Financial Engineering Team Report

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Financial Engineering Center

Beginning with the Fall Semester, the Financial Engineering Center (FEC) at Kent State University will coordinate and manage the Master of Science in Financial Engineering (MSFE) Program, the Olga A. Mural Financial Engineering Trading Floor, the Financial Engineering Seminar Series (FESS), the Futures Research Symposia, and the *Review of Futures Markets* (RFM) in a synergistic approach to achieve its mission.

The FEC is dedicated to the advancement of knowledge in derivatives and is a catalyst for the development of the field of financial engineering through education, training, and research.

The creation of a FEC will add name recognition to Kent State by unifying the financial engineering components, creating additional naming opportunities, and expanding services to the risk management and derivatives community.

Trading Practices Seminar

The Tokyo Grain Exchange (TGE) will once again travel to Kent for a special seminar series using the Olga A Mural Financial Engineering Trading Floor. The training will begin on July 31 in Kent and end in Chicago on Friday meeting different derivative firms.

The "Trading Practices in Derivative and Commodity Markets" seminar for the TGE will include topics on: US commodity exchange educational and promotional programs, types of participants in the electronic continuous market and their characteristics (differences in trading strategies between the market participants, types of trading strategies and their characteristics), market analysis and analytical tools for making trading decisions in the futures markets, what exchanges do to insure fair pricing in the futures market, and risk management for futures trading companies.

The FEC is once again proud to host the TGE for another important seminar.

Financial Engineering Course

Dr. Salih Neftci will teach the capstone Financial Engineering course in a corporate training session format. Dr. Neftci is currently a faculty member at the Graduate School, City University of New York, ISMA Centre University of Reading in U.K., and the University of Lausanne in Switzerland. The head of the the Certificate of FAME program at the Swiss Financial Institute in Switzerland, Dr. Neftci is the author of *An Introduction to the Mathematics of Pricing Financial Derivatives* and *Principles of Financial Engineering*. Dr. Neftci is a consultant to various financial institutions and is currently Risk Management Advisor to the IMF.

The course will run July 17 – 25, 2006 on the Kent State University's Olga A. Mural Financial Engineering Trading Floor, College of Business Administration. Individual seats are available at a cost of $3,000 each. Please note that there are a total of only four (4) available seats and are likely to fill very quickly. Contact Marilyn Bokrass (330-672-8658)

Topics

Part 1: Introduction

- Basics of manipulating Cash Flows
- Some vanilla instruments and their cash flows
- Synthetics with FX-contracts and FRA's.
- Examples of Tax arbitrage
- Contractual equations

Part 2: The first major tool

- The swap logic
- Role of Libor Deposits
- Swap Example 1: Equity swap
- Swap example 2: Interest rate swap,
- Swap Example 3: commodity swap
- Repo strategies in financial engineering
- Swap Example 4: Credit Default Swap
- Examples of synthetic bonds, loans and ABS
- CDS Indices, iTraxx, CDX
- CDS strategies

Part 3: The second major tool

- Options and convexity
- Introduction to non-linear instruments. Engineering Convexity
- Basic option engineering
- How to convert convexity into cash
- The relevance of local volatility
- Volatility trading
- Black-Scholes PDE interpreted as arbitrage-free value of Volatility
- Funding with volatility
- Volatility swap
- Central Banks and volatility trading
- Swaptions and mortgages
- Exotic instruments
- The meaning of an "exotic"
- Exotic Libor Callables
- The role of Greeks
- Calibration methods

Part 4: The third major tool

- Event correlation and tranching
- Credit indices, iTraxx, CDX
- Standard tranches
- Correlation trading
- Implied correlations
- Correlation trading strategies
- Applications to CPPI
- CPPI structures with iTraxx

New Methods and Applications of Financial Engineering

FEC and Institute of Financial Management Sponsored Seminar with Dr. Salih Neftci

Program: This advanced two-day course (September 26 & 27, 2006), led by renowned author and lecturer, Dr. Salih Neftci, explores financial engineering methods for swaps and contingent claims used in analyzing credit default risks with applications to areas such as CDS, tranche trading, volatility trading and term structure analysis. The program uses lecture, hands-on computer applications, and discussion to convey the practical elements of financial engineering along with theoretical finance, mathematics and modeling.

Class Size: Registration is limited to 24 persons to promote a friendly atmosphere, encourage attendee discussion, and provide networking opportunities.

Who should attend: Risk Managers, Heads of Trading, Hedging and Structured Products, Portfolio Managers, Quantitative Researchers, Financial Engineers, Derivatives Analysts, Academics, Analytical Traders, High-Frequency Traders and Corporate Credit Modelers.

Topics

Part 1: The Swap Logic

- Equivalent of "zero" in finance: Libor Deposits
- Swap Example 1: Equity swap
- Swap Example 2: Interest rate swap
- Swap Example 3: Commodity swap

Part 2: A Recent Application of the Swap Logic

- Credit Default Swaps
- Examples of synthetic bonds, loans and ABS
- CDS Indices, iTraxx, CDX
- Tranche trading
- Tranche strategies
- CDS strategies

Part 3: Measuring Term Structure

- Modern Term Structure analysis and its role in financial engineering
- A brief summary of Forward Libor Model
- Zero coupon bonds and measure changes

Part 4: Volatility Trading

- Volatility trading
- Introduction to non-linear instruments. Engineering Convexity
- Basic option engineering
- Black-Scholes PDE interpreted as arbitrage-free value of Volatility
- Funding with volatility
- Volatility swap

Part 5: Financial Engineering of Exotics

- Exotic instruments
- The meaning of an "exotic"
- Exotic Libor Callables
- The role of Greeks

Click to Register Online at http://www.theifm.org/orderingOnline/catalog.cfm or call 202.223.1528.

Activity Information Meetings

Beginning in September the new Financial Engineering class of 2007 will experience a new communication process through Activity Information Meetings (AIM).

Every other Friday the class is scheduled to meet for 30 minutes on the Olga A. Mural Financial Engineering Trading Floor with Dr. Holder and Ms. Evans for a short briefing of upcoming events, messages from the faculty, and other pertinent information for the program. On the prior Monday an email will be sent to the MSFE faculty members and associated department chairs requesting any information or messages that need to be shared with the class.

The information will be prepared and presented at the Friday AIM.

Internships for the Class of 2006

Chicago

Wendy Jiang	Eurex US
Will Davis	Goldman Sachs/PCM
Jeff Shipp	GHCO
Dan Chan	CME
Tom Griffin	NFA

New York/New Jersey

Laura Chen	Goldman Sachs
Ryan Ingersoll	Goldman Sachs
Rami Dirani	ICAP
Greg Reppas	Calyon
Ashish Srivastava	Calyon Financial

Cleveland/Akron

Steve Wang	KeyBank
Matt Milcetich	KeyBank
Robert Hsu	KeyBank
Ryan Zhao	FirstEnergy
Alan White	FirstEnergy

Kent

Maggie Wang	KSU Foundation Hedge Fund
Debra Wilson	KSU Foundation Hedge Fund
William Liu	Rice Futures for TGE
Pierre Hsieh	Rice Futures For TGE

16th APFRS

The 2006 symposium on futures research was held in Bangkok, Thailand on March 25 & 26, 2006. The 16th Asia Pacific Futures Research Symposium was among the best in the series to date. Over 150 professionals attended the symposium to hear the latest research and participate in the discussions.

Dow Jones Indexes hosted the cocktail reception with an elegant display of international cuisine. President Cartwright was given a special tribute and farewell from the symposium organizing committee and loyal participants. During the reception, six musicians from Chulalongkorn University played traditional Thai music.

Next venue for APFRS Series

The 17th APFRS will be held in Korea during April or May. Please watch the web sites www.business.kent.edu/msfe, www.business.kent.edu/erf, and future editions of the Team Report for additional information.

The Olga A. Mural Financial Engineering Trading Floor

Usage Rates at the Five Year Mark

By Chris Dispina

Based on a 15 week Semester there are a potential of 600 hours per day (daytime hours) for usage of the Olga A. Mural Financial Engineering Trading Floor. Although open to MSFE student on a 24/7 basis, the following gives a snapshot of the utilization of the Trading Floor. Working together as a team the MSFE program Director, Administrator, and Technician keep the Trading Floor open more than a traditional 40 hours per week. The Trading Floor is also opened on weekends if needed.

Fall Olga A Mural Financial Engineering Trading Floor Usage

Four Finance Classes (45 contact hours each)	90 hours
12 Guest Speakers or Trainers (Average of 5 hour each)	60 hours
Seven Fall tours (One hour each)	7 hours
Orientation for new students	4 hours
Biweekly Class Meetings	7 hours
Eight Information Sessions (1.5 hours each)	12 hours
PhD Students (15 hours per week)	225 hours
Room Prep (2 hours per week)	30 hours
MSFE Student usage (10 hours per week)	150 hours
Room maintenance	30 hours
TOTAL	**615 hours**
Potential Seminar (two days at 8 hours)	16 hours
TOTAL	**631 hours**

Spring Olga A Mural Financial Engineering Trading Floor Usage

Six Finance Classes (45 contact hours each)	135 hours
Nine Guest Speakers or Trainers (Average of 5 hour each)	45 hours
Seven Fall tours (One hour each)	7 hours
Time Series Student usage (5 hours per week)	75 hours
Biweekly Class Meetings	7 hours
PhD Students (15 hours per week)	225 hours
Room Prep (2 hours per week)	30 hours
MSFE Student usage (10 hours per week)	150 hours
Room maintenance	30 hours
TOTAL	**704 hours**
Potential Seminar (two days at 8 hours)	16 hours
TOTAL	**720 hours**

Summer Olga A Mural Financial Engineering Trading Floor Usage

One Finance Classes (45 contact hours each)	45 hours
Financial Engineering Course	40 hours
Two Guest Speakers or Trainers (Average of 5 hour each)	10 hours
Twelve Potential Student visits tours (30 minutes each)	6 hours

Biweekly Class Meetings	4 hours
PhD Students (5 hours per week)	50 hours
Room Prep (2 hours per week)	20 hours
MSFE Student usage (10 hours per week)	100 hours
Modeling Projects Presentations	40 hours
TGE Training	40 hours
Internship usage (20 hours per week)	160 hours
System maintenance – workstations (5 hour each)	120 hours
System maintenance – Servers (5 hours each)	100 hours
Prep for next class	20 hours
Room maintenance	40 hours
TOTAL	**795 hours**

Where is the Class of 2005?

Billy Chan	National City	Model Validation-Capital Allocation Analyst
Adam Freeman	LaSalle Bank	
Charles Lawrence	Merrill Lynch	
Yining Lin	KeyCorp	Risk Analyst II
Jinli Ma	Kingstree Trading	
Ishaq Pakawala	SUEZ Energy Marketing NA, Inc	Portfolio Analyst
Amish Patel	Credit Suisse	Credit Derivatives Product Controller
Yaqin Su		
Connie Tang	Teradata, a division of NCR	Business Consultant
Chamie Townsend	FirstEnergy	Business Analyst
Joe Varcelli	SS&C Technologies	Derivatives Consultant