cash is converted to “grade cash”
 - E.g. grade cash = $0.1 * \text{cash}$

Practice on your own

- Using the case B02 demo, select the Excel link from the File menu
- Learn how to use this from the [Student Preparation Manual](#)
- Follow the instructions for case B02 in the manual

Instructor Suggestion

- In the class before you run a trading case, run a practice session
 - Explain the case
 - Run one trial so everyone sees the screen
 - They can create an Excel template during that trial
 - So pause the market, give them time to create the Excel link and save the spreadsheet
 - Students work on the spreadsheet and any other case preparation
 - In the next class, run the case

Contact Us

- If you have questions about how to run a case or questions about a case, or if you want to modify a case, contact us:

ftsweb@gmail.com