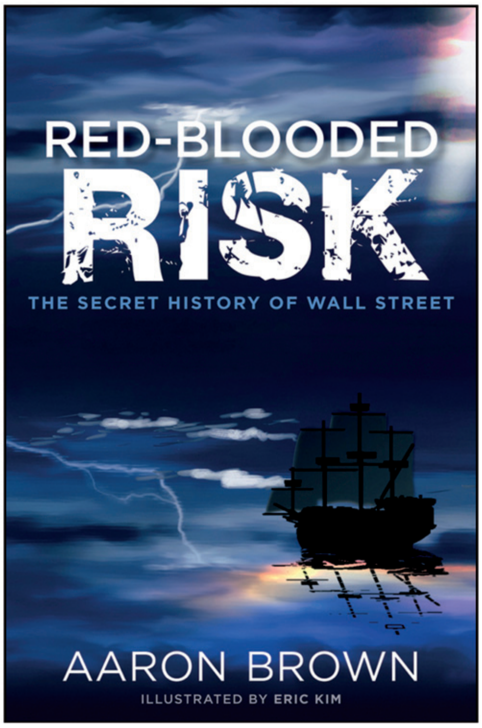
# Book review†






**Red-Blooded Risk: The Secret History of Wall Street,** by Aaron Brown, Wiley (2011). Hardback. ISBN: 978-1118043868.

Aaron Brown's book is sprawling and ambitious, entertaining and thought provoking. Its scope and structure also make it singularly difficult to review.

Brown sets out to provide readers with his philosophical background and inside history of contemporary risk management and how it grew organically within a network of a hundred or so first-generation quants. Along the way, he also attempts to reconcile Bayesian and Frequentist probability frameworks, to rationalize logarithmic growth- and MPT-based approaches to portfolio construction and to provide insights into a range of historical and finance theoretical topics that are directly and indirectly related to risk management. How successful Brown is at filling this large order will depend on the reader's own preferences and views. *Red-Blooded Risk* is more like *Pulp Fiction* than *Ocean's 11*. It is unconventional, colorful, disjointed in parts, sometimes frustrating, but often provocative and entertaining.

The text is neither a scholarly work on the historical origins of risk nor a technical treatment of the underlying theory, although the author does discuss both topics extensively. Rather, it is a very personal monograph; it is one writer's view of how the financial risk management industry evolved, where it should go in the future, and which characteristics make individuals and organizations best suited to succeed in it.

One of Brown's most notable achievements is that he has imbued his writing with an instinctual and pervasive sense of *risk thinking*. For those who build risk models for a living, Brown's writing is steeped in the familiar mix of cynicism and enthusiasm that is a natural byproduct of having broken model after model and idea after idea during validation (but occasionally finding those that work well). He has also clearly encountered his share of

†The views expressed in this book review are those of the author and do not necessarily reflect those of the author's employer, Moody's Corporation.

*Quantitative Finance*
ISSN 1469–7688 print/ISSN 1469–7696 online
http://www.tandfonline.com
http://dx.doi.org/10.1080/14697688.2012.690887

non-quants who want simple answers or unilateral promises about complex and risky phenomena.

The subject matter visited in *Red-Blooded Risk* is both far-reaching and eclectic, which makes summarizing the 20 chapters impractical in a short review. A sampling of a few of these topics gives sense of the content and philosophy of the text.

Chapter 5 discusses two ways to construct portfolios. Here Brown highlights the benefits of the Kelly Criterion. Recall that the Kelly Criterion—originally developed in a gambling context and popular with futures traders and technical analysts—maximizes (in expectation) the logarithmic growth of an initial endowment, by varying trade sizes in proportion to the probability of the trade being profitable and the size of the current bankroll (Kelly 1956). This investment selection approach contrasts with those based on Modern Portfolio Theory (MPT)—developed a few years earlier and popular among asset managers and many mainstream academics—which focused not on single positions over many periods, but on many positions over a single period, building portfolios that maximize portfolio return per unit of (portfolio) volatility (Markowitz 1952). While Kelly's original approach focused on increasing wealth over repeated single trades, MPT-based approaches focused on maximizing the risk/return of a portfolio in the subsequent period.

Brown sketches a hypothetical meeting between John Kelly and Harry Markowitz. This is not a rehash of the 'logarithmic growth' debates of the 1970s (NB: it also contains words of more than one syllable), but rather an attempt to find a middle ground for both approaches. This discussion may lead readers to explore this literature (see Balsara (1992), Vince (2007) or MacLean *et al.* (2011)), an effort that will be rewarded. Brown argues strongly for the use of the Kelly criterion (which he labels *investment growth theory* or IGT) in portfolio construction in addition to MPT. Almost certainly, some financial economists will take umbrage at his dismissive treatment of traditional theory, despite the author's parting efforts at bipartisanship:

> *In my opinion, both MPT and IGT forces are at work in the market. Or to be more precise, both MPT and IGT are highly simplified mathematical models that capture different important aspects of how securities are priced. You can't dispute the MPT insights – there is overwhelming empirical evidence for them. But that evidence in no way rules out other ideas; specifically, it does not rule out IGT. Since MPT cannot explain dividends and buybacks, or concentrated portfolios, or dozens of other prominent market features, it cannot be the whole story. You don't have to swallow IGT, but man does not live by MPT alone.* (chapter 5)

Chapter 6 starts with a discussion of exponential growth and segues into Brown's perspectives on Tulipmania. He asserts that common notions regarding the folly of this speculative bubble are partially misplaced. He reasons that there may have been economically sound motivations, at least at the beginning of the bubble, for investing in tulip bulbs, and he posits a stylized exponential model for tulip markets. He uses this model to demonstrate how the economics might have worked—and ultimately led to the bubble. I found Brown's framing of discussions of exponentials, while not necessarily original, to be to be a practical and useful alternative to fatalistic notions of 'Black Swans' for popular audiences. The author's simplified model also serves as a concise example that demonstrates to the lay-reader of how modelers approach economic problems.

Chapter 12 deals with the nuts and bolts of risk management, discussing the author's experiences in developing early risk systems at a number of financial institutions. The narrative is particularly interesting as it describes, quite accurately, the difficulty in reconciling organizational, technological and data issues when trying to answer seemingly simple risk questions. Brown writes with authority on the experiences of discussing, explaining and digging into data and model output.

A number of chapters deal with historical matters. The topics in these chapters fall broadly into two categories: narratives on the evolution of money, banking and probability; and personal anecdotes about the evolution of the quant culture and the financial industry's metamorphosis as a result. The stories are told with flair and wit. Those that resonate most soundly are drawn from the author's own experiences. Orthodox historians may debate some of Brown's speculative assertions on earlier historical events, despite Brown's entertaining narration. Readers interested in delving further into historical topics may find standards such as Bernstein (1992) or Malkiel (2011) for finance and Stigler (1986) or Salsburg (2001) for probability and statistics useful, although these will not have the same type of personal detail as *Red-Blooded Risk*.

Stylistically, the book is conversational if, at times, uneven. In places, it seems that the structure is a rough wire frame on which Brown has simply hung a number of related essays on risk, philosophy and historical perspectives. This is fair play; Brown warns readers at the outset that the path through the chapters may meander. Many chapters stand on their own as highly readable monographs.

At times, Brown's tone may be off-putting to some readers who may find his style to be dismissive or condescending with respect to (variously) academics, bank management, second-generation quants and regulators. However, Brown is equally ready to recount and criticize his own ideas when they are wrong:

> *All this had been attained by our own independent efforts, using ideas we came up with on our own, with no encouragement or help form people outside our circle. Well, as we discovered, it was really by our own efforts plus a bull market. We were neither the first nor the last to confuse brains and a bull market.* (chapter 9)

The author conveys clear principles in his writing. Brown puts a premium on intellectual honesty and accountability. He often references his professional poker playing days in which players were expected to be able to quote odds and take side bets on any outcome that an opponent might suggest. He also expects individuals to have the conviction to bet on their opinions—or keep them to themselves.

> *The problem is that a lot of people avoid validation, and they are tolerated by the rest. These charlatans expend effort only to confirm hypotheses, not to falsify them. It is the latter effort, seeking out alternative points of view and doing your best to come up with these to prove your hypothesis wrong, that leads to important knowledge*. (chapter 12)

Unfortunately, it can be difficult to demarcate where the author's factual narratives end and his (strong) opinions and speculation take over. At times, these breaks are apparent, as when Brown discusses his views on religion, public policy and social dynamics. (For example, the section entitled 'A Short Digression into Politics and Religion' begins, 'I don't think my political or religious beliefs have anything to do with this book...Nevertheless, I am including this short section. It's purely defensive'. (chapter 8)) In other places the lines may be fuzzier. Careful readers will discern the change of tone and *ex post* caveats, though those reading more casually may not, and even astute readers may miss a few of the transitions.

*Red-Blooded Risk* also features occasional manga-style vignettes meant to clarify the underlying points and set up proceeding sections. These were beautifully drawn. Though a few may strike some readers as heavy-handed or even obvious, in general, I found them helpful for orienting myself throughout the text.

At the end of the book, Brown provides a discussion of 100 books that he recommends for further reading. Among these are many familiar popular volumes as well as more eclectic and obscure selections. Brown limits himself to one book per author, though he does occasionally use logical feints to break his own rule to good effect ('Perry Mehrling wrote the definitive Fischer Black biography, *Fischer Black and the Revolutionary Idea of Finance,* but it didn't [sic] make the list because I included another Mehrling book'.)

*Red-Blooded Risk* mixes risk history and philosophy nimbly and provides a perspective that can be both refreshing and challenging (often on the same page). While the book is not without weaknesses, it is also brimming with original perspectives and controversial opinions. Those who work in risk management or quantitative finance will enjoy Brown's story-telling and expert perspectives, even if they do not share his views, while non-quants will find his insights and confessions to be a useful glimpse into the psyche and ethos of an influential group of early quantitative risk takers.

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