

Corporate Finance

This book introduces corporate finance to first-year students in business schools. Basic subjects such as marketing, human resources and finance are fundamental to the learning of a business manager. A book on these subjects must emphasize learning that is conceptual in nature and, at the same time, application oriented. This book attempts to achieve this in a manner that is comprehensive and shorn of complexity. It examines the practice of finance without diluting theory and conceptual knowledge. Corporate finance is necessarily quantitative in nature, and the book duly places emphasis on that aspect. It ensures the primacy of ideas and concepts, utilizing numbers as supportive elements. Grounded in fundamental concepts, it is application oriented with global, real-world examples and contains corporate snippets and insights aiding the understanding of theoretical frameworks.

Sunil Mahajan is visiting professor of finance in the Hope Foundation's International Institute of Information Technology, Pune. His areas of expertise include portfolio management, corporate finance and the fixed income securities market.



Corporate Finance

Theory and Practice in Emerging Economies

Sunil Mahajan





CAMBRIDGEUNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314-321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi-110025, India

79 Anson Road, #06-04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781108486965

© Sunil Mahajan 2020

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2020

Printed in India

A catalogue record for this publication is available from the British Library

Library of Congress Cataloging-in-Publication Data

Names: Mahajan, Sunil, 1961- author.

Title: Corporate finance : theory and practice in emerging economies / Sunil Mahajan.

Description: New York: Cambridge University Press, 2020. | Includes bibliographical references and index.

Identifiers: LCCN 2020010165 (print) | LCCN 2020010166 (ebook) | ISBN 9781108486965 (hardback) | ISBN 9781108732024 (paperback) | ISBN 9781108764957 (ebook)

Subjects: LCSH: Corporations--Developing countries--Finance. | Business enterprises--Developing countries--Finance.

Classification: LCC HG4285 .M34 2020 (print) | LCC HG4285 (ebook) | DDC 658.1509172/4--dc23

LC record available at https://lccn.loc.gov/2020010165

LC ebook record available at https://lccn.loc.gov/2020010166

ISBN 978-1-108-48696-5 Hardback

ISBN 978-1-108-73202-4 Paperback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.



Contents

List of Figures	xi
List of Tables	xiii
List of Corporate Snippets	XV
List of Abbreviations	xix
Preface	xxiii
Acknowledgements	XXV
1. Corporate Finance: A Conceptual Introduction	1
The Financial Markets	3
Types of Business Organizations	6
Objectives of a Company	8
Governance	11
Agency Theory and the Problem of Corporate Governance	14
Corporate Finance	16
2. Financial Markets	22
Four Economic Entities	23
Functions of Financial Markets	23
Incremental Capital Output Ratio (ICOR)	25
Institutional Mechanism	28
Types of Financial Markets	31
Debt versus Equity	37
Public Offering	38
Secondary Market	41
Mutual Funds	42
Market Participants	42
Impact Cost	43
Common Perception about Financial Markets	45
Appendix: Bond Features	48



vi | Contents

3. The Time Value of Money	50
Compound Interest	51
Manipulation of Cash Flows	54
Required Rate of Return	55
Opportunity Cost	57
Annual Period for Comparison	57
Time Value of Money	58
Nominal versus Real Return	62
Special Considerations in Time Value of Money	63
Annuity	63
Valuation, Time Value Tables	66
Equivalence	69
Practice Questions	70
Perpetuity	74
Growing Perpetuity	75
Valuing High Growth Rates	76
Intra-year Compounding	76
Amortizing a Loan	80
Period of Mortgage Loan	83
How Long Will the Money Last?	83
Finding the Rate of Interest	84
Finding the Effective Cost of a Loan	84
Payment of EMI in Advance	84
Monthly Payments for Loans	85
4. Capital Budgeting	91
Capital Budgeting	92
Net Present Value	94
Internal Rate of Return	96
NPV versus IRR	98
Profitability Index (PI)	103
Different Techniques of Capital Budgeting	104
Project Cash Flow	105
Estimation of Project Cash Flows	106
Principles of Cash Flow Determination	107
Risk Analysis in Capital Budgeting	115
Appendix	117
Payback Period	118
Discounted Payback	119
Accounting Rate of Return (ARR)	119
More on NPV versus IRR	120
Mutually Exclusive Projects	120



		Contents	vii
5.	Risk and Return		124
	Return		126
	Risk		129
	Capital Asset Pricing Model (CAPM)		138
	Risk Management		142
	Strategic Corporate Risk		144
6.	Valuation		148
	Value versus Price		149
	Different Facets of Value		150
	Valuation Methods		150
	Sensitivity Analysis		159
	Firm's Balance Sheet		163
7.	Capital Structure and Financing		176
	Risk of Debt		178
	Maximization of Equity Value		179
	Cost of Capital		180
	Minimization of Cost of Capital		182
	Estimation of Cost of Capital		182
	Target Capital Structure		186
	Use of Funds Determines Cost of Capital		187
	Theory of Capital Structure: The Modigliani-Miller (MM) Theor	rem	188
	Creating Value through Assumptions		196
	Financing Decision and Growth		208
	What Happens in Practice		209
8.	Dividend Payout: Policy and Practices		214
	Dividends		215
	Kinds of Dividends		215
	Theory of Dividend		216
	Dividend versus Stock Repurchase		218
	Dividend Decision		222
	Lintner Model of Dividend Policy and Practice		222
	Signalling		223
	Factors Impacting Dividends		224
	Dividend Definitions		226
	Administrative Aspects		227
	Dividend Reinvestment Plan (DRIP)		228
	Putting It Together		228
9.	Leverage		233
	Operating Leverage		234
	Leverage in Different Industries		234



viii | Contents

	F'	225
	Financial Leverage Total Leverage	235 236
10.	Financial Derivatives	239
	The Concept	239
	Nature of Derivatives	240
	Kinds of Derivatives	242
	Forwards	242
	Futures	243
	Options	245
	Settlement	249
	Application	251
	Hedging Mechanics	253
	Growth of Derivatives	256
	Risk Management System by Exchanges	257
	Margins	258
	Risk in Derivatives	259
	Swaps	261
11.	International Finance	264
	The Foreign Exchange Market	265
	Impact of Changes in Exchange Rates	268
	Impact on the Economy	272
	Determination of Exchange Rates	275
	International Capital Budgeting	277
	Balance of Payments	277
	The Capital Account	279
12.	Working Capital	283
	Concept of Working Capital	284
	Operating Cycle	286
	Industry Characteristics	287
	Working Capital Planning	288
	Credit Management and Policy	291
	Financing of Working Capital	293
	Excess Cash	295
	Strategy	296
13	Ratio Analysis	299
13.	•	
	Return on Equity (ROE)	300
	Profitability Ratios	301
	Asset Turnover Ratios	303
	Financial Leverage	304
	Coverage Ratios	305



	Contents ix
Liquidity Ratios	307
Market-Price-Based Ratios	308
Comparative Analysis	309
Ratio Analysis Application	311
Limitations	312
Appendix	316
Bibliography	324
Index	329



Figures

1.1	Consumption choices	4
2.1	Economy: the four entities	23
2.2	Incremental capital output ratio of India, 1993–2012	26
2.3	Claims to corporate cash flows	37
2.4	Financial markets	42
3.1	Future value of an annuity	64
3.2	Present value of an annuity	65
4.1	Relationship between COC and IRR	97
5.1	Annual returns on US stocks from 1926 to 2017	124
5.2	Annualized returns on different instruments in the US from 1926 to 2017	125
6.1	Government of India historical bond yields	166
7.1	MM Model	194
7.2	Change in claims to operating profits as a consequence of borrowing	196
11.1	Appreciation and depreciation of currency	265
12.1	Working capital cycle	287
12.2	Cost of current assets	290



Tables

2.1	Risk: debt versus equity	38
2.2	Impact cost	43
2.3	Arbitrage profit	45
3.1	Simple interest	52
3.2	Compound interest	52
3.3	Effective interest rate	77
3.4	Amortization schedule I	81
3.5	Amortization schedule II	83
4.1	Project NPV I	94
4.2	Project NPV II	95
4.3	Project IRR	97
4.4	Project PI	103
4.5	Impact of depreciation on cash flows	109
4.6	Financing cash flows	112
4.7	Post-tax project cash flows	113
4A.1	Expected cash flows for projects	118
1A.2	Impact of timing of cash flows on project NPV and IRR	123
6.1	Free cash flow calculation	158
6.2	Change in value due to change in assumptions	159
7.1	Risk of debt	179
7.2	Leverage and risk	191
7.3	Capital structure: arbitrage I	192
7.4	Capital structure: arbitrage II	193
7.5	Tax shield calculation	197
9.1	Simplified operating statement of two companies	234
10.1	Option price example	246
10.2	Derivative positions: ITM, at the money or OTM	249
10.3	Daily gains or losses	258
11.1	Current account: inflows and outflows	279
12.1	Survey of working capital in different industries	287
A.1	Understanding EVA	322



Corporate Snippets

I have made extensive use of what can be termed *corporate snippets* in each chapter.

These have been positioned close to the concept they refer to and are used for the following purposes:

- 1. Practical illustration of the concept being discussed: For instance, the concept of corporate governance is illustrated with an example of how the Securities and Exchange Board of India's (SEBI's) efforts helped to protect minority interest at Raymonds Ltd. Similarly, the concept of intermediation is illustrated with details of HDFC Bank intermediation.
- 2. Complexity of a concept: While the basic concept is explained in the main chapter, corporate snippets will expose the students to a little more intricacy. For instance, while discussing intra-year compounding in the main body of the chapter, continuous compounding has been explained as a snippet.
- 3. To explain a little extra, relating to a topic, without disturbing the flow of the chapter.

3
4
7
10
13
14
16
17
17
18
24
24
25
27
29
30



xvi | Corporate Snippets



Corporate Snippets | xvii

Personal Taxation	199
Risk Inherent in Debt Financing	200
Financing and Strategy	202
Agency Cost in Practice	203
Agency Cost and Free Cash Flow	204
Financial Distress and Rolling the Dice, Literally	206
Use of Recapitalization to Increase Value	209
Reverse Engineering	210
Irrelevance of Dividends	217
Stock Buyback: Dr Reddy's	219
Dividend and Stock Buyback: Shareholder Wealth Agnosticism	221
Royal & Sun Alliance's Dividend Cut	224
High Dividend: Hindustan Unilever Ltd (HUL)	227
Administrative Aspects of Dividend	228
Leverage and Banks	235
Leverage and the Financial Crisis	237
Weather Derivatives	242
The NIFTY Futures	244
Option Outcomes	246
Long-Term Equity Anticipation Securities	248
Futures on Volatility Index	250
Risk in Hedging	254
Corporate Risk Management	256
Growth of Equity Derivatives	257
Barings	259
Currency Derivatives	266
Liberalized Remittance Scheme	267
Impact of Rupee Depreciation	270
BMW and Exchange Rates	272
Toyota's Currency Woes	274
Education Industry	288
Unsustainable Growth	289
Asset-Light Model	301
Business Transactions and Current Ratio	307
Indexing	317
SingX	319
Robo Advisors	320



Abbreviations

ADR American depository receipts
AGM annual general meeting
APV adjusted present value
ARR accounting rate of return

BG bank guarantee
BOP balance of payments
BSE Bombay Stock Exchange

CA current assets

CAGR compounded annual growth rate
CAP competitive advantage period
CAPM capital asset pricing model
CDMA code division multiple access
CKD completely knocked down

CL current liability
COC cost of capital
CP commercial paper

CSR corporate social responsibility

DCF discounted cash flow
DDM dividend discount model
DDT dividend distribution tax

DF discount factor

DRIP Dividend Reinvestment Plan

DTH direct-to-home

EBIT earnings before interest and taxes

EBITDA earnings before interest, tax, depreciation and amortization

ECB external commercial borrowing
ECGC Export Credit Guarantee Corporation

EMH efficient markets hypothesis

EPC engineering, procurement and construction

EPS earnings per share

ERP enterprise resource planning



xx | Abbreviations

ESOP employee stock option plan EVA economic value added

FC fixed costs
FCF free cash flows

FDA Food and Drug Administration FDI foreign direct investment

FEMA Foreign Exchange Management Act FII foreign institutional investment

Fintech financial technology

FMCG fast-moving consumer goods

forex foreign exchange

FPI foreign portfolio investment FVIF future value interest factor

GAAP generally accepted accounting principles

GDR global depository receipts

GMAC General Motors Acceptance Corporation GSM global system for mobile communications

HUL Hindustan Unilever Ltd

IIAS Institutional Investor Advisory Services India Limited

IMF International Monetary Fund

IPO initial public offering IRR internal rate of return

ITM in the money
JV joint venture
KFA Kingfisher Airlines
LC letter of credit

LEAPS long-term equity anticipation securities
LRS Liberalized Remittance Scheme
MIBOR Mumbai inter-bank offered rate
MIRR modified internal rate of return
MM Model Modigliani–Miller Model

MNC multinational company

NABARD National Bank for Agriculture and Rural Development

NDTL net demand and term liabilities NOPAT net operating profits after tax

NPA non-performing asset
NPV net present value

NSE National Stock Exchange

OTC over the counter
OTM out of the money
PAT profit after tax
PBT profit before tax
P&L profit and loss
P/E ratio price earnings ratio



Abbreviations | xxi

PE private equity
PI profitability index

PIGS Portugal, Ireland, Greece and Spain

PIK payment-in-kind

PVIF present value interest factor R&D research and development

ROE return on equity

SEBI Securities and Exchange Board of India

SLR Statutory Liquidity Ratio SME small and medium enterprises

SWIFT Society for Worldwide Interbank Financial Telecommunication

TIPS treasury inflation protected securities

TSI total societal impact UK United Kingdom

USA United States of America

VIX volatility index

WACC weighted average cost of capital

WDV written down value YTM yield to maturity



Preface

I have been teaching for over two decades. During this period, I have witnessed a quantum jump in the number of students pursuing business management in India and a significant decline in standards. Maybe, there is a correlation between the two. Business management as a course and the corporate sector as a career choice are demanding. Not everyone has the competence, or the inclination, to pursue it successfully. In our desire to be inclusive and to pass on the benefit of business management as a career to everyone, we may have diluted the standards significantly.

Management education in India presents a contrast. The top few business schools are demanding in terms of who they accept and the inputs they provide during the two years of the course. Only the best and the toughest emerge unscathed, ready to take on the challenges the corporate sector throws at them. They compete with the best global business schools on equal terms and the students have, over time, proven their competence in the corporate world throughout the world.

At the bottom are a large number of schools lacking in funding, competent faculty, infrastructure and, of course, students who can stand up to the rigour demanded by the study and practice of management. Of course, the desire to establish standards may also be lacking. The consequent dilution in quality has created a wide chasm, which has destroyed the credibility of management education in the country. MBA is not an inclusive course; by trying to make it inclusive, we have diluted its core and it no longer commands the respect it earlier did.

At the same time, management education in the country cannot be restricted to the top few. Not only would that be an elitist approach, it would ensure that the country is unable to provide for and meet the rising demand for professionals for a fast-expanding corporate sector.

This demand is currently fulfilled by business schools in the mid-range that may not match the best in the country but are able to provide inputs to students that enable them to pursue a lucrative career. My book is designed for students from these institutes, who are desirous of learning, imbibing and applying management theories and concepts but may not have the inclination or the capability to master the esoteric books and cases that are the bread and butter of the Indian Institute of Management (IIM) students.

The attempt has been to write a book that is simple and easy to read, without in any manner compromising on the conceptual knowledge required by a management student. Some of the books on the subject, written by well-known authors, are the finest one can come across. Books by Brealey and Myers; Ross, Westerfield and Jaffe; Damodaran; Vanhorne and others open up a new world that leads to lifelong fascination with the subject. But these books are also daunting, and quite frankly



xxiv | Preface

many would-be corporate sector managers are likely to be put off, as they usually are, by the size and complexity of these books.

What we need is a book that is relatively short and easy to read, current in terms of its coverage, elaborating on the latest developments in the subject, extensively incorporating quantitative aspects and throwing sufficient light on the practice of finance, without in any way diluting theory and conceptual knowledge. That has, in a nutshell, been the objective with which I have ventured into writing a textbook on a subject that otherwise presents a wide choice.

The book is primarily based on my teaching of the subject over the years. My first interaction with management students of a new batch is always in the second trimester/semester when they study corporate finance. The discussed objectives have been firmed up over many years of experience in teaching the subject. Students who intend to specialize in finance will find that the book provides sufficient expertise for them to pursue specialization subjects in the latter part of the course, while others will gain the requisite fundamental knowledge they may need on the subject.

The idea for the book germinated many years back when one of my students 'advised' me to write a book encapsulating what I usually teach in my classes. I had resisted the urge but now feel the need for such a book is imminent. I leave it to the students to judge whether it serves the purpose it is intended for.



Acknowledgements

Writing a book can be an exhausting and, at times, a lonely and tortuous experience. Often, it seems to be an endless task; there is always scope for improvement. One never realizes how onerous it can be until one starts. I would not advise it for the faint-hearted.

I am happy I was unaware it would take so much out of me; probably that is why the eventual satisfaction is much greater. Hopefully, the final output will justify the efforts that have gone into writing it. And, hopefully, it will encourage some students to take up finance as a career path, while others will be able to appreciate the role and influence of finance in their own streams of choice and in their work.

I have been fortunate to have received help from many people, directly and indirectly. The late Prof. P. L. Arya, my senior from IIM Ahmedabad, was instrumental in my shift from the corporate sector to academics and gave me the initial breathing space to make the changeover. Prof. Aruna Katara, president, the International Institute of Information Technology, Pune, gave the faculty the academic freedom that is so critical to the teaching–learning process. In her own way, she prodded me to write even when I showed reluctance. Prof. Swaminathan Sankaran was quite liberal in helping me, going through some of the chapters and providing advice. He was the first person whose views I sought before embarking on the journey.

Prof. Dhananjay Mallya, a close friend for three decades and a professional colleague, has been of tremendous help in going through the book, suggesting improvements and giving ideas that only a true professional and friend can give.

Prof. Mahendra Singhvi, again a close friend for over a decade and a valued colleague, was profuse with his help. He diligently read and reread substantial parts of the book to provide his own inputs that have helped shape the book in some ways.

With both Prof. Mallya and Prof. Singhvi, I have engaged in animated discussions that have helped a great deal in ensuring a professional output.

My students have, over the years, been responsible for keeping alive my interest in teaching, and challenging me with their inquisitiveness and incisive questioning. To them I owe a big gratitude.

My profuse and heartfelt thanks to Cambridge University Press, Anwesha Rana and Tapajyoti Chaudhuri. This is my first attempt at writing a book, and I was unaware of the many aspects of publishing. It is only with the constant help and assurances provided by Anwesha and Tapajyoti that the book has seen the light of day.



xxvi | Acknowledgements

My final thanks are undoubtedly reserved for my son, Arjun, and my wife, Mona. My son has always wished that I write this book and was disappointed that it kept getting delayed. I know he will be delighted to see the book finally in his hands.

My wife has probably suffered the most in the process of writing. As I have mentioned, writing a book can be a tortuous process and she was more tortured than I was during this time. While I cannot say she bore the torture without complaint, she did keep egging me on even while complaining. Hers has been a tremendous help in the whole process, helping me with concepts, structuring, editing, playing the devil's advocate and ensuring that the output is a quality one.

I thank them all. As I thank many others, friends and colleagues, whom I have had the fortune of knowing and who have enriched me in many ways.

Sunil Mahajan