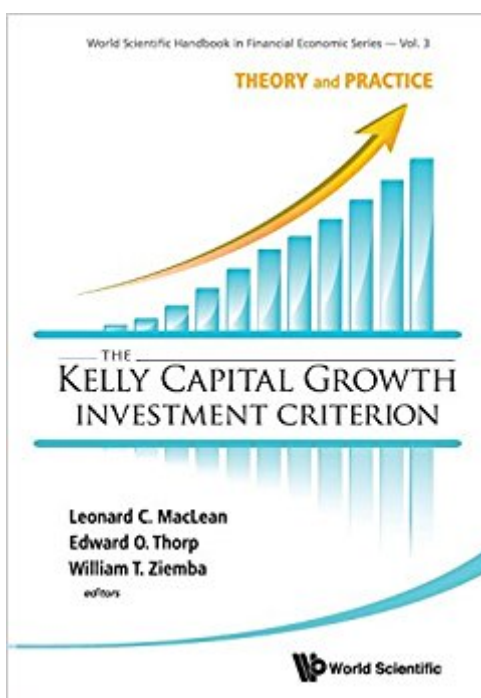The book was found

The Kelly Capital Growth Investment Criterion: Theory And Practice (World Scientific Handbook In Financial Economics)

World Scientific Handbook in Financial Economic Series — Vol. 3

THEORY and PRACTICE

THE KELLY CAPITAL GROWTH INVESTMENT CRITERION

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editors

World Scientific

Synopsis

This volume provides the definitive treatment of fortune's formula or the Kelly capital growth criterion as it is often called. The strategy is to maximize long run wealth of the investor by maximizing the period by period expected utility of wealth with a logarithmic utility function. Mathematical theorems show that only the log utility function maximizes asymptotic long run wealth and minimizes the expected time to arbitrary large goals. In general, the strategy is risky in the short term but as the number of bets increase, the Kelly bettor's wealth tends to be much larger than those with essentially different strategies. So most of the time, the Kelly bettor will have much more wealth than these other bettors but the Kelly strategy can lead to considerable losses a small percent of the time. There are ways to reduce this risk at the cost of lower expected final wealth using fractional Kelly strategies that blend the Kelly suggested wager with cash. The various classic reprinted papers and the new ones written specifically for this volume cover various aspects of the theory and practice of dynamic investing. Good and bad properties are discussed, as are fixed-mix and volatility induced growth strategies. The relationships with utility theory and the use of these ideas by great investors are featured.

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Customer Reviews

"This is a fantastic reference covering the theory and practice of the field beautifully organized and produced. I have already used it and I will refer it to my students and colleagues." -- Professor David G Luenberger, Stanford University "This volume provides a fascinating historical account and

critical assessment of the Kelly criterion (expected logarithmic utility maximization) as a universal criterion for the tradeoff between risk and return in portfolio management and gambling. Whereas economists have, by now, lost their innocence, recognizing that investors may have heterogeneous risk-return tradeoffs which may or may not be codifiable with von Neumann-Morgenstern preferences and even with rational decision-making, the quest for the Holy Grail of a universal criterion vividly documents early attempts to lay the scientific micro-foundations of economics." -- George M Constantinides, Leo Melamed Professor of Finance, The University of Chicago, USA "This book provides a comprehensive survey of research and applications on the Kelly growth optimal strategy that maximizes the expected utility of the log of final wealth ... There are numerous advantages to the Kelly strategy, especially for long-term investors who face a long sequence of similar decisions ... But a disadvantage is the possibility of severe downside consequences over a small or even moderate or large number of decisions ... Any investor with an eye to improving their long-term performance should be aware of the Kelly strategy and its cousins ... This book provides a fine coverage of these topics from original sources and recent research publications." --Quantitative Finance"The tragically short-lived genius John Kelly Jr. is best remembered for one of the most original and far-reaching ideas in modern finance. The Kelly criterion can be described as a gambling system that really works, in that it achieves the maximum long-term return from a favorable speculation. Kelly's idea has long had a cult following among people ranging from hedge fund managers to blackjack players. For those who have heard of the Kelly mythos and want to explore the science behind it, this book will be an instant classic. The editors have collected all the pivotal original papers, spanning centuries and the rarely bridged gulf between theory and practice. This book is indispensable for anyone interested in Kelly's legacy." -- William Poundstone, Author of Fortune's Formula: The Untold Story of the Scientific Betting System That Beat the Casinos and Wall Street   "In 1738 Daniel Bernoulli wrote a path-breaking paper. He gave a solution to the St. Petersburg Paradox by suggesting the use of a utility function. Arguing that marginal utility should be indirectly proportional to a person's wealth, he arrives at the logarithm. It can safely be stated that the idea of utility functions and marginal utility is the most precious gift which mathematics ever made to economics. This idea shaped the form of economic thinking in a decisive way over the past centuries. A central role is played, from the very early days on, by the logrithmic utility. In a dynamic setting this criterion, now named after the seminal work of J Kelly in 1956, leads in average to the optimal growth rate of a portfolio. The present handbook assembles in an impressive way the classical papers and also provides the link to modern research. It also presents important papers with a critical view towards the Kelly criterion. Among them figures the famous three-page paper of

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There are two methods to consider in a risky strategy.1) The first is to know all parameters about the future and engage in optimized portfolio construction, a lunacy unless one has a god-like knowledge of the future. Let us call it Markowitz-style. In order to implement a full Markowitz- style optimization, one needs to know the entire joint probability distribution of all assets for the entire future, plus the exact utility function for wealth at all future times. And without errors! (I have shown that estimation errors make the system explode.)2) Kelly's method (or, rather, Kelly-Thorpe), developed around the same period, which requires no joint distribution or utility function. It is very robust. In practice one needs to estimate the ratio of expected profit to worst- case return-- dynamically adjusted to avoid ruin. In the case of barbell transformations, the worst case is guaranteed (leave 80% or so of your money in reserves). And model error is much, much milder under Kelly criterion. So, assuming one has the edge (as a sole central piece of information), engage in a dynamic strategy of variable betting, getting more conservative after losses ("cut your losses") and more aggressive "with the house's money". The entire focus is the avoidance of gambler's ruin.The first strategy was only embraced by academic financial economists --empty suits without skin in the game -- because you can make an academic career writing BS papers with

method 1 much better than with method 2. On the other hand EVERY SURVIVING speculator uses explicitly or implicitly method 2 (evidence: Ray Dalio, Paul Tudor Jones, Renaissance, even Goldman Sachs!) For the first method, think of LTCM and the banking failure.Let me repeat. Method 2 is much, much, much more scientific in the true sense of the word, that is rigorous and applicable. Method 1 is good for "job market papers" . Now this book presents all the major papers for the second line of thinking. It is almost exhaustive; many great thinkers in Information theory and probability (Ed Thorpe, Leo Breiman, T M Cover, Bill Ziemba) are represented... even the original paper by Bernouilli.Buy 2 copies, just in case you lose one. This book has more meat than any other book in decision theory, economics, finance, etc...

Complex but complete, covers fortunes formula from every angle

Excellent, bought it on Nassim's recommendation, quite tough for me though. Requires mathematical maturity.

Ed Thorp, Leonard Maclean, and William Ziemba wrote a masterpiece here. For me, this is a very important textbook because it captures the importance of position size. What many people in the financial world fail to recognize is the tethered relationship that exists between probability expectations and position size. This book doesn't just show the calculations for the Kelly criterion, but it also provides methods for trying to develop a good expected value for certain types of events and outcomes. If you're a serious investor, you would be crazy to pass on this book. For one reason, Ed Thorp is the living example of why the Efficient Market Hypothesis is false - simply look at his 227 months out of 230 for beating the market and you'll see what I'm talking about... Thank you for sharing this information gentleman!

I have not read this book. I read almost all books that I review, so I disclose when I have merely scanned a book such as this.Why scan? First, I didn't ask for the book. Second, it is 800+ pages long. Third, it is a series of academic articles defending and attacking the Kelly Criterion -- it will have a very specific audience that cares about the academic side of the debate. The popular side is covered by the book, "Fortune's Formula," which I have favorably reviewed here.The simple way to phrase the argument for the Kelly Criterion is this: you have an advantage versus the markets for whatever reason. You have an edge on average, and the odds are tilted in your favor. You size your bets as a ratio of edge over odds. If your edge is durable, and the odds are calculated right, the

optimal decision leads to the best compound growth of capital on average.Samuelson sits in his ivory tower, where only efficient markets exist. Those of us that are practitioners know that the markets are hard, but not efficient.To me, the Kelly Criterion is intuitive, whereas the ideas of Modern Portfolio Theory are a stretch. They don't fit the way the market operates.Who would benefit from this book: If you are really interested in the Kelly Criterion debate , and are willing to pay up to get a good summary of the debate, it is available here. Note: you have to like math.

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