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G Financial Economics

Pandora's Risk: Uncertainty at the Core of Finance. By Kent Osband. New York and Chichester: Columbia University Press, Columbia Business School Publishing, 2011. Pp. xviii, 283. \$49.95. ISBN 978-0-231-15172-6. *JEL 2011-0985*

The aftermath of the global financial crisis saw an explosion of books seeking to expose its causes and identify its culprits. The roster of those blamed for the excesses that led to the collapse prominently features “math whizzes” of Wall Street, either overly trusting of their own models or greedily taking advantage of the gullible investors in sophisticated structured securities, as well as regulators who were “asleep at the wheel.” This book offers a refreshingly insightful—and provocative—look at some of the key issues underlying not just the recent crisis but the whole edifice of finance theory as well as its practice. The main idea of the book is that the uncertainty (the “unknown unknowns”)—as distinct from risk (the “known unknowns”)—is fundamental to understanding asset prices. The evolution of uncertainty over time as market participants learn about the underlying probabilities of economic events from new observations is itself an overwhelming source of risk. Asset prices can move wildly whenever the updated beliefs differ dramatically from those held in the past. Uncertainty is not new to financial economics. What is novel is Osband’s emphasis on credit markets—the epicenter of the recent crisis—where this “Pandora’s Risk” is especially powerful.

Debt securities compound the uncertainty inherent in market valuations due to their highly skewed payoffs, as they generate a steady stream of constant coupon payments—until a default. Market participants typically infer default probabilities from past experience. Even for securities with relatively long histories, such as U.S.

corporate bonds, estimates of default risk that are behind the commonly used credit ratings are highly imprecise. For securities with much shorter histories, such as collateralized mortgage obligations or sovereign bonds of newly independent states, this uncertainty is the main driver of value. One of the key themes Osband emphasizes throughout his study is that securities perceived as safe—e.g., those with no histories of default and priced as if nearly risk-free—are the most prone to the risk coming from uncertainty and learning. An event causing a belief about such a security to be updated from “safe” to something not entirely so could induce a much more dramatic decline in the value of the security than a drop in price of an already risky security caused by a similar event making it slightly more “unsafe.”

Securitization and tranching compound the problem in the presence of common drivers of default, by creating seemingly extra-safe securities. Given a known default probability for each individual loan being pooled into a collateralized debt obligation (CDO), senior CDO tranches can be constructed to be perfectly safe in the absence of common shocks. For example, regional house price and unemployment risks affecting a mortgage pool could be diversified sufficiently so that only junior claims may be affected. But once markets realize that an aggregate shock drives defaults, the senior tranches are no longer seen as safe, and their value plunges potentially by more than that of supposedly riskier “equity” tranches. This is an important point that explains some of the dramatic losses suffered by major financial institutions during the financial crisis. But it has hardly been as ignored by financial economists as Osband’s narrative would have it (e.g., see Duffie 2011). There is in fact an active debate as to what extent some of the senior tranches of CDOs were mispriced (Coval, Jurek, and Stafford 2009; Collin-Dufresne, Goldstein, and Yang 2010). Calling the practice of packaging and tranching assets “insecuritization” as Osband does is entertaining for the reader, but it distracts from the point that the main problem is in the potential mispricing due to the underlying common risk drivers and the resulting illusion of safety. The author does not seem to deny the benefits of this innovation for better

pooling and sharing of idiosyncratic risks—both known and unknown.

The illusion of safety is perhaps the most compelling theme woven through much of the book, one that unites even some of its more idiosyncratic and seemingly disconnected chapters that foray beyond fixed income markets into monetary economics, banking, and statistics. Bayesian analysis forms much of the analytical framework behind the book's central argument. Bayesian updating of beliefs about the shape of the risk distribution is what the author refers to as "Pandora's equation." This relation describes the dependence of the updated moments (or, more precisely, cumulants) of the probability distribution on the moments of the higher order (unless beliefs are perfectly Gaussian, in which case only the mean and the variance matter). Since many of the relevant distributions of financial time series are not Gaussian but rather possess fat tails, as well as skewness, Osband argues, these higher moments contribute substantially to price volatility during periods of perceived regime shifts, despite apparent smoothness in times of market calm.

While the book cites a few of the recent papers that explore the roles of uncertainty, learning, and tail events (such as rare disasters) in asset pricing, on the whole Osband is not very sympathetic toward academic finance. He blames finance theorists for treating learning risk as peripheral and sticking to normality-based models out of convenience, with catastrophic results for theory-driven practice. This criticism is not entirely fair—the importance of fat tails has been recognized since the early days of modern finance (e.g., Fama 1963), and it influenced much of the subsequent empirical practice if not formal theory. Progress has been made on incorporating learning and model uncertainty into asset pricing theory, and its sometimes glacial pace may be testimony to the difficulty of doing so in economically interesting settings—Hansen and Sargent (2010) is a particularly salient recent example.

Financial economists are not the only ones excoriated by Osband. Regulators also get their fair share of criticism. The main fault of financial regulation, according to the book, is encouraging the illusion of safety, and the resulting concentration of tail risk in the financial system. Short-term funding via supposedly safe deposits and

investing in illiquid—and risky—long duration loans is commonly seen as standard practice in the banking industry. Osband sees it as fundamentally dangerous, yet perpetuated by the governments via both explicit guarantees such as deposit insurance and implicit incentives to take on risk for "too-big-to-fail" institutions. Moral hazard is exacerbated by the very regulation that is meant to reduce it, such as the so-called Basel II rules, which allow for less capital to be held against the supposedly safer securities, such as sovereign bonds and mortgages. This push toward safety results in a fundamentally fragile financial system, saddled with the lowest-quality (i.e., highest yielding) assets in both of these classes, something that became painfully clear in the U.S. mortgage crisis and again more recently during the Euro-zone debt crisis. It is hard to disagree with this critique, as the role of perverse incentives in laying the foundation for the financial crisis is quite apparent, and has been widely recognized by economists.

Osband closes his book with a number of suggestions for improving both the theory and the practice of finance. Financial regulation needs to focus on controlling systemic risk by reducing duration mismatch as well as overall leverage of banks, rather than pushing them toward holding "safe" assets. Banks have an advantage in bearing certain types of risk; others should be left for the securities markets to allocate (in fact, Osband seems even happier with "narrow banking" that focuses on processing payments and eschews long-term lending). Credit rating agencies should be forced to disclose the degree of uncertainty about their estimates of default risk—and to use models better suited for dealing with common risk factors in portfolios and structured products. Above all, better risk management practices throughout the financial industry would involve clear recognition of uncertainty as well as risk. For that, Osband envisions a new breed of risk managers, specially trained and chartered, akin to actuaries of the insurance industry, and bound by their reputation more than by anticipation of the next bonus. Finance theory, besides trying to incorporate "Pandora's Risk" into its models, should come to terms with technical analysis that it has long dismissed. In Osband's view, scanning price charts is a reasonable way of coping with

time-varying uncertainty in the absence of a good model for predicting its evolution.

Osband often overstates his case and some of his conclusions are debatable. Yet his main points are well taken, and the arguments are well worth following in detail. Even though many of the ideas are not new to economists, Osband synthesizes them in a way that is provocative and compelling. The book is written in a clear and breezy conversational style, with most of the technical background relegated to the extensive appendix. This makes it appeal to a potentially broad audience, requiring some fundamental grasp of economics and statistics but no particularly specialized knowledge of finance, as most of the necessary concepts are introduced throughout the book (indeed, the appendix gives the reader a quick tour through the basics of asset pricing theory as well as a number of related fields). While some of the chapters digress into topics that are clearly dear to the author's heart but are somewhat tangential to the central narrative, the book is quite entertaining throughout. *Pandora's Risk* can be enjoyed by anyone with some interest in the financial markets and their interaction with the economy, from experts in the field to the simply curious.

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J Labor and Demographic Economics

Reconsidering Retirement: How Losses and Layoffs Affect Older Workers. By Courtney C.

Coile and Phillip B. Levine. Washington, D. C.: Brookings Institution Press, 2010. Pp. xxvi, 156. \$28.95. ISBN 978-0-8157-0499-7.

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In *Reconsidering Retirement: How Losses and Layoffs Affect Older Workers*, Courtney Coile and Phillip Levine present an accessible summary of their research on the impacts of economic downturns on the labor market and retirement outcomes of older workers. In doing so, they challenge the conventional and oft-reported wisdom that the recent recession has resulted in delayed retirement among older workers. Coile and Levine document that declining stock prices have caused delays in retirement for more-skilled and higher-income workers, but have had small, if any, impact for less-skilled older workers. Alternatively, the weak job market has pushed many low-skilled, older workers out of the labor force and into involuntary early retirement. The net effect of the economic downturn has been increased retirements, particularly among less-educated and more economically vulnerable workers. The long-term impacts of the change in retirement include lower monthly social security benefits and living standards relative to expectations for less-skilled and lower income retirees, which Coile and Levine argue merits increased attention from policymakers.

After introducing the book in chapter 1, Coile and Levine use chapter 2 to present data on trends in retirement over time. Primarily driven by changes in retirement behavior, the half-century-long decline in labor force participation rates for older men will be well known to most readers. Unfortunately, the authors' analyses throughout the book focus only on males. Given the different trends in labor force participation for males and females over the past half-century, and the longer life expectancies and lower average earnings for women, this is an important omission. Chapter 2 also includes a brief literature review of several lines of research, including Coile and Levine's own work on the impacts of declining labor, stock and housing markets on retirement decisions. Notably excluded from this literature review is the work of Sewin Chan and Ann Huff Stevens (1999, 2001, 2004), who also examine job loss and retirement outcomes among older workers.

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