HANDBOOK OF FINANCIAL ECONOMETRICS, MATHEMATICS, STATISTICS, AND MACHINE LEARNING

Volume 1

Editors

Cheng Few Lee
Rutgers University, USA

John C. Lee
Center for PBBEF Research, USA

World Scientific

NEW JERSEY · LONDON · SINGAPORE · BEIJING · SHANGHAI · HONG KONG · TAIPEI · CHENNAI · TOKYO

Contents of Volume 1

Preface v

Advisory Board vii

About the Editors ix

List of Contributors xxxiii

1. Introduction to Financial Econometrics, Mathematics, Statistics, and Machine Learning 1
   C. F. Lee

2. Do Managers Use Earnings Forecasts to Fill a Demand They Perceive from Analysts? 101
   O. Barron, J. Cao, X. Sheng, M. Thevenot and B. Xin

3. A Potential Benefit of Increasing Book–Tax Conformity: Evidence from the Reduction in Audit Fees 151
   N.-T. Kuo and C. F. Lee

4. Gold in Portfolio: A Long-Term or Short-Term Diversifier? 199
   F.-L. Lin, S.-Y. Yang and Y.-F. Chen

5. Econometric Approach to Financial Analysis, Planning, and Forecasting 225
   C. F. Lee

6. Forecast Performance of the Taiwan Weighted Stock Index: Update and Expansion 275
D.-Y. Ji, H.-Y. Chen and C. F. Lee

7. Parametric, Semi-Parametric, and Non-Parametric Approaches for Option-Bound Determination: Review and Comparison 297
C. F. Lee and P. G. Zhang

8. Measuring the Collective Correlation of a Large Number of Stocks 335
W.-F. Niu and H. H.-S. Lu

9. Key Borrowers Detected by the Intensities of Their Interactions 355
F. Aleskerov, I. Andrievskaya, A. Nikitina and S. Shvydun

10. Application of the Multivariate Average F-Test to Examine Relative Performance of Asset Pricing Models with Individual Security Returns 391
S. Rahman and M. J. Schneider

11. Hedge Ratio and Time Series Analysis 431
S.-S. Chen, C. F. Lee and K. Shresth

12. Application of Intertemporal CAPM on International Corporate Finance 485
J.-R. Chang, M.-W. Hung and C. F. Lee

13. What Drives Variation in the International Diversification Benefits? A Cross-Country Analysis 519
W.-J. P. Chiou and K. Pukthuanthong

14. A Heteroskedastic Black–Litterman Portfolio Optimization Model with Views Derived from a Predictive Regression 563
W.-H. Lin, H.-W. Teng and C.-C. Yang

15. Pricing Fair Deposit Insurance: Structural Model Approach 583
T. Tai, C. F. Lee, T.-S. Dai, K. L. Wang and H.-Y. Chen

16. Application of Structural Equation Modeling in Behavioral Finance: A Study on the Disposition Effect 603
H.-H. Chang

17. External Financing Needs and Early Adoption of Accounting Standards: Evidence from the Banking Industry 627
S. I-L. Wang

18. Improving the Stock Market Prediction with Social Media via Broad Learning 677
X. Zhang and P. S. Yu

19. Sourcing Alpha in Global Equity Markets: Market Factor Decomposition and Market Characteristics 737
S. S. Mohanty

20. Support Vector Machines Based Methodology for Credit Risk Analysis 791
J. Li, M. Liu, C. F. Lee and D. Wu

21. Data Mining Applications in Accounting and Finance Context 823
W. Kwak, Y. Shi and C. F. Lee

22. Trade-off Between Reputation Concerns and Economic Dependence for Auditors — Threshold Regression Approach 859
F.-C. Lin, C.-C. Chien, C. F. Lee, H.-C. Lin and Y.-C. Lin

23. ASEAN Economic Community: Analysis Based on Fractional Integration and Cointegration 889
L. A. Gil-Alana and H. Carcel

24. Alternative Methods for Determining Option Bounds: A Review and Comparison 917
C. F. Lee, Z. Zhong, T. Tai and H. Chuang

25. Financial Reforms and the Differential Impact of Foreign Versus Domestic Banking Relationships on Firm Value 947
H.-C. Yu, C. F. Lee and B. J. Sopranzetti

26. Time-Series Analysis: Components, Models, and Forecasting 979
C. F. Lee

Contents of Volume 2

Preface v

Advisory Board vii

About the Editors ix

List of Contributors xxxiii

27. Itô's Calculus and the Derivation of the Black–Scholes Option-Pricing Model 1025
G. Chalamandaris and A. G. Malliaris

28. Durbin–Wu–Hausman Specification Tests 1075
R. H. Patrick

29. Jump Spillover and Risk Effects on Excess Returns in the United States During the Great Recession 1109
J. Schlossberg and N. R. Swanson

30. Earnings Forecasts and Revisions, Price Momentum, and Fundamental Data: Further Explorations of Financial Anomalies 1151
J. Guerard and A. Mark

31. Ranking Analysts by Network Structural Hole 1211
R.-J. Guo, Y. Lu and L. Xie

32. The Association Between Book-Tax Differences and CEO Compensation 1245
K.-W. Lee and G. H.-H. Yeo

33. Stochastic Volatility Models: Faking a Smile 1271
D. Diavatopoulos and O. Sokolinskiy

34. Entropic Two-Asset Option 1295
T. Sebehela

35. The Joint Determinants of Capital Structure and Stock Rate of Return: A LISREL Model Approach 1345
H.-Y. Chen, C. F. Lee and T. Tai

36. Time-Frequency Wavelet Analysis of Stock-Market Co-Movement Between and Within Geographic Trading Blocs 1399
B. Kaffel and F. Abid

37. Alternative Methods to Deal with Measurement Error 1439
H.-Y. Chen, A. C. Lee and C. F. Lee

38. Simultaneously Capturing Multiple Dependence Features in Bank Risk Integration: A Mixture Copula Framework 1485
X. Zhu, J. Li and D. Wu

39. GPU Acceleration for Computational Finance 1519
C.-H. Han

40. Does VIX Truly Measure Return Volatility? 1533
K. V. Chow, W. Jiang and J. Li

41. An ODE Approach for the Expected Discounted Penalty at Ruin in a Jump-Diffusion Model 1561
Y.-T. Chen, C. F. Lee and Y.-C. Sheu

42. How Does Investor Sentiment Affect Implied Risk-Neutral Distributions of Call and Put Options? 1599
W.-M. Szu, Y.-C. Wang and W.-R. Yang

43. Intelligent Portfolio Theory and Strength Investing in the Confluence of Business and Market Cycles and Sector and Location Rotations 1637
H. Pan

44. Evolution Strategy-Based Adaptive L_q Penalty Support Vector Machines with Gauss Kernel for Credit Risk Analysis 1675
J. Li, G. Li, D. Sun and C. F. Lee

45. Product Market Competition and CEO Pay Benchmarking 1695
I. E. Brick and D. Palia

46. Equilibrium Rate Analysis of Cash Conversion Systems: The Case of Corporate Subsidiaries 1725
W. Chen, B. Melamed, O. Sokolinskiy and B. S. Sopranzetti

47. Is the Market Portfolio Mean–Variance Efficient? 1763
R. Grauer

48. Consumption-Based Asset Pricing with Prospect Theory and Habit Formation 1789
J.-Y. Wang and M.-W. Hung

49. An Integrated Model for the Cost-Minimizing Funding of Corporate Activities Over Time 1821
M. C. Gupta

50. Empirical Studies of Structural Credit Risk Models and the Application in Default Prediction: Review and New Evidence 1845
H.-H. Lee, R.-R. Chen and C. F. Lee

51. Empirical Performance of the Constant Elasticity Variance Option Pricing Model 1903
R. R. Chen, C. F. Lee and H.-H. Lee

52. The Jump Behavior of a Foreign Exchange Market: Analysis of the Thai Baht 1943
J.-R. Chang, M.-W. Hung, C. F. Lee and H.-M. Lu

53. The Revision of Systematic Risk on Earnings Announcement in the Presence of Conditional Heteroscedasticity 1969
C.-C. Chien, C. F. Lee and S.-C. Chiu

54. Applications of Fuzzy Set to International Transfer Pricing and Other Business Decisions 1991
W. Kwak, Y. Shi, H. Lee and C. F. Lee

55. A Time-Series Bootstrapping Simulation Method to Distinguish Sell-Side Analysts' Skill from Luck 2011
C. Su and H. Zhang

56. Acceptance of New Technologies by Employees in Financial Industry 2053
V. Belousova, V. Solodkov, N. Chichkanov and E. Nikiforova

57. Alternative Method for Determining Industrial Bond Ratings: Theory and Empirical Evidence 2081
L.-J. Kao and C. F. Lee

58. An Empirical Investigation of the Long Memory Effect on the Relation of Downside Risk and Stock Returns 2107
C. Y.-H. Chen and T. C. Chiang

59. Analysis of Sequential Conversions of Convertible Bonds: A Recurrent Survival Approach 2141
L.-J. Kao, L.-S. Chen and C. F. Lee

60. Determinants of Euro-Area Bank CDS Spreads 2161
M.-E. K. Agoraki, D. A. Georgoutsos and G. T. Moratis

61. Dynamic Term Structure Models Using Principal Components Analysis Near the Zero Lower Bound 2199
J. Juneja

62. Effects of Measurement Errors on Systematic Risk and Performance Measure of a Portfolio 2251
C. F. Lee and F. C. Jen

63. Forecasting Net Charge-Off Rates of Banks: A PLS Approach 2265
J. R. Barth, S. Joo, H. Kim, K. B. Lee, S. Maglic and X. Shen

64. Application of Filtering Methods in Asset Pricing 2303
H. Chang and Y. Wu

65. Sampling Distribution of the Relative Risk Aversion Estimator: Theory and Applications 2323
M. J. Karson, D. C. Cheng and C. F. Lee

Contents of Volume 3

Preface v

Advisory Board vii

About the Editors ix

List of Contributors xxxiii

66. Social Media, Bank Relationships and Firm Value 2337
C.-H. Chao and H.-C. Yu

67. Splines, Heat, and IPOs: Advances in the Measurement of Aggregate IPO Issuance and Performance 2373
Z. A. Smith, M. A. M. Al Janabi and M. Z. Mumtaz

68. The Effects of the Sample Size, the Investment Horizon and the Market Conditions on the Validity of Composite Performance Measures: A Generalization 2399
S.-N. Chen and C. F. Lee

69. The Sampling Relationship Between Sharpe's Performance Measure and its Risk Proxy: Sample Size, Investment Horizon and Market Conditions 2419
S.-N. Chen and C. F. Lee

70. VG NGARCH Versus GARJI Model for Asset Price Dynamics 2437
L.-J. Kao and C. F. Lee

71. Why do Smartphone and Tablet Users Adopt Mobile Banking? 2461
V. Belousova and N. Chichkanov

72. Non-Parametric Inference on Risk Measures for Integrated Returns 2485
H. Tsai, H.-C. Ho and H.-Y. Chen

73. Copulas and Tail Dependence in Finance 2499
W.-C. Lai and K.-L. Goh

74. Some Improved Estimators of Maximum Squared Sharpe Ratio 2525
S. K. Choy and B.-q. Yang

75. Errors-in-Variables and Reverse Regression 2547
S. Rahman and C. F. Lee

76. The Role of Financial Advisors in M&As: Do Domestic and Foreign Advisors Differ? 2565
K.-S. Chuang

77. Discriminant Analysis, Factor Analysis, and Principal Component Analysis: Theory, Method, and Applications 2599
C. F. Lee

78. Credit Analysis, Bond Rating Forecasting, and Default Probability Estimation 2635
C. F. Lee

79. Market Model, CAPM, and Beta Forecasting 2673
C. F. Lee

80. Utility Theory, Capital Asset Allocation, and Markowitz Portfolio-Selection Model 2713
C. F. Lee

81. Single-Index Model, Multiple-Index Model, and Portfolio Selection 2757
C. F. Lee

82. Sharpe Performance Measure and Treynor Performance Measure Approach to Portfolio Analysis 2801
P. Chiou and C. F. Lee

83. Options and Option Strategies: Theory and Empirical Results 2839
C. F. Lee

84. Decision Tree and Microsoft Excel Approach for Option Pricing Model 2885
J.-R. Chang and J. Lee

85. Statistical Distributions, European Option, American Option, and Option Bounds 2929
C. F. Lee

86. A Comparative Static Analysis Approach to Derive Greek Letters: Theory and Applications 2965
C. F. Lee and Y. Xiao

87. Fundamental Analysis, Technical Analysis, and Mutual Fund Performance 3001
C. F. Lee

88. Bond Portfolio Management, Swap Strategy, Duration, and Convexity 3059
C. F. Lee

89. Synthetic Options, Portfolio Insurance, and Contingent Immunization 3099
C. F. Lee

90. Alternative Security Valuation Model: Theory and Empirical Results 3143
C. F. Lee

91. Opacity, Stale Pricing, Extreme Bounds Analysis, and Hedge Fund Performance: Making Sense of Reported Hedge Fund Returns 3193
Z. A. Smith, M. A. M. Al Janabi and M. Z. Mumtaz

92. Does Quantile Co-Integration Exist Between Gold Spot and Futures Prices? 3219
H.-C. Yu, C.-J. Lee and D.-T. Hsieh

93. Bayesian Portfolio Mean–Variance Efficiency Test with Sharpe Ratio's Sampling Error 3241
L.-J. Kao, H. C. Soo and C. F. Lee

94. Does Revenue Momentum Drive or Ride Earnings or Price Momentum? 3263
H.-Y. Chen, S.-S. Chen, C.-W. Hsin and C. F. Lee

95. Technical, Fundamental, and Combined Information for Separating Winners from Losers 3319
H.-Y. Chen, C. F. Lee and W.-K. Shih

96. Optimal Payout Ratio Under Uncertainty and the Flexibility Hypothesis: Theory and Empirical Evidence 3367
C. F. Lee, M. C. Gupta, H.-Y. Chen and A. C. Lee

97. Sustainable Growth Rate, Optimal Growth Rate, and Optimal Payout Ratio: A Joint Optimization Approach 3413
H.-Y. Chen, M. C. Gupta, A. C. Lee and C. F. Lee

98. Cross-Sectionally Correlated Measurement Errors in Two-Pass Regression Tests of Asset-Pricing Models 3465
T. Gramespacher, A. Bänziger and N. Hilber

99. Asset Pricing with Disequilibrium Price Adjustment: Theory and Empirical Evidence 3491
C. F. Lee, C.-M. Tsai and A. C. Lee

Contents of Volume 4

Preface v

Advisory Board vii

About the Editors ix

List of Contributors xxxiii

100. A Dynamic CAPM with Supply Effect: Theory and Empirical Results 3517
C. F. Lee, C.-M. Tsai and A. C. Lee

101. Estimation Procedures of Using Five Alternative Machine Learning Methods for Predicting Credit Card Default 3545
H. W. Teng and M. Lee

102. Alternative Methods to Derive Option Pricing Models: Review and Comparison 3573
C. F. Lee, Y. Chen and J. Lee

103. Option Price and Stock Market Momentum in China 3619
J. Li, Y. Yao, Y. Chen and C. F. Lee

104. Advancement of Optimal Portfolio Models with Short-Sales and Transaction Costs: Methodology and Effectiveness 3649
W.-J. P. Chiou and J.-R. Yu

105. The Path Leading up to the New IFRS 16 Leasing Standard: How was the Restructuring of Lease Accounting Received by Different Advocacy Groups? 3675
C. Blecher and S. Kruse

106. Implied Variance Estimates for Black–Scholes and CEV OPM: Review and Comparison 3703
C. F. Lee, Y. Chen and J. Lee

107. Crisis Impact on Stock Market Predictability 3737
R. Mohnot

108. How Many Good and Bad Funds are There, Really? 3753
W. Ferson and Y. Chen

109. Constant Elasticity of Variance Option Pricing Model: Integration and Detailed Derivation 3829
Y. L. Hsu, T. L. Lin and C. F. Lee

110. An Integral Equation Approach for Bond Prices with Applications to Credit Spreads 3849
Y.-T. Chen, C. F. Lee and Y.-C. Sheu

111. Sample Selection Issues and Applications 3867
H.-L. Chuang and S.-Y. Chiu

112. Time Series and Neural Network Analysis 3887
K. C. Tseng, O. Kwon and L. C. Tjung

113. Covariance Regression Model for Non-Normal Data 3933
T. Zou, R. Luo, W. Lan and C.-L. Tsai

114. Impacts of Time Aggregation on Beta Value and R^2 Estimations Under Additive and Multiplicative Assumptions: Theoretical Results and Empirical Evidence 3947
Y. Xiao, Y. Tang and C. F. Lee

115. Large-Sample Theory 3985
S. Poshakwale and A. Mandal

116. Impacts of Measurement Errors on Simultaneous Equation Estimation of Dividend and Investment Decisions 4001
C. F. Lee and F.-L. Lin

117. Big Data and Artificial Intelligence in the Banking Industry 4025
T. R. Yu and X. Song

118. A Non-Parametric Examination of Emerging Equity Markets Financial Integration 4043
K. Yang, S. Wahab, B. Kolluri and M. Wahab

119. Algorithmic Analyst (ALAN) — An Application for Artificial Intelligence Content as a Service 4075
T. Hong, D. Lee and W. Wang

120. Survival Analysis: Theory and Application in Finance 4087
F. Gao and X. He

121. Pricing Liquidity in the Stock Market 4119
D. Du and O. Hu

122. The Evolution of Capital Asset Pricing Models: Update and Extension 4149
Y.-C. Shih, S.-S. Chen, C. F. Lee and P.-J. Chen

123. The Multivariate GARCH Model and its Application to East Asian Financial Market Integration 4209
Y. Tsukuda, J. Shimada and T. Miyakoshi

124. Review of Difference-in-Difference Analyses in Social Sciences: Application in Policy Test Research 4255
W. H. Greene and M. Liu

125. Using Smooth Transition Regressions to Model Risk Regimes 4281
L. A. Gallagher, M. C. Hutchinson and J. O'Brien

126. Application of Discriminant Analysis, Factor Analysis, Logistic Regression, and KMV-Merton Model in Credit Risk Analysis 4313
C. F. Lee and H.-C. Yu

127. Predicting Credit Card Delinquencies: An Application of Deep Neural Networks 4349
T. Sun and M. A. Vasarhalyi

128. Estimating the Tax-Timing Option Value of Corporate Bonds 4383
P. H. Chen, S. Liu and C. Wu

129. DCC-GARCH Model for Market and Firm-Level Dynamic Correlation in S&P 500 4421
P. Chen, C. Wu and Y. Zhang

130. Using Path Analysis to Integrate Accounting and Non-Financial Information: The Case for Revenue Drivers of Internet Stocks 4441
A. Kozberg

131. The Implications of Regulation in the Community Banking Sector: Risk and Competition 4473
G. McKee and A. Kagan

Author Index 4509

Subject Index 4587

Reference Index 4613