The purpose of this editorial is to present, in outline, the argument that, for particular values of marketable assets at a particular date, and for a particular asset and liability model (ALM), the liabilities of a financial institution have a unique value, and to consider the implications of that argument.

First, let us picture a financial institution whose liability payments due at any future time are fixed in nominal or real terms. Their market value (assuming no arbitrage) would be equal to that of a matched portfolio of default-free conventional bonds; or, if they are a linear function of an index (such as a price index) on which default-free index-linked bonds are available, to that of a matched portfolio of default-free index-linked and conventional bonds.

It has been suggested that the value of the liabilities in this situation should not be based on default-free bonds, but that it should allow for the possibility of default of the financial institution. This would mean that it would be acceptable to the beneficiaries that the trustees should deliberately take risks with their moneys, even where it is not necessary for them to do so. That is inconsistent with the role of a trustee, which requires prudence. For a prudent member it would be better to buy bonds than to be protected by a trustee who takes unnecessary risks on his or her behalf. Only if the trustees are unable to avoid risks should the valuation of the liabilities allow for them. This possibility is considered further below.

If the liabilities are a non-linear function of an index on which default-free index-linked bonds are available (e.g. a linked benefit with a nominal guarantee), they could still be dynamically hedged with such bonds. However, in order to determine a market value, assumptions would have to be made about the volatilities of bond prices. This could either be done with reference to an ALM or (if they are available or can be created for the required expiry dates) with reference to the prices of options on bonds or on bond indices or futures.

When index-linked government bonds were first issued in South Africa, it was suggested that, in view of the small size of that market, it could not be used for pricing liabilities. In particular, it was argued that, if all retirement funds were to enter the market in order to buy sufficient index-linked bonds to match their liabilities, the yields would be forced down to completely unacceptable levels. The question, of course, is: ‘Why weren’t they?’ And the answer is: ‘Because investment managers considered the extra expected returns on equities to be worth the mismatch risk.’ In recent months, in fact, yields have been reduced below what many managers think is sustainable, so the converse applies. But the fact that the market is small does not mean that it cannot be in equilibrium. And if it is in equilibrium then it can be used to price liabilities. Even for maturities at which no bonds exist, the yield curve can be used as an indication of the yields that would apply. And if they wished to do so, investment managers could create the exposures they require...
by buying forwards on the index. If there are no market participants willing to write such forwards, the question must be asked why trustees are willing to accept the task of meeting such liabilities and why employers are willing to underwrite them. In part, the answer is that many have stopped doing so by converting to defined-contribution retirement funds. But in respect of the rest, the question remains.

In general, the liabilities of a financial institution are not deterministically based on such indices, but include other risks. Some of these risks (such as mortality risks) may be hedged or priced by means of reinsurance, or diversified out by means of pooling. Because of moral hazard, others (such as salary increases in excess of the price or wage index modelled) cannot. An ALM can be used for the valuation of the latter type of risks, provided it is extended to include them. This would necessitate a different ALM for each financial institution. It is possible, however, that a single structure would accommodate such variations, with certain specific parameters to be estimated for each institution in respect of the factors used to model such risks, particularly since it would not be necessary to allow for any feedback from such factors. In the absence of an equilibrium market price, such a value may be calculated by recourse to expected utility theory as the price of a portfolio of assets whose proceeds have the same probability distribution (as explained in the next paragraph). The ALM may be used in order to find such a portfolio. If there is more than one such portfolio, diversification may be allowed for by taking the portfolio with the lowest price. If there is none it would be necessary either to extend the ALM or to use approximations.

Strictly speaking, expected utility theory would imply that, in the absence of a market, a risky prospect could be valued at its certainty equivalent on the basis of the agent’s utility function. But there is no guarantee that a counterparty would exist with a favourable certainty equivalent. A sufficient condition is that the probability distribution of the proceeds of the market assets is equal to that of the liability risk concerned. It should be noted that, if the liabilities have been calculated on the basis of expected values, the presence of such risks would generally tend to reduce the value of the liabilities. Additional capital may be required to accommodate that risk (and indeed the capital required may be greater than the reduction in the liabilities), but that is a separate issue, which is discussed below.

In the case of a retirement fund, another risk that cannot be insured or diversified out is the risk of the employer’s insolvency. The liabilities under these circumstances may be limited to the value of the assets. If the assets are matched to the liabilities and are greater in value, this risk will not arise unless the fund is also exposed to other risks such as those discussed in the previous two paragraphs. To the extent that the trustees are able to avoid unnecessary risks by matching the assets to the liabilities, by insisting on the elimination of any shortfall as at the valuation date and by insuring or diversifying other risks, the value of the liabilities at that date should not be reduced because of the risk of the employer’s insolvency. Beyond that extent, this risk can, however, be hedged, and it can therefore be valued by means of the ALM using numerical option-pricing methods. Similarly, in the case of an insurer, the value of the liabilities on the insolvency of the insurer is limited to the value of the assets and the corresponding risk can be similarly valued.
In terms of IAS 19 of the International Accounting Standards Board, the liabilities of a retirement fund must be valued, for the purposes of the accounts of employers, at a valuation rate of interest equal to the rate on high-quality corporate bonds at the valuation date. For a fund with matched liabilities, this results in an understatement, whereas for funds that cannot fully manage their risks by matching, hedging, reinsurance or diversification, it may result in an overstatement. For the latter funds, the capital requirements will be higher, as discussed below.

ALMs are usually used for the purposes of producing a distribution of values. But from the above discussion it is evident that, for particular values of marketable assets at a particular date, and for a particular ALM, the liabilities of a financial institution have a unique value. This means that, if the market is in equilibrium and an appropriate ALM has been selected, there is no need for actuarial judgement in the setting of a valuation rate of interest, or an assumed inflation rate, for a particular liability. The only places where professional judgement may be required are therefore in the determination of reasonable benefit expectations and the selection of an ALM. And the only justifiable reason for a difference between a realistic actuarial value of the liabilities as reported to the trustees of a retirement fund and that in the accounts of the employer is a difference of opinion between the trustees and the employer with regard to the determination of reasonable benefit expectations or the selection of an ALM.

It should also be noted that the rate of investment return effectively assumed for the valuation of the liabilities is independent of the assets actually held by the fund. Thus, by investing in assets whose expected return is higher than those of matched assets, the trustees would not reduce the value of the liabilities. And the subterfuge of a notional portfolio is unnecessary.

It may be appropriate to use ALM methods to determine not only benchmark portfolios and liability values, but also allowances for prudence or capital requirements. This approach would give a far more quantifiable basis for the determination of such values.

Capital requirements may be based on value at risk or on a risk-theoretic approach, in either case using an ALM. In the case of a retirement fund, the employer’s goodwill towards and interest in the fund may take the place of capital requirements. But the trustees should ensure that the capacity of the employer to meet those requirements is adequate. The employer itself may need to increase its capital for that purpose.

The question what constitutes an appropriate method for the valuation of the liabilities of a retirement fund—i.e. what allowance should be made for future service, future salary increases etc.—is largely outside the scope of this editorial. Suffice it to say that, for the purposes of financial reporting, accounting principles require that, in general, going concerns should be treated as such. Thus, even for the purposes of the employer’s accounts, future service should be considered. For the fund’s accounts this is even more important. This does not necessarily mean that future accruals and contributions need to be allowed for, but it does mean that the possibility that active members will remain in service must be allowed for. This principle is more widely recognised in South Africa than in the UK, and is implicit in professional Guidance Note 201 of the Actuarial Society.
of South Africa. Furthermore, in determining the value of liabilities, allowance must be made not only for contractual liabilities but also for reasonable benefit expectations in respect of service up to the valuation date.

It must, of course, be recognised not only that markets are imperfect but also that they are sometimes not even in equilibrium. However, if we claim that a particular market is not in equilibrium we must be prepared to explain why it is not, to indicate what we consider an equilibrium level would be, and to advise our clients to take advantage of the disequilibrium.

ALMs are similarly imperfect. New techniques in modelling are continually being tried. And ALMs are essentially descriptions of history; the use of an ALM for the pricing of liabilities is certainly a leap of faith. But then so is any model, whether it is the geometric Brownian motion of the Black-Scholes model or the valuation rate of interest. And without models there would be no actuaries.

It is clear from the above discussion that the valuation of the liabilities of a financial institution is essentially a pricing exercise, which does not necessarily require the determination of a valuation rate of interest. Any other approach to the valuation of the liabilities of a financial institution requires careful justification, which may have other implications for the advice to be given by the actuary.
ABSTRACT OF A RECENT DISSERTATION
AT A SOUTH AFRICAN UNIVERSITY

The Simulation of the Dynamic Hedging of Guaranteed Equity Bonds Issued by a South African Life Office by C Schoonees for MBusSc at the University of Cape Town

This dissertation illustrates how in-house dynamic hedging of guaranteed equity bonds could be evaluated through modelling, simulation and sensitivity testing. The illustration helps to illuminate the financial benefits of dynamic hedging, and the associated risks.

The evaluation approach is decomposed into three stages: the first stage is the clear definition and specification of the dynamic hedging process and the financial markets within which it will operate. The next stage is the creation of a model of the dynamic hedge and the simulation of the financial effects under various scenarios. Finally, a subjective assessment is necessary to determine whether the potential financial benefit (as reflected in the simulated results) is sufficient to compensate for the associated risks.
ARTICLES IN OTHER JOURNALS

INVESTMENT ANALYSTS JOURNAL


This article finds that, from 1987 to 1992, growth portfolios largely outperformed value portfolios, whilst the converse (more in line with internationally observed trends) applied after 1992. These results are discussed with reference to the capital asset pricing model and the efficient markets hypothesis, and some explanation is offered.


This article finds that the interests of users of the South African bond indices would be best served by the discontinuance of the Bond Exchange-Actuaries indices and running yields, and their replacement with a new series of total return indices allowing for the reinvestment of each coupon on each constituent bond on the payment date, with an adjustment to allow for unpaid coupons on bonds ex-coupon from time to time.


This study documents capital asset pricing model (CAPM) anomalies on the Johannesburg Stock Exchange (JSE) associated with various style factors. These anomalies persist after risk-adjustment using the two-factor arbitrage pricing theory (APT) model of Van Rensburg and Slaney. In the latter case, further anomalies emerge. A parsimonious representation of style-based risk on the JSE is obtained by means of cluster analysis. The results indicate that, at least for industrial shares, the two-factor APT model needs to be augmented with measures of exposure to the sources of style-based risk identified.

JOURNAL OF SOUTHERN AFRICAN STUDIES

Special Issue on Fertility in Southern Africa, JSAS 27 (2), 2001

This issue of JSAS contains ten articles on fertility in Southern Africa. Subjects include the effects of HIV and AIDS, reproductive decision-making, living arrangements, premarital childbearing, war and gender issues.

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This paper proposes a five-stage methodology for the management of health-care risks. It focuses in particular on one stage: the ‘risk analysis’ stage. It follows a cognitive fuzzy approach to the assessment and analysis of information-technology risks. The advantage of using this approach is that the intuitive nature of human observation, and vagueness regarding the decision-making process with regard to the securing of patient information, are both taken into account.

**SOUTH AFRICAN JOURNAL OF BUSINESS MANAGEMENT**


This study finds that general practitioners’ behaviour in the prescription of homeopathic medicine differs from their behaviour in the prescription of pharmaceutical drugs. It addresses the implications for the marketing of homeopathic medicine.


The empirical study presented in this article shows that the forecasting of forward interest rates by RANNs is comparable with those of other methods (particularly a recursive method due to Buono, Gregory-Allen & Yaari) for homoschedastic noise, and more accurate for heteroschedastic noise. RAANs are generally superior when the term structure of forward rates has a complex shape.


This study examines persistence of performance in South African general-equity and fixed-income unit trusts over the period from January 1989 to December 1999. The formation and holding periods studied range from one quarter to two years. Significant persistence was found for most combinations of formation and holding periods for risk-adjusted equity unit trusts. The fixed-income unit trusts showed far less significant persistence, with loser-loser persistence predominating.


The persistence of performance of the general equity unit trusts and all unit trusts that traded in South Africa from January 1988 to December 1997 and from January 1993 to December 1997, is analysed using three models of performance measurement. It is shown that there is evidence of both short-term and long-term persistence in performance.
**SOUTH AFRICAN JOURNAL OF ECONOMICS**


This article shows that the essentials of the relationships between the South African economy and its domestic equity and housing markets can be captured in a general equilibrium model with a relatively small number of equations. It is demonstrated that the model can consistently forecast turning points in an important set of economic variables up to one year ahead.


This article tests for the presence of cost-of-carry arbitrage in the South African spot and futures markets, using end-of-day data over the period from 1996 to 1998. The authors find evidence for no more than a unique cointegrating vector between the futures price, the spot price and the cost-of-carry term, which conforms to the cost-of-carry relationship. Their findings imply that the South African futures and spot markets conform to the no-arbitrage definition of efficiency.


This article analyses the sources and destinations of intra-family transfer payments to households in KwaZulu-Natal, and explores explanatory variables for the amount of income remitted, conditional on remittances being sent.


This article finds that, while white–African gaps in employment, in occupational attainment and in earnings remain substantial, each experienced a decline during the period considered. Differences in productive characteristics account for the largest part of the differentials. It appears that one of the major reasons for labour inequality is racial differences in human capital endowments. Discrimination also accounts for a substantial proportion of the racial gaps remaining.

**SOUTH AFRICAN JOURNAL OF PHILOSOPHY**


This article distinguishes between two notions of the ‘scope’ of business ethics. In the process, some tensions within the field of business ethics are exposed. The article attempts to reconcile these tensions.
**SOUTH AFRICAN JOURNAL OF SCIENCE**


In this study of 770 women who had worked in the asbestos mines in Limpopo (formerly Northern) Province, a clinical diagnosis of pleural or parenchymal asbestosis was made in 96% of the subjects. The findings imply a serious failure of medical and compensation services lasting many decades. The authors argue that the cost of this has been borne by the community, and the profit reaped by the mining companies.

**SOUTH AFRICAN LAW JOURNAL**


Most short-term insurance policies contain time-limitation clauses that curtail the period within which legal action can be instituted after the termination of cover, even for events that occurred before termination. This article finds that such time-limitation clauses are unconstitutional and should be incapable of enforcement.

**SOUTH AFRICAN MEDICAL JOURNAL**


This article evaluates a pilot study of a non-natural mortality surveillance system (NMSS) and illustrates its utility from sample findings. Eighteen mortuaries representing about 35 000 cases a year, or 50% of all non-natural deaths, were included in the study. The article finds that the pilot study demonstrates the feasibility of the system, and identifies the need to remove organisational constraints and individual barriers if it is to be sustained and expanded beyond the pilot sites.


This study shows that newly diagnosed cases of occupational lung disease occurred in many industries and were caused by a variety of agents. The data indicate that South Africa has a widespread occupational lung-disease problem, and provide a platform for targeted prevention strategies.


This article finds that, in South Africa, as in the USA, day clinics have the potential to reduce the cost of surgical procedures.

This article evaluates the prognostic significance of the type of AIDS-defining illness (ADI) and performance status in a cohort of AIDS patients. It finds that the type of ADI is an important determinant of survival, particularly in patients with preserved CD4 counts. The stratification of patients by type of ADI and performance status may be useful in the management of patients with advanced HIV infection in resource-limited environments.


Pulmonary disorders are an important cause of disability and its effects in terms of days of work and the monetary value of claim pay-outs are increasing. Employer anti-selection, lack of objectivity in medical reports and unfavourable working conditions also contribute to disability claims. In an effort to use objective methods to quantify impairment (which is perceived as a medical concept) as distinct from disability (which results from an impairment, but is perceived as a legal concept), these guidelines provide a standardised approach to the medical aspects of disability claims.


This article compares and contrasts the prevalence of pneumoconiosis in two groups of former migrant mineworkers in southern Africa, and examines the effectiveness of the South African compensation system for occupational lung diseases. There was a high prevalence of pneumoconiosis in both study groups. Many ex-miners were eligible for compensation but had not been compensated.

**SOUTH AFRICAN STATISTICAL JOURNAL**


Four types of hazard-rate functions are considered in this article and their relative advantages are discussed. A simple example is presented.
ABSTRACTS OF MONOGRAPHS

CENTRE FOR ACTUARIAL RESEARCH, UNIVERSITY OF CAPE TOWN
http://www.commerce.uct.ac.za/care


This monograph presents a pictorial overall view of private-sector medical schemes in South Africa over the period from 1974 to 1999. The material is the result of the compilation of a database using the annual reports of the Registrar of Medical Schemes and statutory registrar’s returns.

Moodley P & McLeod H (2001). An investigation into healthcare costs in the last-year-of-life, CARE Monograph no. 2

Health costs are shown in USA studies to be highest in the last year of life. This monograph examines studies from other parts of the world to determine a methodology to apply to South African data. The methodology is applied to eight medical schemes over the period from 1997 to 2000. The data are also used to investigate the ratio of medical costs of those who died to those of survivors.

Parkin N & McLeod H (2001). Risk equalisation methodologies: an international perspective, CARE Monograph no. 3

In order to preserve social solidarity in healthcare, governments impose regulation on health funders to entrench community rating and open enrolment. Community rating and open enrolment are normally accompanied by mechanisms for risk equalisation between the funds operating in that market. This monograph provides details of a selection of the risk-equalisation methodologies in use internationally in 2001, and describes their role within the relevant health systems.

Johnson L & Dorrington RE (2001). The impact of AIDS orphanhood in South Africa: a quantitative analysis, CARE Monograph no. 4

The purpose of this monograph is to present an analysis of the impacts of the HIV/AIDS epidemic on the number of orphans in South Africa. The primary focus of the monograph is on the quantification of the orphan population, and the ASSA2000 Orphans model is presented as a tool for projecting the size and demographic profile of this population. Numbers of orphans are projected under various scenarios, and the capacity of the South African system to deal with the growth in orphan numbers is briefly assessed.

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Johnson L & Budlender D (2002). HIV risk factors: a review of the demographic, socio-economic, biomedical and behavioural determinants of HIV prevalence in South Africa, CARE Monograph no. 8

The purpose of this monograph is to identify the most significant demographic, socio-economic, biomedical and behavioural determinants of HIV risk in South Africa. It also aims to determine the relationships between these factors, and to show how these factors apply in workforce populations. It combines a literature review of studies conducted in South Africa into the effects of various factors on rates of HIV infection, and a statistical analysis of four major South African data sets.
BOOK REVIEWS


This book was published as I finished my report on retirement-fund matters for the Committee of Inquiry into a Comprehensive Social Security System for South Africa. I devoured it enthusiastically at the time, but having looked at it more critically, I can see that its appeal is largely to my academic side.

It would, however, be required reading for anyone wanting to enter the policy debates on aspects of:
- the regulation of retirement funds and their investments and funding; or
- the design of public pensions and insurance schemes.

Readers not familiar with these debates should first be aware of the apparent antipathy between different academics and international organisations. On the one side is the World Bank in Washington and many economists. The World Bank entered the debate with *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth* (OUP, 1994). It actively promoted the idea of a mandatory but privately managed, defined-contribution-funded, second pension pillar along the lines of the system in Chile. On the other hand, the International Labour Organization and the International Social Security Association in Geneva, and many social scientists and lawyers have preferred the European pay-as-you-go (PAYG) model for the second pillar. (The first pillar is of non-contributory social grants like South Africa’s social assistance; the third consists of voluntary savings arrangements.)

The principal paper in the book, entitled ‘Rethinking pension reform: ten myths about social security systems’ by Peter Orszag and Joseph Stiglitz, is structured around various ideas that they regard as largely discredited. Our existing knowledge would probably confirm that the following are myths:
- Funded retirement schemes necessarily increase national savings and economic growth.
- Rates of return are higher under individual accounts than PAYG.
- Labour market incentives are better under private defined-contribution (DC) funds.
- Defined-benefit (DB) funds necessarily provide incentives for early retirement.
- Competition ensures low administration costs under private DC funds.
- Inefficient government provides a rationale for private DC funds.
- Bailout politics are worse under public DB plans than private DC.
- Investment of public trust funds is always squandered (but see below).

I make this judgement more confidently after reading the five learned discussions of the paper that are included in *New Ideas*, and the criticisms of Nicholas Barr. He is author of a major textbook on the financing of social security, and has produced another list of
ten myths in the International Social Security Review: ‘Reforming pensions: myths, truths and policy choices’ (2002, 55.2: 3–36). They only partly overlap. The writers in New Ideas would probably agree the following were myths:

– Funding resolves adverse demographics.
– The only way to fund is through pension accumulation.
– The paying off of debt is always good policy.
– Funding reduces public pension spending
– Funding is better if real returns exceed real wage growth

The disagreements are perhaps more interesting.

Orszag and Stigler suggest that it is a myth that the investment of public trust funds in equities has no macroeconomic effects or welfare implications. They do not say that funding will resolve adverse demographics, but that it can contribute to greater output—mainly by redirecting savings into equities, and thus into productive investment. Barr chooses to ignore references to this argument, but productive investments in the new economy had by early 2002 been exposed as largely illusory.

Barr insists on the debunking of two further myths:
– Funded pensions diversify risk.
– Increased choice is welfare-improving.

For the first, he points out that private arrangements are vulnerable not only to the same political and demographic risks as PAYG schemes, but also to credit and investment-market risks not present with PAYG. He does, however, agree that a combination of private and public creates the greatest diversification. In the South African case, this could translate into the introduction of a state earnings-related pension scheme, or into retirement funds investing in government-guaranteed wage-linked bonds and the introduction of some government-backed guarantee arrangement for retirement funds.

Barr’s case against choice is that of associated costs. The seventh and eighth papers in New Ideas confirm that marketing costs particularly, are significantly higher if more choice is given.

Other papers in New Ideas cover the following:

– different approaches to benefit design in different countries, which seem to cluster geographically (of particular interest is the move to greater actuarial fairness in DB schemes with some countries—as diverse as Kyrgyzstan and Sweden—of notional-defined-contribution PAYG schemes);
– a discussion of the politics of pension reform, and how the most desirable system depends on history as much as the values of governments;
– a comparison of the regulation of retirement funds with that of banking;
– some international experience of the public management of trust funds, which shows an average loss of 1.8% a year when compared with bank deposits (the loss clearly depends on general governance standards);
– the desirability of index funds for retirement fund investments (The authors mention some of the difficulties in countries with underdeveloped capital markets. This reviewer suspects however that the greatest weakness of the World Bank paradigm is
that they do not seem to fully appreciate the overwhelming impact retirement fund moneys can have on investment markets. In many countries, the assumption by retirement funds that investment markets were efficient would be sufficient to ensure that they were not.);

- annuitisation (which is the only one with any actuarial formula and provides a useful discussion, in terms of utility theory, of why annuities appear unattractive to so many);
- the impact of stock market volatility on DC benefits (with results that will be familiar to most actuaries);
- gender dimensions in the former Soviet Union (which I am afraid I could not bring myself to read);
- questions of coverage (Although all but seven countries have some type of retirement system, only 15% of the world’s population appears to belong to a formal arrangement. Much work remains to be done.).

If I had just an hour to gain acquaintance with the debate, I would read Barr’s paper, which is less than half the length of the Orszag and Stigler chapter with its discussions. The book, although dense in places, is a veritable mine of information and will repay the effort.

Anthony Asher


The text is well written and the concepts are put across succinctly at first and nuances are introduced later. This enables the reader to get to grips with the concepts without feeling daunted. As the reader progresses through the book, concepts introduced earlier on are developed, so the book has a good flow and structure. For example, later in the book the author shows how to analyse the quality of accounting.

Each chapter is set out very logically and starts with a flow chart, an analyst’s checklist and toolkit. This enables the reader to use the book as a self-teach kit as well. Each chapter also has very useful real-life case studies and this reinforces the very practical nature of investment analysis. This is supplemented with web-site support. I haven’t looked at the web-sites but this support serves to confirm the practical nature of the book.

The book focuses primarily on equity analysis, as most analysts are involved in equity valuation. There are two very useful chapters on the analysis of risk. This is a very topical and growing part of security valuation, so its inclusion is important. The book explains in a very practical manner how business operates to create value. The author is able to cross the theoretical and academic bounds into a practical business focus.

The text succeeds in covering the subject it sets out to cover in substantial detail. Hence it is geared to the practitioner, i.e. someone who is or will be involved in security valuation, like analysts at asset management houses or brokers. Since asset management has been the largest growth industry in the world over the last decade and is expected to
continue to grow, I would expect that a fair proportion of actuaries-in-training will enter this industry. The book is highly suited to them, as none of the actuarial syllabuses cover this topic in such detail or with such a practical slant. For actuaries who have moved into management roles in their companies, the book is useful as it shows a different angle to concepts that we have covered in the actuarial literature (albeit in less detail). Much of the jargon in the industry is explained; this is a useful addition to the actuarial version of this topic. It teaches actuaries to speak and understand the language used by practitioners.

The book is probably not suited to someone wanting a first introduction to the subject and the author does expect the reader to have a basic course in finance. The drawback is that it is probably too detailed for someone wanting an overview of the subject. However, some of the initial chapters could certainly be used at university (under- and post-graduate) level.

Since the author is American, the examples are US-based and the book refers to US accounting standards. This is not a major drawback, as accounting standards are mostly international and South Africa follows the international standards. But, if it is used for South African students, it would be useful if lecturers were to highlight differences that exist in South Africa to the students. It would be useful to have the accounting profession’s input in this regard if the book is to be used at academic institutions.

CE Fivaz
Asher A (2001). The appropriate disposal of retirement fund surpluses. *SAAJ* 1, 1–33