

Policy Working Paper

**ANNUITIES MARKETS IN KENYA: PROBLEMS AND POSSIBLE SOLUTIONS**

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## **Introduction**

A longstanding puzzle is why most retirees do not purchase longevity insurance in the form of lifetime annuities. This question is rising in importance due to the rapid decline of defined benefit pensions, which traditionally provided such guaranteed lifetime income.

A significant part of the discussion in the pension industry focuses on whether retirees are adequately protected against longevity risk, because baby boomers are less likely to have the high degree of guaranteed lifetime income that was formerly provided by defined benefit pensions. A natural replacement for a defined benefit pension is a lifetime income annuity purchased from retirement savings.

Annuities are contracts which are sold to individuals by life insurance companies to provide a guaranteed income from the date of purchase (or coming into effect for deferred annuities) until death. They thus provide insurance against the non-diversifiable risk of outliving ones assets. This is minimized by “law of large numbers” given a pool of annuitants. In addition, investment risk is eliminated by traditional level annuities, and inflation risk can be removed by indexed annuities (if suitably priced indexed bonds are available). The trade-off is losses in terms of missed opportunities to invest freely. Annuities, if fairly priced, allow maximization of income over

the pensioner's lifetime compared with other ways of releasing assets, since alternatives would always require excess assets at death (Mitchell 2002). They also provide a smooth income which is consistent with what is typically assumed to be a desired pattern of consumption (Blake and Hudson 2000). They may thus be the optimal way to invest, unless there is a bequest motive.

Correspondingly, for the provider, risk in annuities is related to two main aspects, the degree to which returns from the financial instruments chosen to back the claim match the income stream precisely, and the accuracy of the mortality assumption. If either of these is inaccurate in favor of the annuitant, the company can make unexpected losses. Ultimately, such losses may threaten solvency and hence the income stream to the pensioner. Equally, if the insurance company becomes insolvent for other reasons arising from liabilities (e.g. losses on life or general contracts) or assets (e.g. credit risk on corporate bonds), the annuity payment stream may again be threatened.

The conventional form of annuity is a nominal-fixed contract which is notably predominant in Anglo Saxon countries. However, in countries where inflation indexed bonds are available such as the UK and Chile, there can be real annuities. Variants on these basic annuities are available in some markets such as survivor annuities. This type of annuity effectively covers a couple rather than a single

person, and continues to function at a lower income if one partner dies. A further hybrid is with-profits annuities, where the income stream increases with the returns on the underlying investments, and once granted this increase may (so called reversionary bonuses) not be removed. Such annuities often have a high element of discretion to the insurance company in what portion of its profits on investments it chooses to allot to policyholders. A variant on this structure with a guaranteed rate and the remainder paid as a bonus is common in Continental Europe.

Since variable annuities transfer the market risk (usually of equities) to the annuitant they lack the guarantee element on income while the insurance company still bears mortality risk. This is achieved by promising the payment of a number of shares in an underlying portfolio, with the number being recalculated annually and evolving over time according to a fixed formula. The actual money value of the pension varies according to the difference between the actual return on the assets and the assumed interest rate set out in the contract. If the rate of death of pensioners within the pool is lower than assumed, then the insurer bears the risk. Note that the name “variable annuities” is also used in the US to refer to pension-savings contracts, which merely give the option to buy a true variable annuity (an option which, as noted by Cardinale et al 2002), few consumers take).

Annuities promise the payment of a number of annuity units in the underlying portfolio, accounting for the difference between the actual rate of return on the underlying portfolio and the projected interest rate, the difference between actual mortality experience of the pool of annuitants and the expected mortality of that group; and changes in expected mortality. If so permitted, the insurance company may dangerously offer new clients more favorable mortality tables, thus cross subsidizing from existing members.

## **Annuities and pension systems**

### **How do annuities fit into pension systems?**

During retirement, guaranteed cash flows are offered by pay as you go pension schemes (out of taxation) and defined benefit funds (usually out of the fund itself), albeit subject to wide discretion in respect to inflation indexation (Valdes-Prieto 1998). Both these types of schemes typically spread the risks at the income stage among pensioners, between pensioners and those of working age, and between members of the scheme and the sponsors of the arrangement.

In defined contribution pension schemes, such risk sharing mechanisms are not automatically available. Nevertheless, if defined contribution schemes are to provide a substitute for social security and occupational defined benefit funds as typically sought in pension

reforms, they will also need to provide guaranteed cash flows in a risk-sharing context. Annuities fulfill this objective by pooling the risk longevity among all the pensioners who purchase them. As noted, annuities are the only form of financial contract that can provide the beneficiary with a guaranteed income until their death. Of course, if substantial social security and/or defined benefit funds are retained, then defined contributions could justifiably provide only lump sums.

To gain a guaranteed retirement income, each individual in a defined contribution scheme may (or must, in the case of mandatory systems) invest his or her own accumulated pension savings in the form of an annuity with an insurance company. As noted, the use of an insurance company entails certain financial risks, which justify financial regulation in the interests of retirement income security as well as for the other objectives regulation may pursue.

### **Why is financial regulation needed?**

Given that annuities offer benefits to retirees, and that insurers have various risk spreading and risk reduction methods at their disposal. Why does a free market solution not suffice to ensure security of retirement incomes? Abstracting from issues of redistribution, a case for public intervention in the operation of markets arises when there is a market failure, i.e. when a set of market prices fails to reach a

Pareto Optimal outcome. However, when competitive markets achieve efficient outcomes, there is no need for regulation. There are three key types of market failure in finance; those relating to information asymmetry, externality and monopoly. In addition, Moral hazard and adverse selection may also play a role.

As regards information asymmetry, if it is difficult and/or costly for the purchaser of a financial service to obtain sufficient information on the quality of the service in question, they may be vulnerable to exploitation. This may entail fraudulent, negligent, incompetent or unfair treatment as well as failure by the relevant institution per se. Such phenomena are of particular importance for retail users of financial services such as annuities because clients are seeking investment of a sizeable proportion of their wealth; contracts are one-off and irrevocable and involve a commitment over as much as 40 years. Innovative annuity products, while offering potentially desirable income streams, may be particularly difficult to evaluate by consumers (FSA 2002a). Equally, consumers are unlikely to find it economical to make a full assessment of the risks that life insurance companies are exposed to across their entire asset and liability portfolios, although it may later affect their ability to pay annuities. Such asymmetries are less important for wholesale users of financial markets such as life insurance companies themselves, which have better information, considerable countervailing power and carry out repeated transactions with other financial institutions. However,



partial protection against exploitation is likely to arise from desire of financial institutions such as life insurance companies offering annuities to maintain reputation, even for retail consumers.

Externalities arise when the actions of one individual in the economy has a consequence for other individuals which are not taken into account by the price mechanism. The most obvious type of potential externality in financial markets relates to the risk of contagious bank runs. This is when one bank's failure leads to a heightened risk of failure by others, whether due to direct financial linkages (e.g. interbank claims) or shifts in perceptions on the part of depositors as to the creditworthiness of certain banks in the light of failure of others. Given the matching of long run assets and liabilities, such externalities are less likely to occur to life insurance companies. On the other hand, there still exists the possibility of contagion due to common ownership of different insurance firms; contagion from a failing bank to an insurance company in a conglomerate; counterparty risk in the over-the-counter derivatives market; failure of a reinsurance company that had accepted risks from a large number of other firms; and a weakening of other insurance companies by an insurance company failure that leads to a decline in purchase of insurance products, given the key role played by new inflows and commissions in insurers' profitability.

A third form of market failure may arise when there is a degree of market power. This may be of particular relevance for life companies' vis-à-vis consumers who have saved in a personal pension and are seeking to annuities at the time of retirement. The consequence for consumers who are, or consider themselves to be locked-in, is that they may receive worse terms on an annuity that is available to the open market. Also there is a need for more general competition regulation to ensure that prices are not artificially boosted by monopoly. But as discussed in this paper, stringent prudential regulation may also be required to prevent such competition from becoming destructive (externality case) or leading to abuse of consumers (information asymmetry case).

Justifications for regulation may also include attempts to overcome problems of adverse selection - a situation which is common in insurance markets such as annuities. In the case of annuities, a pricing policy induces a low average quality of sellers in the market, while asymmetric information prevents the buyer from distinguishing quality. The annuity provider is there exposed to the risk of longevity caused by those policyholders who know that they have a higher probability of living a longer time than the population average. When adverse selection is sufficiently severe, the market may cease to exist. For example, making annuities compulsory should reduce adverse selection in that market. Moral hazard considerations may be present, in those individuals who are not

forced to provide retirement income via annuities purchase and could deliberately become destitute and thus become a burden to the state.

Some would argue that annuities should be regulated independently of these standard justifications, notably as a component of the overall pension system. For instance, ensuring that tax benefits are not misused, and that the goals of equity, adequacy and security of retirement income are achieved, thereby correcting the market failures in annuities markets that necessitate pension funds and social security.

One may distinguish a number of aspects of annuities regulation that are covered below. One is the prudential regulation of insurance companies – ensuring insurers have the financial resources to pay all claims as they fall due. The second is the conduct of business regulation – ensuring they treat consumers in an equitable manner. Third is the overall regulation of annuities in the context of the pension system, with the aim that a secure retirement income will be available. It will be seen there are overlaps, notably owing to prudential and pension regulations affecting annuity product design. In Sections 4-6, we discuss these aspects in turn. However, we first consider whether market discipline could obviate the need for regulation, or whether incentives generated by market processes rather underpin the case for regulation.

## **Market discipline and incentives to risk taking**

It was pointed out above that individual consumers are unlikely to have sufficient information to discipline insurance companies by avoiding their products – though insurance companies will still be concerned to maintain their reputation. This puts an onus on monitoring by wholesale financial markets to ensure market discipline.

Disclosure of current balance sheets and profit and loss accounts, as well as other material facts affecting life companies are essential if market discipline is to be effective. It hence places a premium on sound accounting and the independence of the actuary, as well as on rating agencies. As noted in Financial Times (2002a), there is a wide diversity in insurance accounting standards internationally, which weaken market discipline by making it difficult to compare performance of companies across countries. Often insurers use book value accounting, there is a problem of “opacity of often subjective actuarial assumptions” and off balance sheet exposures which are rarely reported in accounts (IMF 2002c). The IASB is planning to work to a standard, but only by end-2003. Further work will seek to introduce fair value accounting for insurers to value all assets and liabilities at current market value. This would imply for example, financial guarantees and onerous options on life policies such as

annuity rate guarantees would be valued consistently with traded options in the market.

Credit rating agencies play an important role in informing policyholders and investors about financial risks. Standard and Poor's assess risk-based capital for insurers based on their own capital adequacy model. Indeed rating agencies are widely seen as private market supervisors (European Commission 2002). Insurance companies may also monitor one another in a free market if they fear loss of reputation for the industry arising from company failure or if there is mutual insurance.

One may also consider the differing influence of market discipline depending on outstanding instruments. Market discipline will clearly have an independent effect on insurance companies that have debt outstanding, as risky behaviour will lead to a higher cost of debt via loss of credit rating.

In practice insurers are typically not heavily levered, but this is a consideration for counterparties in derivatives transactions such as credit derivatives becoming increasingly important. Outside equity means that equity holders may exert corporate governance over managers, either directly or via takeovers (Davis 2002d). However, the market discipline exerted via equity is ambiguous, since equity holders lose from bankruptcy, but may gain from a high but volatile rate of profits. There may be a particular danger of risky behaviour

where equity values are low. Here it is useful to recall the contribution of (Keeley 1990) to banking theory, which we suggest is also applicable to insurance. He showed that deregulation may directly lead to incentives for risk-taking by financial institutions, even abstracting from the safety net. In a structurally regulated market, e.g. with controls on new entry, where institutions have a degree of market power, the charter is a capital asset. Then banks/insurance companies have incentives not to risk failure by reducing capital or increasing asset risk. Deregulation that facilitates new entry or that liberalizes pricing or mortality assumptions reduces the value of the charter. Risk-taking becomes more attractive, as the potential loss from bankruptcy is lower, and hence a higher mean and variance of profits may be sought. Such incentives will of course be increased by mis-priced safety net protection, as for US Savings and Loans institutions (Davis 2001a).

Mutual insurance companies, which typically have neither debt nor equity outstanding, have made some of the worst errors in risk control. This points to the importance of management and its own incentives. If they seek to increase market share regardless of the rate of return, there may be a particular risk of insolvency. In this context, we shall see in sections below how regulation seeks to enforce prudence, as well as deal with failures of risk control in the case of the mutual insurer Equitable Life and the Japanese life company sector.

## **Prudential regulations**

Prudential regulation of insurance companies affecting annuities is directed in particular at regulation of solvency and asset regulation, as well as compensation schemes. We note that entry regulation is also usually a feature – which in Europe entails acceptance of entry by firms from other EU countries on the basis of home country recognition. This of course entails a need for confidence in foreign countries' regulatory standards, which is underpinned by the harmonised solvency and asset standards set out in the relevant Directives.

## **The problem facing annuitants and annuity providers**

The main problems facing annuity providers relate to adverse selection and mortality risk, risk associated with mortality improvements, and to interest rates, reinvestment and inflation risk.

### **Adverse selection and morality risk**

This is the risk that only individuals who believe that they are likely to live longer than the average for the population of the same age group will voluntarily purchase an annuity. Individuals have a good idea, on the basis of their medical histories and their family histories, whether they are likely to experience low or high mortality. Insurance companies do not have access to this information with same degree of reliability. There is therefore an information asymmetry between the insurance company offering annuity and the

prospective annuity purchaser. The insurance company is not able to differentiate between prospective purchasers who will experience high mortality and those who will experience low mortality; however, it realizes that those most likely to purchase annuities will come from the latter group rather than the former. To hedge this risk the insurance company will base its annuity rates on the “*select group*” that is most likely to purchase annuities. Annuities will therefore be poor value for money for members who are subject to a higher mortality rate.

### **Underestimating mortality improvements**

Mortality tends to improve over time and there can be severe financial consequences if insurance companies underestimate mortality improvements. Mortality forecasts contain errors of up to 20 per cent even in developed economies like the U.K. Insurance companies add substantial cost loading to cover these risks, something of the order of 12 per cent according to some U.S. studies.

### **Inflation risk**

This is the risk faced by those purchasing level annuities, that unanticipated high inflation rapidly reduces the real value of the pension.



### **Interest rate risk**

Annuity rates vary substantially over the interest rate cycle. They are related to the yields on government bonds of the same expected term; and since these yields vary greatly over the cycle, annuity rates will vary by the same magnitude.

### **Reinvestment risk**

In some financial markets, especially those in developing countries like Kenya, long-duration assets are not traded. As a result an insurance company may not be able to buy assets with sufficiently long maturities to meet the full extent of their annuity payments. As assets mature, the proceeds have to be reinvested, possibly on unfavorable terms.

### **How do insurance companies currently deal with these problems?**

#### **Reserving and solvency regulation**

The key protection for insurance companies against insolvency, and hence protection for annuity holders, is reserving and capital adequacy. The need for such solvency regulation for insurance companies in general is underlined by the argument of (Finsinger and Pauly 1984). It argues that given the technical properties of claims that insurers usually face, there are often two possible equilibria, in one of which the insurer will not put up any capital but rely on premium income and investment returns to meet claims. Then the risk of insolvency is very high; the insurer merely declares

bankruptcy if claims exceed premium income and asset returns, having invested funds equivalent to capital separately in the securities markets. Following the argument above, this case may be particularly likely if the penalty from losing reputation or license is low, i.e. the franchise value of insurance is small due to intense competition and deregulation. Moreover, as noted in Rees et al (1999), if there are restrictions on portfolio composition, making it costly to hold capital in an insurance company as opposed to investing in the open market, the risk that insurers put up no capital in the absence of regulation increases. An argument against this is that consumers would rapidly lose any illusion that insolvency is ruled out in an insurance market where zero capital was feasible.

As an introduction to solvency regulation, one may distinguish several parts of an insurance company's asset portfolio (Dickinson 1998a). First, there are assets that are held to cover obligations to policyholders, including annuities, called reserves or assets held against guaranteed liabilities (technical provisions). These are generally purchased with inflows of premium income and are expected to be repaid in the future. Second, there are assets that correspond to the capital funds of the company, in other words the surplus over policyholder liabilities. There are also fixed assets and current assets (forms of trade credit or other receivables). The main focus of solvency regulation is on reserves and investments held against the capital base. Assets held as reserves are or should be constrained by the risk characteristics of the liabilities, derived in

turn from the guarantees inherent in the contracts that have been sold. Reserves are also the part of the portfolio which is most commonly subject to investment regulation, discussed in the following section.

(Daykin 2002) outlines the main issues in reserving for annuities, using as background the UK regulatory regime – itself conditioned by EU Directives. He points out that there are multiple reasons for reserving, first ensuring sound and prudent management of the insurer (i.e. internal risk management); second, ensuring accounts give a true and fair view of the insurance company; third, providing information to the tax authorities on which profits tax may be based, and, fourth, for prudential supervisory purposes. There are potential conflicts between these different reasons. While the supervisors would like very conservative approaches to ensure the firm can meet future liabilities, tax authorities would prefer a low level of reserves, so as to maximize the tax “take” on profits. The accounting and internal risk management approaches are intermediate, although generally firms prefer lower reserves than the supervisors, in the interest of profitability. The chosen level of reserves should feed directly to the price of policies, given a desired return on capital.

In theory, life business may offer a hedge against mortality vis-à-vis annuities, since life business becomes more profitable when life expectancy increases. It may be added that the larger the annuities

business is relative to the total, the less such hedging is feasible, and the more the insurance companies represent a concentration of risk. Furthermore, any with-profits policies on an insurer's books, where the terminal bonus is provided with discretion, provide an additional buffer. This is, however subject to the right of policyholders to challenge for their "reasonable expectations" to be upheld in court, as witness the Equitable Life case discussed below. Particularly given these caveats, from a prudential point of view, Daykin suggests that the annuities business should be stand-alone and not dependent on other business of the firm. Although hidden reserves or excess profitability in other parts of the business may cover losses on annuities temporarily, they should not be relied upon.

Prudential supervision of reserves requires a focus on prospective liabilities based on existing contracts. The main issues, as for the companies themselves as outlined in Section 2, are the mortality assumptions, the discount rate (based on the investments backing the contract) and future expenses. Mortality is not readily judged by the current mortality of the entire population. Allowance needs to be made for the likely self-selection of annuitants (especially if annuitisation is voluntary, see below), for the likely future improvement in mortality and the fact that those with larger annuities tend to have a higher life expectancy. Using UK data, Daykin (ibid) notes that the current trend is for life expectancy to rise one year every 4-5. This would justifiably raise the value of an

annuity at age 60 – and hence appropriate reserves - by 10% above that based on current mortality experience, while the annuity-size adjustment may imply a 5% rise in the value. Since annuitisation in the UK is compulsory, the annuitant population is actually close to that of the population as a whole – this is not the case in countries such as the US where annuitisation is voluntary. Further increases in reserves would be justified to allow for prudence.

The rate of interest should be related to the returns on assets to back the annuity, and precisely so if there is matching or immunization. Reserves can then be calculated on the basis of market value and the interest rate on the annuity taken from their redemption yield. However, the issue is more complex in the case of private bonds, when allowance has to be made for default risk and possible call provisions, and for the case of asset and liability mismatching, due for example to lack of long term government bonds. In the latter case allowance has to be made for reinvestment risk in terms of larger reserves. This may be done by dynamic cash flow modeling, reducing the interest rate on the liabilities or, when equities are used, by stochastic asset and liability modeling. Mismatching and consequent exposure to default and reinvestment risk is very common in order to cover costs lends considerable weight to this issue. Meanwhile, even if long-term government bonds exist, UK experience in the 1990s has shown the bond market can be

significantly distorted by the demands of insurance companies and pension funds, leading to low annuity rates.

An additional policy implication of this point is that if governments wish to reduce the cost of annuities, they may be able to help by issuing long-term bonds allowing insurers to match or immunize – contrary to the current situation. A more radical suggestion (Blake et al 2001) is for governments to issue survivor bonds, which would be indexed to the mortality of a cohort, and would thus help insurers to hedge demographic risks.

Expenses need to be allowed for also in reserves, to cover the full expected cost of administering the payments on the annuity. The firm itself would naturally do this on a going-concern basis, whereby new business helps finance overheads, but supervisors typically insist on a closed-fund basis. This assumes no more business is written and that the firm makes a transition from a going concern to a firm that is running off all its accrued liabilities, thus requiring extra margins for reserving, given the lack of inflows from new business.

Besides reserves per se, the firm must also hold capital and surplus assets in sufficient quantities to cover unexpected shocks and thus minimize solvency risk. The process of assessment must be made frequently (dynamic financial analysis) to assess how the firm's position is evolving. Stress testing may be combined with regulation,

as well as being an internal risk management tool, to assess how the firm would cope with adverse scenarios affecting the above factors (mortality, interest rates and expenses). For example in the UK, reserves must be sufficient to cover a change in interest rates of 3 percentage points or a 25% fall in equity prices. Immunization or matching would mean that such tests have no implication, but they will highlight the dangers of a mismatched position. More recently, risk based supervision in the UK has been extended to formally cover a range of risks to insurance companies, namely financial risks (capital adequacy and valuation of assets and liabilities), external environment risks (economic developments) and control risks (how firms organize and manage risks) (FSA 2001). Further progress is mooted in FSA (2002b). In practice there has been some easing of solvency tests (making some allowance for recent price falls) given the context of the severe decline in share prices (Davis 2003).

### **Recommendation**

The Retirement Benefits Authority should hold a tripartite consultation (Authority, Association of Retirement Benefits Schemes, and annuity providers) to work out ways of amending the old annuity tables used in Kenya to take care of inflation. The annuity buyers are having a low deal for value of their money currently.

Information on annuities should be made readily available by the commissioner of insurance for the annuity buyers to make informed decision on where to buy the annuities.

Some incentives for annuity providers should be introduced to attract more players in the provision of annuities to create some competition in the annuity market.

### **Conclusion**

The government and the insurance industry should work out modalities to improve the market for annuities which at the moment are the weak tail in the DC pension provision in developing countries, Kenya included. One key contribution of the government would be to supply long – term instruments such as indexed bonds that would enable the annuity providers to hedge against the available risks. A second key contribution of the government would be to establish an institutional framework for the pension annuity business that offers the appropriate incentives for annuity providers to compete effectively and economically. One aspect of this would be to make pension mandatory, since this would help to reduce the cost associated with both adverse selection and the marketing of voluntary arrangements.

The provision of annuities is therefore a shared responsibility between the public and the private sectors. But the relative importance of the public sector in a given country will depend on



such factors as reliability of mortality data and the inventiveness of the financial system in the country.

Regulators should seek to develop “macroprudential indicators” for insurance along the lines of those developed for banking (IMF 2002b). Changes in market structure could be used as signals for possible increases in competition. Lack of government bonds of matching maturity – or very low yields on them - may be another danger signal, since they prompt mismatching and taking on of credit risk. Recent results suggesting that equity prices give useful warning signals of failure of banks via the “distance to default” derived from the Black Scholes option pricing formula may also be valid for insurance companies (Gropp, Vesala and Vulpes 2002)

Regulation of annuities is vital in pension reforms. Given the substantial risks highlighted arising from inadequate pricing, regulation, “disaster myopia”, ageing and heightened competition, more research is needed in these areas.

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