

FINA690K - Structured Products and Exotic Options

Course objectives

This course will provide students with a basic understanding for the commonly traded financial derivatives and fixed income instruments in the financial markets. Special emphasis will be on swaps, credit derivatives, interest rate linked structured products and collateralized debt obligations. Detailed explanations on the hedging, pricing and risk management methodologies will be included. Illustrative case studies of some real products will be provided.

Pre-requisite

FINA 551 – Options and Futures Markets

Text book

“Options, Futures and other Derivatives” by John Hull, fifth edition, Prentice Hall.

Course instructor

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Course content

Forward and futures: currency and interest rate products

- Cost of carry formulas
- Index futures arbitrage
- American currency forward
- Bond forward and forward rate agreement

Convertible bonds and target redemption notes

- Convertible bonds as an asset class
 - Conversion, callable, reset and other features
 - Delayed call phenomena
 - Investors' perspectives on investment on convertible bonds
- Basic convertible bond calculations
 - Break-even calculations
 - Interest rate sensitivity and duration analysis
 - Dynamic programming in binomial calculations
- Target redemption notes

Interest rate swaps and currency swaps

- Interest rate floors and caps, bond options
- Swaps with embedded options
- Uses of swaptions
- Currency swaps, differential swaps

Credit derivatives

- Default protection and trading of risks
- Funding cost arbitrage
- Typical products
 - Total return swaps
 - Asset swaps
 - Credit default swaps
 - Credit spreads swaps and options

Mortgage backed securities and collateralized debt obligations (CDO)

- Mortgage passthrough securities, collateralized mortgage obligations
- Prepayment risk in mortgage backed securities
- Cash flow CDO and synthetic CDO
- Valuation of CDO: diversity score

Exotic features in equity options

- Path dependent options: Barrier options, lookback options and Asian options
- Trading strategies of options
- Volatility trading and volatility swaps
- Convertible securities

Grading policies

Reading reports on technical papers on exotic options

Plus 3 sets of homework assignment