Mr Zwecher has developed a soundly based and practical philosophy for funding of retirement benefits, and produced a book that would be highly suitable as a text book for a course in applied financial planning. It could also be useful to retirees or near retirees that have some knowledge of financial terms.

The book moves slowly through the process, and for a quick read to understand the philosophy, it becomes repetitive and drawn out, but as a text book for students with little knowledge of financial planning, especially the retirement phase, the pace may well be appropriate. I think 'Theory' should have been left out of the title of the book, as it is difficult to find the theory, other than a few references to the Capital Asset Pricing Model (CAPM) that seem to have been inserted to give the book some artificial link to finance theory, which in my view is unnecessary.

The book progresses from an introduction indicating that 'balanced portfolios' may not be suitable for the retirement phase, and moves on to justify this by introducing the concept of risk, and delineating between upside and downside risk, which links very nicely to the later chapters on how much risk can be taken into a retirement portfolio.

Very quickly, Mr Zwecher moves to his main philosophy then which relates to the need to manage downside risk, and introduces the concept of 'lifestyle flooring'. This concept should be easy to appreciate and is presented in a manner that makes common sense without the need for some theoretical justification. Having introduced the need for downside risk analysis, the book then considers the role of annuitisation within the 'lifestyle flooring' concept, and relates the role of annuities to the ability to fund longevity risk.

The introduction of taxation limits the value of the book but this section can be easily ignored by students and practitioners outside the UK tax regime without losing anything significant from the philosophy.

The remainder of the book deals in significant detail with some practical examples and issues, and introduces discussion on how to manage 'excess assets' over that necessary to secure the lifestyle flooring. Mr Zwecher includes a lot of material on how a practitioner could use the philosophy, and how to best introduce this to clients, which may well be of interest to practitioners, but is probably of little interest to students.

Whilst I am of the view there is material of interest to students in the book, overall it seems to be more useful for practitioners who are in the business of retirement planning, and provides an almost complete guide to why the philosophy should be followed, how to 'sell' it to the client, and how to go about working out what to do for each client, including how to manage client expectations.

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Are You a Stock or a Bond? Create Your Own Pension Plan for a Secure Financial Future. Moshe A. Milevsky. Financial Times Press, 2009, ISBN 978-0-13-712737-5, 240 pages. doi:10.1017/S1474747211000175

In this book, respected finance academic Milevsky turns his hand to the task of giving the person in the street the benefits of academic research into individual financial planning from the last few decades. Motivated by the rapid demise of private sector defined benefit pension funds, he aims to answer the concerns of people who now find themselves having to bear the risks previously borne by such financial vehicles: the investment risk, the mortality risk, the inflation risk and the longevity risk. These individuals need to have the tools to manage both the accumulation phase (pre-retirement) and the decumulation phase (post-retirement) of their investments. The real gem of Milevsky's book is its treatment of the latter. I can't think of another book with such an intelligent treatment of the decumulation phase.

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The book starts out by nailing down the concept of human capital as central to financial planning. In particular, if we think of the capitalised value of your future income stream as an asset, it can be characterised as a stock or bond depending on the risk profile of your job. Hence the title.

Mortality risk is then treated. For an individual with a bequest motive, the natural insurable amount at any age will be the difference (if positive) between her desired bequest at that age and her financial capital at that age. And her desired bequest should be closely related to her human capital.

Having laid down the concept of human capital and its risk profile, we can then turn to investment risk. Here, Milevsky has much more to say, and notes that retirement planning success depends a lot on your strategy and products. One key element is the nature of your human capital – that it is important to recognise the bond-like nature (or stock-like nature) of your human capital and adapt your investment strategy to complement it.

Individuals need to diversify their investments over the universe of available choices. Diversification doesn't stop there – one should diversify over time as well. For an investor whose human capital is bond-like, this means investment in risky assets when young, gradually progressing to safe with age.

One should also be prepared to embrace leverage. Accepting the importance of human capital to our finances means realising the large stock of total wealth we hold when young. Investing a small fraction of that total wealth can well entail borrowing – that small fraction of total wealth will likely exceed our current financial capital. This means the young should be prepared to borrow and invest in risky assets (more so if you're like a bond, less so if you're like a stock).

The latter part of the book deals with the decumulation phase of one's wealth. This is the focus of much of Milevsky's recent research, and he has many interesting things to say.

In the decumulation phase of our lives, investment risk and inflation risk are still important, but concern over mortality risk will fade – more relevant now is longevity risk. Chapter Seven discusses the elements of longevity risk. The author points out that the idea of life expectancy isn't that relevant – we need to focus on conditional life expectancy; how long will I expect to live given I've survived to 67? These figures generate much longer lifetimes, and impress on one the importance of longevity risk.

Of course, when we hit retirement, we have to have some idea of whether our decumulation strategy is sustainable. Chapter Eight provides a formula – a function of age, portfolio return, portfolio volatility and your spending – to do exactly that.

Equipped with the knowledge that one's strategy is sustainable, we can turn to the issue of tailoring one's portfolio to deliver a successful decumulation phase. Milevsky suggests diversification again – diversification over products. The first product is simple – systematically withdrawing from our investments over our lifetime. However, as pointed out in Chapter Six, when we start withdrawing from our savings, then the sequence of returns we earn on our investment really matters – poor returns can devastate our portfolio. This means we need protection against investment, inflation and longevity risks. A portfolio of stocks and bonds alone isn't going to deliver this. To achieve this protection we have to turn to two products, one ancient, one thoroughly modern – the lifetime annuity and the variable annuity (with some form of guarantee).

A lifetime annuity can protect us against investment, inflation and longevity risk – but only once we've purchased it. In the years before we've done so, and in particular in that vulnerable phase in the run-up to our desired retirement date, we need to protect ourselves against the risk of our portfolio being wiped out, and necessitating us working well into what we thought would be our 'golden years'. For this, we need a variable annuity with some sort of guarantee.

The utility and timing of this book is impeccable. Americans need help to plan their retirement – studies show that the level of financial literacy and sophistication in the US is alarmingly low among both the young and the elderly. Plus, given recent concerns over the cost of US

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public sector pensions, these public sector workers may well be joining their private sector colleagues in lamenting the demise of defined benefit pensions.

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Risk-Based Supervision of Pension Funds: Emerging Practices and Challenges. Greg Brunner, Richard Hinz, and Roberto Rocha, eds. The World Bank, 2008, ISBN: 978-0-8213-7493-1, 215 pages. doi:10.1017/S1474747211000187

Pensions usually operate in a heavily regulated market, in view of their economic and social importance and impact on the population. Over time, pension system regulation has progressed from direct regulation regarding the types of investments permitted, to a less restrictive, more efficient, competitive, and reliable approach. In any event, there remains a need for a strong supervisory framework and efficient monitoring to promote healthy market development and protect pensioners' rights. This new volume from the World Bank presents the case for pension risk-based supervision (RBS) in four countries that have adopted this approach.

Though methodologies and years of experience differ from one to the next, the collection sheds light on this new form of pension regulation. The idea of RBS is that it focuses on minimum solvency requirements while boosting market and operational risk monitoring. Its aims are to ensure solvency, so that insurers have enough financial resources to meet their obligations to policyholders, and to protect the rights of active and retired participants taking into account fairness and transparency in the marketing process, as well as customer service. Risk-based supervisors emphasize building risk management procedures, making regulation flexible, putting in place an internationally-approved monitoring system, and focusing supervisory resources. In addition, they seek to manage risks in the context of an increasingly globalized financial world where transactions are faster and more volatile, as well as more correlated.

A key element of the RBS methodology is its focus on institutions which might pose the greatest potential danger. In Australia, the system uses the prudent-person approach in the context of its defined contribution system; its risk-scoring model is called PAIRS (Probability and Impact Rating System). The three pillar system includes a mean-tested benefit financed by general taxation; the second pillar is a mandatory employer-based superannuation fund system to finance pensions or lump-sum payments at retirement; and the third pillar involves voluntary saving. Australia has several thousand funds and employer-sponsored plans.

In the Netherlands, pension coverage is almost universal (90%) and assets are substantial, equivalent to 125% of GDP in about 800 funds. The RBS approach here encourages and requires that funds have capital sufficient to cover liabilities at the 97.5% level over a one-year horizon. Fund managers are required to maintain capital not only equivalent to their commitment, but also reserve additional capital solvency to provide a buffer. Here too the prudent person approach is applied.

The volume argues that in Denmark, RBS has reduced the assets/liability mismatch by changing asset allocation and encouraging greater use of derivatives. This has triggered a reduction in the expected rate of return but also a relaxation of quantitative limits on pension fund investments. There they use a 'traffic light' approach for stress testing pension fund solvency. If the sponsor is in the red light zone, it must analyze the impact of a 12% drop in stock prices. Those in the yellow zone stress test a 30% fall in the stock prices. Currency risk measurement is performed at the 99.5% Value at Risk (VaR) level for the yellow test and 99% VaR level test for red. Yellow test companies are reviewed more frequently (quarterly) in comparison with companies judged to have a green light. In the case of companies with a red light, the regulator sets time-bound requirements and sees them *in situ*. A key characteristic of the Danish system is its guaranteed minimum return on investment. Banks play an important

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