Maths for Finance (Bank 309)

Chapter 1: Introduction

This chapter introduce the markets for future, forward, and option contracts. Also, this chapter explains the activities of hedgers, speculators and arbitrageurs.

Chapter 2: Mechanics of future markets

This chapter explains the functioning of futures markets. We examine issues such as the specification of contracts, operation of margin account, the organization of exchange. We compare future contracts with forward contracts and explain the difference between the payoffs realized from them.

Chapter 3: Hedging Strategies using Futures

This chapter discusses how long and short futures positions are used for hedging. It covers basis risk, hedge ratios, cross hedge, the use of stock index futures, and how to roll a hedge forward.

Chapter 4: Interest Rates

This chapter deals with calculations involving interest rates. It includes a discussion of forward rates, FRAs, and theories of the term structure.

Chapter 5: Determination of Forward and Future Prices

In the first part of the chapter we derive some important general results on the relationship between forward price and spot prices. We then use the results to examine the relationship between forward or future prices and spot prices for contracts on stock indices, foreign exchange, and commodities.

Chapter 6: Interest Rate Futures

This chapter discusses how interest rate futures contracts are quoted, how they work, and how they are used for hedging.

Chapter 7: Swaps

This chapter covers the nature of swaps and how they are used. Our discussion centers on two popular swaps: plain vanilla interest rate swaps and fixed-for-fixed currency swap.

Source: Hull, John C., Fundamentals of Futures and Options Markets, 6th Ed., Prentice Hall.