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## On Moshe Milevsky's "The 7 Most Important Equations"

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By Editor Test    Tue, Jul 31, 2012

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*Each chapter in Prof. Milevsky's latest book focuses on a different important mathematical equation, on the genius who created it (or who won credit for creating it), and the application of that equation to retirement income problems.*

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Wit, a lively narrative voice, and a gift for invention—these were scarce commodities in retirement finance books until Moshe Milevsky started writing them. Life-or-death drama and graveyard humor always lay latent under the actuarial tables, but nobody ever liberated them the way this prolific 40-something Canadian finance professor has.

Imagine a reader's surprise, a few years ago, on opening a text with the yawn-worthy title, *The Calculus of Retirement Income: Financial Models for Pension Annuities and Life Insurance* and finding this: "I arrived at the conference venue early—as most neurotic speakers do—and while I was waiting to go onstage, I decide to wander around the nearby casino, taking in the sights, sounds and smells of flashy cocktail waitresses, clanging coins, and musty cigars."



Milevsky (at left) proceeds to introduce the indelible "Jorge," a (probably fictional) roulette player with a "very primitive gambling strategy." Before every spin of the roulette wheel, Jorge bets a red \$5 chip on black. After every spin, he tips the attentive cocktail waitress another \$5 chip for refilling his scotch glass.

Inspired by his own fascination with Monte Carlo projections, Milevsky (as narrator) then tells us how he began to calculate mentally how long Jorge's money, which he is spending, winning and losing as the hours

fly by, are likely to last. Soon Milevsky reveals his point: Jorge is Everyman, and his roulette strategy is “a quaint metaphor on financial planning and risk management as retirees approach the end of the human life cycle,” when they are spending their savings even as they continue to risk them in the financial markets.

“So, in some odd way,” the opening anecdote of *The Calculus of Retirement Income* points out, “we are all destined to be Jorge.”

Milevsky wrote that book in 2006, when I was first searching the Web for books about annuities and retirement finance. It was already his fourth book—he had written or co-authored *Money Logic*, *Insurance Logic* and *Wealth Logic* and had yet to write *Are You a Stock or a Bond?* (about the nature of human capital), *Pensionize™ Your Nest Egg*, and *Your Money Milestones*, or to co-author *Strategic Financial Planning over the Lifecycle*. But it was perhaps the first serious book on retirement finance that I’d read, and all I could think was: Who is this guy?

Milevsky’s latest book, entitled *The 7 Most Important Equations for Your Retirement: The Fascinating People and Ideas Behind Planning Your Retirement Income* (Wiley 2012) plays even more to his abilities as a raconteur than his previous books. It’s an appreciation of his heroes, of the men who invented the conceptual tools that Milevsky uses on his professional workbench every day. It’s also about why those razor-sharp tools matter to the reader. Warning: Readers will need to be fairly smart even to grasp the handles of these tools—let alone juggle them with the casual ease that Milevsky does, like a teppan-yaki chef tossing his knives and spatulas.

*The 7 Most Important Equations* is challenging, but not inaccessible. While the concepts aren’t simple, the deft organization of the book helps. Each chapter focuses on a different important equation, on the genius who created it (or who won credit for creating it), and the application of that equation in solving retirement income problems.

Leonardo Fibonacci (1170-1250) kicks off the book; Andrei N. Kolmogorov (1903-1987) concludes it. In between, we learn about the contributions of Benjamin Gompertz, Edmond Halley (of the eponymous comet), Solomon Huebner (creator of the Wharton School), Irving Fisher, and MIT’s Paul Samuelson (the Nobelist known as the “father of modern economics”).

There’s a fair amount of math here. If you’re a Wall Street quant, if you munch on mathematical symbols at your desk every day, or if you clearly recall your high school and college math, you won’t be intimidated by the formulas that appear at the start of every chapter. But if you don’t chuckle with recognition when you see something like,  $a_x = \sum_{i=1}^{\infty} {}_iP_x / (1+R)^i$ , you might feel intimidated and turn the page. That would be your loss (It was mine, sorry to say), because they are the real heroes of the book.

Even if you’re not a quant, however, and merely like learning the origins of things, you’ll probably enjoy hearing that it was Fibonacci who introduced Arabic numerals to Europe, that Gompertz showed the world that our probability of dying increases about 9% every year from early adulthood to old age, and that Irving Fisher was famous for something other his ill-timed comment, made in August 1929, that “stock prices have reached a permanent high plateau.”

Just as importantly, the chapters show how each of these mathematical legends helped answer the questions that almost all of us, except perhaps the destitute or the well-fixed, will struggle with in retirement: How long will my money last? How long am I likely to live? Is it worth it to buy an annuity? Milevsky's book demonstrates that the same questions that bug Boomers in the middle of the night have bugged great minds for hundreds of years.

Each chapter stops short, quite deliberately, of converting the mathematics and the history into news-you-can-use. As Milevsky writes in the introduction, "Most books about retirement planning are written as guides, instruction manuals or 'how-to' books. ... *Rest assured, this is not one of those books.*" Instead, as he tells us, he intends the book to start "conversations" about retirement income planning between his readers and their families and financial advisors.

It's a slim book—just 178 pages not counting the end matter. Milevsky's schedule is probably still too hectic—he's a consultant and speaker as well as a writer and tenured professor—to attempt something on the scale of Peter Bernstein's *Against the Gods*. But it wouldn't be surprising if *The 7 Most Important Equations for Your Retirement* turns out to be a warm-up for a literary project that Milevsky might be reserving for his own still-distant retirement from Toronto's York University.

In sum, *The 7 Most Important Equations for Your Retirement* is a clever, erudite book graced with learned, entertaining asides. If you've ever had a great professor, someone young enough to relate to you but old enough to command your implicit respect, who knew his stuff so thoroughly that he never had to hide behind an Oz-like curtain of severity or dumb the material down, then you'll have a sense of the kind of authorial hands you're in when you read almost any of Milevsky's books. If you're willing to put in the time and keep up the pace, you'll be amply rewarded.