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**Book Review on The Failure of Risk
Management: Why It's Broken and How to Fix It,
by Douglas W. Hubbard (2009).**

Cameron A. MacKenzie, *University of Oklahoma Norman Campus*



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Hubbard, Douglas W. 2009

The Failure of Risk Management: Why It's Broken and How to Fix It. Hoboken, N.J.: John Wiley and Sons. pp. 281.

The title *The Failure of Risk Management* seems to imply that risk management is useless. However, the subtitle *Why It's Broken and How to Fix It* provides a better description of Douglas Hubbard's contribution to field of risk analysis. Hubbard criticizes several risk management methods currently used by a wide variety of organizations but also presents a convincing argument for why probabilistic risk analysis using Monte Carlo simulation is the best approach.

The book is divided into three main parts. The first section introduces the subject of risk analysis and describes the book's objectives. The second section, the meat of the book, is Hubbard's critique of risk management methods and his explanation of why many modeling approaches fail. Finally, the author outlines his preferred approach to risk modeling and how a company can implement his recommendations.

Hubbard's ability to synthesize and summarize a complex subject like risk management is one of the true joys of his book. It is easy to get lost in the details when discussing risk analysis by delving into probabilities and all the different methods of analyzing risk. Hubbard avoids this trap, which makes his book accessible for people without a strong mathematical background.

Perhaps the best example of Hubbard's ability to synthesize information is his classification of risk management into four broad categories. These "Four Horseman" of risk analysis—as the author cleverly calls them—are actuaries (i.e., the insurance industry); war quants who evolved from World War II modelers into experts in probabilistic risk analysis and expected-utility decision analysis; economists who represent risk managers in investment science; and management consultants who usually prefer less mathematical methods. Other books on risk usually focus on only one of these four areas, but Hubbard discusses the positives and negatives of each category.

Although the book primarily targets management consultants and economists—hence the title—Hubbard offers important suggestions for the war quants. First, modelers should do a better job of calibrating probability solicitations from experts. As behavioral economists like Amos Tversky and Daniel Kahneman have demonstrated, people do not naturally estimate probabilities very well. Although a little training can improve people's ability to estimate probabilities, risk analysts often do not spend time training their experts. Hubbard helpfully provides some tests in the appendix that can be used to help calibrate probability estimations.

Second, Hubbard argues that modelers need to revisit their past models to check whether they were accurate. The author asks throughout the book how we can know whether a model is correct and whether one method is better than another. The best way to answer these questions is to look at past models and see how well their forecasts performed against reality.

Because a probabilistic model returns answers in terms of probabilities (i.e., each event has a numerical chance of occurring), comparing a single model's predictions to what actually occurs provides little insight. In order to discover whether a modeling approach works, we need to look at many applications where this modeling approach has been used. Hubbard explains that after checking the accuracy of over 100 probability forecasts from his models, these forecasts are correct according to the predicted frequency. In other words, events where his models predicted a probability of 30 percent occurred approximately 30 percent of the time. Because of its

importance to his claim on the optimality of probabilistic risk methods, it would have been useful if Hubbard had provided more detail on this result.

Hubbard explains that he delayed publication of the book by almost a year in order to write about the recent financial crisis. Throughout the book, he interweaves his diagnosis of the financial meltdown with his suggestions of how to improve risk analysis. For example, too many models assume a normal distribution, which underestimates the chance of extreme events. This was true of many financial models. A power-law distribution, which has fatter tails than a normal distribution, is more appropriate for forecasting disasters, including drops in the stock market.

More interesting than Hubbard's analysis of the financial crisis, much of which is similar to others' critiques (e.g., Lumsdaine 2009, Colander et al. 2009, and Nocera 2009) is the author's discussion of Nassim Nicholas Taleb. Taleb wrote *The Black Swan* and has received much attention for his criticism of financial markets. Hubbard agrees with Taleb on some important points such as how randomness is underrated and that some highly respected financial models are wrong. However, Hubbard refutes Taleb's implications that unforeseen events invalidate all risk models. He challenges Taleb to use empirical evidence to demonstrate that the latter's common sense approach to investment is better than modeling approaches.

Written in a conversational style and containing different examples ranging from well-known stories to Hubbard's own consulting experience, *The Failure of Risk Management* is a concise and entertaining book. Although the problems Hubbard discusses and many of his suggestions are not new, he presents the information in a very thoughtful and insightful manner. The book could serve as useful textbook for a course in risk analysis, not as the primary textbook, but as a companion tool to help students think about different issues in risk analysis and ways to approach problems.

Cameron MacKenzie
cmackenzie@ou.edu
School of Industrial Engineering
University of Oklahoma

References

D. Colander, H. Föllmer, A. Haas, M. Goldberg, K. Juselius, A. Kirman, T. Lux, and B. Sloth, 2009. "The Financial Crisis and the Systemic Failure of Academic Economics." Kiel Working 1489. Kiel Institute for the World Economy. http://www.irg-project.org/fileadmin/publications/PUBLIC/Events/Learning_from_Financial_Crisis.pdf.

R.L. Lumsdaine, 2009. "Correlation, Models, and Risk Management in Challenging Times." *Journal of Financial Econometrics* 7(1): 40-51.

J. Nocera, 2009. "Risk Mismanagement," *The New York Times*. January 4: 24.