

TW notes on

Douglas W. Hubbard (2009) *The Failure of Risk Management: Why It's Broken and How to Fix It* John Wiley
\$45.00

He argues that most risk managers give little attention to whether their methods work and even how to evaluate whether whether they work.

He starts with a discussion of common mode failure and suggests "if someone tells you that something that just happened had merely a one-in-a-billion chance of occurrence, you should consider the possibility that they calculated the odds incorrectly" p5

He focuses on risk management across a wide range of areas.

His definition of risk management are "The identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events" p12

of "Being smart about taking chances" p 11

enterprise risk management
"Some many risk management methods rely on human judgment, we should consider the research that shows how humans misperceive and systematically underestimate risks" p 17

Until the Middle Ages "risk management was an unguided mitigation of risks" p 22

Method of assessing Risks

- 1 Expert intuition
- 2 An expert audit - developer check lists
- 3 Simple stratification methods
heat maps
- 4 Weighted scores (of risk indicators)
- 5 Traditional financial analysis (without using probabilities)
best and worst cases
- 6 A calculus of preferences
MAUT multi-attribute utility theory
MCDM " criteria decision making
AHP analytic hierarchy process
- 7 Probabilistic models

Risk Mitigation

1. Avoid
2. Reduce
3. Transfer
4. Retain

risk filter

"Contrary to the claims of some vendor or consulting firm, neither the methods of risk assessment nor the methods of risk mitigation have evolved much for several decades" p 31

An old adage "You can't manage what you can't measure"

"it is very common for mathematically sound methods to be misapplied" p 41

We have to rely on indirect measures of probability

He critiques Knight's definition of uncertainty and argues

"a risk has to have an element of uncertainty as well as a cost" 42

"The biggest risks tend to be those things that are more rare but potentially disastrous" 43

method of determining effectiveness in risk management

- 1 statistical inference based on large samples
- 2 direct evidence of cause and effect
- 3 component testing of risk management
- 4 a 'check of completion'

"A risk manager should always assume the list of considered risks, no matter how extensive, is incomplete" 47

"Hanson's Razor: 'Never attribute to malice that which can be adequately explained by stupidity'" 55

The 'Four Horsemen' of Risk Management

- 1 Activists
- 2 Not-quants
- 3 Economists
- 4 management consultants

OR

one person games against nature evolved into decision theory

probabilistic risk analysis P&D

"VaR is more a method of expressing risk than a way of computing it" p 68

"these models make assumptions that do not match observed reality" 68

"simply reacting to the most recent event is counter to good risk management. Risk management is about the next crisis" 68

He criticizes the 'Power Point thinking of management consultants

How to Sell Snake Oil

1 Sell the FUD "fear, uncertainty and doubt"

2 Sell 'structured' approaches

3 Sell intuitive approaches - don't worry whether they work "To sell it, management has to understand it. Be dismissive of anything more scientific" 71

4 Sell what feels right

"convert everything to a number, no matter how arbitrary" 72

Knight

"Knight's definition of risk is what most others call uncertainty" 81

"volatility implies risk only if some of the outcomes are losses" 85
risk as expected loss

He says modern decision theorists call K uncertainty, strict uncertainty

He is critical of the biases that can creep into experience

He draws a lot on Kahneman and Tversky
fish and scale

- 1) misconceptions of chance - representativeness bias
- 2 conjunction bias fallacy
- 3 belief in the law of small numbers
- 4 disregarding variance in small samples
- 5 insensitivity to prior probabilities

Catastrophic Overconfidence

A number of studies suggest subjective 90% confidence maps to 66% and 75% to 70%

calibration tests of targets
90% maps to 30 to 50%
99% 60%

"Inconsistency and artificial: What Shouldn't Matter Does"

(7)

Egon Brunswik's lens method

Ch 7 "Worse Than Uselen"
Scoring methods - typically use
a simple ordinal scale
additive weighted scores
and multiplicative risk matrices
threat, vulnerability, and consequence
"Simple scoring methods in no way
alleviate the fundamental problem of
limited information. But the added
ambiguity makes you less aware of it."
124

"The advantage that quantitative probabilities have is that they are unambiguous descriptions of our uncertainties, not a statement of precise, exact quantities" 126

likelihood scales like very likely, likely, unlikely etc create an "illusion of communication" 127

Three unintended consequences -
range compression, presumption of regular intervals, and presumption of independence

AHP was developed to minimize transitivity errors

Ch 8 "Black Swans, Red Herring, and Invisible Dragons: Overcoming Conceptual Obstacles to Improved Risk Management"

"The ideal approach is a version of quantitative modeling of risks" 145

"~~most~~ measurement is simply observation-based uncertainty reduction about a quantity" 146

"Taleb seems to tirelessly promote a scientific view of risk analysis - all the while, making several unscientific generalizations" 151

149-150 He discerns ^{two} risk managers who don't believe in risk analysis. He agrees with Taleb that "the impact of randomness in success and failure is underrated" (152) and that "certain highly respected models are wrong" (151) but critiques (effectively) a number of his statements.

The frequentist vs subjectivist debate. He argues it's one of Carl Sagan's "invisible dragon".

"To real-world decision makers, the only useful meaning of the word probability is that of the subjunctive."

"We will use probabilities as an expression of our uncertainty" 161

"Many managers see their own environments as somehow uniquely complex" 161

"You have more data than you think"

"You need less ..."

"Getting more data (by direct observation) is more economical than you think"

"You probably need completely different data than you think" 162

"Many managers see their own environments as somehow uniquely complex" 162

"Risk management methods should be subjected to scientifically sound testing methods" 167

"The idea that the mere use of very sophisticated-looking mathematical models must automatically be right has been called crackpot rigor..." 167

11
"the rapid growth in use of sophisticated tools has, in many cases, outpaced the growth in the skills to use these tools" 168

He's a big fan of ~~the~~ Monte Carlo methods

Subjective estimates should never be used without calibration

www.howtofixriskmgt.com

Risk managers frequently seldom check outcomes against original forecasts

"During and before the 2008 financial crisis, banks that routinely did some quantitative risk analysis on individual loans rarely did any quantitative risk analysis on how economic downturn would affect their entire portfolio" ~~175~~
175-6

"Opportunities for marginal risk reduction are overlooked. For highly uncertain variables, even a few empirical observations can significantly reduce uncertainty" 179

"There is a pervasive lack of incentive to follow up on previous forecasts to see how well they did" 179

"Models that are built are rarely back tested" 177

"The Mount St Helens fallacy... that if there are any differences at all, all, there can be no useful similarities" 180

The He discover power law distributions and problems with normal distributions:

With normal distribution a one day drop of 5% or more in the stock market would have less than a 15% chance of occurring once in 80 years. It actually occurred 70 times. The chance of a 7% drop would be underestimated by a factor of one billion or more

P184

"Many systems ~~to~~ we want to model are like herds of capital - they tend to move together but in irregular ways" 187

The criticizer Robert Rubin's description of the 2008 crisis as "a perfect storm"
 "Perfect storm seems to imply the random convergence of several independent factors - which probably was not the case" 190

"Simple correlations are not even close to being constant" 190

"There is a culture among some otherwise - quantitative modelers of excluding things from risk analysis because they are uncertain" 191

The fallacy of estimating a point because of not having enough data to estimate a range

His approach has two components getting calibrated and modeling explains

"The most important part of calibration is repetition and feedback" 200

The equivalent bit test

"The beginning of all modeling simply comes down to some form of decomposition" 210

"A successful model tells you things you didn't tell it to tell you"

Jerry Brackner Brashers p 214

" always attempt to model the components of a system, not just the system's behavior " 215

" Using correlations to improve models is key to Modern Portfolio Theory " 216

" Too often a model of reality takes on a reality of its own " 221

" most analysts are not accurately computing the economic value of additional information " 224

" decision maker will usually underestimate how much can be inferred from a given amount of information " 226

Bayesian updating

H. A. Albert, Billie Henning on the
inventor of Applied Information
Economics