



B.Com Honours

Semester VI

Calicut University

FINANCIAL DERIVATIVES

Course Code: COM6EJ301 • Module 2 Notes

Module II: Forwards and Futures Contracts & Pricing

Covers forward contract mechanics, futures contract specifications, margin mechanisms (Initial, Maintenance, M2M), stock & index futures, commodity futures (MCX, NCDEX), and Futures pricing (Cost of Carry Model).

Unit 7: Forward Contracts Features & Limitations

Forward Contract: Customized bilateral agreement between two parties to buy/sell an asset at specified price on future date. Limitations: Counterparty default risk, illiquidity, & lack of standardized terms.

Unit 8: Futures Contracts & Comparison with Forwards

Futures Contract: Standardized exchange-traded contract guaranteed by Clearinghouse (NSCCL/ICCL). Forwards (OTC, non-standard, credit risk) vs Futures (Exchange-traded, standardized, novation clearing).

Unit 9: Margin Mechanism & Mark-to-Market (M2M) Settlement

Margin Rules: Initial Margin (deposited prior to trade) & Maintenance Margin. Daily Mark-to-Market (M2M): Daily cash adjustment of gains/losses against margin balance; Variation Margin call issued if balance falls below maintenance level.

Unit 10: Stock Futures, Index Futures, & Exchange Trading

Contract Specifications: Lot size, expiry date (last Thursday of month), Index futures (Nifty 50, Bank Nifty), & trading engine architecture.

Unit 11: Currency Futures & Interest Rate Futures (IRF)

Financial Futures: USD/INR, EUR/INR currency pairs traded on NSE/BSE; IRF based on 10-year Government Securities (G-Secs).

Unit 12: Commodity Futures & Exchanges (MCX & NCDEX)

Commodity Trading: Multi Commodity Exchange (MCX - Metals, Crude) & National Commodity & Derivatives Exchange (NCDEX - Agri products).

Unit 13: Futures Pricing Models & Cost of Carry Model

Cost of Carry Model:

$$F_0 = S_0 \times (1 + r - d)^T \quad \text{or} \quad F_0 = S_0 \times e^{(r - d) \cdot T}$$

Practical Solved Problem 1 (Daily Mark-to-Market M2M Margin Calculation): Investor buys 1 contract of Nifty Futures (Lot size = 50) at futures price of ₹22,000. Initial Margin = ₹1,00,000, Maintenance Margin = ₹80,000.

Day 1 Closing Price = ₹22,150; Day 2 Closing Price = ₹21,700. Calculate M2M P&L and Margin balance at end of Day 2.

Daily M2M P&L = (Closing Price - Previous Price) * Lot Size

Step-by-step Solution:

1. Day 1 M2M P&L = $(22,150 - 22,000) \times 50 = +150 \times 50 = \text{₹}7,500$. Margin Balance = $1,00,000 + 7,500 = \text{₹}1,07,500$.
2. Day 2 M2M P&L = $(21,700 - 22,150) \times 50 = -450 \times 50 = \text{₹}22,500$.
3. Day 2 Ending Margin Balance = $1,07,500 - 22,500 = \text{₹}85,000$.
4. Margin Status: Balance ₹85,000 $\geq$ Maintenance Margin ₹80,000 $\implies$ No variation margin call required.

Practical Solved Problem 2 (Futures Pricing via Cost of Carry Model): Spot Stock Price $S_0 = ₹1,200$. Risk-free interest rate $r = 8\%$ p.a., Dividend yield $d = 2\%$ p.a. Time to maturity $T = 0.25$ years (3 months). Calculate Theoretical Futures Price (F_0).

$F_0 = S_0 * [1 + (r - d) * T]$

Step-by-step Solution:

1. Net Cost of Carry = $r - d = 8\% - 2\% = 6\% = 0.06$.
2. Carry Factor for 3 Months = $0.06 \times 0.25 = 0.015$.
3. Theoretical Futures Price $F_0 = 1,200 \times (1 + 0.015) = 1,200 \times 1.015 = \text{₹}1,218.00$.

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