

RP Rustagi

INVESTMENT ANALYSIS and PORTFOLIO MANAGEMENT

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SULTAN CHAND & SONS

**INVESTMENT ANALYSIS
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(For MBA, M.Com., CFA, PGDBM and Other Courses in Finance)

Dedicated to the
ALMIGHTY
who bestowed on me
the inspiration and strength
to take up this work
and to share my experience
with the readers.

INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

(For MBA, M.Com., CFA, PGDBM and Other Courses in Finance)

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Preface

TO THE FIFTH EDITION

I am thankful to the students and teachers for the well acceptance of the book. The motivation for the Fifth Edition has been provided by the positive response of the readers and reviewers of the earlier editions. The book has been accepted by the students who are studying Finance as the core area in business schools and various universities.

The book aims to assist the readers in getting a thorough understanding of the concepts, theories and practices underlying investment. It covers the syllabi of papers such as 'Investment Management', 'Security Analysis and Portfolio Management', 'Investment Decision-making', etc., being taught as a part of curriculum for MBA, PGDBM, CFA and other courses in Finance.

The guiding principle has been to present the material in an organised framework and an attempt has been made to strip away unnecessary mathematical and technical details. However, applications of Microsoft Excel Formulations (built-in) and Excel Spreadsheet have been explained at appropriate places. Highlight of the Fifth Edition is the presentation of 'Concept Checks' in the form of "Test Yourself" at various places in the Chapter itself. This will give an opportunity to the readers to apply the concepts which they have read so far. Other highlights of the Fifth Edition are the inclusion of discussion on **Hedge Funds, Private Equity, Credit Derivatives, Investment in Real Estate**, besides adding more and more numerical problems to different chapters.

Whereas most of the Chapters have been updated with new material, substantial changes have been introduced in Chapters 18 and 19 to deal with the emerging concepts of **Structured Finance** and **Real Estate Investment**. Details of Securitization and Asset-Backed Securities are also given.

The choice of these additions was made on the basis of comments received from various readers and the developments taking place in the capital market. As the text has been knit around the financial markets, the Fifth Edition addresses many of the changes in the investment environment.

Comments and suggestions about this new edition would be gratefully acknowledged. I am also thankful to the Publishers for their cooperation in bringing this edition in time.

Dr. R.P. RUSTAGI

TO THE FIRST EDITION

Investment Management and Environment is becoming more and more complex over the years. Types of instruments and financial products, types and number of financial intermediaries and the overall investment process, all have seen a revolution. Financial

Engineering, Investors' Protection and Transparency have been the buzz words. On-line trading systems in the financial markets, holding and transfer of securities in the electronic mode, significant presence of mutual funds, more active role assumed by the regulatory authorities are some of the features of present-day investment environment. More and more linkages and interdependence of different financial systems are giving way to global financial markets and systems.

The subject-matter of the present text, **Investment Analysis and Portfolio Management**, is to explain the investment decision-making. It focuses on the investment analysis. In an effort to link the theory and practice, the entire investment process has been discussed in the context of Indian Financial System. Frequent references to the regulatory mechanism of Securities and Exchange Board of India (SEBI) and the practices prevailing in the Indian Capital Market, have been the focal point of the discussion. It presents the concepts, theories, techniques and practices of investment management in simple, lucid and easy to understand language. The guiding principle has been to present the material in a systematic way. An attempt has been made to strip away unnecessary mathematical derivations and technical details.

Gradually, several specialised areas have branched out from the financial management, including Investment Management, Portfolio Management, Management of Derivatives, etc. The present text deals with the investment in general and limited coverage of the security analysis, portfolio management and derivatives. The unifying philosophy of the book has been to present the investment decision process in terms of the risk-return perspective of the investor.

Investment Management, as an academic discipline, is constantly changing and stimulating. There is always a quest to discuss the subject-matter with reference to the practices prevailing. The book focuses on investment analysis and attempts to present the practical applications of investment theory. The book has emerged out of the experience of teaching financial management and investment management and other related subjects to a wide variety of students including that of professional courses. The motivation for the book has been provided by the interaction and responses in the classroom.

The book has been designed as a reference-cum-textbook in Investment and Portfolio Management. The book is meant for the students preparing for a course in security analysis and portfolio management and other related subjects at the post-graduate level, or for management courses such as MBA, PGDBM, CFA, *etc.* The subject-matter has been presented in 17 Chapters grouped in 7 Parts each dealing with a particular area.

Finally, I will like to acknowledge the contributions made to the literature by authors and researchers, and my teachers who have helped me a lot in understanding various issues and concepts in finance and related areas. I am thankful to my students who have provided the initiative and stimulus for writing this work. I also feel obliged to all my colleagues and teachers at different management institutes for their suggestions. Messrs Sultan Chand and Sons, the Publishers, deserve a deep sense of gratitude to bring out the book well in time and in an elegant style.

The text aims to introduce major issues currently of concern to all investors. However, the discussion in the present text is purely academic and neither attempts nor tantamount to expertise/professional service to the readers on the subject. Sufficient care has been taken to ensure the correctness of formulae, equations and calculations. Still, there might be some unintended errors. Further comments and suggestions for improving the quality of the book are welcome and will be gratefully acknowledged.

Dr. R.P. RUSTAGI

A Glance at the Book

1. **Chapter Theme and Chapter Plan:** Each Chapter begins with a theme. The structure of the chapter has been provided to help the readers to have a glance at the contents of that chapter.
2. **Main Body:** Different concepts and procedures relating a particular topic have been examined and explained in a well-knit manner. Sufficient examples have been provided for a better grasp.
3. **Concept Checks: Test Yourself.** During the presentation of the contents of every chapter, ‘Concept Checks : Test Yourself’ have been provided. These aim (i) to provide an opportunity to the reader to apply the concepts and (ii) to induce a discussion among the students.
4. **Financial Modeling with EXCEL:** Wherever required, built-in function of EXCEL and Spreadsheet calculation have been demonstrated for financial modelling.
5. **Graded Illustrations:** In keeping with the view that investment management can be learned only by doing numerous practical questions including those which have appeared in different examinations have been given (with solutions) in the form of Graded Illustrations.
6. **Points to Remember:** An overview of the chapter has been presented in a capsuled form in terms of Points To Remember at the end of the Main Body.
7. **Objective Type Questions:** Every chapter contains sufficient objective type questions (True/False type). This will help students to quickly recapitulate the application of the concepts. Answers to these questions are given to help them to evaluate their performance.
8. **Self-Review Assignments and Problems:** In order to help the readers in evaluating their level of understanding, Self-Review Assignments contain questions ranging from short concept questions to descriptive essay type assignments. Numerical unsolved problems have also been provided (with answers) so that readers gain sufficient confidence by solving these problems in the examination like environment. Answers, and Explanations to “Concept Checks : Test Yourself” are also given.

Book Summary at a Glance

<i>Chapters</i>	<i>Examples</i>	<i>Illustrations</i>	<i>Assignments</i>	<i>True/False</i>	<i>Problems</i>	<i>Pages</i>
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Application of Excel Worksheet

	Application of Excel Worksheet and Built-in Functions	
1.	YIELD:	A built-in function that helps in calculation of YTM of a bond that pays periodic interest.
2.	NPV:	A built-in function that can be used for calculation of value of a bond.
3.	DURATION:	A built-in function that can be used for calculation of Duration of a Bond.
4.	MDURATION:	A built-in function that helps in calculation of Modified Duration of a Bond.
5.	STDEV.P:	A built-in function that can be used to find out standard deviation of returns of a security.
6.	CORREL:	A built-in function that can be used for finding out the correlation coefficient between the returns of two securities.
7.	COVARIANCE.P:	A built-in function that can be used to find out covariance between returns of two securities.
8.		Use of EXCEL Worksheet for calculation of Risk and Return of a portfolio of two elements.
9.		Use of EXCEL Worksheet for calculation of β of a security.
10.		Use of EXCEL Worksheet for calculation of value of European Call Option as per Black and Scholes Model.

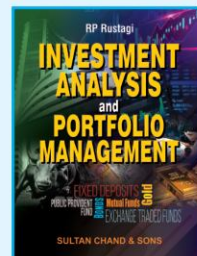
Abbreviations and Notations

ADR	American Depository Receipt	Dep.	Depreciation
AMC	Asset Management Company	DDB	Deep Discount Bonds
APT	Arbitrage Pricing Theory	DDM	Dividend Discount Model
ASBA	Application Supported by Blocked Amount	DFL	Degree of Financial Leverage
b	Retention Ratio (1 – DP ratio)	DOL	Degree of Operating Leverage
B_0	Bond Value at present	DP Ratio	Dividend Payout Ratio
β	Beta factor (CAPM)	DPS	Dividend Per Share
β_A	Beta of Assets	DRR	Debenture Redemption Reserve
β_E	Beta of Equity	e	Base of Natural Logarithms
BS	Balance Sheet	E	Equity or Value of Equity
BSE	Mumbai Stock Exchange	EAM	Equivalent Annuity Method
BV	Book Value (Also Balance Sheet Value)	EBIT	Earnings Before Interest & Taxes (also NOP)
C_0	Cost at Present [initial cost]	EBT	Earnings Before Taxes (also PBT)
CA	Current Assets	ECB	External Commercial Borrowings
CAPM	Capital Assets Pricing Model	EIC	Economic, Industry, Company Analysis
CCA	Core Current Assets	EMA	Exponential Moving Average
CD	Certificate of Deposits	EOQ	Economic Order Quantity
CE	Certainty Equivalent	EPS	Earnings Per Share
CF	Cash Flows	ETF	Exchange Traded Fund
CFO	Chief Financial Officer	EVCF	Expected Value of Cash Flows
CFS	Cash Flow Statement	F	Futures Value
CL	Current Liabilities	FA	Fixed Assets
CML	Capital Market Line	FC	Fixed Cost
COV.	Co-Variance	FCCB	Foreign Currency Convertible Bonds
CRISIL	Credit Rating Information Services India Ltd.	FFS	Funds Flow Statement
CP	Commercial Papers	FL	Financial Leverage (also DFL)
CVAF	Cumulative Value Annuity Factor	FV	Future Value
CVF	Cumulative Value Factor	g	growth rate
CV	Coefficient of Variation	GDP	Gross Domestic Product
D	Debt	GP	Gross Profit
D*	Modified Duration of a Bond	GSO	Green Shoe Option
Div.	Dividend on Equity Shares	HM Model	Harry Markowitz Model
D_0	Dividend for Current Year	HPR	Holding Period Return
D_1	Dividend Receivable after One Year	I or Int.	Interest
DCL	Degree of Combined Leverage	I_{RF}	Risk-Free Rate of Interest
		IRR	Internal Rate of Interest

k	Rate of discount/Required rate of return	PVF	Present Value Factor
k _d	Cost of Debt	QIB	Qualified Institution Buyer
k _e	Cost of Equity Capital	$\frac{\rho}{r}$	Correlation Coefficient Expected Rate of Return
k ₀	Overall Cost of Capital (also WACC)	RM	Rate of Return on Market Portfolio
k _p	Cost of Preference Share Capital	R _S	Required Rate of Return of a Security
k _r	Cost of Retained Earnings	RA	Ratio Analysis
K	Strike Price (in Derivatives)	RBI	Reserve Bank of India
LR	Lease Rental	RHP	Red Herring Prospectus
LV	Liquidation Value	ROA	Return on Assets
M2	M-Squared, Adjusted Portfolio	ROI	Return on Investment
MACD	Moving Average Convergence Divergence	ROR	Rate of Return
MCX	Multi Commodity Exchange	RV	Redemption Value
MM	Money Market	σ	Standard Deviation
MP	Market Price	σ^2	Variance
MPBF	Maximum Permissible Bank Finance.	σ_p	Standard Deviation of Portfolio
MTM	Mark To Market	SCFP	Schedule of Change in Financial Position
n, N	Number of Years	SCWC	Schedule of Change in Working Capital
NAV	Net Assets Value	SEBI	Securities and Exchange Board of India.
NBFC	Non-Banking Finance Company	SENSEX	Sensitivity Index of BSE
NEAT	National Stock Exchange Automated Trading	SF	Shareholders Funds
NSCCL	National Securities Clearing Corporation Ltd.	SIP	Systematic Investment Plan
NOP	Net Operating Profit (also EBIT)	SLM	Straight Line Method (of Depreciation)
NP	Net Profit (also PAT)	SMA	Simple Moving Average
NPV	Net Present Value	SML	Security Market Line
NSE	National Stock Exchange	STP	Systematic Transfer Plan
NW	Net Worth	SWOT	Strength, Weakness, Opportunity and Threat.
OC	Operating Cycle	SWP	Systematic Withdrawal Plan
OI	Open Interest (in Derivatives)	t	Tax Rate
OL	Operating Leverage (also DOL)	TR	Total Return
OTC	Over The Counter	USE	United Stock Exchange
OTCEI	Over the Counter Exchange of India	V	Value of the Firm
P ₀	Current Market Price of Share	V _L	Value of Levered Firm
P ₁	Market Price after 1 year	V _U	Value of Unlevered Firm
P _n	Market Price after n years	VC	Variable Cost
PAT	Profit After Tax (also NP)	W, w	Weight
PB	Payback Period	WACC	Weighted Average Cost of Capital, k ₀
PBIT	Profit Before Interest & Taxes (also EBIT)	WC	Working Capital
PBT	Profit before Tax (also EBT)	WDV	Written Down Value
PD	Preference Dividend	WIP	Work in Process (or Progress)
PE Ratio	Price Earnings Ratio	WMCC	Weighted Marginal Cost of Capital
PI	Profitability Index	YTC	Yield to Call
Prob.	Probability.	YTM	Yield To Maturity
PV	Present Value	ZIFCD	Zero Interest Fully Convertible Debenture
PVAF	Present Value Annuity Factor		

About the Book

Investment Analysis and Portfolio Management has been prepared to meet the requirements of students taking M.Com., MBA, CFA, PGDBM and other courses in Finance. The scope of investment decision making is widening as new concepts and financial products are appearing on the horizon. The book attempts to comprehend the developments taking place in the area of investment analysis. It aims to present the intricate and complex tools and techniques of investment management in a simplified way. Numerical examples and illustrations have been used extensively to explain the application of different concepts. The book is equally useful for the investment researchers, investment practitioners and all types of investors.



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