

Course No.	: MPE 126
Course title	: The Theory of Finance
Number of credits	: 3
Number of Lectures–Tutorials–Practicals	: 32-5-10
Faculty Name	: Debdatta Saha

Course outline

This course aims to provide a comprehensive overview on modern finance and covers a fairly diverse range of topics, such as discounted cash flow techniques in finance, fixed income securities with special emphasis on bond market dynamics, portfolio optimization, random cash flows with a special emphasis on stock markets and forward and futures markets. While the theory is laid out in the lectures, the practical classes aim to give the students a hands-on application of the topics using spreadsheet programming and some econometric applications. This gives the student a feel of contemporary finance, which requires a good measure of understanding of applied microeconomic theory, applied macroeconomic theory, some stochastic processes and spreadsheet programming. Active class participation and a proactive interest in the current topics in finance (through a web-search of publicly available data on the RBI website, US Fed website and financial dailies) is a cornerstone of good comprehension of the materials to be covered in the course.

Evaluation Procedure

2 minor tests: 25% each

1 major test (end semester): 45%

Class performance: 5%

Details of course content and allotted time

Sl. No.	Topic	Allotted time (hours)		
		Lectures	Tutorials	Practicals
1	Introduction: <i>Overview of modern corporate finance, agency costs in finance (moral hazard, equity multiplier, benchmarking, debt overhang, collateral, seniority of claims, liquidity, contract enforcement), Modigliani-Miller theorem and its criticisms.</i>	2		
2	Fixed income securities: <i>Basics of balance sheets, discounted cash flow models in finance, fixed income securities: bond markets(prices, yields, duration, immunization, term structure of interest rates), applications in inflation-indexed bonds, peculiarities of Indian markets</i>	3	1	2
3	Random cash flows: <i>Asset return, portfolio return, random returns, portfolio mean return and variance, diversification, portfolio diagram, feasible set. One fund theorem, Markowitz model: Two fund theorem.</i>	3	1	2
4	Decision-making under uncertainty: <i>Preliminary introduction to decision-making under uncertainty and optimum portfolio choice, mean-variance criterion</i>	2		
5	Asset pricing models: Capital Asset Pricing Model (CAPM): <i>Capital market line, betas of stocks and portfolios, security market line, use of CAPM in investment analysis and as a pricing formula, problems with standard CAPM model. Consumption-based CAPM and dynamic CAPM models.</i> Arbitrage Pricing Theory (APT) and its applications. Factor models in finance and applications	9	1	2

6	Specific topics in stock markets: <i>Efficient market hypothesis, bubbles, behavioral finance to explain noise trader risk, limits to arbitrage and destabilizing speculation.</i> Econometric application: <i>event study analysis in finance.</i> Stochastic processes: <i>Ito process, Weiner process and random walks.</i>	4	1	2
7	Futures, options and swaps: <i>forward and futures prices, hedging using futures contracts, value of a forward/futures contract. Put options, call options, put-call parity. Binomial option pricing model (BOPM), replication portfolios</i>	2		
8	The Black-Scholes option pricing model: <i>the Black-Scholes formula, analogy with BOPM. Delta hedging, hedging parameters: "The Greeks", volatility, limitations of Black-Scholes formula.</i>	3	1	2
9	Debt Crises: <i>debt crisis (corporate debt and liquidation values, and public debt crises)</i>	2		
10	Valuing real assets like real estate and gold: <i>real options method.</i> <i>Special problems for developing countries</i>	2		
		32	5	10

Suggested readings

Basic Books:

1. Alexander, G., Sharpe, W. and Bailey, J. (3rd Edition 2001): *Fundamentals of Investments*, Prentice-Hall India.
2. Brealey, R. A., Myers, S.C. and Allen, F. (8th edition 2005), *Corporate Finance*, McGraw-Hill Irwin.
3. Elton, E.J. and Gruber, M.J.(1996): *Modern Portfolio Theory and Investment Analysis*, John Wiley and Sons, Singapore.
4. Tirole, J. (2006), *The Theory of Corporate Finance*, Princeton University Press.

Selected Papers and Books (Topic-wise)

1. Introduction

1. Tirole, J.(2006) *Theory of Corporate Finance*.
2. Brealey, R. A., Myers, S.C. and Allen, F. (8th edition 2005), *Corporate Finance*, McGraw-Hill Irwin.

2. Fixed income securities

1. Barber, J.R.(2005), Bond immunization for affine term structures, *Financial Review*, 34(2), 127-139.
2. Alexander, G., Sharpe, W. and Bailey, J. (3rd Edition 2001): *Fundamentals of Investments*, Prentice-Hall India.
3. Shiller, R.J.(2003), The Invention of Inflation-Indexed Bonds in Early America, NBER Working Paper No.10183.
4. Wrase, J.M.(July/August 1997), Inflation-indexed bonds:How do they work?, *Business Review*.
5. Gong, F.F., and Remolona, E.M. (1996): Inflation Risk in the US yield curve: The usefulness of indexed bonds, Federal Reserve Bank of New York.

3. Random cash flows

1. Elton, E.J. and Gruber, M.J.(1996): *Modern Portfolio Theory and Investment Analysis*, John Wiley and Sons, Singapore.
2. Merton, R.C.(1972): An Analytic Derivation of the Efficient Portfolio Frontier, *The Journal of Financial and Quantitative Analysis*, 7(4), pp.1851-1872.
3. Canner, N., Mankiw, N.G. and Weil, D.N.(1994): An Asset Allocation Puzzle, NBER Working Paper No. 4857.
4. Elton, E.J. and Gruber, M.J.(1997): Modern Portfolio Theory 1950 to date, Stern School of Business Finance Department Working Paper Series, FIN-97-3

4. Decision-making under uncertainty

1. Mas-collel, A, Whinston, M.D, and Greene, J.R.(1995): *Microeconomic Theory*, Oxford University.
2. Varian, H.(3rd edition 1992): *Microeconomic Analysis*, W. W. Norton and Company.
3. Elton, E.J. and Gruber, M.J.(1996): *Modern Portfolio Theory and Investment Analysis*, John Wiley and Sons, Singapore.

5. Asset Pricing Models

1. Avramov, D. and Chordia, T. (2006): *Asset Pricing Models and Financial Market Anomalies*, *The Review of Financial Studies*, 19(3), pp. 1001-1040.
2. Duffie, D., and Zame, W. (1989): *The Consumption Based Capital Asset Pricing Model*, *Econometrica*, 57(6), pp. 1279-1297.
3. Fama, E. F., and French, K.R. (2004): *The Capital Asset Pricing Model: Theory and Evidence*, *Journal of Economic Perspectives*, 18(3), pp. 25-46.

4. Blume, M., and Friend, I. (1973): *A New Look at the Capital Asset Pricing Model*, The Journal of Finance, 28(1), pp. 19-33

6. Specific Topics in Stock Markets

1. Shleifer, Andrei. (2000): *Inefficient Markets - An Introduction to Behavioral Finance*, Oxford University Press, New York
2. Lo, A., and MacKinlay, A.C. (1999): *A Non-Random Walk Down Wall Street*, Princeton University Press.
3. Gourieroux, C. and Jasiak, J.(2001): *Financial Econometrics: Problems, Models and Methods*, Princeton Series in Finance.
4. MacKinlay, A.C.(1997): *Event Studies in Economics and Finance*, Journal of Economic Literature, 35(1), pp.13-39.

7. Futures, options and swaps

1. Hull, J.C. (5th Edition 2003): *Options, Futures and Other Derivatives*, Prentice-Hall India.

8. The Black-Scholes Option Pricing Formula

1. Black, F. and Scholes, M.(1973):*The Pricing of Options and Corporate Liabilities*, The Journal of Political Economy, 81(3), pp.637-654.
2. Butler, J.S. and Schachter, B.(1986): *Unbiased Estimation of the Black Scholes Formula*, *Journal of Financial Economics*, 15(3), pp.341-357.

9. Debt Crises

1. Shleifer, A., and Vishny, R.W. (1992), *Liquidation Values and Debt Capacity: A market equilibrium approach*, The Journal of Finance, vol. XLVII, No. 4.
2. Romer, D.(3rd edition 2006): *Advanced Macroeconomics*, McGraw Hill Irwin, section 11.9 and 11.10 in chapter 11.

10. Valuing real assets like real estate and gold

1. Saks, R. E. (2nd edition 2008): *Housing supply*, in The New Palgrave Dictionary of Economics, second edition, edited by Steven N. Darlauf and Lawrence E. Blume, volume 4, Palgrave Macmillan, pp. 95-98.