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### 1. System Design and Testing
- Assess the value and challenges of using a system for trading or investing
- Compare and analyze differences between discretionary and nondiscretionary systems
- Evaluate the mind-set and discipline required to develop and trade with a system
- Organize the basic procedures for designing a system
- Inventory types of technical trading systems
- Defend the necessity of risk management protocols in a trading system
- Examine critical aspects of performing system tests
- Compare and evaluate standard measures of system profitability and risk
- Differentiate between various methods of optimization

### 2. Money and Portfolio Risk Management
- Distinguish between trading strategies and money-management strategies
- Evaluate the significance of the theory of runs and a martingale strategy
- Model position size using risk of ruin and optimal f methods
- Differentiate between diversifiable and correlated risk
- Compare and analyze the various types of stops used to manage risk
- Assess the minimum capital needed for trading a system

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Section I: Risk Management

3. System Evaluation and Testing

Choose factors for system testing including objectives, parameters and test data

Assess the use of in-sample and out-of-sample data

Evaluate optimized test results for continuity and significance using a variety of visualization methods

Explain the basics of using genetic algorithms

Illustrate the concept of robustness in a trading system

Critique the use of performance and risk metrics based on a given objective

4. Practical Considerations

Plan for system development and testing: data, techniques, and initial evaluation of results

Assess the potential impact of price shocks and formulate plans for managing them

Assess the impact of runs and martingales on a trading system

Evaluate the trade-offs between trend-following and mean-reverting systems

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5. Risk Control
- Compare risk and performance metrics derived from the following: Sharpe Ratio, Information Ratio, Treynor Ratio, Calmar Ratio, Sortino Ratio
- Interpret calculations of Value at Risk (VaR)
- Compare various methods for setting stops and profit targets
- Model position size using various capital and volatility approaches in this chapter
- Compare approaches to compounding positions
- Calculate the risk of ruin
- Calculate optimal f

6. Statistical Analysis
- Assess random and nonrandom trends in trading system performance
- Examine sampling and sample statistics in trading
- Calculate relative frequency
- Organize six elements of a statistical inference problem
- Differentiate between theoretical and empirical probabilities
- Derive a sampling distribution

7. Hypothesis Tests and Confidence Intervals
- Differentiate between necessary and sufficient conditions
- Compare the assertions of the null and alternative hypotheses
- Defend why the null hypothesis should be framed as the target of a test

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Section II: Asset Relationships

8. Regression
Assess values generated by regression, multiple regression and tolerance calculations
Select meaningful predictor variables for multiple regression studies

9. International Indices and Commodities
Assess values generated by regression, multiple regression and tolerance calculations
Select meaningful predictor variables for multiple regression studies

10. The S&P 500
Compare general correlations among the S&P 500, international indexes and other markets discussed

11. European Indices
Compare general correlations among international indexes, stocks and other markets discussed

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12. Gold

Compare general correlations among gold, dollar, stocks and indexes

13. Intraday Correlations

Evaluate correlation characteristics in various timeframes among the index futures discussed

14. Intermarket Indicators

Construct relative strength studies and evaluate the results
Compare intermarket indicators described in this chapter
Prepare recommendations based on asset correlation data

15. A Unique Way to Visualize Relative Strength

Evaluate the trend and momentum of relative strength using Relative Rotation Graphs (RRG)
Assess relative strength using the indicators derived from the RRG concept

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16. Fact, Fiction, and Momentum Investing
Defend the use of momentum strategies using historical data
Argue against common myths about momentum strategies

17. Analyzing the Macro-Finance Environment
Assess the business cycle, the financial cycle and their relationship
Manage a sector rotation model based on the business and financial cycles
Use leading, coincident and lagging indicators of economic activity

18. Portfolio Risk and Performance Attribution
Assess the statement “total risk = volatility = standard deviation of returns”
Compare the three formulations of total risk
Defend the assertion that “diversification reduces only firm-specific risk”
Defend beta and its role in assessing portfolio risk
Employ the Sharpe and Treynor ratios for individual stocks and portfolios

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Distinguish between two types of biases: cognitive and emotional
Formulate plans to counter behavioral biases in making investment decisions
Propose methods to capitalize on the behavioral biases of other market participants
Examine the specific behavioral biases in each of those categories

20. Investor Psychology
Inventory general behavioral aspects that impact price action
Evaluate behavioral elements that contribute to the development of chart patterns
Evaluate behavioral elements that contribute to the persistence of trends
Evaluate behavioral elements that contribute to periods of consolidation
Evaluate behavioral elements that contribute to trend reversals

21. Are Two Heads Better than One?
Assess the negative consequences of group/committee decision making
Organize approaches to mitigating the effects of group biases

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Diagram the five stages of a bubble
Assess the characteristics of each of the five stages
Assess hypothetical market environments to identify what stage they indicate

23. De-Bubbling: Alpha Generation
Assess the three cross-section strategies that should benefit from a de-bubbling/deflationary period

24. Behavioral Techniques
Evaluate market reactions to events: planned news releases versus price shocks
Estimate reactions to events using the volatility ratio
Assemble a COT Index and a COT Sentiment Index from Commitments of Traders (COT) data

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Section V: Volatility Analysis

25. The VIX as a Stock Market Indicator
- Compare movement in the VIX and the S&P 500
- Evaluate VIX and VIX futures price relationships for signals
- Formulate market forecasts that include volatility as an input

26. Hedging with VIX Derivatives
- Defend the rationale behind hedging with VIX products
- Propose hedge strategies using VIX options and futures

27. Advanced Techniques
- Assess market reactions to events: planned news releases versus price shocks
- Compare several measures of volatility
- Calculate profit targets and stop-loss levels using volatility
- Evaluate methods for filtering a system’s signals based on volatility
- Assess how fractal, chaos and entropy concepts may be applied to trading
- Explain the basics of using neural networks
- Explain the basics of using genetic algorithms

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**26. Candlestick Analysis**

Evaluate the strengths and weaknesses of candlestick charts
Categorize reversal and continuation candlestick patterns
Assess the significance of various Japanese candlestick patterns to pinpoint reversals and breakouts
Integrate candlestick charts with other technical studies
### 31. Progressive Charting

Evaluate candle patterns as they develop in a chart

Compose responses to the four questions posed at the outset of the chapter

### 32. Bringing It All Together: Real-World Charts

Predict likely price action based on candlestick patterns and the overall context of the price action

Propose entry and exit points based on patterns, price action and risk

Assess trend persistence based on candlestick patterns and the overall context of the price action

### 33. Conclusions

Assess the validity of the 12 major conclusions about technical indicators the authors present

Defend the use of technical indicators when properly employed in a variety of market environments

Employ the results of the ARIMA forecast to generate trading signals

Demonstrate use of linear regression to generate trading signals

Illustrate the use of linear regression for relative strength studies