

## Research Statement

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Most of my research has been about the organization of markets and the effect of information asymmetry on market outcomes. My 1992 paper, "Insider Trading in Continuous Time," (paper #9 in the list below) made an important methodological contribution regarding the solution of a certain type of asymmetric information model. That model is now often called the Kyle-Back model. I extended and applied the model to various issues (see papers 13, 15, 17, 24, 25, 27, and 32). Paper 13, "Asymmetric Information and Options," won the Best Paper Award at the Review of Financial Studies in 1993. A precursor of #27, "Activism, Strategic Trading, and Liquidity," won the Charles River Associates Award for the best paper in corporate finance at the Western Finance Association in 2014. I have also developed and applied other models to study market organization (papers 20, 22, 29, 30, and 34).

A second principal area of research has been on the theory of asset prices and tests of the theory (7, 8 16, 26, 28, and 31). My early work in that area is methodological in nature. The later work is more empirical. Paper 26 is about mutual fund returns and shows that good performance on conventional criteria (alphas) is associated with bad performance on another important criterion (co-skewness) and vice versa. Paper 31 shows that a recently developed statistic for predicting the market return does not perform well out of sample and that a natural adjustment to that statistic cannot be expected to perform well until we have much more data (at least a century's worth) to estimate it.

My most highly cited paper (albeit by a narrow margin) is in neither of the areas described above. Paper 18 is on auction theory and in particular on the inapplicability of the theory that existed at the time it was written to a proposal by the U.S. Treasury to modify the way the government borrows money. It was reprinted in a book of classic papers on auction theory. Early in my career, I worked on a variety of topics in mathematical programming (1, 4, and 5), mathematical economics (2, 3, 6, and 11), and econometric theory (10 and 12). More recently, I have also worked on the game theory of corporate competition in investments (21) and disclosures (33).

Economic theory helps us to think about the world. It illuminates incentives and the likely consequences of those incentives. I have tried to provide such illumination on various issues in securities markets, auctions, and

corporate competition. However, finance is largely an empirical discipline. Increases in computational power have expanded the types of empirical analyses that are possible. I have been engaged recently in exploring some of these (in particular, machine learning and sampling methods for Bayesian analysis). I am excited at the prospect of applying those tools to better understand the properties of asset returns in the future while continuing to explore incentives in markets and elsewhere.

My research has been recognized by the profession in various ways, including editorships. The most recent recognition is an invitation to give the Distinguished Speaker address at the Western Finance Association conference in June, 2024. This is one of the top two finance conferences in the world each year.

#### Refereed Publications and Working Papers

1. Back, K., 1986, "Continuity of the Fenchel Transform of Convex Functions," *Proceedings of the American Mathematical Society* **97**, 661–667.
2. Back, K., 1986, "Concepts of Similarity for Utility Functions," *Journal of Mathematical Economics* **15**, 129–142.
3. Back, K., 1987, "A Compact Space of Transitive Locally Non-Satiated Preference Relations," *Economics Letters* **24**, 1987, 253–256.
4. Back, K., and S. R. Pliska, 1987, "The Shadow Price of Information in Continuous Time Decision Problems," *Stochastics* **22**, 151–186.
5. Back, K., 1988, "Convergence of Lagrange Multipliers and Dual Variables for Convex Optimization Problems," *Mathematics of Operations Research* **13**, 74–79.
6. Back, K., 1988, "Structure of Consumption Sets and Existence of Equilibria in Infinite Dimensional Spaces," *Journal of Mathematical Economics* **17**, 39–49.
7. Back, K., and S. R. Pliska, 1991, "On the Fundamental Theorem of Asset Pricing with an Infinite State Space," *Journal of Mathematical Economics* **20**, 1–18.
8. Back, K., 1991, "Asset Pricing for General Processes," *Journal of Mathematical Economics* **20**, 371–395.

9. Back, K., 1992, "Insider Trading in Continuous Time," *Review of Financial Studies* **5**, 387–409.
10. Back, K., and D. P. Brown, 1992, "GMM, Maximum Likelihood, and Nonparametric Efficiency," *Economics Letters* **39**, 23–28.
11. Back, K., 1993, "Incomplete Markets and Individual Risks," *Economic Theory* **3**, 35–42.
12. Back, K., and D. P. Brown, 1993, "Implied Probabilities in GMM Estimators," *Econometrica* **61**, 971–975.
13. Back, K., 1993, "Asymmetric Information and Options," *Review of Financial Studies* **6**, 435–472 (received 1993 best paper award from RFS).
14. Back, K., and J. F. Zender, 1993, "Auctions of Divisible Goods: On the Rationale for the Treasury Experiment," *Review of Financial Studies* **6**, 733–764 (reprinted in Klemperer, Paul, ed., *The Economic Theory of Auctions*, 2000, Edward Elgar).
15. Back, K., and H. Pedersen, 1998, "Long-Lived Information and Intraday Patterns," *Journal of Financial Markets* **1**, 385–402.
16. Dybvig, P. H., Rogers, L. C. G., and K. Back, 1999, "Portfolio Turnpikes," *Review of Financial Studies* **12**, 165–195.
17. Back, K., Cao, H., and G. Willard, 2000, "Imperfect Competition among Informed Traders," *Journal of Finance* **55**, 2117–2155 (nominated for Smith-Breedon award).
18. Back, K., and J. Zender, 2001, "Auctions of Divisible Goods with Endogenous Supply," *Economics Letters* **73**, 29–34.
19. Back, K., and S. Baruch, 2004, "Information in Securities Markets: Kyle Meets Glosten and Milgrom," *Econometrica* **72**, 433–465.
20. Back, K., and S. Baruch, 2007, "Working Orders in Limit Order Markets and Floor Exchanges," *Journal of Finance* **61**, 1589–1621.
21. Back, K., and D. Paulsen, 2009, "Open Loop Equilibria and Perfect Competition in Option Exercise Games," *Review of Financial Studies* **22**, 4531–4552.

22. Back, K., and S. Baruch, 2013, “Strategic Liquidity Provision in Limit Order Markets,” *Econometrica* **81**, 363–392.
23. Back, K., 2014, “A Characterization of the Coskewness-Cokurtosis Pricing Model,” *Economics Letters* **125**, 219–222.
24. Back, K., and K. Crotty, 2015, “The Informational Role of Stock and Bond Volume,” *Review of Financial Studies* **28**, 1381–1427.
25. Back, K., Crotty, K., and T. Li, 2018, “Identifying Information Asymmetry in Securities Markets,” *Review of Financial Studies* **31**, 2277–2325.
26. Back, K., Crane, A., and K. Crotty, 2018, “Skewness Consequences of Seeking Alpha,” *Review of Financial Studies*, **31**, 4720–4761.
27. Back, K., Collin-Dufresne, P., Fos, V., Li, T., and A. Ljungqvist, 2018, “Activism, Strategic Trading, and Liquidity,” *Econometrica* **86**, 1431–1463.
28. Back, K., Liu, R., and A. Teguia, 2019, “Increasing Risk Aversion and Life-Cycle Investing,” *Mathematics and Financial Economics*, **13**, 287–302.
29. Back, K., Liu, R., and A. Teguia, 2020, “Signaling in OTC Markets: Benefits and Costs of Transparency,” *Journal of Financial and Quantitative Analysis*, **55**, 47–75.
30. Back, K., and P. Barton, 2022, “Mediation and Strategic Delay in Bargaining and Markets,” *Journal of Economic Dynamics and Control*, **141**.
31. Back, K., Crotty, K., and S. M. Kazempour, 2022, “Validity, Tightness, and Forecasting Power of Risk Premium Bounds,” *Journal of Financial Economics*, **144**, 732–760.
32. Back, K., Cocquemas, F., Ekren, I., and A. Lioui, 2021, “Optimal Transport and Risk Aversion in Kyle’s Model of Informed Trading,” Under Revision.
33. Back, K., Carlin, B., Kazempour, S. M., and C. Xie, 2023, “American Disclosure Options,” Under Review.
34. Back, K., Çelebi, O., Kakhbod, A., and A. M. Reppen, 2023, “Segmented Trading Markets,” Under Review.