Andrew Ang

Andrew Ang, PhD, Managing Director, is Head of Factors, Sustainable and Solutions (FS2 or FS-Squared). He also serves as Senior Advisor to BlackRock Retirement Solutions. As part of BlackRock Systematic, which is responsible for quantitatively managing over $220 billion, FS2 is responsible for proprietary factor investing, delivering cutting-edge sustainable alpha, ESG outcomes and product innovation.

Dr. Ang is a well-known financial economist specializing in quantitative investing. Author of over 100 publications, Dr. Ang has published on sustainable investing, equities, fixed income, optimal asset allocation, and alternative assets. His seminal papers include research in the minimum volatility factor, incorporating macro factors into bond pricing models and factor allocation. His book, *Asset Management: A Systematic Approach to Factor Investing*, has been translated into Chinese, Japanese, Korean, and Spanish.

Dr. Ang has been granted patents, and he has won several industry prizes and grants including the Harry Markowitz award, the Bernstein Fabozzi/Jacobs Levy award, and prizes and grants from the Q Group, INQUIRE, Netspar, and the National Science Foundation. According to RePEc/IDEAS, the largest bibliographic database in the field of economics, Dr. Ang is rated in the top 0.1% of world-wide economists by citations, downloads, and views.

Before joining BlackRock, Dr. Ang was the Ann F. Kaplan Professor of Business at Columbia Business School. He was previously Chair of the Finance and Economics Division and a Faculty Research Fellow of the National Bureau of Economic Research. As a professor, Dr. Ang worked with several large institutional managers as an advisor. His work with industry was recognized by aiCIO naming him one of the top 10 most influential academics in the institutional investing world. Dr. Ang continues his work in the academy in co-teaching a class on Climate Change and ESG Investing at Columbia University.

Dr. Ang earned a BEc(Hons) from Macquarie University, and a PhD in finance and MS in statistics from Stanford University. Dr. Ang used to be a Fellow of the Institute of Actuaries of Australia.

Professional Experience

2022-present	Head of Factors, Sustainable and Solutions, BlackRock Systematic
2015-present	Managing Director, BlackRock
2020-2021	Head of BlackRock Systematic Wealth Solutions
2015-2021	Head of the Factor-Based Strategies Group
2009-2016	Ann F. Kaplan Professor of Business Chair of the Finance and Economics Division, Columbia Business School Research Fellow, National Bureau of Economic Research (NBER)

Other Positions

Senior Advisor to BlackRock Retirement Solutions, Blackrock
Member, Board of Directors, and Co-Chair of the Program Committee, The Q-Group
Member, Investments and Risk Advisory Panel (IRAP), Monetary Authority of Singapore
Adjunct Professor, School of International and Public Affairs, Columbia University

Education

PhD, Finance	Graduate School of Business, Stanford University
MS, Statistics	Stanford University
BEc, First Class Honours	Macquarie University, Australia

Patents

US Patent No. 10,706,473
Systems and methods for customizing a portfolio using visualization and control of factor exposure.

Awards, Grants, and Honors

Harry Markowitz Award, 2021
Bernstein Fabozzi/Jacobs Levy Award, 2020
Jacobs Levy Center Research Paper Prize for Outstanding Paper, 2017
Second Prize, Roger F. Murray Prize Competition, 2014
aiCIO Top 10 Most Influential Academics in the Institutional Investing World, 2013
Dean’s Award for Teaching Excellence in an Elective Course, 2012
Second Prize, Roger F. Murray Prize Competition, 2011
Netspar Theme Grant 2011-2014
Chazen Institute and Columbia University CIBER Grant 2010
Centre for Hedge Fund Research (CHFR) at Imperial College London Grant 2009
INQUIRE Europe Grant 2009
Second Prize, Crowell Memorial Prize Competition 2005
BSI GAMMA Foundation Grant 2004
Chazen Fellowship 2003 (Columbia Business School)
INQUIRE Europe First Prize 2002
INQUIRE UK Grant 2002
Second Prize, Roger F. Murray Prize Competition, 2002
National Science Foundation (NSF) Grant 2002-2007
First Prize, Chicago Quantitative Alliance Academic Paper Competition 2001
First Prize, Crowell Memorial Prize Paper Competition 2001
Q-Group Grant 2001
INQUIRE Europe Grant 2001
First Prize, International Investment Forum Paper Competition 2000
Chazen Fellowship 1999 (Columbia Business School)
Eugene Lang Fellowship 1999 (Columbia Business School)
Fellow, Institute of Actuaries of Australia 1998
Jaedicke Merit Fellowship 1997 (Stanford Business School)

Reddington Prize 1997 (Society of Actuaries)
Macquarie University Medal 1994
Actuarial Management Prize 1994 (Macquarie University)
Macroeconomics Prize 1993 (Macquarie University)
Prize for Actuarial Studies 1993 (Macquarie University)
AMP Actuarial Scholarship 1991-1994 (for studies at Macquarie University)
Rotary Exchange Scholarship 1990
General Exhibition 1989 (for outstanding academic achievement in Year 12)
Australian Youth Orchestra Tour 1994
J. B. Vincent Memorial Prize for Licentiate Violin 1989
Licentiate in Music, Australia (L.Mus.A.) Violin 1989
A. J. Leckie Memorial Award for Associate Pianoforte 1988
Associate in Music, Australia (A.Mus.A.) Piano 1988

Books

1. *Asset Management: A Systematic Approach to Factor Investing*, 2014, Oxford University Press.

Japanese edition, 2016, Kinzai. Supervised and translated by Yusaku Sakaguchi.
Chinese edition, 2017, China Development Press. Supervised and translated by Jane Long.
Spanish translation, 2021, Farogue S. L.
Korean translation, 2021, Acorn Publishing Company

Working Papers

2. "Optimal Portfolio Choice with Absorbing State Markov Chains," with Henry Shen, Jeff Shen, and Rui Zhao.

3. "Sustainable Risk and Returns Implied by Demand-Based Asset Pricing Models," with Chi Zhang, Xinyang Li, Andrea Tamoni, and Misha van Beek.

Journal Articles

(Reverse chronological order)

Since 2021

4. "The Great Wall of Debt: The Cross Section of Chinese Local Government Credit Spreads," with Jennie Bai and Hao Zhou, 2023, *Journal of Finance and Data Science* 9, 100098.

5. "Asset Allocation with Crypto: Application of Preferences for Positive Skewness," with Tom Morris and Raffaele Savi, 2023, *Journal of Alternative Investments*, 25, 4, 7-28.

6. "Optimal Claiming of Social Security Benefits," with Steven Diamond, Stephen Boyd, David Greenberg, and Mykel J. Kochenderfer, 2023, *Journal of Retirement*, 10, 3, 33-46.

7. "Trends and Cycles of Style Factors in the 20th and 21st Centuries," 2023, *Journal of Portfolio Management*, 49, 2, 33-56.

8. "Attribution via Shapley Value," with Stephen Boyd and Nicholas Moehle, 2022, *Journal of Investment Management*, 20, 3, 33-52.

9. "Sustainable Alpha in Sovereign and Corporate Bonds," with Karishma Kaul, Katharina Schwaiger, and Muling Si, 2022, *Journal of Investment Management*, 20, 2, 30-50.

10. "Public Pension Portfolios in a World of Low Rates and Low Risk Premiums," with He Ren, Sarah Siwinski, and Calvin Yu, 2022, *Journal of Investment Consulting*, 21, 1, 30-44.

11. "Net Zero Investing for Multi-Asset Portfolios Satisfying Paris Aligned Benchmark Requirements with Climate Alpha Signals," with Philip Hodges, He Ren, and Katharina Schwaiger, 2022, *Journal of Portfolio Management*, 48, 4, 33-58.

12. "Investing in US Core Fixed Income with Macro and Style Factors," with Eugene Pauksta, Karishma Kaul, Tom Parker, and Scott Radell, 2022, *Journal of Portfolio Management*, 48, 2, 45-65.

13. "Climate Alpha with Predictors also Improving Firm Efficiency," with Joshua Kazdin, Katharina Schwaiger, and Viktoria-Sophie Wendt, 2021, *Journal of Impact and ESG Investing*, 2, 2, 35-56.

14. "Index + Factors + Alpha," with Linxi Chen, Michael D. Gates, and Paul D. Henderson, 2021, *Financial Analysts Journal*, 77, 4, 45-64.

15. "What Happens with More Funds than Stocks? Analysis of Crowding in Style Factors and Individual Equities," with Ananth Madhavan and Aleksander Sobczyk, 2021, *Journal of Investment Management*, 18, 4, 1-26. Winner Harry Markowitz Award, 2021.

16. "Tax-Aware Portfolio Construction via Convex Optimization," with Nicholas Moehle, Mykel J. Kochenderfer, and Stephen Boyd, 2021, *Journal of Optimization Theory and Applications*, 189, 2, 364-383.

17. "Macro Factor Model: Application to Liquid Private Portfolios," with Scott Gladstone, Anita Rana, and Ananth Madhavan, 2021, *Journal of Portfolio Management*, 47, 5, 72-90.

18. "Factors with Style," with Keiko Kimura, Katharina Schwaiger, and Deepika Sharma, 2021, *Journal of Investing*, 30, 3, 21-46.

19. "Toward ESG Alpha: Analyzing ESG Exposures Through a Factor Lens," with Ananth Madhavan and Aleksander Sobczyk, 2021, *Financial Analysts Journal*, 77, 1, 69-88.

2015 - 2020

20. "ESG in Factors," with Ying Chan, Ked Hogan, and Katharina Schwaiger, 2020, *Journal of Impact and ESG Investing*, 1, 1, 26-45.

21. "Using Stocks or Portfolios in Tests of Factor Models," with Jun Liu and Krista Schwarz, 2020, *Journal of Financial and Quantitative Analysis*, 55, 3, 709-750. Funded by INQUIRE Europe. Winner Outstanding Paper, Jacobs Levy Center Research Paper Prize 2017.

22. "Alpha vs. Alpha: Selection, Timing, and Factor Exposures from Different Factor Models," with Ananth Madhavan and Aleksander Sobczyk, 2020, *Journal of Portfolio Management*, 46, 5, 90-103. Winner Bernstein Fabozzi/Jacobs Levy Award, 2020.

23. "Factors and Advisors Portfolios," with Brian Lawler, Brett M. Mossman, and Patrick Nolan, 2020, *Journal of Wealth Management*, 22, 4, 37-61.

24. "Model Portfolios," with Debarshi Basu, Michael Gates, and Vishal Karir, 2018, *Journal of Wealth Management,* 21, 4, 46-63.

25. "Estimating Private Equity Returns from Limited Partner Cash Flows," with Bingxu Chen, William N. Goetzmann, and Ludovic Phalippou, 2018, *Journal of Finance*, 73, 4, 1751-1783. Funded by Netspar. Second Prize, Roger F. Murray Prize Competition, 2014.

26. "Investment Beliefs of Endowments," with Andrés Ayala and William N. Goetzmann, 2018, *European Financial Management*, 24, 1, 3-33. Funded by Netspar.

27. "What's in Your Benchmark? A Factor Analysis of Major Market Indexes," with Ananth Madhavan and Aleksander Sobczyk, 2018, *Journal of Portfolio Management*, 44, 4, 46-59. Reprinted 2018, *Journal of Index Investing*, 9, 2, 66-79.

28. "Is it Time to Tilt? Exploring a Fundamental Question in Factor Investing," with Ked Hogan and Justin Peterson, 2018, *Investments & Wealth Monitor*, January/February, 40-45.

29. "Estimating Time-Varying Factor Exposures," with Ananth Madhavan and Aleksander Sobczyk, 2017, *Financial Analysts Journal*, 73, 4, 41-54.

30. "Crowding, Capacity, and Valuation of Minimum Volatility Strategies," with Ananth Madhavan and Aleksander Sobczyk, 2017, *Journal of Index Investing*, 7, 4, 41-50.

31. "Factor Risk Premiums and Invested Capital: Calculations with Stochastic Discount Factors," with Ked Hogan and Sara Shores, 2017, *Journal of Asset Management*, 19, 3, 145-155.

32. "Capacity of Smart Beta Strategies from a Transaction Cost Perspective," with Ronald Ratcliffe and Paolo Miranda, 2017, *Journal of Index Investing*, 8, 3, 39-50.

33. "Factor Timing with Cross-Sectional and Time-Series Predictors," with Philip Hodges, Ked Hogan, and Justin Peterson, 2017, *Journal of Portfolio Management*, 44, 1, 30-43.

34. "Advance Refundings of Municipal Bonds," with Richard C. Green, Francis A. Longstaff, and Yuhang Xing, 2017, *Journal of Finance,* 72, 4, 1645-1682.

35. "Total Portfolio Factor, Not Just Asset, Allocation," with Robert Bass and Scott Gladstone, 2017, *Journal of Portfolio Management*, 43, 5, 38-53.

36. "Crowding, Capacity, and Valuation of Minimum Volatility Strategies," with Ananth Madhavan and Aleksander Sobczyk, 2016, *Journal of Beta Investment Strategies*, 7, 4, 41-50.

37. "Factors to Assets: Mapping Factor Exposures to Asset Allocations," with David Greenberg and Abhilash Babu, 2016, *Journal of Portfolio Management*, 42, 5, 18-27.

2010 - 2014

38. "Portfolio Choice with Illiquid Assets," with Dimitris Papanikolaou and Mark M. Westerfield, 2014, *Management Science*, 60, 11, 2737-2761. Funded by Netspar. Second Prize, Roger F. Murray Prize Competition, 2011.

39. "Asset Allocation and Bad Habits," with Amit Goyal and Antti Ilmanen, 2014, *Rotman International Journal of Pension Management*, 7, 2, 16-26.

40. "The Joint Cross Section of Stock and Option Returns" with Byeong-Je An, Turan Bali, and Nusret Cakici, 2014, *Journal of Finance*, 69, 5, 2279-2337. Funded by Netspar.

41. "Asset Pricing in the Dark: The Cross Section of OTC Stocks," with Assaf Shtauber and Paul C. Tetlock, 2013, *Review of Financial Studies*, 26, 12, 2985-3028. Funded by Netspar.

42. "Lowering Borrowing Costs for States and Municipalities Through CommonMuni," with Richard C. Green, 2013, *Municipal Finance Journal*, 34, 3, 43-94. Also published as Discussion Paper 2011-01, The Hamilton Project, Brookings Institution. Funded by The Hamilton Project.

43. "Liability Driven Investment with Downside Risk," with Bingxu Chen and Suresh M. Sundaresan, 2013, *Journal of Portfolio Management*, 40, 1, 71-87. Funded by Netspar.

44. "Searching for a Common Factor in Public and Private Real Estate Returns," with Neil Nabar and Samuel Wald, 2013, *Journal of Portfolio Management*, 39, 5, 120-133. Funded by Netspar.

45. "Systemic Sovereign Default Risk: Lessons from the U.S. and Europe," with Francis A. Longstaff, 2013, *Journal of Monetary Economics*, 60, 5, 493-510. Funded by Netspar.

46. "Investing in Private Equity," with Morten Sorensen, 2013, *Alternative Investment Analyst Review*, 2, 1, 21-31.

47. "Risk, Returns, and Optimal Holdings of Private Equity: A Survey of Existing Approaches," with Morten Sorensen, 2012, *Quarterly Journal of Finance*, 2, 3, DOI: 10.1142/S2010139212500115. Funded by Netspar.

48. "Regime Changes and Financial Markets," with Allan Timmermann, 2012, *Annual Review of Financial Economics*, 4, 313-337. Funded by Netspar.

49. "Testing Conditional Factor Models," with Dennis Kristensen, 2012, *Journal of Financial Economics*, 106, 1, 132-156. Funded by Netspar.

50. "Inflation and Individual Equities," with Marie Brière and Ombretta Signori, 2012, *Financial Analysts Journal*, 68, 4, 36-55. Funded by Netspar.

51. "Predicting Dividends in Log-Linear Present Value Models," 2012, *Pacific-Basin Finance Journal*, 20, 1, 151-171.

52. "The Efficient Market Theory and Evidence: Implications for Active Investment Management," with William N. Goetzmann and Stephen M. Schaefer, 2011, *Foundations and Trends in Finance*, 5, 3, 157-242.

53. "Monetary Policy Shifts and the Term Structure," with Jean Boivin, Sen Dong, and Rudy Loo-Kung, 2011, *Review of Economic Studies*, 78, 2, 429-457. Funded by the NSF.

54. "Locked Up by a Lockup: Valuing Liquidity as a Real Option," with Nicolas P. B. Bollen, 2010, *Financial Management*, 39, 3, 1069-1095. Funded by the Centre for Hedge Fund Research (CHFR) at Imperial College London.

55. "Build America Bonds," with Vineer Bhansali and Yuhang Xing, 2010, *Journal of Fixed Income*, 20, 1, 67-73.

56. "Taxes on Tax-Exempt Bonds," with Vineer Bhansali and Yuhang Xing, 2010, *Journal of Finance*, 65, 2, 565-601.

2005 - 2009

57. "High Idiosyncratic Volatility and Low Returns: International and Further U.S. Evidence," with Robert J. Hodrick, Yuhang Xing, and Xiaoyan Zhang, 2009, *Journal of Financial Economics,* 91, 1, 1-23. Funded by the NSF.

58. "Do Funds-of-Funds Deserve Their Fees-on-Fees?" with Matthew Rhodes-Kropf and Rui Zhao, 2008, *Journal of Investment Management,* 6, 4, 34-58. Funded by the BSI GAMMA Foundation.

59. "The Term Structure of Real Rates and Expected Inflation," with Geert Bekaert and Min Wei, 2008, *Journal of Finance*, 63, 2, 797-849. Funded by the NSF.

60. "Is IPO Underperformance a Peso Problem?" with Li Gu and Yael V. Hochberg, 2007, *Journal of Financial and Quantitative Analysis*, 42, 3, 565-594.

61. "Risk, Return and Dividends," with Jun Liu, 2007, *Journal of Financial Economics,* 85, 1, 1-38. Funded by the NSF.

62. "Stock Return Predictability: Is it There?" with Geert Bekaert, 2007, *Review of Financial Studies,* 20, 3, 651-707. Funded by the NSF.

63. "Do Macro Variables, Asset Markets or Surveys Forecast Inflation Better?" with Geert Bekaert and Min Wei, 2007, *Journal of Monetary Economics*, 54, 1163-1212. Funded by the NSF.

64. "CAPM Over the Long Run: 1926-2001," with Joseph S. Chen, 2007, *Journal of Empirical Finance*, 14, 1, 1-40.

65. "Downside Risk," with Joseph S. Chen and Yuhang Xing, 2006, *Review of Financial Studies*, 19, 1191-1239. Second prize Crowell Memorial Prize Competition 2005. Funded by the Q-Group.

66. "What Does the Yield Curve Tell us about GDP Growth?" with Monika Piazzesi and Min Wei, 2006, *Journal of Econometrics*, 131, 359-403. Funded by the NSF.

67. "The Cross-Section of Volatility and Expected Returns," with Robert J. Hodrick, Yuhang Xing, and Xiaoyan Zhang, 2006, *Journal of Finance,* 51, 1, 259-299. Funded by the NSF.

68. "Why Stocks May Disappoint," with Geert Bekaert and Jun Liu, 2005, *Journal of Financial Economics*, 76, 471-508.

69. "Do Demographic Changes Affect Risk Premiums? Evidence from International Data," with Angela Maddaloni, 2005, *Journal of Business*, 78, 1, 341-380. Funded by the NSF.

2000 - 2004

70. "How to Discount Cashflows with Time-Varying Expected Returns," with Jun Liu, 2004, *Journal of Finance*, 59, 6, 2745-2783. Funded by INQUIRE UK.

71. "How do Regimes Affect Asset Allocation?" with Geert Bekaert, 2004, *Financial Analysts Journal*, 60, 2, 86-99. Funded by INQUIRE Europe.

72. "A No-Arbitrage Vector-Autoregression of Term Structure Dynamics with Macroeconomic and Latent Variables," with Monika Piazzesi, 2003, *Journal of Monetary Economics*, 50, 4, 745-787. Funded by the NSF.

73. "International Asset Allocation with Regime Shifts," with Geert Bekaert, 2002, *Review of Financial Studies*, 15, 4, 1137-1187. First prize International Investment Forum Paper Competition 2000; first prize Crowell Memorial Prize Competition 2001; first prize Chicago Quantitative Alliance Academic Paper Competition 2001. Funded by the NSF.

74. "Short Rate Nonlinearities and Regime Switches," with Geert Bekaert, 2002, *Journal of Economic Dynamics and Control*, 26, 7-8, 1243-1274. Funded by the NSF.

75. "Regime Switches in Interest Rates," with Geert Bekaert, 2002, *Journal of Business and Economic Statistics*, 20, 2, 163-182. Funded by the NSF.

76. "Asymmetric Correlations of Equity Portfolios," with Joseph S. Chen, 2002, *Journal of Financial Economics*, 63, 3, 443-494. Second Prize, Roger F. Murray Prize Competition, 2002.

77. "A General Affine Earnings Valuation Model," with Jun Liu, 2001, *Review of Accounting Studies*, 6, 397-425.

1995 - 1999

78. "Interest Rate Risk Management," with Michael Sherris, 1997, *North American Actuarial Journal*, Society of Actuaries, 1, 2, 1-26, winner of the Reddington prize, 1997.

79. "Prepayment Penalties - Why MBS Investors Demand a Premium," 1995, *Journal of the Securities Institute of Australia*, December.

Book Chapters, Manuscripts, and Other Articles

80. "Factor Investing Webinar," with Jennifer Bender, Harindra de Silva, and Pim van Vliet, 2023, forthcoming *Journal of Portfolio Management*.

81. "Active Paris Aligned Equity Investing," with Katharina Schwaiger, Jim Snow, and Viktoria-Sophie Wendt, 2022, in Climate Investing: New Strategies and Implementation Challenges, Emmanuel Jurczenko, ed., ISTE Wiley, 123-140.

82. "Including Factor Investing in Portfolio Design," 2021, *Journal of Investment Consulting*, 20, 1, 4-11.

83. "BlackRock: Reserves Management with Factors and Reference Portfolios," with David Chua, Katelyn Gallagher, and Stephen Hull, 2020, in *Asset Management at Central Banks and Monetary Authorities: New Practices in Managing International Foreign Exchange Reserves*, Jacob Bjorheim, ed., Springer, 459-484.

84. "Factor Investing," with Jia Liu and He Ren, 2018, in *Discover the Frontier of Asset Management: Risk Parity Quantitative Investment*, Wu Peng, Wallace Yu, and Li Yue, eds., CITIC Press Group, 209-256.

85. "Introduction," 2017, in *Factor Investing: From Traditional to Alternative Risk Premia*, Emmanuel Jurczenko, ed., ISTE Press – Elsevier, xix-xxiii.

86. "On Factor Investing," 2016, in *Portfolio Structuring and the Value of Forecasting, Research Foundation Review*, CFA Institute.

87. "Risk and Information in the Municipal Bond Market," 2014, *NBER Reporter*, 3, 9-11.

88. "Review of the Active Management of the Norwegian Government Pension Fund Global," with Michael W. Brandt and David F. Denison, 2014. Commissioned by the Norwegian Ministry of Finance.

89. "The Four Benchmarks of Sovereign Wealth Funds," 2012, in *Sovereign Wealth Funds and Long-Term Investing*, Patrick Bolton, Frederic Samama, and Joseph E. Stiglitz, eds., pp. 94-105, Columbia University Press. Also printed in *Business & Management Journal*, 2011, 1, 4.

90. "Illiquid Assets," 2011, *CFA Institute Conference Proceedings Quarterly*, 28, 4, 12-20.

91. "Investing for the Long Run," with Knut N. Kjaer, 2011, in *A Decade of Challenges – A Collection of Essays on Pensions and Investments*, Tomas Franzen, ed., pp. 94-111, Andra AP-fonden, Second Swedish National Pension Fund - AP2.

92. "Price-Earnings Ratios: Growth and Discount Rates," with Xiaoyan Zhang, 2011, in *Rethinking the Equity Risk Premium*, P. Brett Hammond, Jr., Martin L. Leibowitz, and Laurence B. Siegel, eds., pp. 130-142. Research Foundation of the CFA Institute.

93. "Report on the Active Management of the Norwegian Government Pension Fund – Global," with William N. Goetzmann and Stephen M. Schaefer, 2009. Commissioned by the Norwegian Ministry of Finance.

94. "A New Measure for Measuring," with Matthew Rhodes-Kropf and Rui Zhao, 2006, *Institutional Investor's Alpha*, July/August, 40-45. Funded by the BSI GAMMA Foundation.

Cases

95. "Stanford Dumps Coal," with Bruce Usher, Columbia CaseWorks, 2015, ID#150307.

96. "Saving Public Pensions: Rhode Island Pension Reform," Columbia CaseWorks, 2013, ID#120313.

97. "GM Asset Management and Martingale's Low Volatility Strategy," Columbia CaseWorks, 2012, ID#110315.

98. "Factor Investing: The Reference Portfolio and Canada Pension Plan Investment Board," Columbia CaseWorks, 2012, ID#120302.

99. "California Dreamin': The Mess at CalPERS," with Jeremy Abrams, Columbia CaseWorks, 2012, ID#120306.

100. "Who Watches the Watchman? New York State Common Retirement Fund," Columbia CaseWorks, 2011, ID#110307.

101. "Stay the Course? Portfolio Advice in the Face of Large Losses," Columbia CaseWorks, 2011, ID#110309.

102. "Is Real Estate Real?" with Lynne Sagalyn and Rona Smith, Columbia CaseWorks, 2011, ID#111704.

103. "Norway Pension Fund – Global: A Nation Reconsiders How to Manage Its Nest Egg," with Jaan Elias, William N. Goetzmann, Jean Rosenthal, Olav Sorenson, Yale Case 2010-106.

104. "Liquidating Harvard," Columbia CaseWorks, 2010, ID#100312.

105. "The Norwegian Government Pension Fund: The Divestiture of Wal-Mart Stores Inc.," Columbia CaseWorks, 2008, ID#080301.

106. "The Quant Meltdown: August 2007," Columbia CaseWorks, 2008, ID#080317.

Marketing

2019-2020 Defining Factors BlackRock Marketing Campaign

Marketing campaign to explain factor investing to the general public, with personalities:
107. Danny Meyer, restauranteur
108. Idina Menzel, actor, singer, songwriter
109. Doc Rivers, NBA basketball coach

BlackRock In The Know

110. What if $2T Moves Toward Net Zero Emission Companies Every Year? August 2021.

Andrew's Angle Blog Entries

111. Factors and Sectors, July 2023.
112. International Styles, May 2023.
113. Quality Control, April 2023.
114. Trends in Factor Investing in the 20th and 21st Centuries, March 2023.
115. The Next Factor Revolution: Fixed Income Factor ETFs, October 2022.
116. Factors and That '70s Show, October 2022.
117. A Mid-Year Factor Focus, August 2022.
118. The Next Evolution of Factor investing, May 2022.
119. Factoring in Sustainability: A Worthy Pair, March 2022.
120. Performing a (Semi) Annual Checkup on Markets with Momentum, January 2022.
121. The Next Frontier: Factor Investing in Fixed Income, October 2021.
122. Mix and the Remix: Factors and Indexing, September 2021.
123. Turning the Lights Back on with Value and Quality, September 2021.

124. Keeping Track of Markets with Momentum, June 2021.
125. Minimum Volatility: We've Been Here Before, April 2021.
126. The Latest Trends in Factors, March 2021.
127. Factors: A New Way, January 2021.
128. Keep More of What You Earn, December 2020.
129. Momentum: If You Can't Beat 'Em, Join 'Em, November 2020.
130. Style Factors and Elections, October 2020
131. The Sleeping Giant: Value's Dormant not Dead, September 2020.
132. Navigating Contraction, July 2020.
133. ESG in Factors, May 2020.
134. Relying on Factors in Crises, March 2020.
135. Factor Capacity by the Numbers, December 2019.
136. Fending Off Factor Investing Fallacies, September 2019.
137. The Lowdown on Low Vol, July 2019.
138. How to Prepare for an Unpredictable 2019, February 2019.
139. Defining Factors, February 2019.
140. How to Prepare for an Unpredictable 2019, February 2019.
141. Market Volatility Doth Make Cowards of Us All, December 2018.
142. Growth is Not the Opposite of Value, November 2018.
143. Value Investing: The Long-Term Appeal of the Underdog, September 2018.
144. Factors for Retirement Investing, August 2018.
145. Factors+Index+Alpha, July 2018.
146. Factors Making Waves, June 2018.
147. Telling the Factor Story, April 2018.
148. Factors in Indices: Going Beyond Market Averages, April 2018.
149. Factor, Not Just Asset, Allocation, February 2018.
150. The Factor Box: A New Lens, January 2018.
151. The Five Ws of Style Factors, December 2017.
152. Long-Short Factor Investing, October 2017.
153. Factor Checklist: Four Requirements for a Robust Factor, September 2017.
154. Factor Capacity – A Wide Highway Ahead? August 2017.
155. Factor Investing – A Time to Tilt, June 2017.

Other Blog Entries

156. Multifactor Strategies, with Holly Framsted, April 2018.
157. Investment vs. Risk Management Factors, April 2018.
158. 2018Q2 Factor Outlook, April 2018.
159. Factors to Pursue Outperformance, March 2018.
160. Marcoeconomic Factors: Important Diversifiers, with Ked Hogan, February 2018.
161. Factor ETFs: Making the Style Box Stylish Again, with Holly Framsted, September 2017.
162. How to Harness Value Strategies, with Holly Framsted, March 2017.
163. Three Facts about Momentum Investing, January 2017.
164. Are Michigan and Illinois Like Greece and Ireland? with Francis A. Longstaff, Vox EU column, May 2011.
165. Out of the Crisis, Now What? Columbia Business School Public Offering blog, September 2009.

166. A Checklist for Everyday Investing, Columbia Business School Public Offering blog, March 2009.
167. Wall Street's Roach Motels, Forbes.com, October 2008.

Non-Published Papers

168. "Optimal Currency Allocation to Add Alpha and Reduce Risk," with Fabrizio Coiai, Paul Henderson, and Anita Rana.

169. "The Muni Bond Spread: Credit, Illiquidity, and Tax," with Vineer Bhansali and Yuhang Xing. Funded by Netspar.

170. "How Often Should You Take Tactical Asset Allocation Decisions?" with Byeong-Je An and Pierre Collin-Dufresne.

171. "No-Arbitrage Taylor Rules," with Sen Dong and Monika Piazzesi. Funded by the NSF.

172. "Yield Curve Predictors of Foreign Exchange Returns," with Joseph S. Chen.

173. "When Hedge Funds Block the Exits," with Nicolas P. B. Bollen.

174. "Nominal Bonds, Real Bonds, and Equity," with Maxim Ulrich. Funded by Netspar.

175. "How Many Active Funds Should You Hold?" with Ananth Madhavan and Jason Ribando.