PART I THE THEORY OF FINANCE 1 Chapter 1 Introduction: Capital Markets, Consumption, and

Contents

Investment Introduction 3 Consumption and investment without capital markets 4

Consumption and investment with capital markets 9 Marketplaces and transactions costs 12 Transactions costs and the breakdown of separation

Summary 15 Problem set 15 References 16 14 Investment Decisions: The Certainty Case Chapter 2 Fisher separation 18 The agency problem 20 Introduction 17 imization of shareholders' wealth 21 Techniques for capital budgeting 25

Comparison of net present value with internal rate of return 31 Cash flows for capital budgeting purposes 36 Summary and conclusion 41 Problem set 42 References 44 Chapter 3 More Advanced Capital Budgeting Topics 46 Capital budgeting techniques in practice 47 Projects with

different lives 47 Constrained capital budgeting problems 55

budgeting procedures under inflation 61 The term structure of interest rates 65 Summary and conclusions 71 Problem set 72 References 74 xiii

Capital

185

285

382

The value

Five axioms of choice under uncertainty 79 Developing utility func-Establishing a definition of risk aversion 85 Comparison of risk tions 80

aversion in the small and in the large 90 Stochastic dominance 92 Using mean and variance as choice criteria 95 A mean-variance paradox 99 Summary 101 Problem set 102 References 106

CONTENTS

xiv

110

risk 301

donment value 371

xvi

417

432

Summary 307 Problem set 308

Block trades 327

Chapter 12

CONTENTS

Introduction 440

Applications 459

Chapter 13

References 532

set 532

framework 628

692

of empirical evidence on capital structure 458

Chapter 5 State-Preference Theory Uncertainty and alternative future states 109 Definition of pure securities

Complete capital market 111 Derivation of pure security prices 112

Chapter 4 The Theory of Choice: Utility Theory Given

Uncertainty

Optimal portfolio decisions 118 Portfolio optimality conditions and portfolio separation 121 Firm valuation, the Fisher separation principle and optimal investment decisions 123 Summary 127 Problem set 128 References 130 Appendix A to Chapter 5: Forming a portfolio of pure securities 132 Appendix B to Chapter 5: Use of prices for state-contingent claims in capital budgeting 134 Appendix C to Chapter 5: Application of the SPM in capital structure decisions 138 Chapter 6 Objects of Choice: Mean-Variance Uncertainty 142

Measuring risk and return for a single asset 143 Measuring portfolio risk and

return 150 Optimal portfolio choice (two assets) 162 The efficient set with one risky and one risk-free asset 167 Optimal portfolio choice (many

assets) 169 Portfolio diversification and individual asset risk 177

Summary 181 Problem set 181 References 184

Chapter 8

No arbitrage profit condition 115 Economic determinants of security prices

Introduction 185 The efficiency of the market portfolio 187 the CAPM 187 Properties of the CAPM 190 Use of the CAPM for Applications of the CAPM for corporate policy 196 valuation 194 Extensions of the CAPM 197 Empirical tests of the CAPM 204 The problem of measuring performance: Roll's critique 209 The arbitrage pricing theory (APT) 211 Empirical tests of the arbitrage pricing theory 220 Summary 222 Problem set 222 References 225

Chapter 7 Market Equilibrium: CAPM and APT

Pricing Contingent Claims: Option Pricing Theory and Evidence 230 Introduction 230 A description of the factors which affect prices of European Combining options—a graphic presentation 235 Put-call options 232 Some dominance theorems which bound the value of a call opparity 238 tion 239 Derivation of the option pricing formula—the binomial approach 245

CONTENTS XV

Valuation of an American call with no dividend payments 255 Pricing American put options 262 Extensions of the option pricing model 264 Empirical evidence on the option pricing model 268 Summary 275 References 277 Appendix to Chapter 8: Derivation of Problem set 275 the Black-Scholes option pricing model 281

Chapter 9 Efficient Capital Markets: Theory

Defining capital market efficiency 285 A formal definition of the value of

efficient capital markets 293 Rational expectations and market efficiency 294

The joint hypothesis of market efficiency and the CAPM 305

References 310

313

Insider trading 332 New issues 333

PART II CORPORATE POLICY: THEORY, EVIDENCE,

Market efficiency with costly information 298 Statistical tests unadjusted for

information 287 The relationship between the value of information and

Chapter 10 Efficient Capital Markets: Evidence 317 Empirical models used for residual analysis 318 Accounting informa-

AND APPLICATIONS

Stock splits 336 Performance of managed portfolios 339 Weekend and yearend effects 345 Summary 347 Problem set References 350 347 Capital Budgeting Under Uncertainty: The Multiperiod Chapter 11 Case 354 Multiperiod capital budgeting with "imperfect" markets for Introduction 354 An examination of admissible uncertainty in a multiperiod physical capital 355

capital asset pricing world 359 Using the arbitrage pricing theory for multi-

of the firm in a world with personal and corporate taxes 396 The cost of capital

period capital budgeting 364 Comparing risky cost structures

The cost of capital with projects of equal risk and riskless debt 384

when projects have different risks 399 The cost of capital with risky

Summary 425 Problem set 425 References 429 dix to Chapter 12: Duration and optimal maturity structure of the balance sheet References to Appendix 438

The effect of other financial instruments on the cost of capital

Summary 376 Problem set 376 References 380

Capital Structure: Empirical Evidence and

Possible reasons for an "optimal" mix of debt and equity

Cost of capital:

536

The

440

Capital Structure and Cost of Capital: Theory

Summary 470 Problem set 471 References 473 Chapter 14 Dividend Policy: Theory 476 The irrelevance of dividend policy in a world without taxes 477 Valuation, growth, and dividend policy 480 Dividend policy in a world with personal and corporate taxes 489 Toward a theory of optimal dividend policy 494 Other dividend policy issues 498 Summary 500 Problem set 500 References 502

Chapter 15 Dividend Policy: Empirical Evidence and

Behavioral models of dividend policy 505 Clientele effects 506 The sig-

Applications 504

naling hypothesis 509 The relationship between dividends and value

Chapter 16 The Economics of Leasing

Introduction 536 The legal and accounting treatment of leases 537

512 Corporate equity repurchases via tender offer 520 Overview of

empirical evidence 524 Valuation and corporate policy 524 Problem

Applications

Empirical evidence on optimal capital structure 453

Chapter 18 Mergers and Tender Offers: Tests and Applications 595 Tests of merger returns 596 Studies of tender offers 605 Studies of antitrust

CONTENTS XVII Chapter 19 Exchange Rate Systems and Parity Conditions 643 Introduction 643 The international financial mechanism 644 The shift from fixed to flexible exchange rates 649 Balance of payments analysis

Corporate governance 614 Generalizations from the

Summary 635 Problem set 635 References 640

studies 620 Terms of mergers 623 Managerial policies in a valuation

Compound sum of an annuity 704 Calculations for a series of unequal receipts

Matrices and vectors 719 The operations of matrices 720 Linear equations

in matrix form 722 Special matrices 723 Matrix inversion de-

fined 724 Matrix transposition 724 Determinants 725 The

inverse of a square matrix 727 Solving linear systems 728 Cramer's

Ordinary least squares linear estimation 735 Simple hypothesis testing of the linear regression estimates 740 Bias and efficiency 744 The mean square error criterion 744 Left-out variables 745 Errors in variables 746 Multicollinearity 747 Serial correlation 748 Summary 751 Appendix D Calculus and Optimization 753 Functions 753 Inverse functions 755 Linear functions 755

Exponential functions 757 Logarithmic functions 759 Differential

calculus 761 Limits 761 Derivatives 762 Rules of differentia-

tion 763 Differentials

xviii CONTENTS

780

rule 729 Applications 729

Chain rule 764 Higher-order derivatives 766 Partial differentiation 769 769 Optimization 771 Taylor and MacLaurin series 775 Constrained optimization 774 Indefinite integrals 780 Integral calculus 780 Rules of integration Definite integrals 782 Applications 783 Improper integrals 784

Indexes 785

Chapter 17 Mergers and Tender Offers: Theory 559 Introduction 559 Theories of mergers 561 Conglomerate mergers 569 Summary 587 Problem set 589 References 590

theory of leasing 541 Empirical evidence on leasing 553

mary 555 Problem set 555 References 557

651 Fundamental exchange rate relationships 654 Summary 664 Problem set 666 References 667

Chapter 20 International Financial Management: Tests and

Implications 669

rial aspects of foreign exchange risks 680 Foreign currency trans-

Introduction 699 Discrete compounding 700 Compound future sums 700 Present values 701 Constant payment annuities 701

lation 686 Summary 688 Problem set 690 References

Appendix A: Discounting 699

Appendix B Matrix Algebra

International diversification 670 Asset pricing models 670 Exchange

risk and purchasing power parity 673 Market efficiency 678 Manage-

or payments 705 Annuities with growing payments 705 The value additivity principle 706 Compounding periods within one year 708

Continuous compounding 709 Present values 709 Constant payment annuities 710 Annuities with growing payments 711 Summary 712

719

Appendix C An Introduction to Multiple Regression 735