

Index

- #include, 120, 325
- Adaptive Price Zone, 59, 141-143
- Adding noise to data, 302-305
- Advisory services, 243
- AmiBroker, 23, 55-70
 - Add an indicator, 62, 123-125
 - AddColumn, 107
 - AddToComposite (ATC), 230-239
 - Application Development Kit (ADK), 326-328
 - Automatic analysis, 71-83, 88-109, 131-133
 - Built-in exits, 94
 - BuyPrice, 88, 205
 - Commentary window, 63
 - Context-sensitive help, 59
 - Create DLL, 326-338
 - Custom backtest, 325
 - Custom metric, 317-326
 - Data services, 60
 - Display a chart, 61
 - Display a price series, 61
 - Entries in AmiBroker, 88-94
 - Exits in AmiBroker, 94-102
 - Exploration, 57, 71, 342
 - Extending AmiBroker, 317-338
 - Formula Language (AFL), 57
 - Functions, built-in, 111-119
 - Functions, custom, 119-121
 - Categories, 113
 - Composite, 112

- Custom, 119
- Date/Time, 112
- Exploration, 118
- File Input/Output, 119
- Indicator, 112, 118
- Information, 113
- Lowest/Highest, 114
- Math, 114
- Miscellaneous, 115
- Moving average, 116
- Pattern, 111
- Referencing other symbol, 119
- Statistical, 116
- String, 117
- Summation, 116
- Time Frame, 119
- Trading system, 117
- Indicators, built-in, 121-122
- Indicators, custom, 123-125
- Looping, coding method, 57, 95-101, 333
- Multiple time frames, 224-230
- Optimize a trading system, 67-69
- Resources, 69
- SellPrice, 88, 205
- SetTradeDelays, 88
- Setup, 59
- Test a trading system, 64-67
- TimeFrameExpand, 226
- Video tutorials, 60
- Watch list, 75-79
- AmiQuote, 28-29, 56, 60
- Anticipating Signals, 36, 175-186
- Artificial data, 248
- Artificial intelligence, 44-45
- ASCII, 60, 274
- Asset, 13, 339
- Automated order entry systems, 59
- Automated trading interface, 56
- Average True Range (ATR), 101

- Backfilling, 60
- Backtest, 23, 55-57, 79-83, 107-108, 148, 215, 339
- Bar, 25, 339
- Barclay Trading Group, 244
- Beta, 200, 339
- Betting sequence, 54
- Bias, 16

Binary search, 182-185
BioComp Dakota, 45, 262, 273-284, 352
Bloodshed, 327-338, 352
Bollinger, 135, 141-143, 228
Bot, 274
Brains, 244
Breakout, 34, 48, 127, 133, 340
Broad market timing, 230-239
Buffett, Warren, 20
Bull market, 37, 244
Buy and hold, 103

C++, 327-338
Capital appreciation, 21
Capital asset pricing model (CAPM), 19
Central Limit Theorem, 307
Chance process, 295
Chandelier Stop, 101
Chart analysis, 13-18, 18, 56-57
Chi-square test, 257-259, 306
CNN Money, 28, 352
Commissions, 32, 40, 47, 149
Commodity, 13, 21, 25, 30, 147, 340
Commodity Systems, Inc (CSI), 28, 60, 352
Commodity Trading Advisors (CTA), 244
Comparison of Two Means, 251-260
Compounded Annual Return (CAR), 51
Computer simulation, 19
Conference Board, 17
Consistency, 29
Conspiracy theory, 16
Constant expiration, 31, 340
Continuous contract, 30, 340
Controlled experiments, 19
Correlation, 22, 340
Cumulative Distribution Function (CDF), 297-311
Curve-fit, 45, 103, 133, 218, 246-247, 340
Custom metrics, 50, 54, 317

Data, 25-32, 44-45
Data acquisition, 38
Data granularity, 14
Data manipulation, 57
Data mining, 46, 147, 165, 282, 340
Data normalization, 38
Data quality, 29, 38
Data revision, 26-27, 32

- Day of Interest (DOI), 152-158
- Day trading, 21, 27, 36, 340
- Degrees of freedom, 46, 103, 247, 257, 306, 340
- Delayed real-time, 26-27, 60, 340
- Dennis, Richard, 48, 135-136
- Designing entries, 103
- Detrending, 302
- Diffusion Index, 145, 230-239, 341
- Dividends, 13, 14, 20, 31
- Division of data, 44
- DLL, 57, 121, 235, 275, 326
- Donchian, Richard, 34, 48, 135-136, 341
- Drag-and-drop, 57
- Drawdowns, 20-21, 49, 51, 79, 81, 103, 239-242, 290-294, 341
- DTN IQFeed, 60

- Earnings, 13
- EasyLanguage, 58
- Eckhardt, William, 48, 135-136
- Economic sectors, 191, 200
- Economists, 14
- Efficient market hypothesis, 19-20, 341
- Ehlers, John, 137-139, 351
- End-of-day, 25-27, 35, 36, 55-59, 274, 341
- Entries and exits, 85-110
- Entry signals, 38
- Equilibrium, 137
- Equis, 28
- Equity curve, 34, 46, 49-57, 239-242, 259, 262-284, 311, 319-325, 341
- eSignal, 59, 60, 352
- Evolutionary operation, 43, 341
- Exchange traded funds (ETF), 25, 37, 187, 200
- Exhaustive search, 43, 341
- Exit signals, 38
- Expectancy, 52-54, 281, 317-326, 342
- Expectations of Profitability, 244, 290-294

- Fast market, 313, 342
- FastTrack, 28, 60, 352
- Fidelity Investments, 58, 187, 191
- Filters, 217-244, 302
- Financial models, 19
- Financial time series, 19, 43
- First notice, 30-31
- Fitness, *see objective function*
- Flocking, 274-275
- Fold, 247, 342

- Force an Entry, 91
- Foreign exchange (FOREX), 32, 37, 342
- Formula Research, 223, 351
- Front month, 30-31, 342
- Full moon, 159
- Functions and indicators, 111-126
- Fundamental analysis, 13-17, 19-20, 187
- Fund Estimate, 28, 352
- Future leak, 83, 107-109, 343
- Futures, 13, 244

- Google, 27, 352
- Government reports, 13
- Granularity of data, 14
- Gross domestic product, 13

- Head-and-shoulders, 18
- Heine, Richard, 223
- Historical data, 26-28, 343
- History is written by the winners, 294
- Holding period, 21, 103, 291, 343
- Hulbert Financial Digest, 243, 244, 351
- Hypothesis, experimental, 103, 251-260
- Hypothesis, efficient market, 19

- In-sample, 35, 38, 44-46, 107, 148, 149, 157, 161-163, 170, 201, 217, 235, 245-250, 259, 261-284, 343
- Income, 13, 20
- Index funds, 21
- Inefficient market, 17, 22, 33, 47-48, 134
- Inflation, 14
- Insider information, 19
- Intelligent Optimizer (IO), 45, 273-274
- Interactive Brokers, 60, 85, 352
- Interest rates, 217-224
- Intermarket analysis, 218-220
- Intraday, 26-27, 35-36, 55-56, 343
- Inventory, 13
- Investing, 13, 20
- Issue selection, 71-84

- Jackknife, 247, 343
- Janeczko, Tomasz, 69, 141-142

- K-ratio, 51-52, 193, 201-203, 265-273, 305, 319-326, 343

- Lag, 14, 87
- Leverage, 35, 343
- Limit orders, 89

Liquidity, 71-72
Logical operators, 246
Long in-sample periods, 246
Lost opportunities, 103
Luck, 41, 47, 244, 249, 253-260, 283, 285

Management decision, 49
Margin, 312
Market, 22
Market Cast, 60
Market sectors and indices, 200, 203
Market Watch, 28, 353
Math.h, 337
Mathematical, 13
Maximum adverse excursion (MAE), 57
Maximum favorable excursion (MFE), 57
Maximum holding period, 95
Maximum loss stop, 94, 315
Mean, 306, 344
Mean-variance portfolio, 19
Mean reversion, 133, 137-146, 344
Measuring success, 49-54
MetaStock, 58, 60, 274
Metric, 49-54, 344
Microsoft Word, 280
Models, 13, 22, 345
Money management, 53, 54
Monte Carlo, 38, 40-41, 249, 274, 283-284, 295-316, 345
Moving average, 48, 87
msn Money, 27-28, 60, 353
Multiple time frames, 57, 223-230
Mutual funds, 13-14, 25, 36, 187, 200, 286
myTrack, 60

n-bar stop, 95
NASDAQ, 285-290
Never work again, 33, 47-48
New highs, 230
New moon, 159
Noise, 245-249, 302-305
Non-stationary, 33
Normal distribution, 259, 296-311
Null hypothesis, 251-259
NYSE, 291

Objective function, 35, 41-43, 49-54, 245-250, 261-284, 317-326, 345
Object oriented, 57
Optimization, 35, 39, 41-45, 47, 49, 56-57, 67, 148, 245-250, 317, 345

- Optimizing within ATC, 237
- Orders
 - Limit, 36, 40, 86, 87, 89, 133, 344
 - Limit if Touched (LIT), 86, 344
 - Limit on Close (LOC), 86, 344
 - Limit on Open (LOO), 86, 344
 - Market, 85, 88, 344
 - Market-if-touched (MIT), 85, 344
 - Market-On-Close (MOC), 36, 40, 86, 88, 344
 - Market-On-Open (MOO), 36, 40, 86, 88, 344
 - One-Cancels-All (OCA), 86, 345
 - Stop, 36, 40, 85-86
 - Stop Limit, 85
 - Trailing Stop, 85
 - Types, 85-94
- Oscillator, creating, 143-144
- Out-of-sample, 35, 38, 44-45, 107, 148-149, 158, 162-163, 170, 201, 218, 235, 245-250, 259, 261-284, 345
- Out-of-sample, contaminating, 250
- Outliers, 32, 250, 345
- Parabolic, 98-101
- Parameters, 45, 105, 246, 345
- Particle swarm optimization, 45, 274, 275
- Pattern systems, 165-174, 346
- Penalty Functions, 319-326
- Personality, 35
- Pessimistic Return Ratio, 52, 346
- Phantom signal, 36, 346
- Phase-of-the-moon, 139
- Pivot Points, 123-125
- Portfolio, 55-57, 205-216
- Position, Scaling, 93-98
- Position-in-range statistic, 139
- PositionScore, 212-219, 235, 236
- Position sizing, 40, 53-54, 312-316
- Position trading, 21
- Premium Data, 28, 353
- Price to earnings ratios, 13
- Price to sales ratios, 13
- Probability density function (pdf), 296-311
- Probability distributions, 259
- Profit target, 33, 95-97, 133
- Programs, Systems and AFL code, 61, 127
 - Adaptive Price Zone, Figure 10.5, 141-143
 - Add Noise, Figure 22.7, 303-304
 - ATC Simple Test, Figure 17.9, 231-232

Basic Intermarket Analysis, Figure 17.1, 219
Bollinger Band Breakout, Figure 9.12, 135
Center of Gravity, Figure 10.1, 137-138
Chandelier Stop, Figure 7.12, 101-102
Chandelier Stop in One Line, Figure 7.13, 102
CMO Oscillator, Figure 20.2, 263-264
Compute Daily Percent Changes, Figure 22.10, 306
Custom Metric, Figure A.1, 318
Custom Metric with Penalty, Figure A.7, 322-323
Detrended Price Oscillator, Figure 10.8, 143-144
Diffusion Index from ZScore, Figure 17.13, 235-236
Donchian Breakout, Figure 9.14, 136
Double Smoothed Entropy Bot, Figure 20.21, 275-279
Dual Time Frame Bollinger Bands, Figure 17.8, 228-230
Enter at Fixed Interval, Figure 7.6, 92-93
Enter at Market, Figure 7.1, 89
Enter at Random, Figure 7.5, 91-92
Enter at Stop, Figure 7.3, 90
Enter on Limit, Figure 7.2, 89-90
Enter on Specific Date, Figure 7.4, 91
Entry Identification I, Figure 7.14, 104-105
Entry Identification II, Figure 7.16, 105-106
Equity Allocation, Figure 22.22, 315-316
Expectancy Percentage, Figure A.3, 319
Export Data Series, Figure 14.1, 188
Generic Binary Search, Figure 13.13, 184-185
IIR2, Figure 8.1, 120
Initialization of CDF, Figure 22.5, 300-301
Intermarket Filter, Figure 17.3, 220-222
Issue Selection Filter, Figure 6.1, 72
Issue Selection Filter, Figure 6.4, 74-75
MACD Dema Indicator, Figure 8.3, 123
MA Cross Fixed Lengths, Figure 9.10, 132
MA Cross Optimize, Figure 9.6, 131
MA Cross System, Figure 9.1, 128
MA Cross with Prediction, Figure 13.8, 179-180
Moving Average Crossover Predict, Figure 13.6, 178
Moving Average Crossover System, Figure 13.2, 176
Normal Random Number, Figure 22.6, 302
Optimizing within ATC, Figure 17.15, 237-238
Parabolic Stop - Looping Code, Figure 7.11, 99-101
Pattern Daily Close, Figure 12.1, 166-168
Pivot Points, Figure 8.5, 124
Plot Test Run, Figure 17.17, 241-242
Process Signals, Figure 14.3, 189-190
Profit Target, Figure 7.9, 95-97

- Program with a Future Leak, Figure 7.18, 108
- Scale In, Figure 7.7, 93-94
- Scale Out, Figure 7.10, 97-98
- Seasonality Day of Month - Testing, Figure 11.1, 149
- Seasonality Day of Month - System, Figure 11.3, 150-151
- Seasonality of the Moon, Figure 11.15, 159-161
- Seasonality Options Expiration, Figure 11.11, 156
- Seasonality Trading Day - Testing, Figure 11.6, 152-153
- Seasonality Trading Day - System, Figure 11.8, 154
- Sector Correlation, Figure 14.5, 191
- Sector Rotation, Figure 17.1, 201
- Signals from Common Series, Figure 14.4, 190
- Simple Diffusion Index, Figure 17.11, 233-234
- Simple Portfolio Example, Figure 16.2, 206
- Simple Portfolio Example - Multiple Trades, Figure 16.10, 210
- Simple Trading System with Position Score, Figure 16.14, 212-213
- Simulate Random Long Graphic, Figure 22.16, 311
- Simulate Random Long Report, Figure 22.14, 310
- Stochastic of the RSI, Figure 10.3, 140
- TBond Overnight, Figure 9.12, 135
- Testing Risk per Trade, Figure 22.20, 314
- Testing Risk per Trade with Stop, Figure 22.21, 314
- Time Frame Weekly, Figure 17.5, 224-226
- Trading day of the month, 152
- Trading Long and Short, Figure 14.11, 194-195
- Uniform Random Number, Figure 22.4, 298-299
- Weekly MACD Filter using Daily Data, Figure 17.6, 226-227
- Weekly MACD Filter using Weekly Data, Figure 17.7, 227-228
- Z-score, Figure A.29, 333
- Z-score Cpp, Figure A.32, 335-336
- Z-score Cpp, Figure A.35, 337-338
- Z-score Loop, Figure A.30, 334-335
- ZigZag, Figure 6.13, 80-81
- Pseudo-random numbers, 295-311
- Psychology, 33-35

- Quality of entry signals, 104-107
- Quantitative analysis, 13-24, 187, 191
- Quote.com, 60
- Quotes Plus, 28, 60, 353
- Quote Tracker, 60

- Random entry, 91-93, 104, 107
- Random numbers, 295-311
- Real-time, 26-27, 56-60, 274, 346
- Real estate, 21
- Real money, 284

- Ref, 107
- Regression analysis, 18, 346
- Repeated sampling, 295
- Research reports, 13
- Restatements, 14-15
- Retracements, 18
- Reuters, 28, 58, 353
- Revision, 14
- Risk, 19, 35, 37, 312
- Risk adjusted return (RAR), 51
- Robustness, 19
- Rollover 30-31, 346
- Rotational systems, 55, 199-204
- Roulette, 54
- Runs, 240-242
- Russell 2000, 46, 50

- S&P 500, 46
- Sales, 13
- Scaling in, 93-94
- Scaling out, 97-98
- Stop and Reverse (SAR), 98-99
- Scanning, 56, 346
- Seasonality system, 147-164, 346
- Sector analysis, 187-198
- Sector-oriented exchange traded funds, 187, 191
- Sector-oriented mutual funds, 187, 199-204
- Security analysts, 14
- Semi-strongly efficient, 19
- Sensitivity, 38, 40-41, 346
- Short in-sample periods, 247
- Short positions, 21, 292
- Signal component, 245-249, 302
- Signals, Anticipating, 36, 175-186
 - Make an estimate 175-178
 - Precalculate knowing formula 178-182
 - Prediction without knowing formula 182-185
- Signal to noise ratio, 19, 191, 249, 302-305
- Simulation, 308
- Skill, 285
- Slippage, 40, 47, 86, 87, 133
- Smoothing, 302
- Snapshot data, 27-28, 347
- Solitaire, 23
- Sortino ratio, 52, 347
- Split, 31, 73
- Stability, 38

- Standard & Poors, 187
- Standard deviation, 306, 347
- Standard error, 319, 347
- Stationary, 19, 245-250, 261, 347
- Statistical methods, 19-21, 45, 57, 147, 251-260
- Stochastic oscillator, 139-140
- Stock data, 13, 21, 25, 31-32, 37, 135
- Stop
 - Chandelier 101-102
 - Parabolic 98-101
 - Trailing 79, 98, 133
- Stop And Reverse (SAR), 87, 98-101, 347
- Stops Hurt Systems, 313
- Strongly efficient, 19
- Subjective, 14, 18, 20
- Survivor bias, 17, 285-294
- Swing trading, 21
- Symbol space, 47, 246, 282, 348
- Synchronization, 261
- System design outline, 34-41

- TC 2000 and TC 2007, 28, 60, 353
- Technical analysis, 13, 17-18, 21
- Technical Analysis of Stocks and Commodities, 57, 141, 351
- Tharp, Van, 34, 352
- Theoretical models, 19
- Tick data, 25-27, 56, 348
- Time series, 18-19, 33
- Timing, broad market, 217-244
- Tonetti, Fred, 45
- Trade, 21, 25
- TradeStation, 58
- Trading, 13, 21
- Trading frequency, 35, 49
- Trading model, 22
- Trading range, 145, 240-242, 348
- Trading system, 13, 22-23, 33-48, 57-59, 67-69, 79-80, 99, 103, 107, 256, 302-312,
- Trading system development platforms, 23, 48, 57-59
- Trailing stop, 79, 95, 133, 348
- Treasury bonds, 46, 134
- Trend, 348
- Trend following, 133, 135, 348
- Trending market, 145, 240-242
- Trending systems, 127-136
- Trend lines, 18, 57
- Turtles, 48, 134-136

- Type I and Type II Errors, 103, 255
- Ulcer index, 51, 348
- Unemployment, 14
- Unethical behavior, 243
- Uniform distribution, 296-311
- Validation, 18, 20-21, 33-36, 39-41, 44-46, 49, 147, 165,
217, 262, 317-326, 349
- VAMI, 52, 349
- van den Bergen, Herman, 230
- Variance, 191, 349
- Vince, Ralph, 313, 352
- Visual Basic Script, 274-279
- Walk-forward, 40, 50, 261-284, 317-326, 349
- Weakly efficient, 20
- Wealth-Lab, 58
- Why 30, 259
- Williams R, 139
- Yahoo, 27-28, 59, 60, 353
- Yahoo Groups, 45, 274, 353
- Z-score, 61, 145, 235-239, 254, 332-338
- ZigZag, 79-83, 87