

Index

- A**
- Aberdeen Asset Management, 317
 - ABN AMRO, 41
 - absolutely mispriced bond, 246
 - absolute return benchmark, 274, 299
 - accrual factor, 194, 252
 - accumulation units, 17
 - ACD, *See* authorised corporate direct
 - active risk, 231, 240, 304
 - activism, 278
 - actuarial deficit, 212
 - actuarial surplus, 212
 - actuarial valuations, 212
 - actuary, 212
 - adjustable annuity, 143
 - age premium, 157
 - aggressiveness, degree of, 92
 - agricultural land, 21
 - Alliance Capital, 41
 - Allied Steel and Wire pension fund, 367
 - ALM strategies
 - cash flow matching, 266–267
 - horizon matching, 267
 - immunisation, 260–266
 - liability driven investing, 267–274
 - multi period immunisation, 266
 - alpha, 41, 240
 - transfer, 241
 - Alternative Investment Market, 11
 - alternative investments
 - private market or private equity strategies, 44–47
 - public market strategies, 38–44
 - alternatively secured pension (ASP), 151
 - Alzheimer’s Disease, 183
 - American option, 26
 - annual charge equivalent, 141
 - annual percentage rate (APR), 414
 - annuities
 - in advance, 417
 - in arrears, 417
 - with capital protection, 147
 - charges, 154–155
 - due, 148, 417
 - factor, 108
 - with minimum guarantee, 147
 - with minimum guarantee and overlap, 147
 - with proportion, 147
 - yield curve, *See* yields
 - anomaly switches, 245
 - appropriate benchmarks, 279
 - A1/P1 quality, 3
 - arbitrage-free pricing model, 24
 - arbitrage fund, types of
 - basis trading or basket trading or portfolio trading, 43

- arbitrage fund, types of (*cont.*)
 equity market-neutral or
 relative-value arbitrage,
 43–44
 equity options arbitrage, 43
 fixed-income or convergence
 arbitrage, 44
 asset-allocation manager, 219
 asset-allocation strategies
 effect of model risk on cumulative
 distribution function, 119
 lifestyle strategy, 112
 low-risk strategy, 112
 model risk, 118
 pension-fund-average strategy,
 112
 portfolio insurance strategy, 112
 threshold strategy, 112
 asset-allocation style of management,
 248
 asset-backed bonds, 6
 asset characteristics, 51–52
 asset holding elasticities, 73
 asset–liability management, 220
 asset–liability modelling, 250
 asset uses, in pension funds
 as alternative investment
 portfolio specific risks, 60
 risks associated with, 59
 vs traditional investment, 58–59
 as capital-guaranteed hedge funds,
 60–61
 as forward-currency contracts, 56
 as futures, 55–56
 for hedging, 53–54
 for income certainty, 54
 as money market securities, 52–53
 study of benefits in, 56–58
 as swaps, 54–55
 assumed or projected growth rate,
 125
 assumed yield, 125
 augmented corporate balance sheet,
 79
 authorised corporate direct, 14
 average return, 435
 AXA Sun Life, 131
- B**
 back-loaded benefits, 192
 back-loaded charges, 124
 back-to-back currency loan, 32
 backwardation, 26
 balanced management, 219
 balance-of-costs basis, 213
 bankers' acceptances, 2
 banking pillar system, 373
 Bank of England, 32
 barbell portfolio, 264, 265
 Barclays Global Investors, 17, 274
 basis, 25
 swaps, 35
 Basle Committee on Banking
 Supervision, 369–370
 Basle regulators, 373
 bear market, 40, 42, 53, 242, 244
 benchmark pension, 102, 175
 benchmark portfolio, 226, 231
 benchmark relative strategies, 274
 benchmark risk, 231
 bequest, 163, 166
 beta, 242
 bills of exchange, 2
 binomial model, 31
 Black–Scholes formula, 31–32
 Black–Scholes model, 201, 204,
 206
 bond-index fund, 235
 bond-market line, 243
 and market timer, 244
 bond-picker, 243
 bond-portfolio managers, 243
 bonds, 5–10
 credit ratings of, 8
 risk premium on, 109
 bonds with warrants, 5
 bond warrant, 27
 booking, 215
 book reserves, 215
 bootstrap model, of simulation, 116
 British Coal Pension Fund, 47
 British Rail Pension Fund, 21–22,
 47
 British Venture Capital Association,
 47

- broad liability, 88
 broking commission, 276
 Brownian motion model, 166
 bulldog bonds, 6
 bull market, 40, 53, 242, 244, 317
 buy-and-hold strategy, 220, 233
 BVCA Private Equity and Venture Capital Performance Measurement Surveys, 47
- C**
- CAC40 futures contracts, 242
 Cadbury code, 276
 callable bonds, 5
 called-up shares, *See* issued shares
 call options, 242
 capital asset pricing model (CAPM), 95, 239–240
 capital component, 263
 capital gains, 236
 capital-market line, 233
 capital structure risk, 95
 carried interest, 47
 cash balance pension schemes, 194
 cash-flow matching, 266–267
 cash-refund (or money back) annuity, 147
 certain annuity, 147
 cheapest-to-deliver bond, 340
 Chicago Mercantile Exchange, 343
 China, 222
 churning, 219
 CIN Venture Managers (CINVEN), 47
 classical immunisation, 260
 collared-income programme, with annuity, 165, 172–173
 collectibles, *See* real assets
 collective investment vehicles
 exchange-traded funds, 17
 guaranteed growth funds, 18
 insurance products, 16–17
 investment trusts, 15
 unit trust and open-ended investment vehicles, 13–14
 combination hybrid pension schemes, 193
 commercial paper, 2
 commingled funds, 235
 commingling, 235
 commodity trading advisers, 40
 common stock, 10
 Companies Acts, 15
 complete indexing, 234
 compound interest, 411–414
 compound value, 412
 compulsory purchase annuities, 147–148
 consols, *See* perpetuals
 contango, 26
 contingent immunisation, 249
 continuous-time random walk, 31
 contrarian approach, 224
 contribution rate, of fund, 111–112, 253
 contribution risk, 253, 259–260
 conversion bond, 28
 convertible bonds, 5, 28
 convertible preferred shares, 11
 core–satellite portfolio management, 248, 249
 corporate bonds, 6
 corporate pension finance
 asset allocation of pension fund
 fully funded, 84–87
 under funded, 87
 insured, 88–91
 with liabilities linked to earnings, 87–88
 and company balance sheet
 accounting approach, 79
 economic approach, 80
 pension liabilities, valuation of
 actuarial approach, 77–78
 economic approach, 78
 relation of pension fund with sponsoring company's financial aspects
 credit rating, 92–93
 profitability, 91–92
 share price, 93–96
 correlation, calculation of, 64

- cost averaging, 237
 cost-of-carry model, 24
 country selection, 238
 country-selection stage, 238
 coupon yield curve, *See* yields
 covariance, 239
 CPAs, *See* compulsory purchase annuities
 credit default swap, 269
 credit event, 269
 credit rating, 92–93
 credit risk, 23
 CSFB, 41
 CTA, *See* commodity trading advisers
 cumulative preferred shares, 11
 currency-change bonds, 7
 currency-coupon swap, 35
 currency risk, 52
 currency swaps, 35
- D**
- DC pension schemes, *See* defined contribution pension schemes (during accumulation/distribution phase)
 dedicated portfolio, 265
 dedicated venture capital or private equity funds, 47
 deep discount, 5
 default risk, 8, 52
 deferred annuity, 148, 417
 deferred-coupon bonds, 7
 deficiency payments, 196, 213
 defined benefit pension schemes, *See also* defined contribution pension schemes (during accumulation/distribution phase)
 defined benefit liabilities, 194–196
 derivation of optimal contribution rate in asset allocation, 287–291
 option composition of, 196–199
 preference of members, sponsors and fund managers, 206–208
 types of, 191–194
 valuation of option, 199–206
 defined contribution pension schemes (during accumulation phase), *See also* defined benefit pension schemes
 charges
 adjusting for lapses, 140–142
 analysis of elements of, 137–142
 changing charging structures, 130–132
 impact of hidden charges, 130–132
 reduction in contribution, 127–129, 139–140
 reduction in yield, 125–127, 138–139
 types of, 124–125
 optimal design of scheme
 control variables, 111–114
 optimal asset allocation strategy, 122–123
 risk factors, 104–111
 risk trade-offs, 123
 simulation output model, 114–122
 stochastic pension scheme design, 102–104
 persistency
 adjusting charges for policy lapses, 133–134
 persistency rates, 132–133
 defined contribution pension schemes (during distribution phase), *See also* defined benefit pension schemes
 annuities
 coverage, 146
 decomposition of, 152–159
 mortality drag, 159–161
 other features, 147–148
 payment terms, 148–152
 purchase arrangements, 1446
 variations, 147

- optimal design of scheme
 - alternative distribution programmes, 162–165
 - annuitisation decision, 183–187
 - impact of poor health, 183
 - simulation output, 174–182
 - stochastic pension scheme
 - design, *See* stochastic pension schemes, design of
 - degree of capital-value certainty, 51
 - degree of diversification, 218
 - degree of income certainty, 51–52
 - degree of risk aversion, 226
 - degree of risk tolerance, 226, 228
 - dependency ratio, 214
 - derivatives
 - convertibles, 28
 - forward and futures, 22–26
 - forward rate agreements, 36
 - natural resources, 38, 47–48
 - options, 26–27, 30–32
 - swap, 32–36
 - synthetic securities, 37
 - warrants, 27–28
 - diffusion process, 31
 - direct investment, in unquoted companies, 47
 - directional funds, types of
 - active long or short, 40
 - emerging markets, 39
 - equity non-hedge, 40
 - global macro, 39
 - industry sector investing, 40
 - long or short volatility, 40
 - managed futures, 40
 - market timing, 39
 - passive long or short, 40
 - short selling, 40
 - strategic block investing, 40
 - systematic trading, 39
 - tactical trading, 39
 - discounted cash flow pricing model, 4
 - discount factor, 195, 252, 415
 - discounting, 415
 - discount rate, 3, 415
 - choice of, 258–259
 - distress termination, 389
 - dividend discount model, 11
 - domestic bonds, 6
 - double-date bonds, 5
 - draw-down policy, 47, 152
 - dual-currency bonds, 7
 - duration, 202
 - gap, 205
 - duration-based hedging, 341
 - duration matching, 260
 - duration switching, 244, 247
 - duty of care, 216
 - dynamic hedge, 60
- E**
- Early Warning Program, 390
 - EET system of tax breaks, 84
 - effective contribution, 127
 - effective rate of interest, 414
 - effective yield, 125
 - efficient market, 96
 - empirical cumulative distribution functions, 180
 - endowment policies, 16
 - enhanced passive management, 248
 - equal-weight index
 - arithmetic relative index, 298
 - geometric relative index, 298
 - Equitable Life, 258
 - equitised cash portfolios, 18, 249
 - equity warrant, 27
 - equivalent yield, 4
 - escalating annuity, 149
 - escalation premium, 158
 - escalation risk, 153
 - Ethical Investment Research and Information Service (EIRIS), 49
 - EU Capital Adequacy Directive, 370
 - EU Life Assurance Directive, 375
 - eurobonds, 6
 - European call option, 28
 - European Union UCITS Directive, 14
 - Eurosterling bonds, 7
 - excess asset reversion, 93
 - exchange options, 201
 - exchange-rate risk, 222

- exchange-traded funds (ETF), 17
ex-dividend, 236
exempt unit trusts, 218
exercise price, 344
expected annuity factor, 195
expected utility, of portfolio, 226, 227
expiry date, 26
explicit mandates, 277
ex post returns, *See* pension fund performance, measurement and attribution of
external asset-class benchmarks, 296
externally funded schemes, 215
- F**
factor matching, 235
FAIDS model
 income effects, 71–72
 life cycle factors, 72–74
Fama decomposition of total return, 305
FAS87, *See* pension accounting standards
final-salary pension scheme, 192
financially weak sponsors, 231
Financial Services Act, 13
Financial Services Authority, 368
Financial Services Compensation Scheme, 16
Financial Services (Promotion of Unregulated Schemes) Regulations, 14
fixed amount schemes, 191
fixed-charge debentures, 6
fixed-income programme, with annuity, 164, 168–169
fixed-rate currency swaps, 35
fixed-then-floating bonds, 7
flat rate of interest, 414
flexible-income programme
 with annuity, 164, 169–170
 with a deferred annuity, 164, 170–171
flexible unit-linked programme, with annuity, 165
floating-charge debentures, 6
floating-rate notes, 5
floating-then zero bonds, 7
floored-income programme, with annuity, 165, 173–174
focused or bullet portfolio, 264
foreign bonds, 6
forward contract, 22
forward delivery, 23
forward-rate agreements, 36
forward yield curve, *See* yields
FRAs, *See* forward-rate agreements
Friends, Ivory & Sime, 49
front-loaded charges, 124
FRS17, *See* pension accounting standards
FT-A All Share Index, 234, 297
FT-Actuaries All Share Index, 49
FT Government Securities index, 298
FTSE4Good index, 49
FTSE 100 index, 18, 37, 55, 338, 350, 420
fundamentals model, 108
funded financing, 211
funds of funds (FOFs), 44, 46
future margin income (FMI), 374
futures contract, 23
future value, calculation of
 with annual compounding, 412
 flat and effective rates of interest, 414
 with frequent compounding, 412–414
 with irregular payments, 416–417
 with regular payments, 417–418
 with simple interest, 411
- G**
gamma-positive, 349
Gartmore, 41
Gartmore Pension Fund Managers, 317
Gaussian distribution, 229
geometric Brownian motion, 31
gilts, 5

- global custody, 49–51
 global equity funds, 221
 global portfolios, 223
 Goldman Sachs, 41
 governance budget, 44, 225
 Government Actuary's Department, 269
 gross contribution, 127
 gross fund, 297
 gross investors, 221
 group annuity, 146
 group personal pension schemes (GPPS), 14
 group selection, *See* sector selection
 guaranteed annuities, 258
 guaranteed equity funds, 249
 guaranteed growth funds, 18
 guaranteed loan stocks, 6
- H**
 health-impaired life annuities, 147
 hedge fund, types of
 convertible arbitrage, 42
 event-driven
 distressed securities funds, 42
 merger arbitrage funds, 41–42
 specialist credit, 42
 long-short equity, 41
 long-short fixed-income, 42
 mortgage-backed securities (MBS) arbitrage, 42
 hedge funds, 40
 hedge portfolio, 336
 hedger, 335
 hedge ratio, 336
 Henderson, 41
 Henderson Global Investors, 49
 herding approach, 224
 Her Majesty's Customs and Revenue, 6
 heterogeneous expectations, 220
 high-duration bonds, 244
 HMRC rules, 22
 home country bias, 321
 homogeneity of expectations, 220
 horizon matching, 267
- host bonds, 28
 HSBC, 41
- I**
 IAS19, *See* pension accounting standards
 IBM, 32
 iBoxx, 6
 IFAs, *See* independent financial advisers
 IFA80 tables, 153
 ILRIPs, *See* investment-linked retirement-income programmes
 IMA80 tables, 153
 immature fund, 212
 immature pension fund, 225
 immediate annuity, 148, 417
 immunisation, 249, 260
 immunisation risk, 264
 income bonds, 5
 income component, 262
 income draw down or managed annuity, 151
 independent financial advisers, 132
 indexed bonds, 7
 index fund, 233
 indexing, 233
 index-linked annuity, 149
 index matching, 233
 index swap, 36
 indifference curve, 227
 inflation risk, 52, 257
 information ratio, 304
 initial units, 17
 Insolvency Act, 6
 instalment-refund annuity, 147
 Institute of Actuaries' Continuous Mortality Investigation Bureau, 153
 insurance bond, 16–17
 insurance managed portfolios, 218
 insured funds, 16–17
 insurer, 335
Integrated Prudential Sourcebook for Insurers, 374
 integration hypothesis, 96

- interest-rate factor, 413
 interest-rate risk, 258, 261
 interest-rate swaps, 33
 inter-market spread switches, 247
 internally funded schemes, 215
 internal rate of return, *See* rates of return
 International Accounting Standards Board, 374
 international bonds, 6
 international bond sector, 248
 intrinsic value, 26
 investment-linked annuities, 149
 investment-linked retirement-income programmes, 162
 properties of the discounted utility functions for, 176
 investment objective questionnaire, 283–287
 investment risk budgeting, 231
 investment risk budgeting controls, 231
 investment trusts, 15, 235
 involuntary termination, 389
 irredeemables, 5
 issued shares, 10
- J**
- Japan, 223
 Jensen alpha, 303
 Jensen differential performance index, 303–305
 joint-and-last-survivor annuity, 146
 joint-life annuity, 146
 Jones, Alfred Winslow, 40
 J.P. Morgan Bond Index, 234
 J.P. Morgan, 7
 Jupiter Asset Management, 41, 49
- K**
- Korea, 223
- L**
- land, *See* real assets
 lapse-adjusted reduction in contributions (LARIc), 134
 lapse-adjusted reduction in yield (LARIY), 133
 Latin America, 223
 LDI-extra portfolio, 267
 letter of credit, 269
 level annuity, 148
 leveraged buyout (LBO), 45
 liability, 88
 liability-driven investing, 260, 267, 273
 liability-driven performance attribution, 310–314
 liability-immunising portfolio (LIP), 205
 lifestyle funds, 221
 lifestyling or age phasing, 105
 lifetime earnings profile, 109–110
 limited partnership venture capital funds, 46
 limited price indexation, 257
 limited price indexed (LPI) annuity, 149
 liquidity risk, 222
 loans, 5–10
 local-authority bills, 2
 log price relative, 420
 London inter-bank bid rate (LIBID), 1
 London inter-bank offer rate (LIBOR), 33–36
 London International Financial Futures and Options Exchange (LIFFE), 55, 338
 London Stock Exchange, 11
 long cash, 336
 longevity bonds, 269, 358–362
 longevity premium, 156
 longevity risk, 257, 354–357
 long-term capital growth, 233
 long-term care annuities, 147
 loss function, 253
 loss given default, 373
 low-duration bonds, 244

- M**
- managed pension funds, 218
 - mandate restrictions, 225
 - Marcus model, 400–404
 - marginal return, 435
 - market portfolio, 233
 - market timing, 238, 242–243
 - market-value-adjusted annuity, 152
 - market-value adjustment, 17
 - Markov switching model, of simulation, 116, 118
 - Martin Currie, 41
 - matching volatility, 254–255
 - mature pension fund, 212, 228
 - maturity date, 26
 - mean reversion, 105
 - mean–standard-deviation space, 230
 - mean–variance space, 227
 - medium-term notes, 2–3
 - memorandum, 10
 - Merrill Lynch Investment Management, 7, 41, 317
 - Milevsky’s rule, 187
 - mismatch risk, 253
 - missing-coupon bonds, 7
 - mixed multivariate normal model, of simulation, 115
 - modern portfolio theory, 226
 - Modigliani–Miller Theorem, 88
 - money-market funds, 3
 - money market securities, 1–4, 53
 - money-weighted rate of return, 293–294, 295, *See* rates of return
 - Monte Carlo simulation, *See* stochastic pension schemes, design of
 - Moody’s and Standard & Poor’s, 8, 399
 - Morgan Stanley Capital International Index, 234
 - Morley Fund Management, 49
 - mortality bonus, 163, 166
 - mortality cross-subsidy, 151
 - mortality drag, 152, 159–161
 - mortality profits, 151, 159
 - mortality swap, 362
 - mortgage, 9
 - MPT, *See* modern portfolio theory
 - multi-period immunisation, 266
 - multiple-coupon bonds, 7
 - multivariate noncentral *t* model, of simulation, 115
 - multivariate *t* model, of simulation, 115
 - MVA, *See* market-value-adjusted annuity; market-value adjustment
 - Myners review, of institutional investment, 275–281
- N**
- narrower range investments, 216
 - Narrow LDI, 273
 - narrow liability, 89
 - National Association of Pension Funds, 280
 - negative-alpha bonds, 243
 - negative exponential utility function, 175
 - negotiable certificates of deposit, 1–2
 - net fund, 297
 - net investors, 220
 - New Earnings Survey, 110
 - non-taxpaying investors, 236
 - normal distribution, 229
- O**
- Occupational Pensions Regulatory Authority, 384
 - open-ended funds, *See* unit trust
 - open-ended investment companies (OEIC), 14
 - open interest, 24
 - operating risk, 94
 - optimal safety-first portfolio, 230
 - optimal strategic asset-allocation decision, 227
 - optimisation process, 184–185
 - option premium, 26, 352
 - ordinary shares, 10
 - overlay manager, 219
 - overmature funds, 214
 - overpriced bonds, 243

P

- paid-up policies, 131
- PALMs, *See* Pooled Asset Liability Matching Solutions
- participating preferred shareholders, 11
- par value, 10
- par yield curve, *See* yields
- passive portfolio management, 220
- pay-as-you-go financing or assessmentism (PAYG), 211
- peer-group benchmarks, 276, 296
- peer-group performance league tables, 251
- pension accounting standards, 93
- pension assets, 204
- Pension Benefit Guaranty Corporation, 388–390
- pension call option, 80, 89
- pension equity schemes, 193
- pension fund
 - fully funded, 84–87
 - fully insured, 89
 - with liabilities linked to earnings growth, 87–88
 - partially insured, 89–91
 - underfunded, 87
- pension fund management
 - active fund management
 - active bond fund management, 243–248
 - active share fund management, 238–242
 - mixed active-passive fund management, 248–249
 - asset-liability management, 250–253
 - key ALM strategies, *See* ALM strategies
 - managing contribution risk, 259–260
 - managing surplus risk, 253–259
 - functions of pension fund manager, 217–218
 - fund management strategies, 220–224
 - fund management styles, 218–220
 - fund manager's relation with trustees
 - determining trustee benchmark portfolio, 225–230
 - determining trustee objects and constraints, 224–225
 - investment risk budgeting, 231–232
 - passive fund management, 233–237
 - role of pension fund, 211–217
 - tax advantages in, 85
- pension fund manager, 217
 - functions of, 218
- pension fund performance, measurement and attribution of
 - assessment of fund managers, 326–328
 - benchmarks of comparison for actively managed fund, 296–299
 - ex post returns, 293–296
 - liability driven performance attribution, 310–314
 - performance attribution for actively managed funds, 305–309
 - performance related management fees, 324–326
 - realised investment performance
 - investment performance of DB funds, 317–323
 - investment performance of DC funds, 314–316
 - risk adjusted measures of performance for actively managed funds
 - based on alpha, 302–305
 - based on risk adjusted excess returns, 300–302
- pension fund pooling vehicles, 14
- Pension Fund Property Unit Trust, 18
- pension fund risk, management of
 - hedging longevity risk
 - longevity bonds, 358–362
 - longevity risk, 354–357

- mortality linked derivatives, 362–363
- hedging with futures
 - with bond options, 351
 - with currency options, 351–352
 - with individual stock options, 344–350
 - with stock index features
 - with stock index options, 350–351
- hedging with swaps, 352–353
- objective of hedging, 335–336
- pension fund trustees, 275
- pension liabilities, 252, 310
 - expected value, 78
 - promised value, 78
 - standard deviation of, 255, 259
 - value of, 81
- Pension Protection Fund, 89
 - and financial regulation of banks, 369–374
 - and financial regulation of life assurers, 374–382
 - financial regulation of pension funds, 383–388
 - Financial Services Compensation Scheme, 382–383
 - Pension Benefit Guaranty Corporation, 388–390
- risk aspects of
 - adverse selection, 392
 - moral hazard, 391–392
 - political risk, 394
 - systemic risk, 392–394
- risk management
 - equity claim, 395
 - funding standards for schemes, 396–397
 - maximum payout, 395
 - risk-based premiums linked to underfunding, 395–396
 - supervision of public exposure of companies that underfund schemes, 397
- pension protection levy, 368
- pension put option, 80, 89
- pension ratios, 102
- Pensions Act 1995, 216, 254
- Pensions Act 2004, 254, 280, 367
- Pensions Board of the Faculty and Institute of Actuaries, 385
- pension-scheme resources, 225
- pension surplus, 204
- performance measurement services, 251
- perpetuals, 5
- perpetuity, 419
- persistence rates, 132–133
- personal wealth distribution
 - FAIDS model, 70–74
 - in UK, 68
- PFA92 tables, 153
- PFPVs, *See* pension fund pooling vehicles
- phased annuities, 148
- Philadelphia Stock Exchange, 352
- PMA92Base-Ultimate, 175
- PMA92 mortality table, 153, 195
- policy switches, 245, 247
- political risk, 222
- Pooled Asset Liability Matching Solutions, 274
- pooled funds, 214, 218
- portable alpha, 241
- 90–10 portfolio, 249
- portfolio opportunity set, 227
- power function, calculation of, 330–332
- preferred shares, 11
- premium, 89
- present value, calculation of
 - annual discounting, 415
 - with frequent discounting, 415–416
 - with irregular payments, 418
 - with regular payments, 419
- price relative, 420
- price risk, 51
- price-weighted absolute index, 298
- prime property, 19
- Principles and Practices of Financial Management, 375

- private market strategies, *See*
 alternative investments
- probability of default, 373
- profitability, 91–92
- projected unit method, 194
- property, *See* real assets
- property investment, 222
- provident funds, 214
- public market strategies, *See*
 alternative investments
- PUP, *See* paid-up policies
- PUP maturity values, 131
- purchased life annuities, 148,
 163–164, 168
- pure yield-pick-up switch, 247
- put–call parity, 32, 204
- put options, 242
- puttable bonds, 5
- R**
- rate-anticipation switching, 244
- rates of return
- internal or money-weighted,
 421–423
 - simple-period, 420
 - time-weighted or geometric,
 423–424
- ratio hedge, 348
- real assets
- collectibles, 21–22
 - land, 21
 - property, 18–21
- redeemable preferred shares, 11
- reduction in contributions,
 127–129
- reduction in yield, 125
- regime-switching model, 108
- regular premium bonds, 17
- regular-premium (or instalment)
 annuity, 146
- reinvestment risk, 428
- relative mispricing, 246
- relative-performance bet, 351
- relative-performance portfolio,
 351
- replacement ratio, 102
- repurchase agreement (repo), 2
- retention factor, 194, 252
- volatility of, 257
- retirement age, 114
- retirement balance pension scheme,
 193
- return-seeking portfolio, 267
- revaluation factor, 194, 252
- volatility of, 256–257
- risk-adjusted expected return, on
 portfolio, 226
- risk-aversion parameter, 175, 207
- risk capital margin, 375
- risk factors, of optimal design of DC
 schemes
- in lifetime earnings profiles,
 109–110
 - related to asset returns, 104–108
 - related to interest rates, 108–109
 and unemployment, 111
- riskless hedge portfolio, 29–30
- RiskMetrics and CreditMetrics
 Models, 371
- risk-neutral model, 29
- risk-neutral portfolio, 30
- risk-neutral pricing model, 24
- risk-neutral probability, 30
- risk premium, 109, 240
- risk–reward profile of the fund,
 224–225
- rolling yield curve, *See* yields
- S**
- SAA, *See* strategic asset allocation
- safety-first portfolio behaviour,
 228
- satellite portfolios, 248–249
- Schroder Investment Management,
 317
- Schroders Ventures International
 Investment Trust, 46
- Scottish Widows Investment
 Partnership, 49
- SEAQ, 11
- secondary property, 19
- sector selection, 227, 238
- securitisation, 6
- security-market line, 239–240, 306

- security selection, 238
 decision, 219
 stage, 239
 style, of management, 248
 selected index fund, 235
 selection premium, 156
 selection risk, 152
 self-investment, 215
 semi-annual compounding, 412
 semi-annual discounting, 9
 separability, 239
 separation hypothesis, 96
 sequential hybrid pension schemes, 193
 SERPS, *See* state earnings related pension scheme
 SETS, 11
 settlement risk, 222
 share portfolio managers, 243
 share price, 93–96
 Sharpe ratio, 300, 301
 short call option, 196
 short cash, 336
 shortfall risk, 253
 short-term capital gains, 233
 short-termism, 276
 simple interest, 411
 single-life annuity, 146
 single-premium annuity, 146
 single-premium bonds, 17
 SIP, *See* statement of investment principles
 SML, *See* security-market line
 SocGen, 41
 socially responsible investment, 48–49, 225
 Social Security Act 1986, 254
 Social Security Act 1990, 216
 Solvency 1, *See* EU Life Assurance Directive
 specialist managers, 219
 specific risk, 240
 speculative bubbles, 13
 speculator, 335
 split funding, 219
 split-level investment trust, 15
 sponsor contribution holidays, 193
 spot or cash delivery, 23
 spot yield curve, *See* yields
 standard client agreements, 50
 standard deviation, 31, 90, 229, 253
 calculation of, 62–63
 Standard Industrial Classification, 239
 Standard Life, 49
 standard termination, 390
 State Earnings Related Pension Scheme, 67
 statement of funding principles, 387
 statement of investment principles, 211
 statement of the principles of institutional investment, 276
 State Street Global Advisers, 274
 stationary-moment models, 108
 statutory funding objective, 387
 step-down annuity, 148
 stochastic pension schemes, design of
 asset returns model, 166–167
 charges, 167
 distribution programmes
 collared income programme, 172–173
 fixed income programme, 168–169
 flexible income programme, 169–170
 flexible income programme with deferred annuity, 170–171
 floored income programme, 173–174
 purchased life annuity, 168
 unit linked programme, 171–172
 mortality and financial functions, 167–168
 stochastic simulation, 103–104
 stock-picking, 238
 straight bond, 5, 9
 strategic asset allocation, 219, 238
 stage, 238
 stratified sampling, 235
 strips market, 267
 substitution switch, 245

- surplus, 196, 252
risks, 202, 253
management of, 253–259
survival bonus, 163
survival probabilities, 166, 252
survivor annuity, 146
SVIIT, *See* Schroders Ventures
International Investment Trust
swaps, 32–36
swaption, 36
swap yield curve, 429–430
synthetic equity funds, 249
synthetic floating-rate notes, 353
synthetic long call, 345
synthetic long futures, 352
synthetic securities, 37
synthetic short put, 346
systematic risk, 222, 240
- T**
tactical asset allocation, 238
targeted benefit schemes, 194
targeted money purchase pension
schemes, 194, 196
Teachers' Insurance and Annuity
Association of America –
College Retirement Equity
Fund, 149
temporary annuity, 147
terminal value, 30
time diversification, 106
time horizon, 225
time value, of option, 27
time-weighted rate of return,
293–294, 296, *See also* rates
of return
Towers Perrin survey of European
fund management fees,
130
tracking error, 235, 240, 304
traded endowment policies (TEPs),
16
trading book capital models, 370
transaction costs, 236
transfer risk, 222
transparency, 279
treasury bills (TB), 2, 108
Treyner ratio, 301, 302
trust deed, 215, 218
Trustee Act 2000, 216
Trustee Investments Act 1961,
216
trustees' indifference curve, 234
trust fund, 215
Turkey, 223
two-tier annuity, 146
- U**
UBS, 7, 41
UBS Global Asset Management,
317
UK equities, real returns distribution
on, 106
UK Equity Growth sector, 315
UK Government bonds, 245
UK pensioners, 223
UK pension funds, 318
UK properties, real returns
distribution on, 107
UK Treasury bills, 167
unconstrained equity strategy,
274
underpinning arrangements, 194
underpriced bonds, 243
undiversifiable risk, 240
unisex annuities, 147
unissued shares, 11
unit-linked annuity, 151
unit-linked programme, with annuity,
164–165, 171–172
unit trust, 13, 235
exempt, 14
unsecured loan stocks, 6
unsecured pension, 151
unsystematic risk, 222
US Department of Labor
Interpretative Bulletin,
278
US long–short hedge fund,
242
US long–short strategy, 242
US Pension Benefit Guaranty
Corporation, 89
utility-at-risk analysis, 174

- V**
 value-added tax, 16
 value-at-risk, 92, 102
 calculation of, 64
 value function, 174–175
 value-weighted absolute index, 298
 Vanderhei valuation model, 405–408
 variable-rate bonds, 5
 variance, 239
 venture and development capital
 investment trusts (VDCITs),
 46
 venture capital, 45
 types of
 development funds, 45
 early stage funds, 45
 generalist funds, 46
 large management
 buy-out/buy-in funds, 45–46
 mid-management
 buy-out/buy-in funds, 45
 technology fund, 46
 volunteer premium, 155
 volunteer risk, 153
- W**
 whole annuity, 147
 wider range investments, 216
- Wilkie model, of simulation, 116,
 118
 with-profit annuity, 149–150
 work-out period, 245
 World Bank, 32
- Y**
 yearling bonds, 5
 yields
 annuity, 436
 current yield, 425
 curves
 annuity, 436
 coupon, 428–429
 forward, 433–436
 par, 429–430
 rolling, 437–438
 spot, 430–432
 yield to maturity, 427–428
 to maturity, 425–427
 relationship of spot and forward
 yields, 433
 yield to maturity, 421
- Z**
 zero-coupon bonds, 5, 7, 60–61,
 430–431, 440
 zero-coupon swap, 36

<http://www.pbok.com>

<http://www.pbookshop.com>