

# Index

- Abnormal earnings, 23
- After-tax rate conversion to pretax rate
  - converting after-tax capitalization rate to pretax capitalization rate, 644
  - converting after-tax discount rate to pretax discount rate, 644–645
- After-tax WACC
  - actual vs. hypothetical capital structure, 392
  - computing WACC for a nonpublic company, 388–391
  - computing WACC for a public company, 383–388
  - constant vs. variable capital structure, 392–396
  - debt capacity and optimal capital structure, 375–383
  - fixed book-value leverage ratio, 396
  - other tax shields, 399–400
- Alternative risk measures to beta, 420–421
- Annual risk premium, 153
- Annually compounded rate, 7
- Applying a discount rate applicable to net cash flow to net income, 675–676
- Applying a discount rate in real terms to an economic income projection in nominal (current) terms, 674–675
- Applying costs of capital derived from after-tax returns to pretax net cash flows, 675
- Arbitrage pricing theory (APT)
  - APT model, 350–352
  - APT model formula, 352–354
- Arm's length standard, 8
- Asset beta, 185
- Asset group, 499–500
- Asset pricing models, 211
- Average downside, 222
- Band of investment, 5
- Bankruptcy prediction models
  - accounting-ratio-based models, 320–322
  - comparing the models, 323–324
  - market-based models, 322–323
- Benchmark cost of equity, 211
- Beta, 56, 107, 111, 112, 160, 163
- Beta, definitions and estimates
  - about, 159–160
  - debt betas estimation, 179–181
  - equity beta estimation, 160–163
  - equity beta estimation research, 179
  - equity betas, differences in estimation of, 163–167
  - full-information equity beta, 172–174
  - fundamental equity beta, 174–178
  - modified betas, 167–172
  - other beta considerations, 181–182
  - peer group equity beta, 174
  - summary, 183–184
- Beta estimates, 686–689
- Beta-adjusted size premium, 255
- Blended cost of capital, 5
- Blindly accepting Morningstar's long-term average as today's equity risk premium, 672–673
- Block Study, 590–592
- Book value of common equity, 245
- Bottoms-up implied ERP earnings, 130
- Bottom-up beta, 161
- Buildup method, 292–299
  - about, 87–88
  - company-specific risk premium, 87–88
  - equity risk premium, 87–88
  - example using Duff & Phelps size study data, 87–88
  - example using Morningstar data, 87–88
  - formula for estimating the cost of equity capital by the buildup method, 87–88
  - size premium, 87–88
  - summary, 87–88
- Business risk, 57
- Capital, 4
- Capital asset pricing model (CAPM)
  - about, 103
  - assumptions underlying, 113
  - background of, 104–105
  - beta and expected rate of return estimate, 105–107
  - CAPM cost of capital formula, 110
  - market or systematic and unique or unsystematic risks, 105
  - market or systematic risk concept, 104
  - model examples, 110–112
  - size premium and company-specific risk, 109–110
  - summary, 113–114
- Capital budgeting and feasibility studies
  - capital cash flow and adjusted present value methods, 463–465
  - DCF as corporate decision model, 462–463
  - focus on net cash flow, 463
  - investing for returns above cost of capital, 462
  - target capital structure vs. life of project, 466
- Capital market line (CML), 51
- Capital market theory (CMT), 104
- Capital structure. *See also* cost components of capital structure
  - adjusting formulas for other components of, 197–198
  - weights, 195–196
- Capitalization rate, 27
- Capitalization rate vs. discount rate, 44
- Capitalizing, 26
- CAPM and beta vs. other risk measures
  - about, 208
  - CAPM assumptions and beta as a risk measure, 209–210

- CAPM and beta vs. other risk measures (*continued*)
  - problems with CAPM assumptions, 210–211
  - risk measures beyond beta, 221–230
  - testing asset pricing models, 211–221
  - summary, 230–231
- CAPM model examples
  - using Duff & Phelps size study data, 111–112
  - using Morningstar data, 111
- Cash flow to equity. *See* net cash flow to equity
- Cash flows and risk, 500
- Cash risk premium, 54
- Central role of cost of capital in economic value added (EVA)
  - about, 558–561
  - EVA and the corporate reward system, 562–566
  - EVA financial management system, 561–562
- Certainty equivalent, 54
- Certainty-equivalent approach, 53
- Clean-surplus accounting, 23
- Common errors in estimation and use of cost of capital
  - blindly accepting Morningstar's long-term average as today's equity risk premium, 672–673
  - confusing discount rates with capitalization rates, 670
  - discounting the terminal value for  $n + 1$  periods, 676
  - incorrect or inadequately supported data in estimating the cost of equity, 679–680
  - internally inconsistent capital structure projection, 677–678
  - mismatching the discount rate with the economic income measure, 674
  - mistaking historical rates of return for expected rates of return, 671–672
  - other errors in estimating net cash flows, 682
  - performing an excess earnings method valuation that results in an unrealistic cost of capital, 676–677
  - projecting growth beyond that which the capital being valued will support 669, 680–681
  - substituting EBITDA for net cash flow, 670–671
  - subtracting a short-term super growth rate from the discount rate to get a capitalization rate, 676
  - using a safe rate to discount or capitalize a risky return, 674
  - using an inappropriate beta in a multifactor model, 674
  - using an inappropriate beta in the CAPM, 673–674
  - using an inconsistent equity risk premium estimate to that used in the industry risk premium, 673
  - using an unattainable growth rate in calculating the terminal value, 681–682
  - using both the discounting and capitalizing methods and weighting them, 671
  - using market multiples without adjusting for differences in growth, 681–682
  - using the firm's cost of capital to evaluate a more or less risky acquisition or project, 671
  - using the same WACC to value different businesses owned by a diversified company, 678–679
- Company risk factors, 177
- Company risk, fundamental (accounting) measures of, 229
- Company-specific risk, 56, 691–692
  - about, 287–288
  - cost to cure, 310
  - market pricing of company-specific risk, 299–310
  - matching fundamental risk and return, 288–299
  - other company-specific factors, 310–311
- Company-specific risk factor, 111, 112
- Company-specific risk premium, 99, 101
  - industry risk factor, 87–88
  - leverage, 87–88
  - other company-specific factors, 87–88
  - size smaller than group, 87–88
  - volatility of returns, 87–88
- Conditional ERP, 116, 145
- Conditional ERP estimate, 137
- Confusing discount rates with capitalization rates, 670
- Contingent claims on asset, 49
- Control premium circumstances
  - factors affecting a control premium a financial buyer might pay, 629
  - investment value reflecting synergies, 629
  - projected income may not reflect what a control owner would achieve, 629
- Cost components of capital structure
  - about, 61–62
  - common equity capital, 80–81
  - convertible debt and convertible preferred equity capital, 76–77
  - debt capital, 62–76
  - employee stock options, 80
  - obligations that are subtracted in a valuation, 81–84
  - preferred equity capital, 76
  - qualified equity issued under TARP, 77–80
  - summary, 84
- Cost of capital, 8. *See also* discount rate
- Cost of capital, defining
  - about, 3–4
  - components of capital structure, 4–5
  - and discount rate, 7–8
  - discount rate vs. capitalization rate, 8
  - forward-looking, 6–7
  - as function of the investment, 5–6
  - and market value, 7
  - in nominal terms, 7
  - standard of value, 8
  - summary, 9
- Cost of capital estimating
  - cash flows from synergies, 523–524
  - integration cash flows, 523
  - stand-alone cash flows, 522
- Cost of capital for distressed firms
  - cost of equity capital considerations, 328–332
  - WACC considerations, 325–328
- Cost of capital for divisions and reporting units
  - about, 468–469
  - divisional cost of capital, 469–472
  - goodwill impairment (cost of capital under IFRS), 493–496
  - reporting unit cost of capital, 472–493
- Cost of capital for fair value reporting of intangible assets
  - about, 497–498
  - differentiating risks among assets, 507–512
  - fair value balance sheet, 501–504
  - financial reporting context, 498–500
  - implied rate of return and unidentifiable intangible assets, 512–515
  - intangible asset income approach, 504–507
  - liabilities, 515–517

- Cost of capital in evaluating mergers and acquisitions
  - about, 518
  - categories of cash flows, 521–522
  - common mistakes, 528
  - DCF as corporate decision model, 520
  - estimating the cost of capital, 522–524
  - focus on cash flows, 521
  - impact of recent market conditions, 525–528
  - invest for returns in excess of the cost of capital, 520
  - mixed results from M&A transactions, 519–520
  - new rules for accounting for business combinations, 529
  - value and price differ, 524–525
- Cost of capital in transfer pricing
  - about, 531–533
  - Internal Revenue Service cost-sharing regulations, 552–557
  - relating valuation of intangible assets for transfer pricing to ASC 805, 550–552
  - transfer pricing analysis, 533–550
- Cost of capital issues, dealing with, 684–696
- Cost of capital of interests in pass-through entities
  - about, 597–598
  - characteristics of PTEs, 598
  - Delaware Court adjusts for tax differences, 603–604
  - family law court adjusts for tax differences, 604–605
  - Gross decision, 598–603
  - market evidence of value of interests in PTEs, 605–609
  - risks of investments in PTEs, 609–610
- Cost of capital of proposed acquisition, 694–695
- Cost of capital reasonableness check
  - computing the weighted average excess earnings capitalization rate, 639
  - discussion of the example, 640–641
  - estimating a buildup model capitalization rate, 640
- Cost of capital resources online
  - cost of Capital Resources Center (CCRC), 450–457
  - Ibbotson Cost of Capital Resources Web Site, 447–450
- Cost of capital vs. excess earnings method of valuation
  - about, 634–636
  - cost of capital reasonableness check, 639–641
  - excess earnings valuation method, 636–638
  - vagaries of the excess earnings method, 641
- Cost of debt capital, 692–693
- Cost of equity capital, 5
- Cost of equity capital models
  - alternative risk measures to beta, 420–421
  - country credit rating method, 419–420
  - global version of CAPM, 409–410
  - local, single-country version of the CAPM, 411–413
  - local country risk exposure model, 418–419
  - U.S. cost of equity capital adjusted for volatility spreads model, 417–418
  - U.S. cost of equity capital adjusted for yield spreads model, 413–416
- Cost to cure, 310
- Country credit rating method, 419–420
- Country risks, 406–408
- Currency risks, 405–406
- De Franco et al. Study, 593–595
- Debt beta, 75
- Debt capital
  - debt guarantees, 70–75
  - duration, 66–67
  - estimating current market yields on debt, 62–66
  - leases as debt, 68–70
  - risky debt, 75–76
  - tax effect and cost of debt, 67–68
- Debt component of capital structure, 62
- Delisting bias, 243
- Differentiating risks among assets
  - fixed assets, 509–510
  - intangible assets, 510–512
  - net working capital, 509
- Discount rate, 7, 8
  - building the discount for lack of marketability into, 583–584
  - vs. capitalization rate, 44
  - defined, 11
- Discount rate, adjusting to alternative economic measures
  - converting from after-tax rate to pretax rate, 643–645
  - converting from net cash flow to another economic income measure, 642–643
- Discounted cash flow (DCF) method, 16
- Discounting, 26
- Discounting and capitalizing methods and weighting them, 671
- Discounting the terminal value for  $n + 1$  periods, 676
- Discounting vs. capitalizing
  - about, 26–27
  - capitalization formula, 27–28
  - combining discounting and capitalizing (two-stage model), 31–35
  - constant growth model, 30–31
  - equivalency of capitalizing residual income, 40–43
  - equivalency of discounting and capitalizing models, 35–36
  - functional relationship between discount rate and capitalization rate, 28–30
  - Gordon Growth model, 30–31
  - major difference between discounting and capitalizing, 30
  - matching projection periods to financial statements:
    - partial first year, 38–40
    - midyear convention, 36–38
  - valuing a preferred stock, 27–28
  - summary, 44
- Discounts for lack of control and lack of marketability, 695–696
- Discounts for lack of marketability (DLOM) building into the discount rate, 583
- Discounts for lack of marketability (DLOM), handling of
  - about, 571–572
  - building the discount for lack of marketability into the discount rate, 583–584
  - discrete percentage discount for lack of marketability, 572–579
  - measuring blockage (illiquidity) discounts for public companies, 585
  - using options to estimate DLOM, 579–583

- Discounts for lack of marketability (DLOM), options to estimate
  - Chaffee Model, 580
  - comparison of theoretical models to empirical data, 583–584
  - Finnerty Model, 580–581
  - Longstaff Model, 580
  - long-term equity anticipation securities (LEAPS) studies, 581
- Discrete percentage discount for lack of marketability
  - controlling ownership interests, 576–579
  - minority ownership interests, 572–576
- Distressed businesses
  - about, 313–314
  - bankruptcy prediction models, 319–324
  - cost of capital for distressed firms, 325–332
  - cost of distress, 343–344
  - distress described, 314–315
  - valuing companies emerging from bankruptcy, 332–343
  - valuing firms in distress, 315–319
- Diversifiable risk, 105
- Divisional cost of capital
  - divisional size as a risk measure, 472
  - estimating divisional cost of equity capital, 470–472
- Downside beta, 222
- Downside frequency, 222
- Duff & Phelps Studies
  - description of data, 241–243
  - Duff & Phelps risk premium report size study in buildup method, 245–255
  - size, 240–241
- Economic profit, 6, 23
- Economic value added (EVA), 6, 23
- Embedded cost of capital, 13
- Equity betas, differences in estimation of
  - market index choice, 165–166
  - method selection, 167
  - return measurement frequency, 165
  - risk-free rate choice, 167
  - sample length/look-back period, 164–165
- Equity capital, 17
- Equity risk premium, 431–433, 684–686
- Equity risk premium definition
  - estimation of, 117–118
  - nominal vs. real, 118
- Equity risk premium (ERP), 94, 99, 111, 112, 228
  - about, 115–116
  - conditional estimate and crisis of 2008–2009, 137–144
  - definition of, 117–118
  - forward-looking (ex ante) approaches, 130–135
  - long-term unconditional estimate/conditional estimate and crisis, 136–137
  - other sources of, 130
  - realized risk premium (ex post) approach, 120–127
  - risk-free rate selection, 118–120
  - unexpectedly large realized risk premiums, 129–130
  - summary, 144–145
- ERP estimates, sources of, 146–159
- Errors in estimating a company-specific risk premium in CAPM, 679–680
- Errors in estimating the size premium, 679
- Estimating net cash flows
  - about, 647–648
  - alternative net cash flow formulas, 648–649
  - estimating alternative net cash flows, 662
  - financial analysis of historical operating results, 649–650
  - investments in net working capital, 653–654
  - noncash charges and investments in fixed assets, 652–653
  - reasonableness of estimated profit margins and asset turnovers, 654–655
  - revenue and profitability estimates, 650–652
  - terminal value model considerations, 662–665
- EVA and corporate reward system
  - EVA bonus plan, 563–564
  - leveraged stock options, 564–566
- Ex ante approach, 130
- Ex ante measure of risk, 162
- Ex ante measurement of return, 218
- Ex ante vs. ex post estimates of beta, 219
- Ex post approach, 117, 120
- Excess earnings method, 94
- Excess earnings valuation method
  - example of, 638–639
  - excess earnings method, steps in applying, 637–638
  - mixed results from M&A transactions, 636–637
  - and unrealistic cost of capital, 676–677
- Excess return, 93, 161
- Expanded beta, 221
- Expanding CAPM to incorporate size premium and company-specific risk
  - company-specific risk factor, 110
  - firm size phenomenon, 109–110
- Expanding models to incorporate size premium and company-specific risk
  - company-specific risk premium, 423–425
  - expanded cost of capital model, 425
  - size premium, 422
- Expectations, 6
- Expected cash flows, 53
- Expected discount rate, 46
- Expected economic income, 6
- Expected return, 4, 9, 75, 212, 218
- Expected utility ERP, 117
- Expected value method, 53
- Fair market value, 8
- Fair value, 9
- Fair value balance sheet
  - identifiable intangible assets, 503
  - net working capital and fixed assets, 502
  - unidentifiable intangible assets (i.e., goodwill), 503–504
- Fernandes formulas, 196–197
- Financial reporting context
  - asset group, 499–500
  - cash flows and risk, 500
  - market participants, 499
  - synergies, 500
- Financial risk, 59
- Firm size premium, 433–437
- Firm's cost of capital to evaluate a more or less risky acquisition or project, 671
- Fixed-book value leverage ratio, 196
- Floatation costs, 84, 586, 596, 696
- Forecasts, 23

- Formula for estimating the cost of equity capital by the buildup method
  - maturities, number of, 87–88
  - risk-free maturity selection, 87–88
  - risk-free rate, 88
  - risk-free rate and U.S. government securities, 87–88
  - risk-free rate components, 87–88
- Formulas for unlevering and levering equity betas
  - about, 186–188
  - capital structure weights, 195–196
  - Fernandez formulas, 196–197
  - Hamada formulas, 188–189
  - Harris-Pringle formulas, 192–193
  - Miles-Ezzell formulas, 189–192
  - Practitioners' method, 193–195
- Forward-looking (ex ante) approaches
  - bottom-up ERP estimates, 130–134
  - ERP surveys, 135
  - top-down ERP estimates, 134–135
- Forward-looking approach, 130
- Forward-looking return. *See* expected return
- Free cash flow, 10–11, 21
- Full-information methodology, 173
- Fundamental beta, 174
- Fundamental value, 9
- Future beta, 179
  
- Global cost of capital models
  - about, 403–404
  - capital structure, 426
  - cost of equity capital models, 408–421
  - expanding models to incorporate size premium and company-specific risk, 422–425
  - other sources of global cost of capital data, 425–426
  - risks, 404–408
  - should projected net cash flows and the cost of capital be nominal or real? 425–426
- Goodwill impairment (cost of capital under IFRS)
  - application of a pre- or post-tax WACC, 495
  - capital structure, 495
  - size premium, 495–496
- Growth projection, unsupportable, 669, 680–681
- Growth rate, 34
- Growth stocks, 216
  
- Hamada formulas, 188–189
- Harris-Pringle formulas, 192–193
- Horizon premium, 119
- Horizon risk, 114
  
- Ibbotson Beta Book
  - beta estimation methodologies, 446
  - levered and unlevered betas, 446
  - Morningstar (adjusted) betas, 446–447
  - peer group and industry betas, 447
- Ibbotson Cost of Capital Yearbook
  - cost of equity models, 441–444
  - data organization, 440–441
- Implied cost of equity capital
  - DCF method, 359–362
  - residual income method, 362–363
- Implied rate of return and unidentifiable intangible assets
  - rate of return-based reconciliation, 511–515
  - value-based reconciliation of rates of return, 515
- Inappropriate beta in a multifactor model, 674
- Inappropriate beta in the CAPM, 673–674
- Inconsistent equity risk premium estimate to that used in the industry risk premium, 673
- Incorrect or inadequately supported data in estimating the cost of equity, 679–680
  - errors in estimating a company-specific risk premium in CAPM, 679–680
  - errors in estimating the size premium, 679
- Incremental cash flows, 14
- Index models, 211
- Industry adjustment factor, 99, 100
- Industry average beta tendency, 167
- Industry risk exposures, 177
- Industry risk premium, 438–439, 692
- Inflation, 89
- Intangible asset income approach
  - contributory assets, 505–507
  - multiperiod excess earnings method, 504–505
- Interest rate risk, 114
- Internally inconsistent capital structure projection, 677–678
- Intrinsic value, 9
- Invested capital, 18
- Investment rate risk, 89
- Investment value, 9
  
- January effect, 279
  
- Koeplin et al. Study, 588–589
  
- Lag effect, 167
- Lambda, 283
- Levered betas, 160, 185
- Levering beta estimates, 160
- Local country risk exposure model, 418–419
- Long-range ERP, 144
- Long-term average ERP estimate, 136
  
- Market, 3
- Market cost of capital, 13
- Market driven rate, 9
- Market multiples without adjusting for differences in growth, 681–682
- Market participants, 499
- Market pricing of company-specific risk
  - research on unique or unsystematic risk, 300–304
  - total beta and the Butler-Pinkerton interpretation, 304–310
- Market risk, 60, 104, 105, 113
- Market risk premium, 94. *See also* equity risk premium (ERP)
- Market segmentation, 277
- Market value of common equity, 245
- Matching fundamental risk and return (Duff & Phelps risk study)
  - buildup method, 292–299
  - relationship of measures of risk from company financial statements and returns, 290–292
- Maturity risk, 89, 114
- Methods of estimating the cost of equity capital
  - about, 347–348
  - analyst forecasts, use of, 363–366
  - arbitrage pricing theory, 350–354
  - comparison of, 354–356
  - implied cost of equity capital, 359–363
  - market-derived capital pricing model, 356–358

- Methods of estimating the cost of equity capital  
(*continued*)  
 methods of estimating the cost of equity capital,  
 348–350  
 sources of information, 367  
 yield spread model, 358–359
- Midyear convention  
 midyear capitalization convention, 36–37  
 midyear convention in the two-stage model, 37–38  
 midyear discounting convention, 36  
 seasonal businesses, 38
- Miles-Ezzel formulas, 189–192
- Minority vs. control implications of cost of capital  
 data, 626–627  
 about, 624–625  
 company efficiency vs. owner exploitation,  
 627–628  
 control premium circumstances, 628–629  
 impact of the standard of value, 628  
 takeovers at less than public trading price, 631–635  
 tale of two markets, 629–631
- Mismatching the discount rate with the economic  
 income measure, 674  
 applying a discount rate applicable to net cash flow  
 to net income, 675–676  
 applying a discount rate in real terms to an  
 economic income projection in nominal (current)  
 terms, 674–675  
 applying costs of capital derived from after-tax  
 returns to pretax net cash flows, 675
- Mistaking historical rates of return for expected rates  
 of return, 671–672
- Models. *See also* bankruptcy prediction models; cost  
 of equity capital models; discounted cash flow  
 (DCF) method; global cost of capital models;  
 testing asset pricing models  
 about. *see also* capital asset pricing model (CAPM)  
 accounting-ratio-based models, 320–322  
 APT model, 350–352  
 APT model formula, 352–354  
 asset pricing models, 211  
 Chaffee Model, 580  
 combining discounting and capitalizing (two-stage  
 model), 31–35  
 company-specific risk premium in, 423–425  
 comparison of, 323–324  
 constant growth model, 30–31  
 cost of equity models, 441–444  
 equivalency of discounting and capitalizing models,  
 35–36  
 Finnerty Model, 580–581  
 Gordon Growth model, 30–31  
 inappropriate beta in a multifactor model, 674  
 index models, 211  
 local country risk exposure model, 418–419  
 Longstaff Model, 580  
 market-based models, 322–323  
 market-derived capital pricing model, 356–358  
 size premium, 422  
 size premium in, 422  
 terminal value model considerations, 662–665  
 theoretical models vs. empirical data, 583–584  
 two-stage model, 32, 37–38  
 yield spread model, 358–359
- Modified betas: adjusted, smoothed, and lagged  
 about, 167–168  
 adjusted beta, 168  
 smoothed beta, 168  
 sum beta and lag effect, 168–172
- Morningstar cost of capital data  
 about, 429–430  
 cost of Capital Resources Online, 447–457  
 Equity Risk Premium, 431–433  
 Firm Size Premium, 433–437  
 Ibbotson Beta Book, 444–447  
 Ibbotson Cost of Capital Yearbook, 440–444  
 Industry Risk Premium, 438–439  
 Morningstar Data and Taxes, 439  
 Morningstar Data: minority or controlling interest,  
 439–449  
 Stocks, Bonds, Bills, and Inflation, 430–431
- Morningstar studies  
 about, 233–236  
 Morningstar data in the buildup method, 236–238  
 Morningstar data in the CAPM method, 239
- Net cash flow, 6, 10  
 about, 16–17  
 as alternative measure of economic income, 23–24  
 defining, 17–18  
 errors in estimating, 682  
 net cash flows should be probability-weighted  
 expected values, 19–21  
 as preferred measure of economic income, 21–23
- Net cash flow, defining  
 net cash flow to common equity capital, 17–18  
 net cash flow to invested capital, 18
- Net cash flow definition, 25
- Net cash flow to equity, 17, 18
- Net cash flow to firm, 18
- Net cash flow to invested capital, 18
- Net free cash flow. *See* net cash flow
- Nominal cost of capital. *See* market cost of capital
- Nominal terms, 9
- Normal ERP, 117, 144
- Normalizing expenses, 695
- Obligations that are subtracted in a valuation  
 contingent liabilities, 83–84  
 postretirement obligations, 81–83
- Off-balance sheet financing, 693
- Officer Study, 590
- Operating beta, 201
- Overall cost of capital, 5
- Paglia and Harjoto Study, 592–593
- Peer group beta, 174
- Positive theory, 104
- Practical issues and advice  
 beta estimates, 686–689  
 company-specific risk, 691–692  
 cost of capital of proposed acquisition, 694–695  
 cost of debt capital, 692–693  
 discounts for lack of control and lack of  
 marketability, 695–696  
 equity risk premium, 684–686  
 industry risk premium, 692  
 normalizing expenses, 695  
 off-balance sheet financing, 693  
 reporting unit cost of equity capital, 688–690  
 size premiums, 690–691  
 weighted average cost of capital (WACC),  
 693–694
- Practitioners method, 193–195

- Pre-interest-tax-shield WACC  
 capital cash flows, 397–398  
 equivalence of valuation methodologies, 398–399  
 Premium for risk, 45, 47  
 Present value, 6  
 Private company discount for operating businesses  
 about, 587  
 quantifying the private company discount, 588–595  
 reasons for the private company discount, 595–596  
 relationship between DLOM for minority interests  
 and PCD, 587–588  
 Private company discount, quantifying of  
 Block Study, 590–592  
 De Franco et al. Study, 593–595  
 Koeplin et al. Study, 588–589  
 Officer Study, 590  
 Paglia and Harjoto Study, 592–593  
 Probability-weighted net cash flows, 19  
 Proxy beta, 161  
 Ranking companies by size, 243  
 Realized return approach, 117  
 Realized risk premium (*ex post*) approach  
 investor expectations vs. realized risk premiums,  
 125–128  
 sample period selection, 121  
 stock and bond risk relationship, 123–125  
 WWII interest rate bias, 121–123  
 Realized risk premium (*ex-post*) approach  
 bias by arithmetic average in estimating, 152–155  
 bias in compounding, 153–154  
 bias in discounting, 154–155  
 measurement of, 146–147  
 periodicity of past measurement, 150–152  
 realized historical stock and bond returns, 147–149  
 risk premium data summary, 149–150  
 Relationship between risk and returns in venture  
 capital and private equity investments  
 about, 611–612  
 private equity investments, 622–623  
 realized returns on private equity fund investments,  
 622–623  
 returns on venture and private equity funds,  
 612–613  
 venture capital investments, 613–621  
 Rental rate, 89  
 Reporting unit cost of capital  
 determining the fair value of reporting units,  
 474–480  
 measuring the cost of capital of reporting units,  
 487–491  
 reporting unit size as a risk measure, 491–493  
 reporting units, 472–474  
 testing goodwill for impairment, 480–487  
 Reporting unit cost of equity capital, 688–690  
 Required rate of return (RRR). *See also* discount rate  
 Residual income, 23  
 Residual risk, 56, 105  
 Residual value, 32  
 Risk  
 about, 45–46  
 affects of, on cost of capital, 47–52  
 defined, 105  
 definition, 46  
 measuring riskiness of net cash flows, 57–60  
 types of, 55–57  
 summary, 60  
 Risk, types of  
 liquidity and marketability risk, 57  
 market risk, 56  
 maturity risk, 55  
 unique risk, 56–57  
 Risk affects on cost of capital  
 cash flows and present value discount rates, 52–55  
 Concepts Statement No. 7 (FASB), 52–55  
 market returns and risk by asset class, 51–52  
 risk aversion vs. risk neutrality, 49–51  
 valuation of risky net cash flows, 47–48  
 Risk measures beyond beta, 222  
 Risk premium, 87, 100  
 Risk-adjusted discount rate approach, 53  
 Risk-free rate, 45, 47, 55, 87, 99, 100, 111, 112  
 Risk-free rate selection  
 expected cash flows period, 119–120  
 risk-free rate with ERP, 119  
 Risks  
 country risks, 406–408  
 currency risks, 405–406  
 sources of information on countries and their  
 economies, 408  
 Safe rate to discount or capitalize a risky return, 674  
 Seasonal businesses, 38  
 Semivariance, 222  
 Shareholder value added, 6  
 Short-term debt, 62  
 Short-term liability, 62  
 Single-year capitalization method, 16  
 Size effect  
 about, 232–233  
 Luff & Phelps size study in CAPM method,  
 255–260  
 Duff & Phelps studies, 240–255  
 Morningstar studies, 233–239  
 size premiums for nonpublic company, 260–261  
 summary, 261  
 Size effect, criticisms of  
 betas, incorrect measurement of, 262–264  
 cost of equity capital and changing size premium,  
 274–275  
 data issues, 269–271  
 relationship of size and liquidity, 276–277  
 relationship of size and measures of risk, 276  
 risks of small companies, 272–274  
 smallest decile composition, 264–268  
 summary, 277–278  
 Size effect, other data issues regarding  
 bid/ask bounce bias, 280–281  
 delisting bias, 281–282  
 risk factors/time-varying, 286  
 seasonality, 279–280  
 transaction costs, 282–286  
 Size premium, 56, 99, 111, 112, 255, 422,  
 690–691  
 Specific risk, 105  
 Statistical expected values, 19  
 Stocks, bonds, bills, and inflation, 430–431  
 Substituting EBITDA for net cash flow, 670–671  
 Subtracting a short-term super growth rate from the  
 discount rate to get a capitalization rate,  
 676  
 Surveys, 130  
 Synthetic portfolio, 269  
 Systematic risk, 56, 60, 104, 105, 113

- Terminal value, 32, 34
- Testing asset pricing models
  - about, 211–213
  - adjusting beta for risk of company size and company-specific risk, 220–221
  - adjusting the pure CAPM, 220
  - downside risk, 222–225
  - duration, 226–228
  - fundamental risk, 229–230
  - scenario-based approach, 225–226
  - testing risk factors priced by the market, 213–220
  - value at risk, 225
  - yield spreads, 228–229
- Testing net cash flow estimates
  - comparing closely held and publicly traded companies, 661–662
  - comparing DCF to security analysts' forecasts, 659–661
  - measuring the impact from reinvesting retained net cash flows, 656–659
  - using forecasts in the DCF, 655–656
- Time value of money, 6
- Top-down implied ERP earnings, 130
- Total expected benefits, 8
- Total expected rate of return, 11
- Total rate of return, 31
- Total risk, 222
- Traditional method, 53
- Transfer pricing analysis
  - categorizing risks, 541–543
  - cost of capital for functions and assets, 543–550
  - differentiating risks among company assets, 541
  - differentiating risks of company functions, 538–541
  - functional analysis, 536–538
- True beta, 162, 179, 211
- True ERP, 124, 129, 130, 148–149, 155
- True rate of return, 155
- Two-stage model, 32
  
- Unattainable growth rate in calculating the terminal value, 681–682
- Unconditional ERP, 116, 117, 120, 137, 144
- Unconditional ERP estimate, 130
- Undiversifiable risk, 56, 105
- Unique risk, 60, 105
- Unlevered beta, 186
- Unlevering and levering equity betas
  - about, 185–186
  - adjusting asset beta estimates for differences in operating leverage, 201–202
  - adjusting asset beta estimates for excess cash and investments, 203–204
  - choosing among unlevering and levering formulas, 198–201
  - formulas for unlevering and levering equity betas, 186–198
  - unlevering equity volatility, 204–205
  - summary, 205–207
- Unlevering beta estimates, 160
- Unsystematic risk, 56, 60, 105
  
- Valuation and project selection
  - about, 10
  - applications, 14–15
  - cost of capital, 11–12
  - net cash flow, 10–11
  - present value formula, 12–13
  - valuing a bond, 13–14
  - summary, 15
- Value, 8
- Value stocks, 216
- Valuing companies emerging from bankruptcy
  - additional information on company risk, 340–342
  - Duff & Phelps risk study of high financial risk companies, 332–340
  - relevering beta for a highly leveraged company, 342–343
- Valuing firms in distress
  - adjusted present value, 316–317
  - changing capital structure, 315–316
  - option valuation, 317–319
- Vasirek sinkage, 168
- Venture capital investments
  - benchmark returns on venture project investments, 614–616
  - realized returns on venture project investments, 616–621
- WACC to value different businesses owned by a diversified company, 678–679
- Warrant, 76
- Weighted average cost of capital (WACC), 5, 16, 62, 693–694
  - about, 369–370
  - after-tax WACC, 373–396
  - origin of, 370–371
  - pre-interest-tax-shield WACC, 397–399
  - use of, 371–372
  - valuing of levered business enterprise, 372–373
  
- Yield curve, 64
- Yield to maturity (YTM), 65
- Yield-to-call date, 65