Beyond Technical Analysis
How To Develop and Implement a Winning Trading System
SECOND EDITION

Tushar S. Chande, PhD
Contents

Preface xiii

1 Developing and Implementing Trading Systems 1
   Introduction 1
   What's New in This Edition 2
   The Usual Disclaimer 4
   What Is a Trading System? 4
   What Is a Trading Program? 4
   Classification of Return Generation Processes 5
   Comparison: Discretionary versus Mechanical System Trader 8
   Why Should You Use a Trading System? 9
   Robust Trading Systems: TOPS COLA 10
   What Is a "Good" Trading Program? 11
   How Do You Implement a Trading System? 12
   Is Systematic Trading Easy? 12

Appendix to Chapter 1: A Brief Technical Analysis Primer 15
   Introduction 15
   Assumptions of Technical Analysis 16
2 Principles of Trading System Design

Introduction 39

What Are Your Trading Beliefs? 40

Six Cardinal Rules 41

Rule 1: Positive Expectation 42
Rule 2: A Small Number of Rules 44
Rule 3: Robust Trading Rules 48
Rule 4: Trading Multiple Contracts 55
Rule 5: Risk Control, Money Management, and Portfolio Design 58
Rule 6: Fully Mechanical System 62

Summary 63

3 Foundations of System Design

Introduction 65

Diagnosing Market Trends 66

To Follow the Trend or Not? 70

To Optimize or Not To Optimize? 73

Initial Stop: Solution or Problem? 77

Does Your Design Control Risks? 84

Data! Handle with Care! 88

Choosing Orders for Entries and Exits 90

Understanding Summary of Test Results 91
4 Developing New Trading Systems 119

Introduction 119

The Assumptions behind Trend-Following Systems 120

The 65sma-3cc Trend-Following System 121
   Effect of Initial Money Management Stop 132
   Adding Filter to the 65sma-3cc System 138
   Adding Exit Rules to the 65sma-3cc System 144

Channel Breakout—Pullback Pattern 145

An ADX Burst Trend-Seeking System 155

A Trend-Antitrend Trading System 160

Gold-Bond Intermarket System 166

A Pattern for Bottom-Fishing 175

Identifying Extraordinary Opportunities 183

Performance Update: 65sma-3cc System 186

ATR-Band Breakout Model 188

Trading Stocks 189

Summary 197

Appendix to Chapter 4: Additional Performance Updates 199

5 Developing Trading System Variations 201

Introduction 201

Channel Breakout on Close with Trailing Stops 203

Channel Breakout on Close with Volatility Exit 204
Contents xi

Depth of Drawdowns for Actual Performance Records 301
Estimating the Duration of Drawdowns 310
Estimating Future Returns 314
Chande Comfort Zone 317
Dealing with Drawdowns 319
"Rescaling" Volatility 322
A Calibration for Leverage 324
Return-Efficiency Benchmarks 324
Empty Diversification 327
Comparing Money Managers 329
Risk and Reward in Stocks and Mutual Funds 337
Summary 339

8 Data Scrambling 343
Introduction 343
What You Really Want To Know about Your System 343
Past Is Prolog: Sampling with Replacement 344
Data Scrambling: All the Synthetic Data You'll Ever Need 346
Testing a Volatility System on Synthetic Data 352
Summary 354

9 A System for Trading 355
Introduction 355
The Problem with Testing 356
Paper Trading: Pros and Cons 356
Do You Believe in Your System? 357
Time Is Your Ally 358
No Exceptions 358
Full Traceability 359