

- Barone-Adesi, G. and R.E. Whaley, 1987. "Efficient Analytic Approximation of American Option Values." *Journal of Finance* 42 (June), 301–320.
- Barone-Adesi, G. and R.E. Whaley, 1988. "On the Valuation of American Put Options on Dividend-Paying Stocks." Advances in Futures and Options Research 3, 1-13.
- Black, D.G., 1986. "Success and Failure of Futures Contracts: Theory and Empirical Evidence." *Monograph Series Finance and Economics*. Monograph 1986–1. Salomon Brothers Center for the Study of Financial Institutions, NYU. 68 pages.
- Black, F., 1976. "The Pricing of Commodity Contracts." *Journal of Financial Economics* 3, 167–179.
- * Black, F. and M. Scholes, 1973. "The Pricing of Options and Corporate Liabilities." *Journal of Political Economy* 81 (May/June), 637-659.
 - Bodie, Z. and V.I. Rosansky, 1980. "Risk and Return in Commodity Futures." Financial Analysts Journal (May/June), 27–39.
 - Boyle, P., 1977. "Options: A Monte Carlo Approach." *Journal of Financial Economics* 4 (May), 323-338.
 - Boyle, P. and D. Emanuel, 1985. "The Pricing of Options on the Generalized Mean." Working paper, University of Waterloo.
 - Brennan, M.J. and E.S. Schwartz, 1977. "The Valuation of American Put Options." *Journal of Finance* 32 (May), 449–462.
 - Brennan, M.J. and E.S. Schwartz, 1990. "Arbitrage in Stock Index Futures." *Journal of Business* 63 (January), S7-S31.
- Carlton, D.W., 1984. "Futures Markets: Their Purpose, Their History, Their Growth, Their Successes and Failures." Journal of Futures Markets 4 (Fall), 237–271.
 - Chicago Board of Trade, 1989. Commodity Trading Manual. Edited by P. Catania and others. Chicago: Board of Trade of the City of Chicago. 401 pages.
 - Chicago Board of Trade, 1990. "Emergency Action." Chicago: Board of Trade of the City of Chicago.
 - Chiras, D.P. and S. Manaster, 1978. "The Informational Content of Option Prices and a Test of Market Efficiency." *Journal of Financial Economics* 6 (June-September), 213-234.
 - Choie, K.S. and F. Novemstky, 1989. "Replication of Long-Term with Short-Term Options." Journal of Portfolio Management 15 (Winter), 17–19.
- * Cohen, K.J., S.F. Maier, R.A. Schwartz, and D.K. Whitcomb, 1986. The Microstructure of Securities Markets. Englewood Cliffs, NJ: Prentice-Hall, Inc.
 - Commodity Futures Trading Commission, 1988. Final Report on Stock Index Futures and Cash Market Activity During October 1987. 200 pages.
 - Cootner, P., 1960a. "Returns to Speculators: Telser Versus Keynes." *Journal of Political Economy* 68 (August), 396–404.

Cootner, P., 1960b. "Rejoinder." Journal of Political Economy 68 (August), 415-418.

- Cornell B. and K. French, 1983. "Taxes and the Pricing of Stock Index Futures." *Journal of Finance* 38 (June), 675-694.
- Cox, J.C., J.E. Ingersoll, and S.A. Ross, 1981. "The Relation Between Forward and Futures Prices." *Journal of Financial Economics* 9 (December), 321–346.
- *Cox, J.C. and S.A. Ross, 1976. "The Valuation of Options for Alternative Stochastic Processes." Journal of Financial Economics 3, 145-166.
- *Cox, J.C., S.A. Ross, and M. Rubinstein, 1979. "Option Pricing: A Simplified Approach." Journal of Financial Economics 7 (September), 229–263.
- Cox, J.C. and M. Rubinstein, 1985. Option Markets. Englewood Cliffs, NJ: Prentice-Hall, Inc.
 - Drezner, Z., 1978. "Computation of the Bivariate Normal Integral." Mathematics of Computation 32 (January), 277-279.
 - Dusak, K., 1973. "Futures Trading and Investor Returns: An Investigation of Commodity Market Risk Premiums." *Journal of Political Economy* 87 (November/December), 1387-1406.
- * Ederington, L.H., 1979. "The Hedging Performance of the New Futures Markets." Journal of Finance 34 (March), 157-169.
 - Eiteman D. and A. Stonehill, 1986. *Multinational Financial Management*. Reading, MA: Addison-Wesley.
 - Elton, E., M. Gruber, and J. Rentzler, 1987. "Professionally Managed Publicly Traded Commodity Funds." *Journal of Business* 60 (April), 175-199.
 - Elton, E., M. Gruber and J. Rentzler, 1989. "New Public Offerings, Information, and Investor Rationality: the Case of Publicly Offered Commodity Funds." *Journal of Business* 62 (January), 1–15.
 - Emanuel, D., 1985. "Eurodollar Volatility and Option Pricing." Market Perspectives 3 (April), 1, 3-4.
 - Fabozzi, F.J. and T.D. Fabozzi, 1989. Bond Markets, Analysis and Strategies. Prentice-Hall, Inc.: Englewood Cliffs, N.J.
 - Fama, E., 1970. "Efficient Capital Markets: A Review of Theory and Empirical Tests." Journal of Finance 25 (May), 383-417.
 - Feiger, G. and B. Jacquillat, 1979. "Currency Option Bonds, Puts and Calls on Spot Exchange and the Contingent Foreign Earnings." *Journal of Finance* 33 (December), 1129–1139.
 - Figlewski, S., 1984. "Explaining the Early Discounts on Stock Index Futures: The Case for Disequilibrium." Financial Analysts Journal (July/August), 43-47.
 - Fisher, L., 1966. "Some New Stock Market Indexes." Journal of Business 39 (January), 191-225.
 - French, K., 1980. "Stock Returns and the Weekend Effect." Journal of Financial Economics 8 (March), 55-69.
 - Garcia, C. and F.J. Gould, 1987. "Using Stock Index Futures for 'Uncertain' Arbitrage." Working paper, Graduate School of Business, University of Chicago.
 - Garman, M. and M. Klass, 1980. "On the Estimation of Security Price Volatilities from Historical Data." *Journal of Business* 53 (January), 67–78.
 - Gastineau, G. and A. Madansky, 1983. "S&P 500 Stock Index Futures Evaluation Tables." Financial Analysts Journal (November/December), 68-76.
 - Geske, R., 1979. "The Valuation of Compound Options." Journal of Financial Economics 7 (March), 63-81.
 - Gibbons, M.R. and P. Hess, 1981. "Day of the Week Effects and Asset Returns." *Journal of Business* 54 (October), 579-596.

Giddy, Ian, 1983. "The Foreign Exchange Option as a Hedging Tool." Midland Corporate Finance Journal 1 (Fall), 32-42.

- Goldman, B., H. Sosin, and M. Gatto, 1979. "Path Dependent Options: Buy at the Low and Sell at the High." *Journal of Finance* 34 (December), 1111–1127.
- Gould, F.J., 1988. "Stock Index Futures: The Arbitrage Cycle and Portfolio Insurance." Financial Analysts Journal 44 (January/February), 48-62.
- Grabbe, J.O., 1983. "The Pricing of Call and Put Options on Foreign Exchange." Journal of International Money and Finance 2, 239-253.
- Grabbe, J.O., 1986. International Financial Markets. New York: Elsivier.
- Harvey, C.R. and R.E. Whaley, 1991. "S&P 100 Index Option Volatility." *Journal of Finance* 46 (September), 1551–1561.
- Harvey, C.R. and R.E. Whaley, 1992a. "Market Volatility Prediction and the Efficiency of the S&P 100 Index Option Market." *Journal of Financial Economics*.
- Harvey, C.R. and R.E. Whaley, 1992b. "Dividends and S&P 100 Index Option Valuation." *Journal of Futures Markets*.
- Hicks, J.R., 1939. Value and Capital. Oxford University Press.
- Hotelling, H., 1931. "The Economics of Exhaustible Resources." Journal of Political Economy 39 (April), 137–175.
- Houthakker, H.S., 1957. "Can Speculators Forecast Prices?" Review of Economics and Statistics 34, 143–151.
- Hudson, M., 1991. "The Value in Going Out." Risk 4 (March).
- Jaffee, D.M., 1984. "The Impact of Financial Futures and Options on Capital Formation." Journal of Futures Markets 4 (Fall), 417-447.
- Jamshidian, F. and Y. Zhu, 1990. "Replication of an Option on a Bond Portfolio." Review of Futures Markets 9, 84-100.
- Johnson, H., 1987. "Options on the Maximum or the Minimum of Several Risky Assets." Journal of Financial and Quantitative Analysis 22 (September), 277–283.
- Johnston, E. and J. McConnell, 1989. "Requiem for a Market: An Analysis of the Rise and Fall of a Financial Futures Contract." Review of Financial Studies 2, 1–23.
- Keynes, J.M., 1930. A Treatise on Money, Volume 2. London: MacMillan Press.
- Kleidon, A., 1991. "Arbitrage, Nontrading, and Stale Prices: October 1987." Working paper, Graduate School of Business, Stanford University.
- Kleidon, A., and R.E. Whaley, 1991. "One Market? Stocks, Futures and Options During October 1987." Working paper, Fuqua School of Business, Duke University.
- Latane, H. and R. Rendleman, 1976. "Standard Deviation of Stock Price Ratios Implied by Option Premia." *Journal of Finance* 31 (May), 369-382.
- Lessard, D. (ed.), 1985. International Financial Management: Theory and Application. New York: John Wiley and Sons.
- Lintner, J., 1965. "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets." Review of Economics and Statistics 47 (February), 13-37.
- Lo, A.W. and A.C. MacKinlay, 1988. "Stock Market Prices Do Not Follow a Random Walk: Evidence from a Simple Specification Test." *Review of Financial Studies* 1 (Spring), 41–66.
- MacKinlay, A.C. and K. Ramaswamy, 1988. "Index-Futures Arbitrage and the Behavior of Stock Index Futures Prices." *Review of Financial Studies* 1 (Summer), 137–158.
- Margrabe, W., 1978. "The Value of an Option to Exchange One Asset for Another." *Journal of Finance* 33 (March), 177–186.
- Margrabe, W., 1982. "A Theory of the Price of a Contingent Claim on N Asset Prices." Working paper, School of Government and Business Administration, George Washington University.

Merton, R.C., 1973. "The Theory of Rational Option Pricing." Bell Journal of Economics and Management Science 4 (Spring), 141-183.

- Miller, M., J. Muthuswamy, and R.E. Whaley, 1991. "Predictability of S&P 500 Basis Changes: Arbitrage-Induced or Statistical Illusion." Working paper, Fuqua School of Business, Duke University.
- Miller, M. and C.W. Upton, 1985. "A Test of the Hotelling Valuation Principle." *Journal of Political Economy* 93 (February), 1-25.
- Modest, D. and M. Sundaresan, 1983. "The Relationship Between Spot and Futures Prices in Stock Index Futures Markets: Some Preliminary Evidence." Journal of Futures Markets 3 (Summer), 15-41.
- Parkinson, M., 1980. "The Extreme Value Method for Estimating the Variances of the Rate of Return." *Journal of Business* 53 (January), 61-65.
- Patell, J.M. and M. Wolfson, 1979. "Anticipated Information Releases Reflected in Option Prices." Journal of Accounting and Economics 8, 179-201.
- Peck, A.E., 1985. "The Economic Role of Traditional Commodity Futures Markets," in A.E. Peck (ed.) Futures Markets: Their Economic Role. Washington, DC: American Enterprise Institute, 1–82.
- Peters, E., 1985. "The Growing Efficiency of Index Futures Markets." Journal of Portfolio Management 11 (Summer), 52-56.
- Pindyck, R.S. and D.L. Rubinfeld, 1981. Econometric Models and Economic Forecasts. Second Edition, McGraw-Hill Book Company, Inc.
- Pirrong, S.C., D. Haddock, and R. Kormendi, 1991. Grain Futures Contracts for the 1990s: An Economic Appraisal. Report for the Chicago Board of Trade and the Commodity Futures Trading Commission.
- Protopapadkis, A. and H.R. Stoll, 1983. "The Law of One Price in International Commodity Markets: A Reformulation and Some Formal Tests." *Journal of International Money and Finance* 5 (September), 1431–1455.
- Rockwell, C.S., 1967. "Normal Backwardation, Forecasting, and the Returns to Commodity Futures Traders." Food Research Institute Studies 7 (Supplement), 107-130.
- Roll, R., 1977. "An Analytic Valuation Formula for Unprotected American Call Options with Known Dividends." *Journal of Financial Economics* 5, 251–258.
- Rubinstein, M., 1990. "Exotic Options." Working paper, University of California at Berkeley (November).
- Samuelson, P.A., 1965. "Rational Theory of Warrant Pricing." *Industrial Management Review* 6, 13–39.
- Schmalensee, R. and R. R. Trippi., 1978. "Common Stock Volatility Expectations Implied by Option Prices." *Journal of Finance* 33 (March), 129-147.
- Shulz, G.U. and S. Trautman, 1991. "Valuation of Warrants: Theory and Empirical Tests for Warrants Written on German Stocks." Working paper, Department of Law and Economics, Johannes-Gutenberg Universität Mainz.
- Shapiro, A., 1989. International Financial Management. Boston: Allyn and Bacon.
- Sharpe, W.F., 1984. "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk." *Journal of Finance* 19 (September), 425-442.
- Silber, W.L., 1985. "The Economic Role of Financial Futures." in A. Peck (ed.) Futures Markets: Their Economic Role. Washington, DC: American Enterprise Institute, 83-114.
- Smidt, S., 1965. "A Test of the Serial Independence of Price Changes in Soybean Futures." Food Research Institute Studies 5.
- Smidt, S., 1985. "Trading Floor Practices on Futures and Securities Exchanges: Economics, Regulation, and Policy," in A. Peck (ed.) Futures Markets: Regulatory Issues. Washington, DC: American Enterprise Institute, 49–142.

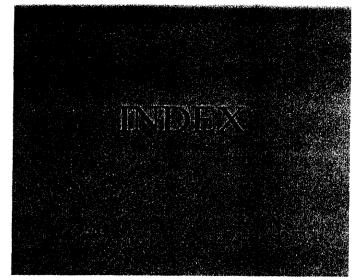
Smith, C.W, Jr., 1977. "Alternative Methods for Raising Capital: Rights Versus Underwritten Offerings." *Journal of Financial Economics* 5 (December), 273–307.

- Solnik, B., 1988. International Investments. Reading MA: Addison-Wesley.
- Steen, N.M., G.D. Byrne, and E.M. Gelbard, 1969. "Gaussian Quadratures for the Integrals," *Mathematical Computation* 23, 661-671.
- Stephan, J.A. and R.E. Whaley, 1990. "Intraday Price Change and Trading Volume Relations in the Stock and Stock Option Markets." *Journal of Finance* 45 (March), 191–220.
- Stevenson, R.A. and R.M. Bear, 1970. "Commodity Futures: Trends or Random Walks?" *Journal of Finance* 25 (March), 65-81.
- Stigum, M., 1990. The Money Market. Third Edition, Dow Jones-Irwin, Homewood, IL.
- Stoll, H.R., 1969. "The Relationship Between Put and Call Option Prices." *Journal of Finance* 24, 801-824.
- Stoll, H.R., 1979. "Commodity Futures and Spot Price Determination and Hedging in Capital Market Equilibrium." *Journal of Financial and Quantitative Analysis* 14 (November), 873–894.
- Stoll, H.R., 1988a. "Index Futures, Program Trading, and Stock Market Procedures." *Journal of Futures Markets* 8 (August), 391–412.
- Stoll, H.R., 1988b. "Portfolio Trading." *Journal of Portfolio Management* 14 (Summer), 20–24.
- Stoll, H.R. and R.E. Whaley, 1985. "The New Option Markets," in A. Peck (ed.) Futures Markets: Their Economic Role. Washington, DC: American Enterprice Institute, 205-282.
- Stoll, H.R. and R.E. Whaley, 1986. "The New Option Instruments: Arbitrageable Linkages and Valuation." Advances in Futures and Option Research 1, 25-62.
- Stoll, H.R. and R.E. Whaley, 1986. "Expiration Day Effects of Index Options and Futures," Monograph Series in Finance and Economics. Monograph 1986-3, Salomon Brothers Center for the Study of Financial Institutions, NYU. 89 pages.
- Stoll, H.R. and R.E. Whaley, 1987. "Program Trading and Expiration-Day Effects." Financial Analysts Journal 43 (March/April), 16–28.
- Stoll, H.R. and R.E. Whaley, 1988. "Futures and Options on Stock Indexes: Economic Purpose, Arbitrage, and Market Structure." *Review of Futures Markets* 7, 224–48.
- Stoll, H.R. and R.E. Whaley, 1990a. "Stock Market Structure and Volatility." *Review of Financial Studies* 3, 37-71.
- Stoll, H.R. and R.E. Whaley, 1990b. "The Dynamics of Stock Index and Stock Index Futures Returns." *Journal of Financial and Quantitative Analysis* 25 (December), 441–468.
- Stoll, H.R. and R.E. Whaley, 1991. "Expiration-Day Effects: What Has Changed?" Financial Analysts Journal 47 (January/February), 58-72.
- Stulz, R., 1982. "Options on the Minimum or the Maximum of Two Risky Assets: Analysis and Applications." *Journal of Financial Economics* 10, 161–185.
- Telser, L., 1958. "Futures Trading and the Storage of Cotton and Wheat." Journal of Political Economy 66 (June), 233-255.
- Telser, L., 1960. "Returns to Speculators: Telser Versus Keynes: Reply." *Journal of Political Economy* 68 (August), 404–415.
- Telser, L. and H. Higinbotham, 1977. "Organized Futures Markets: Costs and Benefits." Journal of Political Economy 85 (October), 969-1000.
- Wang, Y.J., 1987. "The Probability Integrals of Bivariate Normal Distributions: A Contingency Table Approach." *Biometrika* 74, 185–190.
- Whaley, R.E., 1981. "On the Valuation of American Call Options on Stocks with Known Dividends." *Journal of Financial Economics* 9 (June), 207–211.
- Whaley, R.E., 1982, "Valuation of American Call Options on Dividend-Paying Stocks: Empirical Tests." *Journal of Financial Economics* 10, 29–58.

Whaley, R.E., 1986a. "On Valuing American Futures Options." Financial Analysts Journal 42 (May/June), 49-59.

References

- Whaley, R.E., 1986b. "Valuation of American Futures Options: Theory and Empirical Tests." Journal of Finance 41 (March), 127-150.
- Whaley, R.E. (ed.), 1991. Selected Writings on Futures Markets: Interrelations Among Futures, Option and Futures Option Markets. Chicago: Chicago Board of Trade.



Α

Accrued interest, 131 All-or-nothing call (put), 405 American Exchange (AMEX), 21, 310, 342, 345 American options, 6, 17, 175 call, on stocks, 320-24 commodity versus futures, 197-99 deferred payment, 405 early exercise of, 184-90 futures, 190 lower price bounds for, 179–84, 313–18 put, on stocks, 326-31 put-call parity relation for, 193-95 stock, put-call parity for, 313-18 stock index, 350-52 stock index futures, 353-55 valuation of, 232–33, 350–55 Anticipatory hedge, 84 Arbitrage, 33–37, 107–12, 156–58, 255–56 lower price bounds for options and, 180 - 84put-call parity and, 192-95 stock options and, 311-18 Arithmetic index, 101–3 Asian options, 403 Asset allocation decision, 151–52 Asset approach, exchange rates and, 166 At-the-money, 175 Average price options, 403

В

Backspread, 267
Balance of payments, exchange rates and, 165-66
Balance sheet risk, 169-71
Bank discount price quotations, 125
Barnum's Law, 66
Barrier options, 403-5

Basis, 32–33, 160 Basis arbitrage, 33–37 Basis risk, 49-51 Bear spreads, 263-65 Beta, 66, 292-95 Binomial model, 202-6 Bond(s) callable, 132 cheapest to deliver, 147-48 conversion factor for, 144-47 convexity of, 135-38 coupon-bearing, 125, 130-32 discount, 125-30 interest rate risk and, 132-38 options, 6, 175, 375-80 portfolio, management of, 380-84 price as function of yield, 135-38 weighted average time to maturity of, 133 yields, 130, 131, 138-41 zero-coupon, 125-30 Breakeven, 283-84 Bull spreads, 262-65 Business operation, non-contractual, 170 Butterfly spreads, 269–70 Buy call against commodity, 281–82 Buying volatility, 260-61

C

Calendar spreads, 271–73
Callable bond, 132
Call options, 6, 175
all-or-nothing, 405
American, 184–87, 320–24
buyer/seller, 7
calls on, 395–96
dividend-/non-dividend-paying stocks
and, 313–18
down-and-in/down-and-out, 403–4
European, 213–17, 219–30, 318–20
long/short, 7

Index

Call options continued	Contractual obligation, 170
lookback, 401–3	Convenience yield, 84
lower price bounds for, 180-82	Conversion arbitrage, 255–56
one-touch all-or-nothing, 405	Conversion factor, 144–47
puts on, 396–97	Convexity, 135–38, 380–84
stock, 311, 318–25	Corner, 16, 96–97
terminal profit functions of, 252–53	Cost(s), 13, 22, 33–37, 40–41
writing, 7, 274-77, 280	Cost-of-carry rate, option pricing and,
Capital asset pricing model (CAPM), 66-69	226–27
Carrying charge market, 33, 79	Cost-of-carry relation, 33, 107–8, 112–14,
Carrying cost, 33–37, 51	148–50, 159
Cash price, 31	Country risk, 156
Certificate of deposit (CD), Eurodollar, 128	Coupon-bearing bond, 125, 130–32
Chicago Board of Trade (CBT), 18, 97, 99,	Covered call option writing, 274–76, 280
122, 144, 366	Covered straddle write, 280–81
Chicago Board Options Exchange (CBOE),	Credit risk, 156
2, 3, 15, 21, 310, 342, 345, 366, 375	Cross-hedging, 51–52
Chicago Mercantile Exchange (CME), 3,	Cumulative bivariate normal density
99, 100, 122, 154, 324, 366	function, 338-41
Clearing house, 14, 22–26	Cumulative normal density function, 240
Combination covered call option writing,	Cumulative normal probability tables,
275–76	241–44
Commissions, 22	Currency(ies)
Commodity(ies)	forward, 155–56
costs of carrying, 33–37	futures contracts/markets/prices, 154–71
deliverability/storability, 78	futures options, 6, 386–91
European options on, 216, 218	quotations, 156–58
	risk, hedging, 168–71
futures contracts, 73–98	
futures markets, 77–78	speculators, 166–68
futures options, 107–99, 391–93	spot, 155–56
international price links, 95–96	D
inventory and price patterns, 78–82	D
non-deliverable, hedging, 51–52	Dourton dan 21
price risks, 51, 82–90	Day trader, 21
prices, 206–13, 301–5	Deferred payment American option, 405
rollover position in, 40	Deferred-start option, 405
seasonal/nonseasonal, 78–82	Delivery, 18–19, 78
storage, 90–93	Delta, 220
synthetic, 256–58	Designated Order Turnaround (DOT), 111
terminal profit functions of, 250-52	Diagonal spreads, 273–74
Commodity Futures Trading Commission	Dilution, rights and warrants and, 332
(CFTC), 20, 78	Discount bonds, 125–30
Composite Index, 100, 101, 342	Dividend(s), 324-25, 355-57
Compound options, 394–98	Dow Jones Industrial Average (DJIA), 103,
Contango, 65	106
Contracts. See also Futures contracts	Down-and-in/down-and-out call, 403-4
exercise price and, 19	Duration, 132–35, 380–84
forward, 38–39, 42–46	Dynamic portfolio insurance, 361–63
grade of underlying commodity and, 18	
markets for, 20-21	E
maturity months and, 16	
options, 6, 15–19, 310–41	Effective annual rate of return, 128
point of delivery and, 18-19	Effective annual yield to maturity, 130
settlement at maturity, 17-19	Equal-weighted geometric index, 103-4
sizes of, 16	Eta, 221–22

Index

Eurodollar certificates of deposit, 128 Eurodollar futures contracts, 143–44 Eurodollar futures options, 369–73 European options, 6, 17, 175 call, 318–20 commodity versus futures, 197 exchange, 230–32 lower price bounds for, 178–83, 313–18 pricing formulas for, 219–30 put, 182–83, 325–26 put-call parity for, 192–93, 313–18 stock index, 350, 352–53 valuation of, 213–19, 245–48 Exchange markets, 14–15 Exchange options, 230–32 Exchange rates, 161–66, 168, 387–88 Exercise price, 6, 19, 175, 225–26 Exercise value, 6 Exotic options, 391–405	Eurodollar, 143–44 forward contracts and, 38–39 hedging with, 47–62 interest rate, 122–53 interest rates and, 43–46 long positions in, 42–43 markets for, 20–21 physical commodity, 73–98 risk and, 5 stock index, 99–121 Treasury bills/bonds, 142–44 Futures options, 6, 175 American, 190 commodity, 391–93 commodity options and, 197–99 currency, 386–91 Eurodollar, 369–73 lower price bounds for, 184, 348 stock index, 345–55 Treasury bond, 375–80
F	
	G
Financial instruments, options on, 21	Gamma 225
Floor broker (trader), 21	Gamma, 225 Geometric index, 103–4
Foreign currency options, 175	Geometric fluex, 103–4
Forward contracts, 38–39, 42–46	••
Forward currencies, 155–56	Н
Forward markets, 155–56	TT-1. () 0 2 YX 1 *
Forward premiums, 160	Hedge(s). See also Hedging
Forward rates of interest, 141	anticipatory, 84
Fundamental analysis, 93	long, 83–84, 140
Futures. See also Futures contracts; Futures	natural versus futures market, 85–88
options	portfolio, 52–53, 117–21
currency, 166-67, 389	ratio, 54, 56, 57–62, 88–90 reverse, 278–79
economic purpose of, 11–13	riskless, 202–3
hedge, 12	short, 82–83, 150–51
margins on, 23–24	Hedger, 47, 69–72
market hedge, natural hedge versus, 85–88	Hedging
	effectiveness of, 56–57, 119
markets, 63–72, 77–78, 99–100, 122–25, 154	futures contracts and, 12, 47–62, 150–53
orders, 20	non-deliverable commodities and, 51–52
prices, 3, 48	optimal, 52–57
spot price and, 32–33, 64–66	risk and, 49-51, 82-90, 116-21,
structure of, 30, 31, 37–38, 159–61	168–71
time-series analysis of, 93–94	traditional, 47–49
rollover position in, 44–46	Hotelling Principle, 81
stock index, 109-11	
trading in, 19-22, 24-26	1
Futures commission merchant (FCM), 19	
Futures contracts, 3–5	Index arbitrage, 107–12
capital asset pricing model for, 66-69	Inflation, 161–62, 164
currency, 154-71	Insurance, portfolio, 359–63
design of, 15–19	Interbank market, 155–56

416 Index

Interest, 22, 131	inverted, 79
costs, 35–37	options, 311, 342-46, 366-69
spot/forward rates of, 140-41	order, 20
Interest rate(s)	over-the-counter, 14-15
forward/futures prices and, 43-46	risk, hedging, 116–21
futures contracts, 122–53	secondary, 22–23
futures markets, 122–25	Maturity months, contracts and, 16
option pricing and, 227	Mean/variance approach, hedging and,
options, short-term, 369–74	52–54
options markets, 366–69	Merchandiser, long hedge by, 83–84
	Modified duration, 134–35
risk, 132–38	Monetarist approach, exchange rates and,
term structure of, 138–42	163–65
Interest rate parity (IRP) relation, 159–61	
International Fisher effect (IFE), 167–68	Money, quantity theory of, 164–65
International Monetary Market (IMM), 154	Mortgate-backed securities (MBSs),
In-the-money, 6, 175	137–38
Intrinsic value, 6	
Inverted market, 79	N
Invoice price, 147	••
	New York Futures Exchange (NYFE),
K	342
N.	New York Mercantile Exchange (NYME),
Kansas City Board of Trade, 99	88
Transus City Dourd of Trade, ""	New York Stock Exchange (NYSE), 3, 310,
•	342
L	
7 00 D. (7 0D) 05 06	Normal backwardation, 64
Law of One Price (LOP), 95–96	
Limit order, 20	0
London Interbank Offer Rate (LIBOR), 128	0
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70	Obligation, contractual, 170
London Interbank Offer Rate (LIBOR), 128	Obligation, contractual, 170
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252	Obligation, contractual, 170 OLS regression, 55-57
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also specific type
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also specific type Asian, 403
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also specific type Asian, 403 average price, 403
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also specific type Asian, 403 average price, 403 barrier, 403-5
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also specific type Asian, 403 average price, 403 barrier, 403-5 bond, 175
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also specific type Asian, 403 average price, 403 barrier, 403-5 bond, 175 commodity, futures options and, 197-99
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3	Obligation, contractual, 170 OLS regression, 55-57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6-11, 11-13, 174-76. See also specific type Asian, 403 average price, 403 barrier, 403-5 bond, 175 commodity, futures options and, 197-99 compound, 394-98
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103,	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103,	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24 Market(s)	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230 exercise prices of, 19
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24 Market(s)	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24 Market(s) carrying charge, 33, 79	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230 exercise prices of, 19
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24 Market(s) carrying charge, 33, 79 depth, contract design and, 15–16 exchange, 14–15	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230 exercise prices of, 19 exotic, 391–405
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24 Market(s) carrying charge, 33, 79 depth, contract design and, 15–16 exchange, 14–15 forward, 155–56	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230 exercise prices of, 19 exotic, 391–405 foreign currency, 175 interest rate, 369–74
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24 Market(s) carrying charge, 33, 79 depth, contract design and, 15–16 exchange, 14–15 forward, 155–56 futures, 63–72, 77–78, 99–100, 122–25,	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230 exercise prices of, 19 exotic, 391–405 foreign currency, 175 interest rate, 369–74 in-the-money, 175
London Interbank Offer Rate (LIBOR), 128 Long butterfly spread, 269–70 Long call, 7, 252 Long commodity, 250–51 Long hedge, 47, 83–84, 150 Long position, synthetic, 176 Long put, 7, 253–54 Long straddle, 260–61 Long strangle, 261–62 Long-term options, 288–92 Long volatility spread, 260–61 Lookback options, 401–3 M Major Market Index (MMI), 99–101, 103, 105–6, 107, 342, 345 Margin, 23–24 Market(s) carrying charge, 33, 79 depth, contract design and, 15–16 exchange, 14–15 forward, 155–56	Obligation, contractual, 170 OLS regression, 55–57 One-touch all-or-nothing call (put), 405 Open interest, 22 Option(s), 6–11, 11–13, 174–76. See also specific type Asian, 403 average price, 403 barrier, 403–5 bond, 175 commodity, futures options and, 197–99 compound, 394–98 contracts, 6, 15–21, 310–41 converters, 191–92 currency, 6, 386–91 deferred-start, 405 early exercise of, 184–90 exchange, 230 exercise prices of, 19 exotic, 391–405 foreign currency, 175 interest rate, 369–74

lower price bounds for, 178-84	Price(s)
margins on, 23-24	cash, 31
markets, 311, 342-46, 366-69	change, optimal hedge ratio and,
on maximum and minimum, 398-401	57–60
on options, 394–98	change variance, 119
orders for, 20	commodity, return distributions and,
out-of-the-money, 175	206–13
overwriting, 275	discovery, 63
premiums, 6	exercise, 19, 175, 225-26
prices, 6, 174–99, 233–37	forward and futures, interest rates and,
put-call parity relation for, 190–95	43–46
quality, 149, 230	futures, 3, 48
series, 19	currency, 159-61
stock, 175, 311-31	spot price and, 64-66
stock index, 345-52	structure of, 30, 31, 37–38
stock index futures, 345-55	time-series analysis of, 93–94
time decay of, 230	information, futures and options and,
timing, 150	12–13
trading procedures/strategies for, 19-22,	
249–309	invoice, 147
Treasury bond, pricing of, 375–80	law of one, 95–96
valuation of, 200-38	option, 6, 174–99
volatility estimation for, 234–37	quotations, bank discount, 125
wildcard, 357–59	reporting, 22
writing, 274–75	risk, 80, 82–90
Options Clearing Corporation (OCC), 23	spot, 30–31, 48, 64–66
Order(s), 20	striking, 175
Order Book Official (OBO), 21	volatility, interest rate options and,
Ordinary least squares (OLS) regression,	373-74
55–57	Price-weighted arithmetic index, 103
OTC markets, 14–15, 23	Probability tables, cumulative normal,
Out-of-the-money, 6, 175	241-44
Over-the-counter (OTC) markets, 14–15,	Producer, hedging by, 84-85
23	Professional trader, 21
	Profit, 7–11, 52–53, 176–77, 284–88
_	Program trading, 107–12
P	Protected commodity position, 279–80
	Protected covered call write, 280
Pacific Stock Exchange, 310	
Percentage basis, 160	Protected short sale, 277–78
Philadelphia Stock Exchange (PSE), 21,	Purchasing power parity (PPP), 161–63
310	Put-call parity, 190–95, 311–18, 348–49
Physical commodity. See	Put options, 6, 175
Commodity(ies)	all-or-nothing, 405
Point of delivery, futures contracts and,	American, 187–90, 326–31
18–19	buyer/seller, 7
Portfolio, 108	on calls, 396–97
hedged, 117–21	European, 217–39, 325–26
insurance, 359–63	lookback, 401-3
management, 292–309	lower price bounds for, 182–84
asset allocation in, 151-52	one-touch all-or-nothing, 405
options in, 12	puts on, 397-98
riskless hedge, 202-3	stock, 311, 313–18, 325–31
unhedged, 119	terminal profit functions of, 253-54
Position trader, 21	up-and-in/up-and-out, 405

Q	Short butterfly spreads, 270
	Short call, 7, 252–53
Quality option, 149, 230	Short commodity, 251–52
Quantity risk, 79–80	Short hedge, 47, 82–83, 150–51
Quantity theory of money, 164-65	Short position, synthetic, 176
Quoted bond price, 131	Short put, 7, 254
	Short sale, 33, 277–78
В	Short-sale rule, 111
R	Short squeeze, 16, 96–97
Data of naturn 129 206	Short straddle, 261
Rate of return, 128, 206	Short strangle, 262
Ratio call writing, 276–77	Short volatility spread, 261
Ratio spreads, 265–69	Simulated straddle, 278–79
Redundant securities, 13	Specialist, 21
Relative systematic risk coefficient, 66	Speculative trading, 12
Repurchase agreement, 148–49	Speculator, 63–66, 69–72, 93–95, 166–68
Reverse arbitrage, 33	Spot currency, 155–56
Reverse conversion arbitrage, 255–56	Spot price, 30–33, 48, 64–66
Reverse hedge, 278–79	Spot rate of interest, 140–41
Reverse ratio spread, 267	Spread(s), 20, 38, 259–74, 324–25
Reverse repurchase agreement, 149	Spreader, 38
Rights, 331–36	Standardization, contract design and, 15–16
Risk	Static portfolio insurance, 359–61
allocation of, 11–12	Stock(s)
balance sheet, 169–71	dividend-/non-dividend-paying, 313-20
basis, 49–51	exchanges, price reporting on, 22
carrying cost, 51	margins on, 23–24
commodity price, 51, 82–90	options, 175, 311–31
country, 156	replacement strategy, 110-11
credit, 156	rights/warrants, 331-36
currency, hedging, 168–71	Stock index(es), 100-7, 112-16
expected return and, 292–301	options, 345–52
futures contracts and, 5	Stock index futures
interest rate, 132–38	contracts, 99–121
market, hedging, 116–21	options, 345–55
portfolio, 292–309	Stop-loss order, 20
price, 80	Storage, 34–37, 78, 80, 90–93
quantity, 79–80	Storage cost fund, 40-41
relative systematic coefficient for, 66	Storer, short hedge by, 82-83
storage, 80	Straddle, 177, 260–61, 278–81
transactions, 169	Strangle, 261–62
Riskless arbitrage, 255–56	Striking price, 6, 175
Riskless hedge portfolio, 202–3	Swap rate, 160
Rollover position, 40, 44–46, 180	Synthetic long, 176
	Synthetic long commodity, 256–57
S	Synthetic short, 176
	Synthetic short commodity, 257–58
Scalper, 21	•
Secondary markets, 22–23	Т
Securities, 13, 137–38	•
Securities and Exchange Commission	Technical analysis, 93
(SEC), 20	Terminal commodity price, 206
Sell put against commodity, 282–83	Terminal profit. 284–88

Theta, 228-30
Time decay, 230, 307-9
Time to expiration, 228-30
Timing option, 150
Trader(s), 21-22
Trading, 12, 19-22, 24-26, 107-12, 249-309
Transaction cost, 13
Transaction risk, 169
Treasury bill(s), 125, 142-43
Treasury bill substitute, 109-10
Treasury bond(s), 144, 375-80
Treasury instruments, 370-71
Triangular arbitrage, 156-58

U

Uncertainty, in futures markets, 77 Up-and-in/up-and-out put, 405

٧

Value Line Index, 99, 101, 104, 107 Value-weighted arithmetic index, 101-3 Variable ratio call writing, 277 Variation margin, 24 Vega, 227-28
Volatility
options and, 234-37, 373-74
portfolio management and, 295-301,
306-7
spreads and, 260-62
warrants and, 334-36

W

Warrants, 331–36 Weighted time to maturity, 133 Wildcard option, 357–59

Y

Yield, bond price as function of, 135-38 Yield curve, 138-41 Yield volatility, interest rate options and, 373-74

Z

Zero-coupon bonds, 125-30 Zero-coupon yield curve, 141