

- Absolute return, 22–23
- Accrual bonds, 444–445
 - class, four-tranche sequential-pay structure, 445e
- Accrual securities, 418
- Accrual tranches, 444
 - inclusion, 444–445
- Accrued coupon instruments, 418
- Active 120-20 portfolio, enhancement, 319–321
- Active asset allocation decision, 248
- Active equity investment strategies, design, 385
- Active investing, 247–264
 - all-at-once approach, 247
 - bottom-up approaches, 247, 249–252
 - top-down approaches, 247–249
- Active investment management, 399
- Actively managed ICs, 31
- Active management
 - fundamental law, 252–255
 - return, representation, 265
 - strategies, 19
 - technical analysis, 255–255
- Active manager skill, depth, 253
- Active portfolio management, passive portfolio management (contrast), 239–240
- Active portfolio strategy, 6
- Active return, 234
 - average, 238
 - data/calculation, 235e
 - time-series standard deviation, 298–299
- Active risk decomposition, 331, 333, 334e
- Active systematic-active residual risk decomposition, 331, 333–334
 - flowchart, 335e
- Additive model, 139
- Advance/decline line, 257
- Advanced random walk models, 148–152
- Agency collateralized mortgage obligations, 441–447
 - support tranches, offering, 524
- Agency passthroughs, 436–440
- Aggregate analytics, 589e
- Aggregate face value, 540
- Algorithmic trading, 215–216
 - usage, 301–302
- All-at-once approach, 247
- Allocation-related strategy, accomplishment, 395
- Allocation strategy, CPPI (presence), 188
- Alpha, 313–314
 - data/calculation, 235e
 - drivers, 20–21
 - generation, 544
 - loss, minimization, 300
 - N-vector, 106
 - potential, 319
 - tracking error, combination, 238
- Alternative assets, 5
 - class, 18
 - meaning, 18–19
 - products, overview, 21–31
- Alternative investments, 5, 15
 - vehicles, 404e
- Alternative trading system (ATS), 214
- American Depository Receipts (ADRs), 350
- American option, 349, 376
 - price, factors, 360e
- American Stock Exchange (AMEX), 214
- Amortization schedule, 430
- Amortizing instruments, 419
- Analytical duration, 620e
- Annual coupon interest, 458
- Annualized expected returns, example, 65e, 67e
- Annual operating expenses, 33–35
- Arbitrage, 88–90
 - arguments, usage, 360, 628
 - cash flows, 373e
 - opportunity, 294–295
 - profit, 493
 - preservation, 373
 - relative value positioning, 655
- Arbitrage-free bond valuation, 489–496
- Arbitrage-free valuation, 493–494
 - approach, 490
- Arbitrage-free value calculation, benchmark spot rate curve (usage), 495e
- determination, 492e
- production, 509
- Arbitrage Pricing Theory (APT), 104–105, 165, 332
- Arbitrageur, 39
- Arithmetic average (mean) rate of return, 10–11
- Arithmetic random walks, 128–134
 - drift
 - estimation, 140
 - inclusion, 130–131
 - facts, 133–134
 - formula, inconsistency, 137
 - observations, 133–134
 - obtaining, 154
 - parameter estimation, 132–133
 - paths, 131e
 - stimulation, 131–132
- Asian options, 377
- Asset allocation, 159, 395, 403–404
 - decisions, 5, 173
 - process, 160
 - equity swap structure, usage, 405e
 - implementation, mechanics, 395
 - step, 163, 171
 - strategy, 186
 - state-dependent allocation, involvement, 185
 - vehicles/methods, manager selection, 395
 - weights, 549, 550
- Asset-backed securities (ABSs), 417, 424–425, 430–434
 - collateral, 430

- Asset-backed securities (*Cont.*),
 features, 430–431
 maturity, 431
 structure, 450
 valuation, 522–531
 approaches, 530–531
 considerations, 530–531
- Asset classes, 5, 15–21
 defining, 16
 investment characteristics, 16
- Asset liability management
 (ALM) funding ratio perspective, 181
- Asset-linked notes, 402
- Asset management
 justification, 159
 long-short portfolio, flexibility, 308
- Asset price
 computation, closed-form
 expression, 133
 dynamic factor models, 149
 dynamics, modeling, 125
 historical series, 145
- Asset pricing
 model, 46
 theory, 46
- Asset returns
 correlation coefficients, term
 structure, 177e
 covariance matrix, 122
 impact, 59–60
 ordinary least squares (OLS)
 regression, 114–115
 rate, probability distribution, 55e
- Assets
 book value, 279, 280
 covariance, computation, 54
 excess returns, 106
 feasible/efficient portfolios,
 61e, 62e
 historical series, 132
 level, risk-return optimization,
 74
 market value, percentage, 553e
 portfolio, 71
 risks, 46
 selection variance, 336
 universe, increase, 65–66
 valuation
 CAPM prescription, 84
 changes, 536
- Asymptotic PCA, 114
- Auction-based order-driven
 market, 213
- Average life, 438–439
- BAC bond, 610, 612
- Backward-looking tracking error,
 237
- forward-looking tracking
 error, contrast, 236–238
- Balance, striking (concept),
 300–301
- Balloon maturity provisions,
 452–453
- Balloon risk, 452–453
- Bankruptcy, definition (tighten-
 ing), 651–652
- Barclay Group Inc. (BGI) factor
 model, 107, 108–109
- Barclays Capital U.S. Aggregate
 index, 616
- Basis, 374
- Basis points, 419
 earnings, 372–373
- Basket trades, 222
- Bayesian analysis, 75–76
- Bayesian approach, extension, 117
- Bear markets
 equitized performance, 318e
 market-neutral performance,
 311e
- Benchmark
 excess, 404–405
 high-quality data, 538
 idiosyncratic volatility, 610
 independence, 538–539
 index
 outperformance, 544–553
 selection, 536–539
 interest rate, 521–522
 investor relevance, 536–537
 market representative, 537
 market weights, 588e
 outperformance, 398, 405
 bond portfolio strategies, 535
 portfolio construction, impli-
 cations, 170–171
 PSP investment, 183–184
 residual risk, relationship, 314
 rules, transparency, 537
 spot rate curve, usage, 495e
 top-down approach, 536
 weights
 constraints, 315
 convergence, 323
 zero-coupon rate curve, 495
- Beneficial owner, 219–220
- Bermudan option, 349
- Beta₁₉₆₃, 96–97
- Beta₁₉₆₄, 97–98
- Beta-adjusted equivalent index
 units, 394
- Beta-adjusted equivalent market
 index units, 394
- Betas, 237
 drivers, 20–21
 expected returns
 linear relationship, 91e
 relationship, 90–91
 forecast, 83
 portfolio example, 90e, 91e
 propositions, 98–100
 illustration, 98e
 two-beta trap, 95–100
 usage, 393
- Better Alternative Trading Sys-
 tem (BATS), 215
- Bid-ask spread estimates, 221
- Big bath, 209
- Binaries, 347
- Binary options, 354, 377
- Binomial distribution, 129e
 shape, 128
- Binomial interest rate tree,
 510–514
 construction, 514–515
 usage, 516–517
 valuation, 516e
- Binomial lattice model, 508
- Binomial lattices, 127
- Binomial trees, 125, 127–128
 example, 127e
 simplicity, 128
- Black box trading, 215–216
- Black-Litterman model, usage,
 300
- Black-Scholes model
 formula, 360–361
 illustration, 361–362
- Black-Scholes pricing model,
 critique, 365–366
- Block trades, 218
 defining, 222
- Bond-equivalent basis, 464, 502
- Bond-equivalent yield (BEY),
 464, 500–501, 523
 basis, 469
- Bondholders, options, 420–421
- Bond portfolio
 construction, 449
 management, 570e–571e
 strategies, 535
- Bond price
 change, reasons, 461–462
 computation, 458–459
 quotas, 462–463
 relationship, 461, 464e
 volatility, factors, 473
- Bonds, 417
 analytics, 457, 489
 call price, 465
 cash flow, 457–458
 characteristics, 466
 coupon rate, 418–419
 dollar return, sources,
 465–467
 features, 417–421
 indenture, 424

- instantaneous percentage price change, 472e
- interest rate risk measures, 457
- medium-term notes, 421
- par value, 417–418
- payment, provisions, 419–420
- price-yield relationship, 459
- pricing, 458
 - complications, 462
 - refunding, 420
 - returns, inflation hedging
 - properties, 175–176
 - security, 424–425
 - stripping, 490, 493–494
 - term to maturity, 417
 - valuation, 457
 - embedded options, usage, 458
 - overview, embedded options (usage), 505–507
 - value, 580
 - yield measures, 457, 463–468
 - types, 463–465
- Book leverage, 108
- Book-price ratios, 107
- Book-to-price (B/P) ratio, 295–296
- Book value-to-market value (B/M) stocks, 107
- Bootstrapping methodology, usage, 491e, 510
- Borrowing
 - allowance, 92e
 - limitation, 91–93
 - rate, usage, 374
- Broad-based non-S&P 500 stock index, 406
- Broker loan rate (call money rate), 218
- Brownian motion (BM), 152–153
- Buffett, Warren, 250
- Build America Bonds (BABs), 428
- Bullet maturity, 419, 497
- Bull markets
 - equitized performance, 318e
 - market-neutral performance, 311e
- Burmeister-Ibbotson-Roll-Ross (BIRR) macroeconomic factor model, 107
- Business cycle, 108
- Business plan, 26–27
- Buy-and-hold strategy, 245–246, 498–500
- Buy-ins, 321–322
- Buy limit order, 216–217
- Buy orders, 213
- Buy-side traders, algorithmic trading (usage), 301–302
- Buy stop order, 217
- Buy write, 389
- CaC-40 index, 353
- Calendar anomalies, 263
- Callable bonds, 505
 - cash flow dependence, 462
 - price-yield relationship, 477–478, 478e
 - negative convexity, 478
 - valuation, 517–518
 - coupon rate, 518e
 - value, 505
- Call money rate (broker loan rate), 218
- Call option, 349, 420
 - delta, 364–365
 - example, 578e
 - profit/loss profile, 356
 - purchase, 355–356, 641
 - value, determination, 519
 - writing, 356
- Call option price
 - expected price volatility, relationship, 365
 - time to expiration, 365
 - underlying price, 363–365
- Call premium, downside protection, 389
- Call price, 420, 465
 - theoretical call price, 363
- Call protection, 451–452
- Call provision, 419–420
- Call rules, 509
- Call schedule, 465
- Cap., 419
- Capital
 - appreciation, 460–461
 - commitment, 27–28
 - equitized deployment, 317e
 - gains distributions, occurrence, 36
 - market-neutral deployment, 309e
 - markets, impact, 558
 - structure positioning, 655
- Capital asset pricing model (CAPM), 79, 165, 287
 - confusion, 82–83
 - generalizations, 93
 - investor payment, absence, 94–95
 - return implication, 411
 - usage, 275
- Capital gain, 466
- Capitalization
 - approach, 246
 - rate, 275
- Capital loss, 466
- Capital market
 - price efficiency, 230–239
 - theory, basis, 233
 - Captured value, 230
 - Cap-weighted benchmarks, inefficiency, 164e
 - Cap-weighted indexes, portfolio inefficiency, 163–164
 - Carry, net cost, 371
 - Cash dividends, 271–272
 - pattern, 212
 - Cash equivalents, 5, 16
 - Cash flow
 - generation, simulation (usage), 526–527
 - matching, 173
 - present value, 514
 - one-year rate, usage, 515
 - projection, 431, 524
 - structure, schematic, 448e
 - yield, computation, 524
 - Cash Flow Return on Investment (CFROI), 251–252
 - Cash index fund, holding (alternative), 396
 - Cash market
 - utures market, contrast, 396
 - instruments, package, 637–638
 - transaction, impact, 388
 - Cash reserve funds, 432
 - Cash-secured put, 388
 - strategy, 388
 - Cash settlement, 650
 - credit event, 650e
 - Cellular method, 246
 - Chaos Theory, 257–258
 - Characteristic 1-type ABS, 530–531
 - Characteristic 2-type ABS, 531
 - Characteristic 3-type ABS, 530
 - Chartists (technical analysts), 256
 - impact, 231
 - Cheapest-to-deliver (CTD) issue, 626, 633
 - Cheapest-to-deliver (CTD) option, 649–650, 652
 - Chicago Board Options Exchange (CBOE), 347
 - Binary Options, 354–355
 - CME, joint venture, 370
 - trades, 353
 - Chicago Mercantile Exchange (CME), 629
 - CBOE joint venture, 370
 - Classical safety-first portfolio, 73
 - Client-specified exposure, 631
 - Closed economy, macroeconomic issues, 562e
 - Closed-end funds (CEFs), 33
 - mutual funds (open-end funds), contrast, 34e
 - price selling, 36

- Cohen, Kalman, 71
- Collar strategy, 387
- Collateralized mortgage obligations (CMOs), 441–447
- CMO-1, 443e
 - collateral/tranches, average life, 444e
 - CMO-2, 445e
 - CMO-3, 446e
 - creation, 525
- Collateral prepay, 446
- Commercial mortgage-backed securities (CMBSs), 434, 450–453
- idiosyncratic risk, 597
 - mismatches, 587
 - transaction, 450–451
- Commission, 34
- arrangements, 222
- Commodities
- investments, 29–31
 - manufacturing capacities, availability, 31
 - prices
 - inflation indicator, 176
 - prices, geometric random walk example, 142
 - sectors, 29–31
 - classification, 30e
 - storability/availability, 30–31
- Common factor risks, 331
- Common stock
- categories, 17
 - fundamentals, 207
 - investing, implications, 232–233
 - portfolio management strategies, 229
 - valuation, approaches, 270
- Companies
- base, multiples (application), 284
 - multiples, calculation, 282–283
 - selection, 281–282
- Companion tranches, 446
- Compound growth rate, 276–277
- Compound interest securities, 418
- Computer algorithms, usage, 301–302
- Conditional order, 217
- Conditional prepayment rate (CPR), 437
- Conditional value at risk (CVaR), 74
- Confidence distribution, 566e
- Conforming loan, 436
- Consensus investors, 247
- Consistent growth manager, 242
- Constant discount rate, assumption, 274–275
- Constant growth dividend discount model, 276–277
- Constant opportunity set, assumption, 180
- Constant payout ratio, 212
- Constant proportion portfolio insurance (CPPI), usage, 187
- Constant Relative Risk-Aversion (CRRA) preferences, 198
- Constraints, 5–6
- impact, 87
- Contingent options, 377
- Contraction risk, 439–440
- Contract rate, 418
- Contractual cash flow, 505
- Contrarian equity style, 241–242
- Contrarian manager, 242
- Convenience yield, 31
- Convergence trading hedge funds, 25
- Conversion ratio, 425
- Convertible bonds, 425
- Convex, 459
- duality, 187
- Convexity, 480–483
- adjustment, 481
 - measure, 480–481
 - scaling, 482–483
 - usage, 474–483
- Copula function, 149
- Corporate bonds, 424–427
- ratings, 426
 - symbols, 426, 427e
 - systems, 427e
 - spreads, 578
 - yield spreads, 577–578
- Corporate restructuring hedge funds, 24
- Correlated random walks, 148–149
- Correlated risk per category, 591e
- Correlated risks, analysis (difference), 591–592
- Correlation, 58–59
- addition, 589–592
 - coefficients, term structure, 177e
 - covariance, relationship, 55–56
 - example, 65e, 67e
 - values, range, 56
- Correlation estimates, quality, 604
- Cost management, 346
- strategies, 387–389, 409–410
- Cost of carry model, 628–629
- Cost of carry valuation formula, 374–375
- Counterparty risk, 624
- examination, 375
 - guarantee, 220
 - protection, 219–220
- Country equity indexes
- annualized expected returns/standard deviations/correlations, 65e
 - mean-variance efficient frontier, 66e
- Coupon bond, price-yield relationship, 460e
- Coupon-paying bonds, bullet maturity, 497
- Coupon payment, 513–514
- Coupon payments, reinvestment, 523–524
- Coupon rate, 418–419
- relationship, 459–461, 464e
 - usage, 467
- Coupon stripping, 423
- Covariance, 54–55
- correlation, relationship, 55–56
 - equation, 94
 - expression, 295
 - one-factor model, 96
 - parameters, robust estimators, 165–168
 - single-index model, 96
 - structure
 - index model approximation, 68–79
 - model, requirement, 69
- Covariance matrix, 165
- component, 120
 - estimation, 105–106
 - problem, 166
 - spectral decomposition, usage, 166–167
- Covered call
- expected returns, 411–412
 - risk, 390
 - strategies, 389
- Credit analysis, 426
- Credit bonds, characteristics, 603
- Credit default swap (CDS), 612, 647
- contract details/mechanics, 648–650
 - contract mechanics, 649f
 - defining, 648–654
 - indexes, 654–658
 - mechanics, 655
- Credit Default Swap Index (CDX)
- CDX.HY characteristics, 657e
 - indexes, 656e

- Credit derivatives, usage, 647
- Credit enhancements, 431–433
- Credit event, 650–653
 - defining, 649
 - ISDA defining, 651
 - physical/cash settlements, 650e
 - restructuring, 652–653
- Credit indexes, equity indexes (contrast), 655e
- Credit protection buyer/seller, 648
- Credit risk, 521, 603–606
 - protection, 219–220
 - removal, 522
- Credit spreads, 494–496
 - example, 578e
 - risk, 605e
 - term structure, 494
 - trading, 575
- Credit support, subordination (measurement), 449e
- Credit trigger provision, 375–376
- Critical line algorithm (CLA), 93
- Cross-hedging, involvement, 391
- Crossing network, 214
- Currency
 - composition, variation, 564–565
 - markets, 569
 - selection, 582–583
 - values, 559
- Currency-hedged swaps, 378
- Currency risk
 - reduction, 399
 - treatment, 399
- Currency-value determination, theories, 582
- Current issue, 422
- Currently callable issue, 420
- Current yield, 463
 - relationship, 464e
- Curve risk, 598–603
 - analysis, 598–599
- Cushion, 188
- Custodial fees, 220
- Custody, cost, 34
- Custom index, creation, 539–544

- Dark pools, 214–216
- Data-augmentation technique, 116
- Data errors, coping, 289–290
- Date of record, 211
- Dealer-based quote-driven market, 213–214
- Dealer options, 641–642
- Dealers, 213
- Debenture bonds, 425
- Debentures, 423–424
- Debt-to-equity ratio, 108
- Debt-to-service coverage (DSC) ratio, 451
- Dedicated hedging portfolios, introduction, 183
- Dedicated revenues, 428–429
- Default-free theoretical spot rate curve, 498
- Default interest rate, 452–453
- Defeasance, 451, 452
- Defensive investor, 260–261
- Deferred call, 420
- Delivery date, 367
 - assumption, 629
- Delivery day, 627
- Delivery options, 627
- Delta, 364
- De-measured returns, 115–116
- Dependent variable, 81
- Depository institutions (institutional investor), 4
- Derivatives, 22, 155
 - categories, 347
 - overlays, usage, 316
 - role, 345–348
 - usage, 314
- Derivatives Product Companies (DPCs), 375
- Deterministic life-cycle investing, stochastic life-cycle investing (contrast), 185–186
- Deterministic life investing, simplicity, 182
- Developed market foreign stocks, 17
- Development market foreign stocks, 17
- Deviations, probability-weighted function, 74
- Differential equations, 153–155
- Diffusion terms, identification, 202
- Digital options, 377
- Dilutive securities, 210
- Direct Edge, 215
- Direct Market Access (DMA), 216
- Direct one-step portfolio optimization decisions, asset mix components (involvement), 163
- Directors' fees, cost, 34
- Direct payment BAB, 428
- Discount, 461
- Discounted cash flow (DCF) methods, usage, 278–279
- Discounted cash flow (DCF) models, 271–276
- Discounted cash flow (DCF) valuation method, 279
- Disentangling effects, 324
- Dispersion measures, 73
- Diversification
 - absence, 163
 - benefits, 57
 - impact, 294
 - usage, 392
- Dividend discount models (DDMs), 272–273
 - examples, 273–278
 - expected returns, relationship, 278
 - mathematical expression, 273–274
 - rearrangement, 278
 - relative value, assessment, 275–276
 - usage, 276
- Dividend payout ratio, 211
- Dividend per share, 211
- Dividend, 207, 210–213
 - absence, 212
 - constant payout ratio, 212
 - corporation policy, 211–212
 - date of record, 211
 - measures, 272–273
 - payout ratio, 272–273
 - stock prices, relationship, 212–213
 - yield, 272–273
 - knowledge, 373
- Dividends per share, 272–273
 - constant growth, 212
- Dodd, David, 250, 287
- Dollar-denominated LIBOR, 379–380
- Dollar duration, 476–477
- Dollar value of an 01 (DV01), 474
- Dollar-weighted rate of return, 13
- Dow, Charles, 256
- Dow Jones EURO 50 stock indexes, 353
- Dow Jones Industrial Average (DJIA), 223
- Dow Jones Industrial Average Index (DJX), 350
- Dow Jones STOXX 50, 353
- Dow Jones Transportation Average, 256
- Downside protection, 389
 - cost, 192–193
- Downside risk, 72, 74
 - investor concern, 387
 - protection, cost, 190–191
- Dow Theory, 256
- Drift, 126
 - estimation, 140
 - values, 135

- Due diligence, requirement, 25
- Duration, 475–479, 573–574
 beta, 595
 bonds, 549
 calculation, 476
 contributions, asset class, 589e
 decision, 551–552
 excess return, 551e
 profiles, mismatches, 599–600
 usage, 475–483
- Duration Times Spread (DTS), 603–604
 concept, reliance, 605–606
- Dynamic asset allocation
 decisions, constant opportunity set (presence), 198
 problems
 martingale/convex duality, 187
 time-varying opportunity set, 200–201
- Dynamic asset-liability allocation
 problem
 constant opportunity set, usage, 197–200
 short-term performance constraints, usage, 201–202
- Dynamic factor models, 117, 149
- Dynamic hedging, tactical asset allocation (comparison), 395
- Dynamic liability-driven investing, 187–194
- Dynamic risk-controlled strategies, 194
- E3 model, 328–330
- Earnings, 208–210
 growth, 241
 momentum growth manager, 242
 reinvestment, proportion, 211
 surprises, 260
 targets, 208
- Earnings before interest, taxes, and depreciation and amortization (EBITDA), 252
- Earnings before interest and taxes (EBIT), 208, 252, 280
- Earnings per share (EPS), 209–210
 decline, 212
 equation, 210
 impact, 282
- Econometrics, 75
- Economic crises, measures, 583
- Economic forecast, impact, 560
- Economic productivity, 247
- Economic Value Added (EVA), 251
- Edwards Mark, 230
- Effective convexity, standard convexity (relationship), 483
- Effective duration, 477–478
- Effective rate basis, 469
- Efficiency
 forms, 231–232
 semi-strong form, 231
 strong form, 231
 weak form, 231
- Efficient asset classes, inefficient asset classes (contrast), 19–20
- Efficient benchmarks, designing, 163–171
- Efficient frontier, 63
 minimum risk portfolio, relationship, 543e
 widening, 68e
- Efficient index, risk/return characteristics, 172e
- Efficient portfolio, 299
 construction, 6–7, 60
 feasible portfolio, relationship, 60–63
 investor selection, 83
 set, 48–49
- Efficient PSP, inefficient PSP (funding ratio distribution), 181e
- Efficient set, 61
 optimal portfolio, selection, 63–64
- Eigenvalue, association, 121
- Electronic communication networks (ECNs), 214–216
- Embedded options, extension, 519–520
- Emerging market, 17–18
 foreign bonds, 17
 foreign stocks, 17
- Endowments (institutional investor), 4
- Enhanced active 120-20 portfolio, 319–321
- Enhanced active equity portfolios, equitized market-neutral long-short portfolios (equivalence), 321
- Enhanced active portfolio, 308
- Enhanced indexer, 587
- Enhanced index fund, 236, 397–398
- Enhanced indexing, 385–386
 approaches, 398, 408
- Equilibrium expected returns, 294–295
- Equitized long-short portfolio, 308
 performance capture, 316
 return, transports, 318–319
- Equitized market-neutral long-short portfolios, enhanced active equity portfolios (equivalence), 321
- Equity derivatives
 contract, 345
 fundamentals, 345
 market, 346–348
 role, 347
 usage, 383
- Equity exposures
 change, motivation, 391
 management, stock index futures (usage), 398–399
- Equity forwards, 376
- Equity futures contracts, U.S. trades, 369e
- Equity hedge, 23
- Equity indexes, credit indexes (contrast), 655e
- Equity indexing, 384
- Equity investment
 financing, fixed-income security (usage), 408
 management, 384–386
 strategies, 403
 styles, 240–241
- Equity-linked debt, 402
- Equity-linked notes, 399
- Equity long/short, 23
- Equity management, depth/goodness, 254
- Equity portfolio management
 approaches, 290, 291e
 process, integration, 229–230
 quantities, forecast, 288
 traditional/quantitative approaches, 289–291
 advantages, 291e
- Equity securities, 207
- Equity strategies, OTC derivatives (usage), 400e
- Equity styles
 management, 240–245
 matrix, 244–245
 opportunities, range, 242–245
 types, 241–242
- Equity swaps, 378–380, 399
 flow, 379e
 mechanics, 380
 structures
 flexibility, 378
 usage, 405e
 usage, 379
- Equivalent market index units, 394
- Estimated earnings growth, 107
- Estimation errors, 115
- Eurodollar futures contracts, 629
- European option, 349, 376
- Evaluation period, 7

- Ex ante return, 51
 Ex ante tracking error, 237
 Excess return, 20, 313–314
 CAPM difference, 80
 variance, ratio, 95
 Excess servicing spread accounts, 432
 Excess serving spread, 432
 Exchange, term (definition), 213
 Exchange rates, geometric random walk example, 142
 Exchange-traded funds (ETFs), 15, 36–39
 basics, 37, 39
 mutual funds, contrast, 39–41, 41e
 options, 354
 ranking, 38e
 S&P500 Index basis, 39
 sponsors/providers, 39
 uses, 40
 Exchange-traded futures options, 640–641
 Exchange-traded interest rate futures contracts, 624–629
 conversion factors, 625–626
 Exchange trading, priority rule, 216
 Ex dividend date (ex date), 211
 Exercise price, 349
 Exercise style, 349
 Exotics, 377–378, 399
 usage, 403
 Expectation maximization (EM) algorithm, application, 116
 Expected cash flows, 457
 present value, 513–514
 Expected dividends, realization, 397
 Expected future cash flow, 279
 concept, 279–280
 Expected inflation, expected stock returns (negative relationship), 175
 Expected portfolio returns, quantification, 45
 Expected price volatility
 call option price, relationship, 365
 impact, 359
 Expected return, 51–52, 412
 betas
 linear relationship, 91e
 relationship, 90–91
 cross-section, risk, 168–169
 dividend discount models, relationship, 278
 example, 65e, 85e
 forecast, 83
 maximization, 547
 overestimates, 300
 risk-free interest rate, difference, 80
 robust estimators, usage, 168–170
 term, usage, 80
 total risk, relationship, 169
 variance, equation, 53
 Expected risk-adjusted return, maximization, 288
 Expected shortfall, 74
 Expected stock returns, expected inflation (negative relationship), 175
 Expected tail loss, 74
 Expense ratio, 34
 Expiration call, profit/loss profile, 355e
 Expiration date, 348
 Expiration put, profit/loss profile, 357e
 Explicit costs, 220, 296
 Explicit models, quantitative manager usage, 290
 Ex post return, 50
 Ex post tracking error, 237
 Extended funds strategy, 406
 Extension risk, 439–440, 453
 External credit enhancements, 431

 Face value, 418
 Factor analysis, 109
 Factor-based estimator, 166
 Factor exposures, 340e
 analysis, 339e
 reports, 598–610
 Factor loadings, 109–110
 Factor models, 103, 109
 approaches/extensions, 115–118
 computational procedure, 112–113
 estimation, 103–104, 112–118
 types, 105–112
 Factor partition, risk analysis, 595e
 Factor risk model, usage, 295
 Factors
 covariance matrix, 106
 determination, estimation procedures (usage), 109–110
 L-vector, 110–111
 types, 110–111
 Fair value, estimation, 250
 Fama, Eugene, 71
 Fama-French three-factor model, 107
 Fat tails, 384
 Feasible portfolios, 60–63

 Federal agency securities, 423–424
 Federal Agricultural Mortgage Corporation, 424
 Federal Farm Credit Bank System, 424
 Federal Farm Credit System, 424
 Federal Home Loan Bank System, 424
 Federal Home Loan Mortgage Corporation, 436
 Federally related institutions, 423
 Federal National Mortgage Association (FNMA), 424
 Federal Reserve (Fed), big six tools, 563e
 Federal Reserve Board, short position requirements, 309–310
 Fill-or-kill order, execution, 218
 Filter rules, 256–257
 Finance theory, tenets, 259–260
 Financial engineering, 400
 Financial instruments, simultaneous buying/selling, 22
 Financial Services Authority (UK), 22
 Financial theory, asset examination, 281–282
 Financial time series, 125–126
 Finite-life general dividend discount model, 274–277
 inputs, requirement, 275
 First call date, 420
 First-loss piece, 448
 First-loss tranche, 433
 Fitch Ratings, 426
 Fixed income portfolio investing, 557
 Fixed income securities, 17
 risk, types, 586
 Fixed-income security, usage, 408
 Fixed rate, level payment, fully amortized mortgage, 434–435
 Fixed rate payer, 634
 Fixed rate Treasury notes/bonds, 422
 Flash trading, 215–216
 FLEXible EXchange (FLEX) option, 347, 352e
 customization, 349
 limitations resolution, 404
 Floaters, 419
 Floating rate payer, 634
 position, 638
 Floating-rate securities, 419
 Forecast confidence, 566–568
 Foreign index funds, 407
 Foreign investment selection, 579–582

- Foreign market access, 398–399
- Forward contracts, 623–634
- futures contracts, contrast, 623–624
 - over-the-counter instrument, 624
 - package, 636–637
 - time dependence, 383–384
- Forward curves, realization problem, 573
- Forward-looking tracking error
- backward-looking tracking error, contrast, 236–238
 - computation, 237
- Forward rates, 498–504
- examples, 498
 - importance, 545
 - representation, 499–500
- Foundations (institutional investor), 4
- Four-tranche sequential-pay structure, accrual bond class, 445e
- Four-year binomial interest rate tree, 511e
- Frank Russell Company, 224
- Free market prices, 561e
- FTSE 100, 353
- FTSE 350, 298
- Fundamental analysis, 259–264
- Fundamental multifactor risk model, 251
- Funding ratio
- CM, conditional mean, 193
 - constraint, 201–202
 - distribution, 181e
 - level, increase, 181
- Fund sales charges, 33–35
- Future cash flows, dependence, 513
- Future earnings, market forecast, 260
- Futures
- features, 368–370
 - market
 - cash market, contrast, 396
 - misevaluation, 398
 - options, 640
 - differences, 367–368
 - position, dollar duration, 633–634
 - price, 367
 - equation, 371, 627, 628
 - valuation model, assumptions (violation), 374
- Futures contracts, 366–370
- arbitrageur sale, 372
 - dollar duration, 633–634
 - forward contracts, contrast, 623–624
 - marked to market, 624
 - number, determination, 632–633
 - time dependence, 383–384
- Futures position, indication, 392–393
- Gamma, 365
- Generalized Wiener process, 152–154
- Ito processes, contrast, 154
 - obtaining, 154
- Generally accepted accounting principles (GAAP), 6
- General obligation bonds, 429
- Geometric Brownian motion (GBM), 152–153
- Geometric mean return, 11–12
- Geometric mean reversion (GMR), 146–148
- parameters, estimate, 146
 - paths, 147e
 - process, volatility estimate, 148
 - p -value, 147
- Geometric random walks, 134–142
- facts, 140–142
 - noise, decay, 141
 - parameter estimation, 140
 - paths, 141e
 - process, path simulation, 151
 - random variable, 151
 - simulation, 139–140
 - volatility, estimation, 140
- Giant-cap funds, 245
- Giant-cap value, 249
- Global asset allocation strategy, 404e
- Global bond markets, 564e
- Global bond portfolio performance, enhancement, 582–583
- Global communications, revolution, 558
- Global economies, global fixed income portfolio manager assessment, 559
- Global equity investment strategy, implement, 399
- Global fixed income portfolio, volatility exposure characteristic, 575
- Global fixed income portfolio managers
- challenge, 565
 - impact, 557–565
 - region/country consideration set, 580
 - skills, 559
- Global interest rate volatilities, 575
- Global minimum variance (GMV) portfolio, 65, 66e
- out-of-sample performance, 165–166
- Global monetary/fiscal policies, impact (evaluation), 564e
- Global money market/repo rates, 569
- Global policies, 561e
- Global yield curves, 569
- Goal-directed strategies, optimal switching (involvement), 192–193
- Government National Mortgage Association (GNMA), 436
- Government-owned agencies, 423
- Government sponsored enterprises (GSEs), 423
- securities issuance, 423–424
 - shelf, 447, 448
- Graham, Benjamin, 250, 260, 263, 287
- Creeks, 362
- Grinold, Richard, 252–253
- Gross domestic product (GDP), impact, 105, 558
- Growth at a price managers, 242
- Growth at a reasonable price managers, 242
- Hamilton-Jacobi-Belman (HJB) equation, 200
- Hard commodities, 30
- Hedge funds, 21–25
- categories, 23–25
 - opportunistic category, 25
 - risk exposures, 24e
 - styles, 24e
 - term, usage, 21–22
- Hedge ratios, 392–394
- beta usage, 394
- Hedging
- demands, 173
 - derivatives, usage, 403e
 - interest rate futures, usage, 634
 - portfolios, introduction, 183
 - strategies, 391–392
 - tools, 654
- Hidden passive element, 322
- High-expected return stocks, 261
- High-frequency trading (HFT), 215–216
- High-grade corporate bonds, CDS, 654
- High minus low (HML), 107
- High-yield bonds, 426
- High-yield corporate bonds, 654
- Hindsight bias, 289–290
- Historical systematic simulated returns, 614e

- Holding period return, 50
- Idiosyncratic risk, 586
 increase, 169
 irrelevance, 594
 summary, 610, 611e
- Illiquidities, 84
- Impact costs, 221
- Implicit costs, 220–221, 296
- Implied futures rate, 626
- Implied repo rate, 626
- Implied volatility
 risk, 608–609
 trading, 575
- Incentive fee, 23
- Independent and identically distributed (IID) random variables, 130
- Independent public accountant fees, cost, 34
- Independent variable, 81
- Indexed portfolio, construction, 246–247
- Indexes
 allocation, 542–543
 customization, 539–544
 mean-variance analysis, usage, 541–544
 dollar value, 353
 percentage, 540–541
 rating, 540
 threshold levels, 538
- Index fund
 creation, 396–397
 strategies, modification, 405
- Index futures contracts, usage, 314
- Indexing, 233
 goal, 405–406
 strategy, 245–246
- Index model approximations, 68–70
- Index options, 350, 351e
 LEAPS, size (difference), 354
- Index points, earning, 372–373
- Indifference curves, 47–48
 expected return/risk, contrast, 48e
 impact, 64
 usage, 63
- Individual investors, 4
- Industry-specific multiples, usage, 282
- Inefficient asset classes, efficient asset classes (contrast), 19–20
- Inefficient market, shorting (example), 89e
- Inefficient PSP, efficient PSP (funding ratio distribution), 181e
- Inferential information, discrepancies, 572
- Inflation
 forecasts, 547e
 index, 540
 risk, 173, 609
- Inflationary expectations, 108
- Inflation hedging benchmarks, improvement, 174–178
- Inflation-linked bonds, 577
- Inflation-protected Treasury notes/bonds, 422
- Information, 569–573
 portfolio manager interpretation, 560
- Information ratio (IR), 238, 298–299
 data/calculation, 235e
 expression, 253
 improvement, 314
- Initial margin requirement, 219
- Initial public offering (IPO), 33
- Insider (SEC definition), 263
- Insider activity
 following, 263–264
 information, 262
- Institutional arrangements, IMF implementation, 566–567
- Institutional investors
 components, 4
 stock portfolio, usage, 220
- Institutional trading, 221–222
- Insurance companies (institutional investor), 4
- Insured bonds, 429
- Integrated market-neutral portfolio, performance, 315–316
- Integrated optimization, importance, 312–316
- Intelligent Investor, The* (Graham), 260
- Interest-on-interest component, 466
 computation, 470
- Interest-only class, 440
- Interest-only mortgage strip, 441
- Interest-only securities, 441
- Interest rate futures, 623–634
 availability, 630
 options, 640
 usage, 634
- Interest rate paths
 cash flow simulation, 528e
 generation, simulation (usage), 526–527
 number, 529e
- Interest rate risk, 173, 523
 benchmarks, improvement, 173–174
 control
 futures, usage, 630–634
 principles, 630–632
 swaps, usage, 638–639
 measurement, 471, 474–483
 duration/convexity, usage, 474–483
 price value of a basis point (PVBP), usage, 474
 measures, 457
- Interest rates, 108
 agreements
 caps/floors, 642–643
 terms, 642
 caps, 642
 change, 475, 477
 absence, 461
 derivatives, 623
 expectations, 631
 floors, 642
 geometric random walk
 example, 142
 history, 525
 increases, 504
 model, 508
 options, 640–642
 pure expectations theory, 503–504
 swaps, 634–639
 risk-return characteristics, 635–636
 volatility, 520
 portfolio manager definition, 574
- Intermarket spreads, 559
- Intermediary, services/fees, 220
- Intermediate-term timing strategy, 395
- Internal credit enhancements, 431–433
 mechanisms, requirement, 449
- Internal rate of return (IRR), 13
- International bonds, risk/reward components, 580
- International corporate bonds, 577–579
- International equity swaps, 378
- International fixed income investing, 581e
- International index funds, 407
- International investing, political externalities, 579
- International Swap and Derivatives Association (ISDA), 651
- International yield curves, volatility assignment/selection, 574
- In the money (ITM), 358
- Intramarket spreads, 559
- Intrinsic value, 250, 358
- Investment
 added-value, source, 160
 advisory fee (management fee), 34

- Investment (*Cont.*)
 EVA style, 252
 horizon
 one-year anticipated investment horizon, 498
 projected sale price, determination, 469
 long-run performance, 52
 objectives, setting, 4
 opportunities, 253
 opportunity set, risk factors (impact), 182–184
 performance, measurement/evaluation, 4
 philosophy, categories, 399
 policy, establishment, 3, 4–5
 portfolio, risk characteristics (modification), 383
 process, 230
 evaluation/updates, 302–304
 productions, 159–160
 results, evaluation, 302–304
 strategy
 fundamental analysis, 259–264
 technical analysis, 255–259
 strategy, selection, 3
- Investment companies (ICs), 15, 31–36
 investing, advantages, 35
 taxation, 35–36
 types, 31–33
- Investment Company Act of 1940, 33
- Investment-grade bonds, 426
 portfolio expectation, 594
- Investment-grade indexes, unrated paper (treatment), 537
- Investment management, 401e
 overview, 3
 process, tasks, 3–4
- Investment return-risk ratio, breadth/depth, 255e
- Investors
 buy side, 216
 confidence, 108
 expected pension value, stochastic features, 185
 liability commitments, presence, 179–181
 lifetime income progression, stochastic features, 185
 long-term objectives, presence, 181–186
 margin account, 219
 market exposure, 222
 risk aversion, 94–95
- Involuntary prepayment, occurrence, 430
- Isolated risk per category, 590e
- Isolated risks, analysis (difference), 591–592
- Issue-level reports, 610–613
- Issuers
 investors, conflicts of interest, 174
 on-the-run yield curve, 510e
 spot rates, 510e
- Issuer specific risk, 613e
- Issue specific risk, 611e
- Issue weights, 550
- Ito Lemma (Ito's Lemma), 154–155
 application, 202
 expression, obtaining, 156
 notation, usage, 156
 proof, intuition, 155
- Ito processes, 154
 generalized Wiener processes, contrast, 154
- J-curve effect, 28–29
- Jensen inequality, 137–138
- Jump-geometric random walk, 151
- Jump Poisson process, 150–151
- Jumps
 incorporation, 150–152
 non-negative magnitude, restriction, 151
 occurrence, 151–152
- Junk bonds, 426
- Kahn, Ronald, 252–254
- Key rate duration (KRD), 483–484
 risk factor measurement, 599
- King, Benjamin, 71
- Known factors, 105–109
- Kreissler, Michele, 504
- Kurtosis, preference, 170
- Large cap common stock, 17
- Large-cap funds, 245
- Large cap investors, 241
- Large-cap manager, allocation, 319
- Latency, 215–216
- Latent factors, 109–110
- Lattice model, 507–522
- Leavens, D.H., 57
- Lenders, risk-based pricing, 450
- Leverage, 22, 108
- Liability, 4
 hedging instrument solutions, design, 176
- Liability-driven investing (LDI), 190–191
- Liability-driven investment (LDI), 160
 paradigm, 179–181
 implications, 160
- Liability-hedging portfolio (LHP)
 design, asset allocation/portfolio construction decisions, 173–179
 dynamic allocation decisions, 179–195
 expressions, 198
 long position, pension fund holding, 184–185
 reinterpretation, 187
- Liability-hedging portfolio (LHP), customization, 160
- Liability-matching portfolios, customization, 174–175
- Life-cycle investing (LCI), 190–191
- Life-cycle investment paradigm, 181–186
 strategies, 182
- Like-kind companies, 279
- Limited borrowing, 91–93
- Limited liability companies (LLCs), 27
- Limit order, 216–217
 conditional order, 217
- Linear regression model, estimates, 147
- Linkers, 577
- Liquidity
 risk, 403, 521, 609
 variation, 572
- Liquidity buffer
 impact, 310
 reduction, 317
- Listed equity options, 348–366
 features, 351e–352e
 OTC equity options, contrast, 349–350
- Listed options
 cost management options, 387–389
 features, 350–355
 OTC options, contrast, 376–377
 portfolio applications, 386–390
 regulatory issues, 390
 return enhancement strategies, 389–390
 risk management strategies, 386–387
- Load, 33–34
- Loan Credit Default Swap Index (LCDX), 654
 characteristics, 657e
- Loan-to-value (LTV) ratio, 451

- Loftus, John, 240
- Lognormal distribution,
example, 138e
- Log-normal random walk,
511–512
- Log returns, independence, 136
- London Interbank Offered Rate (LIBOR), 378–380, 629
cash inflow/cash outlay,
637–638
LIBOR-based security, 408
- London International Financial
Futures and Options Exchange (LIFFE), 347, 629
contracts, number (increase),
370
Euronext takeover, 370
- Long calls, expected returns,
411–412
- Long futures, 366
- Long-only portfolio, expression,
314
- Long-plus-short portfolio, 313
- Long-run historical returns,
basis, 51
- Long/short arbitrage strategies,
40
- Long-short equity portfolios, 307
- Long-short investing, 385
- Long-short investing, impediments, 322
- Long-short portfolio
benchmark weight constraints,
315
benefits, 315–316
evaluation, 323–324
flexibility, increase, 308
performance, 323–324
- Long-short position, hedge,
261–262
- Long-short spread, transportability, 318–319
- Long-short strategies, impediments, 322
- Long-term bonds, short-term debt (contrast), 174
- Long-term Equity Anticipation Securities (LEAPS), 354
options, 352e
- Long-term liability needs, protection, 173
- Long-term performance constraint, 202
- Long-term portfolio management, 40
- Long-term projected earnings growth, 243
- Lookback options, 377
- Loss allocations, structure (schematic), 448e
- Loss constraints, 550
- Loss tolerance, excess return, 551e
- Lower partial moment risk
measure, 74
- Low-expected return stocks, 261
- Low P/E effect, 263
- Lynch, Peter, 250
- Macroeconomic factor model, 108
- Macro-risk pricing factors, 248
- Maintenance margin requirement, 219, 367
- Managed portfolio, value, 36
- Management
categories, measures, 140e
fee (investment advisory fee), 34
- Mandelbrot, Benoit, 71
- Margin requirements, 219
- Margin transactions, 218–219
- Margrabe's formula, usage, 202
- Market
efficiency, 82
meanings, 83–93
impact costs, 296–297
incompleteness, 200
index, 539
information, 569–573
leverage, 108
long-term movement, primary trend, 256
makers, 213
neutrality, illustration, 311–312
orders, 216
overreaction, 258
prices, impact (forecasting difficulty), 297
return, addition, 316–321
sentiment, barometer, 654
size, gauge, 542e
structure/exposure contributions, 587–589
technical aspects, 250
transactions, timing, 232
value
over/underweights, 553e
percentage, 553e
- Market anomalies
stock selection, 232
strategies, 262–264
- Market capitalization, 16–17
impact, 244
market-cap-weighted indexes,
portfolio inefficiency,
163–164
- Market directional hedge funds,
23
- Market if touched order,
217–218
- Market model regression,
105–106
- Market-neutral equity portfolio,
design, 312
- Market-neutral long-short portfolio, return/risk, 318–319
- Market-neutral long-short strategy, 261–262
- Market-neutral performance, 311e
- Market-neutral portfolio, 308
construction, 313
return, 310–311
- Market portfolio
efficiency, CAPM short seller (presence), 89e
mean-variance efficiency,
absence, 86e
mean-variance efficient frontier, 81, 83–84
securities components, 80
- Market risk, 83
hedging, 391–392, 395
premium, 20
- Market value to book value (MV/BV) ratio, 279
- Markov property, 130
- Markowitz, Harry, 52
- Markowitz diversification
impact, 59
strategy, 57–58
- Markowitz static portfolio selection analysis, 181–182
- Martingale duality, 187
- Maturity, 417
par value, 457
value, 418
- Maximum Sharpe ratio (MSR)
out-of-sample performance,
165–166
performance-seeking portfolio,
162
portfolio
basis, 161
proxy efficiency, 164
- Mean, term (usage), 80
- Mean-absolute deviation (MAD)
dispersion measure, 73
- Mean return, 80
- Mean reversion (MR), 142–148
adjustment, speed, 143
geometric mean reversion,
146–148
parameter estimation,
145–146
process, adjustment speed,
145–146
simulation, 144–145
- Mean-reverting process, 143
formula, 144–145
long-term mean, estimate, 146
paths, 144e
volatility estimate, 146

- Mean-variance (MV) analysis, 45
 applications, 103
 usage, 541–544
- Mean-variance (MV) efficient portfolio, 61, 80
 investor holding, 84
- Mean-variance (MV) optimization, 74–75, 165
- Mean-variance (MV) portfolio analysis, 45
- Mean-variance (MV) setting, 161, 167
- Median-capitalization stock, 313
- Medium-term notes (MTNs), bonds (contrast), 421
- Mega-cap common stock, 17
- Micro-cap common stock, 17
- Micro-cap funds, 245
- Micro-cap land, 249
- Mid-cap common stock, 17
- Mid-cap funds, 245
- Minimum risk hedge ratio, 394
- Minimum risk portfolio, efficient frontier (relationship), 543e
- Model fitting, measure, 111–112
- Model-implied duration, 620e
- Model-implied empirical duration (MED), 619–620
- Modeling risk, 509
- Modern Portfolio Theory, 287
- Modified duration, 477–478
- Modified-modified restructuring, 653
- Modified restructuring, 653
- Momentum strategies, 264
- Money management, 3
- Money managers, performance attribution analysis, 266e
- Monte Carlo model, 522–523
 OAS, usage, 530
- Monte Carlo simulation, 524–530
 model, usage, 531
 valuation model, 509
- Monthly cash flow, 438e
- Monthly mortgage payment, 435
- Monthly spot rates, paths (simulation), 529e
- Moody's Investors Service, 426
- Morgan Stanley Capital International (MSCI)
 Barra E3 model risk definitions, 329e
 Barra fundamental factor model, 107, 251, 327–330
 EAFE, 298
 indexes, 224
 reinforcement, 230
 World Country Indexes
 annualized expected returns/
 standard deviations/correlations, 67e
 usage, 65–68
- Morningstar ETF Investor*, 39
- Morningstar Style Box, 243
- Mortgage-backed securities (MBSs), 417, 424–425
 mismatches, 587
 monthly cash flow yield, 523
 prepayment risk, 607e
 valuation, 522, 525–531
- Mortgage bond, 424–425
- Mortgage passthrough securities, 435–440
- Mortgage refinancing rates, paths (simulation), 527e
- Mortgage-related ABS, 450
- Mortgages, 434–435
- Most distant futures contract, 367
- Moving averages, 257
- Multi-asset setting, optimal portfolio (usage), 552–553
- Multiclass performance-seeking portfolio, construction, 171
- Multifactor equity risk models, 327
 description/estimation, 328–330
- Multifactor fixed-income risk models/applications, 585
- Multifactor models, known factors (usage), 107–109
- Multifactor risk models, 331
 optimization method, combination, 341
- Multi-index market models, 71
- Multiphase dividend discount models, 277
- Multiples
 application, 284
 calculation, 282–283
 determination, 282
 usage, 280
- Multiplicative model, 139
- Municipal securities, 428–430
 types, 428–430
- Mutual funds (MFs) (open-end funds), 31–33
 closed-end funds, contrast, 34e
 exchange-traded funds, contrast, 39–41, 41e
 shares, purchase/liquidation, 35
 size value, 243
- Naked calls, 388–389
 strike price, writing, 389
- Nano-cap common stock, 17
- NASDAQ 100 Index (NDX), 350
- National Association of Securities Dealers Automated Quotation (NASDAQ), 213–215
 Composite Index, 223
- Nearby futures contract, 367
- Negative convexity, positive convexity (contrast), 482
- Negative dollar return, 466
- Negatively convex, term (usage), 478
- Neglected-firm effect, 263
- Net asset value (NAV), 32
 equality, maintenance, 37
- Net cost of carry, 371
- Net coupon, 435
- Net interest, 435
- Net market weight (NMW), 597, 606
- Net operating income (NOI), 451
- Net present value (NPV), 252
- Netting arrangements, 375
- New York Stock Exchange (NYSE) (Big Board), 213–215
 block trades, 222
 Composite Index, 223
 Euronext, 370
 Hybrid Market, 214
 LIFFE, 347
- No-arbitrage condition, 371
 result, 500
- Node, value (determination), 513–514
- Nominal rate, 418
- Nominal spread, 496, 524
- Nonaccrual tranches, shortening, 445
- Nonamortizing assets, 430–431
- Noncallable U.S. agency bonds, 542
- Nonconforming loans, 436
- Noninvestment-grade bonds, 426
- Nonlinear dynamic models, 257–258
- Nonmarket risk (elimination), diversification (usage), 392
- Non-normal probability distribution, 71–72
- Nonrecourse loans, 451
- Non-self-financed portfolios, wealth process (impact), 182
- Non-senior tranches, 433
- Non-S&P 500 index funds, 406
- Nonterm structure risk factors, 108–109
- Nontraditional asset class, 18
- Non-Treasury bond, nominal spread, 496–497
- Non-Treasury issue, credit risk, 521

- Non-Treasury securities
 - arbitrage-free value calculation, benchmark spot rate curve (usage), 495e
- Non-Treasury securities, valuation, 494–495
- Nontrivial risk, 590
- Non-U.S. bonds, 5, 16
- Non-U.S. common stocks, 5, 16
- Nonzero off-diagonal elements, usage, 110
- Normal factor model, 110
- Normative theory, 45
- Notice day, 627
- Notional amount, 648
- Notional principal, 634

- Odd lot, definition, 218
- Off-exchange markets, 214
 - development, 214
- Official statement, 428
- Off-the-run issue, 422
- OneChicago, LLC, 370
- One-factor model, 96, 105–106, 508
 - 120-20 portfolio, 319–320
 - 120-20 type portfolio, 308
 - 130-30 portfolios, 320
- One-month future interest rates, paths (simulation), 527e
- One-step-ahead projections, 283
- One-step portfolio optimization decisions, asset mix components (involvement), 163
- One-year anticipated investment horizon, 498
- One-year rates, usage, 516–517
- One-year Treasury bill rates, weekly data, 143e
- On-the-run interest rates, 521–522
- On-the-run issue, 422
 - usage, 515e
- On-the-run Treasury yield, 492
- On-the-run yield curve, 510e
- Open-end funds (mutual funds), 31–33
- Open order, 218
- Open system, 561e
- Operating expense, 34
- Opportunity costs, 221
- Optimal hedge ratio, 394
- Optimal payoff, equation, 202
- Optimal portfolio, 48–49, 550–553
 - equation, 162
 - market value over/underweights, 553e
 - selection, 63–64
 - illustration, 64e
 - strategy, 200–201
 - usage, 552–553
 - weights, 165
- Optimal terminal wealth, 199
- Optimal wealth process, 199
- Optimization
 - benefits, 299–300
 - concept, 300–301
 - criterion, selection, 546–549
 - integration, importance, 312–316
 - model, multifactor risk model (combination), 341
 - scenario, selection, 545–546
- Optimizers, benefits, 299–300
- Option-adjusted duration, 478
- Option-adjusted spread (OAS), 496, 520–522
 - analysis, 522–523
 - approach, 530–531
 - determination, 529–530
 - development, 506–507
 - option cost, relationship, 506–507
- Option-based portfolio insurance (OBPI) strategies, 189
- Option cost, OAS (relationship), 506–507
- Option-free bonds
 - price volatility properties, 471–473
 - price-yield relationship, 472e, 478e
 - valuation, 457–463
 - binomial tree, usage, 516–517
 - maturity/coupon rate, 517e
- Option price, 349
 - components, 358–359
 - factors, 359
 - intrinsic value, 358
 - sensitivity, factors (change), 362–365
 - time value, 358–359
- Options, 399
 - beta, 411
 - buyers, value realization, 359
 - contract, 348
 - delta, 364
 - futures, differences, 367–368
 - measures, theta, 365
 - premium, 349
 - pricing models, 360–362
 - risk, 521
 - risk-return characteristics, 640
 - risk/return characteristics, 355–357
 - risk-return profile, 357
 - strategies
 - expected return/beta, 413e
 - risk/expected return, 410–413
 - time value, 358–359
 - value, 358–366
- Options Clearing Corporation (OCC), 349
- Options on interest rate futures, 640
- Options on physicals, 640
- Order-driven auction (specialist) market, 214
- Order-driven model, 213
- Orders
 - placement, 218
 - types, 216–218
- Ordinary differential equations (ODEs), 201
- Ordinary least squares (OLS) regression, 114–115
 - coefficients, 116
- Ornstein-Uhlenbeck process, 143–144
- Outliers, impact, 283
- Out-of-sample results, improvement, 168
- Out of the money (OTM), 358
 - strike prices, aggression, 389
- Overcollateralization (OC), 431, 432
 - structure, 450
- Over-fitting, 290
- Overreaction hypothesis, 257
- Over-the-counter (OTC) contracts
 - exposure, 641–642
 - impact, 190–191
- Over-the-counter (OTC) derivatives
 - investment management, 401e
 - market, term product access, 346
 - structures, 401e
 - usage, 408
 - trading, absence, 347–348
 - usage, 175
 - equity strategy, 400e
- Over-the-counter (OTC) equity derivatives, 375–380
 - applications, 399–410
 - asset allocation, 403–404
 - components, 375
 - cost management strategies, 409–410
 - regulatory management strategies, 409–410
 - return enhancement strategies, 408–409
 - return management strategies, 404–408
 - risk management strategies, 402–403
 - structured product solutions, creation, 400–402
 - usefulness, 409

- Over-the-counter (OTC) equity options, listed equity options (contrast), 349–350
- Over-the-counter (OTC) index derivatives, usage, 407
- Over-the-counter (OTC) market, extension, 347
- Over-the-counter (OTC) options, 376–378
 first generation, 376–377
 listed options, contrast, 376–377
 markets, 569
 purchase, 641–642
 second generation, 377–378
 structures, path dependence, 377
- Overwrite, 389
- Ownership Zone, 245
- Parallel yield curve shift assumption, 479
- Partial differential equation (PDE), usage, 200–201
- Partial duration, 549
 key rate duration, 599
- Partial moment risk measure, 74
- Par value, 417–418
- Passive ETFs, fees, 40
- Passive investment management, 399
- Passive investment strategy, decision, 407
- Passively managed ICs, 31
- Passive management, 384–385
- Passive mutual funds, fees, 40
- Passive portfolio management, active portfolio management (contrast), 239–240
- Passive portfolio strategy, 6
- Passive strategy, 232–233, 245–247
 implementation, 233
- Passthroughs
 coupon rate, 436
 sensitivity, 525–526
 structures, paythrough structures (contrast), 433–434
- Path-dependent cash flows, 525
- Payer's swaption, 638
- Payout structure, 367
- Pension funds
 CIO, centralized decision maker, 163
 institutional investor status, 4
 liability-hedging portfolio, long position, 184–185
- Percentage price change, 141
 computation, 147
 convexity adjustment, 481
- Performance
 attribution analysis, 265
 attribution models, 8
 evaluation, 7–14, 264–267
 measurement, 8–14
 monitoring system, 302
- Performance-seeking portfolio (PSP), 160–161
 design, diversification strategies (impact), 186–187
 diversification, 173
 dynamic allocation decisions, 179–195
 expected return/volatility, time-variation, 180
 expressions, 198
 improvement, terminal funding ratio distribution (risk-controlled strategy), 191e, 194e
 inefficiency, terminal funding ratio distribution (risk-controlled strategy), 190e, 192e
 investor holding, 162
 liability/inflation hedging properties, 178–179
 optimal design, asset allocation/portfolio construction decisions, 161–172
 optimal dollar allocation, defining, 195
- Performance-seeking portfolio (PSP) Sharpe ratio allocation, increase, 188
 base case value, example, 193
 changes, hedging demand, 184
 decreasing function, 180
 improvement, 181
- Periodic coupon interest payment, 443e, 445e, 457
 issuer, impact, 466
- Periodic interest payments, income, 466
- Perpetual security, 271–272
- Peters, Edgar, 257–258
- Physicals, options, 640
- Physical settlement, 649
 credit event, 650e
- Plain vanilla equity swap, variations, 378
- Plain vanilla S&P 500 index fund, 397–398
- Planned amortization class (PAC) bond, illustration, 446
 CMO structure, 445–446
 support tranche, average life, 447e
 tranches, 445–447
 average life, 446–447, 447e
- Planned investment horizon, projected sale price (determination), 469
- Plowback ratio, 211, 273
- Pogue, Gerald, 71
- POINT Optimizer, 615–617
 illustration, 616e, 618e
- Poisson distribution, 149
- Portfolio
 active return, 234
 time-series standard deviation, 298–299
 beta, 71, 594–595
 hedge ratio usage, 394
 usage, 393
 constraints, defining, 549–550
 convexity measure, calculation, 481
 country-specific duration, 565–566
 curve risk, hedging, 595
 demographic trends, 568–569
 diversification, 56–60
 dollar return, 632
 realization, 8
 duration, 479
 contribution, 479
 example, 337e
 expected return, 60e
 denotation, 161
 enhancement, 383
 measurement, 49–52
 feasible set, 61
 forecast confidence, 566–568
 forecasted risk, components, 586
 inefficiency, 163–164
 information ratio, 298–299
 institutional bias, 568–569
 internal rate of return, 467–468
 market participant holding, 88
 market weights, 588e
 mixes, example, 61–62
 model-implied empirical duration (MED), 619–620
 NAV, 37
 oil holdings, restriction, 315
 optimization, 299–300
 overweight level, 239
 parameters, 565–568
 realized risk-return, 167
 rebalancing, 617–619
 optimization setup, POINT Optimizer, 618e
 regulatory changes, 568–569
 relative risk, 566–568
 residual risk, benchmark (relationship), 314
 solutions, dedication, 159–160

- standard deviation, 60e
 - absolute number, 234
- strategy, selection, 6
- theory
 - development, 57
 - portfolio construction, gap, 164–165
- tilting, 340–341
- total market value, 50
- total returns, 317
- total systematic variance, 591–592
- tracking error, 234
 - index, relationship, 236
- volatility
 - absolute number, 234
 - consideration, 590–591
- weights, 121
- Portfolio construction, 4–7, 159, 298–300
 - applications, 336–341
 - benchmarking, implications, 170–171
 - decisions, 173
 - process, 160
 - example, 615–616
 - optimization setup, 616e
 - portfolio theory, gap, 164–165
 - risk budgeting, 615–617
 - step, 163
 - efficient benchmarks, designing, 163–171
- Portfolio management, 3
 - equity derivatives, usage, 383
 - MSCI BARRA reinforcement, 230
- Portfolio manager
 - considerations, 303–304
 - global low-duration, 567–568
 - global market duration assignment, 568
 - holdings, 237
 - investment strategy, 293
 - performance evaluation, 8
 - quantitative risk-return
 - optimization, application, 74–75
 - value, addition, 264–265
- Portfolio return
 - calculation, 10
 - expression, 8
 - performance, 265
- Portfolio risk
 - acceptable levels, 45
 - asset returns, correlation (impact), 59–60
 - characteristics, 602–603
 - control, 230, 314
 - correlation, 58–59
 - measurement, 52–56
 - reduction, 35, 57–58
- Portfolio selection, 45, 85
 - alternative risk measures, 72–74
 - concepts, 47–49
 - example, 65–68
 - issues, 68–76
 - theory, 57
- Position day, 627
- Position limits, 375–376
- Positions, option hedging, 574
- Positive abnormal returns, 231
- Positive convexity, negative convexity (contrast), 482
- Predictive factor models, 111–112
 - estimation, 111–112
- Preferred stockholders, entitlement, 207–208
- Premium, 461
- Prepayable securities, price-yield relationship, 477–478
- Prepayments, 430, 435
 - conventions, 437–438
 - lockout, 451–452
 - penalty points, 451, 452
 - projection, 526
 - rate/speed, 437
 - risk, 435, 439–440, 606–608
 - expression, 607
- Prerefunded municipal bonds, 429–430
- Price
 - asymmetries, example, 578e
 - impact, forecasting, 297
 - momentum, 257
 - natural logarithm, 136
 - persistence, 257
 - risk, 397
 - uncertainty, minimization, 300
- Price/earnings (P/E) ratio, multiple (usage), 279
- Price-earnings ratios, 107, 260–261
- Price-earnings value multiplier, 250
- Price efficiency, evidence (semi-strong form), 231–232
- Price-to-book value multiplier, 250
- Price-to-book value per share (P/B) ratio, 241, 243
- Price-to-earnings (P/E) ratio, 241–242, 244
 - impact, 263
- Price value of a basis point (PVBP), 475e, 630–631
 - usage, 474
- Price/X ratios, 279
- Price-yield relationship, 459, 460e, 471
 - convexity, 459
 - shape, 460e
- Pricing anomalies, 232
- Pricing efficiency
 - forms, 231–232
 - semi-strong form, 231
 - strong form, 231, 262
 - weak form, 231
- Primary trend, 256
- Prime broker, account administration, 309
- Principal, 418
- Principal components (PCs), 121
- Principal components analysis (PCA), 112–113
 - purpose, 122
 - statistical method, 599
 - usage, 113–124, 166–167
- Principal-only class, 440
- Principal-only mortgage (PO), 440
- Principal-only securities, 440
- Principal package trading, usage, 302
- Principal payments, disbursement, 443e, 445e
- Principal protection notes, 402
- Principal repayments, 438–439
- Private equity, 25–29
- Private Export Funding Corporation, 423
- Private-label deal, credit enhancement, 448
- Private-label residential MBS, 447–450
- Probability distribution, 52e
 - usage, 51
- Probability theory, 75
- Probability-weighted function, 74
- Program trades, 222
- Projected sale price, determination, 470
- Protective put buying strategy, 386–387
- Providers, 39
- Public orders, 216–217
- Public Securities Association (PSA) prepayment benchmark, 437–439
- Pure expectations theory, 503–504
- Put-call parity relationship, 362
- Put option, 349
 - classification, 425
 - purchase, 356–357
 - value, 519
 - writing, 357

- Put price, 421
 Put provision, 421
p-value, 145
- Quality option, 626–627
 Quantitative analysis, specification errors, 290
 Quantitative equity models, stock price anomalies (usage), 293e
 Quantitative equity portfolio management, 286
 Quantitative fundamental analysis, 250, 251
 Quantitative managers, explicit models, 290
 Quarterly, 347
- Random walk, 125
 advanced models, 148–152
 correlated random walks, 148–149
 jumps, incorporation, 150–152
- Real estate, 5, 16, 18
 Real GDP growth, macroeconomic factor, 108
 Rebate, 219–220
 Recouping, 375–376
 Redemption value, 418
 Reference obligor, 648
 credit event, 649
 Reference rate, 419
 usage, 634–635
 Refinancing
 advantage, 431
 rates, 526
 Refunding provision, 419–420
- Regression
 analysis, estimation, 70
 estimate, 393
 Regression coefficients
 matrices, 117
 usage, 109–110
- Regulated investment companies (RICs), 35–36
 institutional investor status, 4
- Regulation T, 85, 93
 requirement, 310
- Regulatory accounting principles (RAP), 6
- Regulatory management, 346
 strategies, 409–410
- Reinvestment risk, 466, 523
- Relative return, 23
 Relative risk, 566–568
 Relative strength, 257
- Relative valuation
 methods, 278–284
 principles, 280–281
 process, 281e
 usage, 280
- Relative value
 assessment, 275–276
 positioning, 655
- Required yield, 457
 relationship, 459–461
- Reserve funds, 431, 432
- Reset options, 377
- Residential mortgage-backed securities (RMBSs), 434–450, 607
- Residual risk, 332
 benchmark, relationship, 314
- Residuals, correlation (absence), 106
- Restructuring
 debate, 652–653
 elimination, 653
 ISDA definitions, 653
- Retention ratio, 211–212
- Return
 annualization, 13–14
 arithmetic average (mean) rate, 10–11
 attribution models, 8
 calculation, 9
 covariance matrix formula, 110
 dollar-weighted rate, 13
 enhancement strategies, 389–390, 408–409
 expectations, 230
 kurtosis, reduction, 169
 management, 345
 strategies, 404–408
 maximization, 547
 measurement, assumptions, 9–10
 rate, probability distribution, 52e, 55e
 time-weighted rate, 11–12
 transportability, 317–319
- Return distributions, 71–72
 co-moments, estimates, 167
 higher-order moments, estimates, 167
 tails, 72
- Return forecasting, 292–295
 model, construction, 294
 steps, 293–294
 variables, set (identification), 292
- Return generating function, 328
- Return-generating process, 104–105
- Return on equity (ROE), 295–296
- Return-risk outcomes, trade-offs (subjective evaluation), 64
- Return-to-VaR ratio, maximization, 168
- Revenue bonds, 429
- Reversal strategies, 264
- r* factors, 108
- Risk
 analysis, 595e–597e
 approaches, 587–614
 budget, 587
 budgeting, 615–617
 control, 623
 applications, 336–341
 definition, 330–331
 elimination, 259–260
 exposure, example, 588
 factors, 330, 619
 categories, 592
 forecast, 292, 295–296
 indexes, 108
 grouping, 328
 management, 173–174, 345
 measurement
 risk factors, usage, 605–606
 variance/standard deviation, usage, 53–56
 models, development/selection, 296
 modeling, applications, 615–621
 reports
 detail, 592–614
 reports, importance, 336
 scenario, 548
 sources, 588, 608–610
 interaction, 608
- Risk-adjusted returns
 maximization, 288
 production, 253
- Risk adjustment, 231
 CAPM prescription, 84
- Risk-averse investors, 48
- Risk budgets
 spending, 188
 violations, unconstrained strategies, 189e
- Risk-controlled investing, 190–191
- Risk-controlled strategy, 190e, 191e
- Risk decomposition, 330–335
 overview, 335e
 report, summary, 338e
 summary, 334
- Risk-free arbitrage arguments, usage, 370
- Risk-free assets, 92
 absence, 84
 cash, absence, 189
 risky assets, contrast, 49
- Risk-free interest rate, 84
- Riskless assets, 49
- Risk management
 stock index futures, usage, 392
 strategies, 386–387, 402–403

- Risk measure
 - VaR advantages, 74
 - variance limitations, 71–72
- Risk per rating, 606e
- Risk-return characteristics, 5
- Risk-return combinations, 47
- Risk-return trade-offs, 308, 402
- Risk vector price, 197–198
- Risky assets
 - assumption, 200
 - classes (return), stochastic scenarios (generation), 191–192
 - portfolio
 - expected return, 51–52
 - selection, 60–68
 - risk-free assets, contrast, 49
- Robust estimator, 75
- Robust portfolio optimization, 74–76
- Robust statistics, 75–76
- Rollover strategy, 499
 - domination, 504
 - holding-period return, 500
- Rosenberg, Barr, 71
- Ross, Stephen, 104
- Roy CAPM, 81–82
 - replacement, 91–92
- Rule-based portfolio, 299–300
- Rules-based indexes, 539–541
- Russell 1000, 298
- Russell 2000, 298

- Safety-first risk measures, 73–74
- Safety-risk measures, 73
- Sales
 - charge/load, 33–34
 - fair price per dollar, 282
- Sample-based expected return estimates, usage (difficulty), 168–169
- Scenario analysis, 619–621
 - analytical/model-implied duration, 620e
 - report, 613–614
 - spread contraction, 620e
- Scenario interest rate path, present value (calculation), 528–529
- Second-generation exotic options, 403
- Second generation OTC exotic options, 347
- Sector allocations, 237
- Securities
 - analysis, 250
 - benchmark weights, convergence, 323
 - broad-based portfolio, acquisition, 35
 - distinction, 320
 - embedded options, usage, 574–575
 - expected returns, example, 85e
 - opportunity cost, 221
 - partition, risk analysis, 596e, 597e
 - six-pack, 448
 - standard deviations, example, 85e
 - U.S. government issuance, 49
- Securities and Exchange Commission (SEC)
 - equity/option market regulation, 390
 - insider definition, 263
 - Insider Transaction Report*, 263
- Securities and Exchange Commission (SEC), exchange registration, 213
- Securities Exchange Act of 1934, 219
- Securitized products, prepayment risk, 586
- Selective perception, 289–290
- Self-financed portfolio strategy, asset value process, 198
- Sell limit order, 217
- Sell orders, 213
- Sell stop order, 217
- Semi-active equity investment strategy, 385–386
- Semi-active strategy, 398
- Semiannual coupon interest, 458
- Semiannual coupon payments, present value, 459
- Semiannual total return, 469
 - annualization, determination, 470
 - obtaining, 470
- Semistrong efficient markets, 19
- Semi-strong pricing efficiency form, 231
- Semivariance, 72–73
 - extension, 74
- Senior-subordinated structures, 431, 432–433
- Senior tranche, 432
- Sensitivities, 586
- Sensitivity adjustments, 393
- Separate Trading of Registered Interest and Principal Securities (STRIPS), 423
- Separation theorems, 178
- Sequential-pay CMOs, 442–444
- Settlement date, 367
- Settlement price, 373
- Shareholder fee, 33–34
- Sharpe-Lintner CAPM (SL-CAPM), 79–81
 - conclusions, 80
 - covariance assumption, 97
 - replacement, 91–92
- Sharpe ratio, 7, 70
 - decreasing function, 180
 - increase, 162–163
 - vector, 162
- Shock rates, 475
- Short futures, 366
- Short-horizon performance evaluation, 288–289
- Short interest ratio, 257–258
- Short rebate, 310
 - assumptions, 312
- Short sales, prohibition (example), 86e
- Short selling, 22
 - ability, 312–313
 - constraint, addition, 66, 68
 - involvement, 218
 - restriction, impact, 69e
- Short squeeze, 321–322
- Short-term asset reallocation, 40
- Short-term constraints, replacement, 202
- Short-term debt, long-term bonds (contrast), 174
- Short-term forward rates, spot rates (relationship), 502–503
- Short-term inflation, 108
- Short-term investment, 626
- Short-term performance constraints, 186
 - usage, 201–202
- Short-term timing strategy, 395
- Short-term trading, 40
- Single-index market model, 70–71
- Single-index model, 96
- Single-index performance measures, 7
- Single-monthly mortality (SMM) rate, 437
- Single-name CDS, portfolio manager usage, 653–654
- Single-period portfolio return, measurement, 49–50
- Single stock futures (SSFs), 368–370
 - trading, 369–370
- Sinking fund
 - provision, 420
 - requirement, 420
- Six-month forward rates
 - derivation, 498–502
 - determination, formula, 501
- Six-month LIBOR, 635–637
- Six-month spot rate, geometric average, 503

- Six-month Treasury bill, 499
- Small cap common stock, 17
- Small-cap funds, 245
- Small cap investors, 241
- Small-cap manager, allocation, 319
- Small-firm effect, 262
- Small minus big (SMB), 107
- Soft commodities, 30
- Soros, George, 21
- Specialist system, 214
- Special-purpose index funds strategy, 407
- Special Purpose Vehicle (SPV), 380–381
- Special purpose vehicle (SPV), 430
- Specific risk, 331
- Speculative bonds, 426
- Speed, 437
- Spider, 39
- Sponsors/providers, 39
- Spot rates
 - curve (derivation), bootstrapping methodology (usage), 491e
 - short-term forward rates, relationship, 502–503
- Spread contraction, 620e
- Spreadsheet models, construction, 289–290
- Stable Paretian distribution, 71
- Standard convexity, effective convexity (relationship), 483
- Standard deviation, 52, 60e, 513
 - example, 65e, 67e, 85e
 - measurement, backward-looking tracking error (usage), 238
 - usage, 53–56
 - variance, conceptual equivalence, 53
- Standardized factor model, 110
- Standard normal distribution, 130e
- Standard & Poor's 100 Index (OEX), 350
- Standard & Poor's 500 (S&P500) Index, 223
 - futures, 392
 - level (2005–2009), 126e
 - return distribution, 396
 - stock portfolio, factor exposures, 340e
 - tracking, 396
 - usage, 39
- Standard & Poor's 500 Index (SPX), 350
- Standard & Poor's 600 (S&P600), 298
- Standard & Poor's Corporation, 426
- Stated conversion price, 425
- State-dependent allocation involvement, 185
 - strategies, 186
- State Street Global Advisers (SSgA), 39
- Static asset allocation, problem (example), 196–197
- Static cash flow yield analysis, 522–524
- Static factor models, 117
- Static spread, 496–498, 506
- Statistics, 75
 - report, 593e
- Stochastic calculus, 152
- Stochastic equity risk premium, mean-reverting component, 183
- Stochastic life-cycle investing
 - deterministic life-cycle investing, contrast, 185–186
 - risk budgets, usage, 194–195
- Stochastic processes, 152–156
 - continuous time, 125, 152–153
 - denotation, 153
- Stochastic volatility, 152
- Stock borrower, 219–220
- Stock index futures, 368
 - arbitrageur purchase/sale, 391
 - portfolio applications, 390–399
 - pricing, 370–375
 - risk management, 392
 - usage, 402
 - global context, 399
- Stock lender, 219–220
- Stock markets
 - capitalization, 107
 - index
 - risk control, 339–340
 - stocks, combination, 223
 - indicators, 222–224
 - pricing efficiency, 232–233
 - pricing inefficiency, 262
- Stock options, 350, 351e
- Stock price anomalies, selection, 293e
- Stocks
 - basket, 222
 - dividends, 425
 - exchanges, composition (changes), 215
 - lending, 219–220
 - negative skewness, 170
 - overweighting, 313
- Stocks
 - portfolio, factor exposures, 340e
- Stocks
 - prices, dividends (relationship), 212–213
 - purchase, short put mechanism, 388
 - quintiles/deciles, sorting, 294
 - relative strength, 257
 - replacement program, 398
 - return
 - forecasting, 292–297
 - probability distribution, usage, 53
 - risks, 292–297
 - selection, 232
 - specialists, NYSE provision, 213–214
 - splits, 425
 - trading, fragmentation, 216
 - universe, quantitative approaches (application), 323
 - value, analyst estimate, 277
- Stock-specific analysis, 289–290
- Stop-limit order, 217
- Stop order, 217
- Strategy selection, forecast basis, 576e
- Strict factor model, 110
- Strike price, 349, 361
 - origin, 363
- Strike rate, 642
- Stripped mortgage-backed securities, 440–441
- Stripped Treasury securities, 422–423
- Strong form pricing efficiency, empirical tests, 2323
- Strong pricing efficiency form, 231
- Structured products, 380–381
 - packaging, 348
 - solutions, creation, 400, 402
- Style indexes, 224
- Subadvisor, 34
- Subjective biases, 289–290
- Subordinate debenture bonds, 425
- Subperiod return, 10
 - average, calculation methods, 10–13
- Subprime loans, 447–448
- Subprime MBS, 450
- Summary report, 593–598
- Support tranches, 446
- Supra-nationals, 648
- Swaps
 - dollar duration, 639
 - option, 626–627
 - position, interpretation, 636–638
 - premium payments, 649

- Swap spread (SS) risk, 602e
- Swaptions, 638
- Synthetic index fund
 - creation, 407–408
 - holding, risks, 397
- Synthetic long stock position, 387–388
- Synthetic Treasury coupon security, creation, 494
- Systematic-residual risk decomposition, 331–332, 333e
- Systematic risk factors, 586
- Systematic risks, 332
 - neutralization, 385
- Systematic TEV, 594

- Tactical asset allocation (TAA), 395
 - dynamic hedging, comparison, 395
- Tailing, 397
 - factor, 397
- Tangency portfolios, 166
 - multiple true/estimated tangency portfolios, 179e
- Target dollar duration, 631–633
- Taxable municipal securities, 428
- Tax-backed bonds, 428–429
- Tax credit BAB, 428
- Tax-exempt municipal securities, 428
- Tax-policy risk, 609–610
- Taylor series extension, 155
- Technical analysis, 255–259
- Technical analysts (chartists), impact, 231
- Technical strategy, filter rules, 256–257
- Tennessee Valley Authority (TVA), 423
- Terminal funding ratio, 201–202
 - distribution, risk-controlled strategy (usage), 190e, 191e, 192e, 194e
- Terminal price, forecast, 275
- Term structure factors, 108–109
- Term to maturity, 417
- Theoretical call option price, 364e
- Theoretical call price, 363
- Theoretical futures price calculation, 372
 - expression, 373–374
- Theoretical option price, estimation, 364e
- Theoretical spot rates, 490–491
- Theoretical value, determination, 529–530
- Theta, 365
- Third-party guarantees, 431
- Three-bond portfolio, 467e
 - cash flow, 468e
- Three-month agency-LIBOR spread forecasts, 546e
- Three-month LIBOR, 629, 642
- Three-month swap spread forecasts, 546e
- Three-month TIPS breakeven forecasts, 547e
- Three-month Treasury forecasts, 546e
- Three-phase DDM model, 277
- Three-stage dividend discount model, 277
- Time-dependent linear derivatives, 383–384
- Time horizon, accommodation, 301
- Time series, 125–126
 - continuity, 126–127
- Time value, 358–359
- Time-varying Sharpe ratio, focus, 200–201
- Time-weighted rate of return, 11–12
- Timing costs, 221
- Timing option, 627
- Top-down factor models: power, 248
- Top-down investing
 - macroeconomic approach, 248
 - style active approach, 249
- Top-down portfolio analysis, 247
- TOPIX, 298
- Total coupon payments, computation, 469, 470
- Total excess return, 331
- Total investment performance, monitoring, 230
- Total return, 468–470
- Total risk
 - decomposition, 331, 332e
 - expected return, relationship, 169
 - nonmarket component, 392
- Total TEV, report, 594
- Tracking error, 233–239
 - alpha, combination, 238
 - definition, 233–236
 - determination, 234
 - marginal contribution, 238–239
 - measurement, 298–299
 - minimization, 398
 - prediction, 299–300
 - usage, 240
- Tracking error volatility (TEV), 587
 - elasticity, 596, 602
 - increase, 601–602
 - isolation, 597–598
 - marginal contribution, 601, 604
- Tracking portfolio, 246
- Trade-cost estimates, improvement, 303
- Trade execution, orders requirement, 222
- Trade optimizer, usage, 301
- Trader strategy, induction, 301
- Trading
 - activity, 107
 - list, proposal, 618e
 - mechanics, 215–220
 - priority rules, 216–218
 - process, 300–302
- Trading costs, 220–222
 - control, 230
 - decomposition, 220
 - examination, 322
- Traditional asset classes, 5, 18
- Traditional fundamental analysis, 250
- Tranches, 441
 - size, measurement, 449e
- Transaction costs, 84, 276
 - adjustment, 231
 - components, 296
 - forecasting, 292, 296–297
 - level, 288–289
 - presence, 407
 - reduction, 294
- Transaction price, deviation, 221
- Transfer agent, cost, 34
- Transfer entropies, 149
- Transportability, usage, 317–319
- Treasury inflation indexed securities (TIPS), 422
- Treasury inflation protected securities (TIPS), 174–175, 422
 - percentage, 544
 - usage, 542
- Trees, 125
- Trinomial lattice model, 508
- True tangency portfolio, proxy efficiency, 164e
- Two-asset portfolio, portfolio risk (measurement), 54
- Two-beta trap, 95–100
- Two-factor model, 508
- Two-fund separation theorem, 162

- Unconditional ML estimate, 116
- Underlying, 348–349
- Underwriting standards, 436
- Unemployment rates, macroeconomic factor, 108
- Universal Stock Futures (USF) contracts, 370

- Unperturbed price, impact, 221
 Unrated paper, treatment, 537
 U.S. bonds, 5, 16
 U.S. common stocks, 5, 16
 market, efficiency, 231
 U.S. equities, 16
 markets, 213–215
 U.S. ETFs, ranking, 38e
 U.S. Treasury bills, 422
 U.S. Treasury bond futures, 624–629
 CBOT trading, 624
 contract, pricing, 627–629
 delivery process, 625–626
 U.S. Treasury curve
 risk, 600e
 volatility, 602–603
 U.S. Treasury issue
 coupon stripping, 493–494
 delivery options/procedure, 626–627
 U.S. Treasury opportunity, arbitrage-free value (determination), 492e
 U.S. Treasury par yield curve (derivation), bootstrapping methodology (usage), 491e
 U.S. Treasury securities, 421–423
 types, 421–423
 U.S. Treasury spot rate, 490
 usage, 491–492
 Utility function, 47–48
- Valuation model, 475
 Value at Risk (VaR), 73–74
 Value-based metrics (VBM) analysis, 250, 251–252
 Value Line Composite Index, 223
 Variable-rate securities, 419
 Variance, 52
 expression, 295
 limitations, 71–72
 relationship, 138
 standard deviation, conceptual equivalence, 53
 term, usage, 80
 usage, 53–56
 Variance-covariance matrix, 112–113
 Variance-covariance parameters, estimates (requirement), 167
- Variation margin, 367
 Vasicek model, 144
 Vector Auto Regressive (VAR) model, usage, 177
 Vega, 588
 Venture capital
 fund, life cycle, 27–29, 29e
 stages, 27–28
 Venture capital fund of funds, 27
 Venture capitalist
 fees, 26
 financing, 25–26
 investment vehicles, 27
 Volatility, 574–577
 addition, 589–592
 assumption, 514–515
 changes, 140
 cross-section, 169
 estimate, 146, 148
 estimation, 140
 exposure characteristics, 575
 risk index, 336
 statistical measure, 513
 theoretical value, relationship, 520
 Volume-weighted average price (VWAP), 301
- Wage inflation hedging properties, 185
 Wagner, Wayne, 230
 Warrants, 402
 Weak-form efficiency, 262
 Weak pricing efficiency form, 231
 Wealth process, risk factors (impact), 184–186
 Weeklys, 347
 Weekly volatility, conversion, 132–133
 Weighted average cost of capital (WACC), 252
 Weighted average coupon (WAC), 436
 Weighted average maturity (WAM), 436, 442
 White noise, 130
 Wiener process, properties, 153, 155
 Wild card option, 627
 Wilshire indexes, 224
- World capital markets, investment considerations/choices, 579–580
 Worley, Richard, 504
 Worst case return, maximization, 547–548
 Wrapper, 380
- Yield
 change, 475
 equity style, 241–242
 maintenance charges, 451, 452
 manager, 242
 measures, 457
 premium, 174
 price relationship, 459
 spread measures, 496–498
 Yield curve, 504, 573–574
 changes key rate duration, exposure (measurement), 483–484
 management, 574
 shape, change, 559
 yield to call, 463, 465
 realization, 466
 yield to first call, 465
 Yield to maturity, 463–464
 calculation, 464
 realization, 466
 reinvestment, 468–469
 relationship, 464e
 Yield to par call, 465
- Z bond, 444
 Zero-coupon bonds, 418
 addition, 573
 holding-period return, 501–502
 package/portfolio, 490
 price volatility, 473
 Zero-coupon instruments, 490
 Zero-coupon securities, 493
 Zero-coupon Treasury bond, price, 526
 Zero-coupon Treasury security, 490
 investment, example, 502–503
 Zero-volatility spread (Z-spread), 496–498, 507
 approach, 530–531
 determination, 497e, 498