**OS Financial Trading System: Fall 2008 Real Time Cases**

**Summary**

In Fall 2008, we will offer the following real time cases:

- The DOW 30 Case (Non US schools should contact OSFTS for Non US cases)
- The Options and Futures Risk Management Case
- The International Forex and Covered Interest Parity Case

In these cases, FTS will manage the entire back office operation, provide real time settlement data, manage the data servers, and provide comprehensive academic support to the instructor throughout the fall. Your class can log in at any time, work with the analytical support, trade, retrieve reports and check their performance. In addition, instructors have immediate access to summary portfolio performance measures for each team in their class.

These cases provide a new and exciting way of teaching for the following reasons:

- A comprehensive real time analytical support system is designed to match what you teach in the classroom. Examples include Diversification and CAPM, Valuation Theory, Standard Portfolio Performance Measures, and Futures and Option Pricing and Hedging, all available in real time.
- Students can work in teams in real time on the same position from anywhere in the world that has internet access and compete with other teams. You can form teams within a class, across sections, or even across universities if you have connections with another campus/university that licenses the FTS System.
- An important learning feature is that each team can personalize all real time analytical support inputs and conduct sensitivity analysis. Each member of team has immediate access to their support parameters no matter where they are located in the world.
- From a teaching perspective you introduce the important concepts in the classroom and your students can immediately apply these concepts.
- Realistic real world market microstructure is preserved, with initial margins, maintenance margins, short sales, margin purchases, market orders, limit orders, stop orders and even program trading.

To set up an account for your class, please contact FTS at either ftsweb@gmail.com or by calling 1-800-967-9897. **If you are interested, please contact us as soon as possible so we can set up practice accounts for you over the summer and help you with integrating the system into your courses.**

**Contents**

**Questions and Answers about the FTS Real Time Cases**

1. What is unique about FTS Real Time Cases?

    - Our trading cases are completely different from other trading simulations we know about.

        - First, cases are based entirely on *understanding and using* concepts taught in standard finance courses to reinforce the link between theory and practice in an exciting, real-time, experiential learning environment.

        - Second, we provide suggested homework, analysis, and presentations for your students. These are based on the experiences of top business schools professors who have been using FTS for over 20 years.

        - Third, we fix the set of securities traded in a case so that students focus on "how can I think about and apply principles of portfolio management and security valuation" instead of "which of 8000 stocks should I bet on." It seems to us that the latter has very limited pedagogic value.

        - We can suggest course integration strategies to help you understand how your students can benefit from our approach.

2. When do the cases start and finish and how do I join in?

    - The cases start on August 15 and end on December 15. However, you can start and finish your class at any time within these dates.

3. What courses are these suitable for?

    - The cases can be used in both undergraduate and graduate courses, including

        - Introductory financial markets courses

        - Investments courses

        - Corporate finance courses

        - Derivatives courses

        - International finance courses

    - Besides real world trading mechanics (see below), the analytical support system bring to life the concepts taught in typical finance courses and gives students *direct insight and control* over the application of concepts to practice.

- The analytical support system components can be switched on or off as you want, thus allowing you to decide the level at which you want to present the material to your students.

- If you supply us your course outline, we can help you decide which cases to use and how to integrate it.

4. What does an instructor have to do?

   - You have to decide the objectives for your class exercise and also the level at which you want to present the material (see Appendix B).

   - You have to decide how frequently and in what format the students present their results.

   - You have to decide whether the trading is conducted in teams or individually.

     - The system allows different team members, located anywhere, to simultaneously access, analyze, and trade the team's position in real time

     - Each team can develop their own analytic support parameters to help in their decision making and ability to compete against other teams

5. What about real time data?

   - In the FTS Real Time Cases, all trade execution is at real time prices, obtained from market data feeds by our servers. Note that this prevents any opportunity to game the system.

   - Our agreements do not allow us to broadcast the data to the students, but this is not really restrictive since there are many ways in which you and your students can obtain live quotes. We provide built-in support for some free data sources.

6. How does Trading Work?

   - Every student starts with an initial position of cash in US Dollars. In the Forex case, they start with an initial position in different currencies.

   - The case describes the securities they can trade, the times at which they can trade, and the transaction costs associated with trading.

   - They can make cash purchases (i.e. pay cash for a purchase) and trade on margin. Short sales are also permitted, and the system has a very realistic treatment of short sales and margin trading.

- Besides these market orders, we also support stop and limit orders. These are monitored and executed in real time.
- Program trading is also possible if you want; students can set up their own spreadsheet with buy and sell orders at various prices, and these are monitored and executed in real time.

7. What Reports are Available?

- Every student can access their entire trading history at any time.
- The included reporting capability allows them to bring up the realized and unrealized profits from every security they have traded as well as a history of their market values (which are recorded every 12 hours). They can also step through the trades in any security over time, and see what specific buy/sell actions led to the profit or loss on the trade.
- Instructors have access to comprehensive reports for every team in their class (or specified group). This allows you at a glance to assess relative performance. In addition, if required you also have complete access to each team's historic audit trail if needed.

**Standardized Real World Cases**

1. The DOW 30 Case

    a. This is the most popular of the real time cases and has been used for a variety of small group projects. In the DOW 30 case, students manage a portfolio of stocks. The set of stocks they concentrate on are the stocks that make up the Dow Jones Industrial Average. Every student (or student team) starts with $1m in cash. They can buy and sell the stocks, trade on margin, short sell, and also place limit and stop orders.

    b. The analytical support system includes:

        i. Diversification based on the single index model

        ii. Calculator support that provides comprehensive graphical/numerical sensitivity analysis in relation to the efficient frontier (with and without shortsales).

        iii. Equity Valuation, up to a 2 stage free cash flow to equity model

        iv. Calculator support that provides comprehensive sensitivity analysis for a 1 or 2-stage abnormal growth model using free cash flows

        v. Support can be turned on or off for a section by the instructor – e.g., Investments may retain the portfolio theory/CAPM support but turn off valuation support whereas a valuation class will turn on the valuation support.

    c. Courses that naturally fit this case include

        i. Investments

        ii. Introduction to Financial Markets

        iii. Equity Valuation

        iv. Introductory Corporate Finance

    d. We can suggest integration strategies for:

        i. an Investments course;

        ii. an introductory financial markets course;

        iii. an Equity Valuation course;

        iv. an introductory Corporate Finance course.

    e. Sample projects include:

i. **Project A (Finance/Investments Course):** Market Microstructure and how security markets work.

ii. **Project B (Finance/Investments or Financial Accounting Courses):** Testing the Efficient Market's Hypothesis using technical and fundamental analysis.

iii. **Project C (Investments Course):** Applying modern portfolio theory and related concepts. These concepts include naïve diversification, Markowitz diversification, beta and single index models. In addition, expected return models can include CAPM, APT and Fama and French. Finally, standard portfolio performance evaluation measures are also provided (e.g., Sharpe Ratio, Treynor's measure, Jensen's alpha, Information (appraisal ratio)).

iv. **Project D (Valuation Course and Corporate Finance):** Intrinsic value (valuation models (1-stage and 2-stage abnormal growth models, dividends and Free Cash Flow to Equity), Cost of Equity Capital.

v. **Project E (Projects Course, Information Systems and Related Areas):** Portfolio management combining intrinsic value analysis with modern portfolio theory. Program trading and live testing of back-tested strategies are variations of this type of project.

**2. The Options and Futures Case**

a. In this case, the students trade a variety of call and put options on three stocks (IBM, GE, and Exxon Mobil) as well as futures on the S&P Index. They can trade on margin, and projects could include using options to take advantage of a particular view (e.g. bet on volatility) or risk management.

b. The analytical support system includes:

i. Real time Option and Future Calculator Support at individual security as well as position levels

ii. Real time inference of information from option and future calculators.

iii. User ability to use their own inputs in the real time calculator support

iv. Comprehensive Value-at-Risk Support (Securities and Position)

v. Risk Management support – hedge parameters.

c. Courses that naturally this case include

i. Options and Futures

ii. Risk Management

d. We can suggest course integration strategies for:

i. an Options and Futures course;

ii. a Risk Management Course.

e. Sample Projects include:

i. **Project A (Options Course or Finance/Investments):** Market Microstructure and how option markets work.

ii. **Project B (Options Course or Finance/Investments:** Testing the Efficient Market's Hypothesis using technical and fundamental support.

iii. **Project C (Options Course):** Hedging and minimum variance hedging using options in presence of basis risk. Performance evaluation of the hedge is provided by the FTS system.

iv. **Project D (Options or Investments Course):** Index fund investing and moving along the Capital Market Line using options.

v. **Project A (Futures or Finance/Investments Courses) :** Market Microstructure and the futures markets work, marking to market, initial and maintenance margins.

vi. **Project B (Futures or Finance/Investments Courses):** Testing the Efficient Market's Hypothesis using technical and fundamental support.

vii. **Project C (Futures or Derivatives Courses):** Hedging using futures in presence of basis risk. This project gets students to implement the cost of carry model. Hedging performance reports are part of the FTS system.

viii. **Project D (Futures and Investments Course):** Index fund investing and moving along the Capital Market Line using futures.

**3. The Forex and Covered Interest Parity Case**

a. In this case, students can trade spot currencies as well as futures on Euro-deposit accounts.

b. The analytical support system includes:

i. Real time Future Calculator Support at individual security as well as position levels

ii. Real time inference of information from futures' calculators.

iii. User ability to use their own inputs in the real time calculator support

iv. Comprehensive Value-at-Risk Support (Securities and Position)

v. Risk Management support – hedge parameters.

c. Courses that naturally fit this case include

i. International Finance

ii. Risk Management (with a focus on currency and interest rate risk)

d. We can suggest course integration strategies for:

i. an International Finance course:;

ii. a Risk Management Course.

e. Sample Projects include:

i. **Project A (Finance and International Finance):** Market Microstructure and the how the currency markets work.

ii. **Project B (Finance and International Finance):** Testing the Efficient Market's Hypothesis using technical and fundamental support including central bank projections.

**iii. International Finance: Covered and Uncovered interest rate parity** This case is designed to introduce your students to currency markets including the language of the currency markets (American, European, Direct and Indirect quotation conventions.

iv. **Project A:** Market Microstructure and the how the currency futures markets work.

v. **Project B:** Testing the Efficient Market's Hypothesis using technical and fundamental support including central bank projections and carry trading.

vi. **Project C:** Hedging currency risk using futures. This project gets students to implement the cost of carry model and performance reports are provided by the FTS system.

**Appendix A: General Operational Details**

The FTS back office service eliminates all of the overhead associated with running real world trading related projects. For each of the suggested projects in this write-up, the FTS back office support includes comprehensive academic support to the instructor throughout the project's duration.

Your students log in via the web to the FTS servers using the FTS Real Time Client to manage their trading position. Your students can manage their position in teams together in real time but located anywhere in the world. Trading is institutionally correct with respect to the real world market microstructure and the system is designed to teach students how financial markets work including different order types (e.g., market, limit, stop etc.,), trading rules (e.g., margin purchases, short sales, initial margins, maintenance margins etc.,) and different types of support systems technical, fundamental as well a comprehensive analytical support system designed to reinforce standard curricula.

Each team's trades are processed using real time prices so that students cannot game the system. What prices are displayed to your students depends upon your school's trading room facilities and data feed agreements. If your school does not have a trading room nor any data agreements exist don't worry, the FTS real time client will still make it seamless for your students to personally retrieve relevant prices directly from their own access to the web.

All record keeping, trading support, accounting reports and base levels of performance reporting is handled automatically by the FTS system and real time retrieval access is available to your students. This lets students focus upon interpreting and mastering the important learning objectives associated with the tasks as opposed to being burdened with excessive record keeping demands. Further, each instructor can retrieve summary statistics for their entire class at any time which allows easy evaluation of current performances.

A range of standard real world exercises are available for you to choose from including stock cases for all standard finance courses (e.g., Introduction to Finance, Investments, Valuation, Option and Futures, Corporate Finance, International Finance, Financial Accounting and Hedge Accounting.

**Appendix B: Teaching Objectives and the Interactive FTS Analytical Support System**

Each asset class has real world analytical support that is designed around your classroom curriculum. Further, this support can be turned on or off at an individual user level so that you choose what support you want your students to see and work with given the learning objectives you have for your course. Furthermore the analytical support system is completely interactive so that each trading team can refine and develop their own personal inputs as they acquire this knowledge throughout your course. Again team members can be geographically separated but can still work together on different parts of their team's support system in real time if desired.

For example, for the same stock project different courses will demand different levels of analytical support. An Introduction to Financial Markets course may focus on basic market microstructure and testing the Efficient Markets Hypothesis. An investments course, on the other hand, will usually want portfolio optimization support including Sharpe's single index model and CAPM, as well as portfolio performance measures, but this course may be less interested in letting students see the intrinsic value and related support. In addition, a valuation or corporate finance course will again have different support requirements to Introductory Finance and/or Investments. For example, in a valuation course you are likely to want the intrinsic value related support (e.g., one and two stage growth models, Free Cash Flow to Equity, cost of equity capital using CAPM and or option based methods) to be made available but not the portfolio optimization support. A corporate finance course may want to have students work with different methods for estimating the cost of capital including CAPM as well as option based techniques. Finally, a projects based course may want to turn on all levels of support especially if the students have completed the relevant set of lead up courses. Thus, even though FTS is running the back office, you still have total control over what you want your students to see in the way of support.