TOPICS IN INVESTMENTS

DERIVATIVES MARKETS: ANALYSES & APPLICATIONS (*B40.3176)*

Fall 2010

Professor Menachem Brenner

Course Description: In this advanced course we discuss various aspects of derivatives: markets, instruments, strategies, applications, regulation. These will include: The role of derivatives, portfolio insurance, volatility derivatives (e.g. VIX), implied volatility "**skews**", trading volatility, hedging and speculation, designing derivative instruments and markets.
The meetings will include presentations by prominent guest speakers.

Guest Speakers: Here is the list of speakers.

Gary Gastineau, ETF consaltants
David Hait, President of *optionmetrics.com.*
David Krell, Chairman of the ISE.
Prafulla Nabar, Structured Products, Bloomberg

Prerequisites: Futures and Options (B40.3335) or the **equivalent**. You should know the basic models used in futures and options. The material covered in the Foundations of Finance (B01.2311) is not sufficient.

Exams and Grading: Students will have two options: 1. Take the final exam (weight 100%). 2. Take a final quiz and do a short project which will count for 70% of the final grade. Class participation may improve the student's grade.
The grade distribution is: A (25% - 30%), B (50% - 60%), C (10%), D, F (remainder).

Required Material: You are responsible for the material covered in class, handouts provided in class and for e-mail messages.

Recommended books: Hull John (H*) Options, Futures and Other Derivatives*, Prentice Hall, 2008. The book is not a substitute for the lecture notes and class discussions. Some topics and details are not covered by the book. A **futures/options software CD** is attached.

Sundaram Rangarajan and Sanjiv Das, *Derivatives, Principles and Practice*. McCgraw-Hill/Irwin, 2010.

McDonald Robert, *Derivatives Markets,* Addison Wesley, 2006.

Office Hours: Tuesday: 4:00-6:00 and by appointment. Room KMC 9-55.

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Course Topics

I. REVIEW OF DERIVATIVES; THEORY AND PRACTICE

A. Futures Markets and ETFs; Structure, Cost of Carry Model, Index Arbitrage. Discuss Amranth, LTCM, MG

B. Options markets; Models: P-C-P, Binomial, B-S-M, Other (CEV), Greeks, VAR

II. ANALYSIS AND APPLICATIONS

PORTFOLIO INSURANCE
Dynamic hedging vs. Static hedging

INNOVATIONS; Structured Products
Plain Vanilla/Exotic (SPINS)
Strategies/Products

DESIGNING MARKETS AND INSTRUMENTS
Electronic/Pit Trading (Market Making)
Design issues; Contract Specifications

DERIVATIVES REGULATION
OTC Derivatives and Clearing
Position Limits
Circuit Breakers

VOLATILITY (Estimation and Trading Vol.)
Volatility Indices: VIX, VXN, Variance swaps
Realized and Implied Volatility (“Skews”, term structure)
Trading Volatility (VIX Futures and Options, Straddle Options)
The V-lab