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By C.D. O'Brien, G.A. Gallagher, R.J. Green, D.W. Hughes, F. Liang, S.A. Robinson, P. Simmons and A.J.W.H. Tay

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Corresponding author: Christopher O'Brien,
christopher.obrien@nottingham.ac.uk

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Abstract

We examine the roles of actuaries in UK life offices, along with trends, challenges to and opportunities for actuaries. We carry out an analysis of senior roles in life offices; a questionnaire survey; and interviews with relevant senior personnel. We find that actuaries occupy many important roles in life offices and are regarded as having good industry knowledge and technical skills, especially in financial modelling. There are fewer executive directors and more non-executive directors of life offices who are actuaries compared with the position in 1990. A higher proportion of reserved roles is outsourced to consultants than was the case in 1990. Only a small number of actuarial function holders are directors.

Actuaries are more siloed than was the case in the past, although actuaries are well represented in the finance and risk functions of many offices.

While actuarial work in connection with the preparation for Solvency II will decline, there will be important ongoing requirements for actuaries following Solvency II implementation. We also see opportunities for actuaries in four areas: in risk management; in financial analysis and management based on Solvency II and IFRS; in connection with 'big data'; and in product development and the customer proposition. There are implications for the examination syllabus, continuing professional development and research.

Keywords:

Actuarial profession; Actuarial function holder; Appointed actuary; Life insurance; With-profits actuary

1. Introduction

The late twentieth century and the twenty-first century have seen significant changes in actuaries' roles in UK life offices, reflecting changes in the regulations that reserve specific positions for actuaries in life offices; in the technical methods used to carry out actuarial work; and in the life insurance market. The major regulatory change, instituted by the Financial Services Authority ('FSA') at the end of 2004, was the introduction of two new positions - actuarial function holder ('AFH') and with-profits actuary ('WPA'), and the abolition of the appointed actuary ('AA') role. Developments in technical methods have seen the use of modelling become increasingly extensive and sophisticated, and focussed on risk, aided by ever-more powerful technology. Last, the life insurance market has changed, with more consolidation and increased focus on shareholder value, while there has been a decline in with-profits business and in mutuals, where actuaries have been particularly prominent.

Further to these changes, there are expected to be challenges in the future, many of which relate to Solvency II, due to be implemented in 2016. The Solvency II Directive has specific provisions about an actuarial function, required in all insurers (the relevant text of the Directive is in Appendix A), although the Directive itself does not prescribe roles for actuaries; whether there will be reserved roles for actuaries is an issue on which the Institute and Faculty of Actuaries (IFoA) has consulted (IFoA, 2014c). However, the life market itself will continue to change, for example as a result of the new rules for annuities and retirement provision announced in the 2014 Budget (Chancellor of the Exchequer, 2014), and this will bring challenges for actuaries as there are changes in the roles to be undertaken and as other professionals compete for those roles.

The Life Practice Board of the IFoA felt that it would be useful to investigate and record how the role of actuaries has been and is changing and this led to the establishment of a working party, the members of which are the authors of this paper. More specifically, we set out to identify what roles actuaries have in life offices, along with trends, challenges to and opportunities for actuaries. Section 2 of the paper reviews the relevant literature and helps identify the issues to be addressed.

To carry out the research we used three approaches: an analysis of senior roles in life offices; a questionnaire survey; and interviews with senior personnel. These are described, and the results reported, in sections 3, 4 and 5 respectively.

Section 6 contains our conclusions and some suggestions. We accept that there are a number of challenges ahead. We put forward four areas where we see increased opportunities for actuaries: in risk management (where actuaries can further develop their contribution as risk functions required by Solvency II emerge); in financial analysis and management arising from Solvency II and IFRS; in connection with 'big data'; and in product development and the customer proposition. We suggest that the actuarial profession can support its members in meeting the challenges, with implications for education and research. Naturally, what actuaries achieve will also depend on their own interests and motivations.

2. Literature review

2.1 Regulatory requirements – the appointed actuary regime 1973-2004

While actuaries have traditionally played an important part in life offices, a significant step was the creation of a reserved role for actuaries, namely the requirement for a life insurer to have an appointed actuary: this was implemented in the Insurance Companies Amendment Act 1973, and incorporated in the Insurance Companies Act 1974. This legislation required the AA to carry out a valuation of the long-term liabilities and report on the financial condition of the fund, providing a certificate in the annual statutory returns. The Department of Trade and Industry ('DTI') commented that, "The Appointed Actuary system is an essential part of Insurance Companies Supervision in the UK" (DTI, 1990, para. 1).

In 1975, the Institute of Actuaries issued a guidance note, subsequently named GN1: it went beyond regulatory requirements by requiring the AA to take all reasonable steps to ensure that he was satisfied that if he were to carry out an actuarial valuation at any time, the position would be satisfactory. It went on to state that a prime responsibility of the AA was the appropriateness of the

premium rates for new business, taking into account surplus assets; and that it was incumbent on all AAs to ensure, so far as was within their authority, that long-term business was operated on sound financial lines.

GN1 was expanded over the years. In particular, from 1992, AAs were required to advise offices of their interpretation of policyholders' reasonable expectations ('PRE'), which impacted on the determination of bonus rates and the operation of unit pricing, both areas where the AA had responsibilities. The DTI (1990) also introduced a requirement that the AA certify, in the statutory returns, that he had complied with professional guidance, or indicate any exceptions. At the same time was introduced the need for the AA to have a practising certificate issued by the profession.

The AA's regulatory role was extended from time to time, for example in 1996 when the AA became responsible for additional forms in the statutory returns; and for expense calculations in accordance with the rules of Lautro and other self-regulating organisations (Daykin, 1999). After the FSA became the industry regulator in 2001, it made new rules, including requiring the AA to identify and monitor the risks run by the office to the extent that they may materially impact on the firm's ability to meet liabilities to policyholders. In friendly societies, the term 'appropriate actuary' was used to denote the role similar to the AA in life companies.

Other guidance was issued by the actuarial profession, with GN8 (first issued in 1983) amplifying the meaning of the valuation regulations and GN2 (first issued in 1996) recommending that the AA prepares reports to the board on the possible future financial condition of the insurer. This meant that, in practice, the AA was expected to act as a front line controller of prudential financial management (Daykin, 1999).

A formal role for actuaries in insurance company accounts arose when the EU Insurance Accounts Directive took effect in 1994. The 'long-term business provision' had to be computed by an actuary, referred to as the 'Reporting Actuary' in GN7, often but not necessarily the AA. This calculation of liabilities (which could differ from that in the statutory returns) was part of the accounts, which were subject to board approval. As the International Accounting Standards Board later worked on new standards for insurance contracts, both actuaries and accountants had to better understand each other's professional perspectives.

2.2 Corporate positioning of the appointed actuary

The AA's position in the life office changed noticeably over the years. Thornton (1979) commented that, in a well-run life office, the AA would normally be the chief executive and will have served for many years in less senior positions: "This is the ideal" (p. 28). He added that some smaller offices had part-time consultants, with friendly societies and industrial life offices being in a different situation. By 1991, however, the Government Actuary's view was that it was not generally thought desirable for the same person to be chief executive and AA (this view became apparent from the investigation into Equitable Life by the Parliamentary and Health Service Ombudsman, 2008). Penrose (2004) was also to conclude that the appointed actuary should not be the chief executive.

Johnston (1989) stated that, for an insurer that is not part of a group and has no insurance subsidiaries, it was common for the AA to be in the second tier of management, reporting directly to the Chief Executive. He commented that the AA needs to be at the table when important plans are

formed and decisions made, although there were rare, but not completely unknown cases where the AA was at a lower level, in which case it was questionable whether the AA had the authority to discharge his professional responsibilities.

Concern that the AA was not as senior a position in life offices as it used to be was a theme over the years, the DTI (1990) recognising that the role of the AA may not be well understood in some new organisations. A survey by Shelley (1992) showed that, out of 186 offices where the AA was an employee, the AA was chief executive in 8; in 132 he reported to the chief executive, in 46 being neither. Dixon's (1992) comment on the survey was that it "reiterated some of the worries of Government Actuary's Department that the AA, in some cases, was not exercising sufficient influence over important issues of life office management" (p 367). Daykin (1999), the then Government Actuary, stated that the AA role had slipped in terms of seniority and prestige in a number of major life offices, perhaps following the creation in some firms of the role of Chief Actuary, who was not the AA. Needleman et al (2002) found that "the perception is also that the influence of Appointed Actuaries has been gradually reduced over the last few years with the role narrowing towards an increasingly detailed set of formal requirements" (p. 1).

2.3 Regulation post-2004

The Financial Services Authority ('FSA') made several changes in life insurance regulation, some of which had an important impact on actuaries when introduced in 2004 increasing the technical demands on life offices' activities. Insurers had to prepare Individual Capital Assessments ('ICAs'), often using stochastic modelling to ascertain the capital that was needed. Medium-sized and large with-profits offices had to undertake 'realistic valuations', including market-consistent valuation of option and guarantees, with new risk-related minimum capital requirements. In addition, with-profits offices had to issue Principles and Practices of Financial Management ('PPFM') documents.

At the same time, the FSA implemented significant changes in governance, with the AA role being discontinued: this was intended to enable boards and senior management to demonstrably take overall responsibility for actuarial aspects of the business (FSA, 2003a). Two new roles were created: the Actuarial Function Holder ('AFH') and, in with-profits offices, the With-Profits Actuary ('WPA'). The AFH has, in particular, to monitor the risks and financial position of the office, and carry out the valuation of liabilities using methods and assumptions determined by the office's board, on which subject the AFH provides advice (previously, the AA valued the liabilities in a personal capacity with professional responsibility). The WPA advises the board on the exercise of discretion in with-profits business, his or her advice being focussed on the fair treatment of policyholders (FSA, 2003b). Kaye (2008) suggested that the WPA role was being undertaken by a more junior actuary reporting to the AFH who is on the board. The Institute and Faculty of Actuaries ('IFoA', 2014a) issued a practice standard' (APS L1) to clarify the responsibilities of actuaries in the new roles.

The rules of the FSA and its successor bodies, the Prudential Regulation Authority ('PRA') and Financial Conduct Authority, require that neither the AFH nor WPA could be chairman or chief executive nor can hold other posts that could give rise to significant conflicts of interest while, in addition, the WPA cannot be a member of the firm's governing body. Each of the AFH and WPA has to be a qualified actuary holding a practising certificate; Morris (2005), in his review, concluded that actuarial work on valuing long-term liabilities was "a core skill in which actuaries currently have a

unique advantage", meaning that allowing this to be done by non-actuaries would not serve users' interests (p. 5).

Solvency II will bring further changes, with life (and general) insurers being required to have an actuarial function, with responsibilities set out in Appendix A. A function can be thought of as a capacity of an insurer to carry out tasks, and an insurer does not have to establish particular separate departments. For example, it could have an actuarial function with additional tasks or it could combine the actuarial function with the risk management function, for which the Directive also sets responsibilities. The Directive does not require that the actuarial function be headed by or include professionally qualified actuaries. The PRA (2013) has asked insurers to note the activities the actuarial function will have to undertake under Solvency II and to prepare accordingly. It has subsequently consulted on rules applicable to 'Senior Insurance Management Functions', which will include the Chief Actuary (responsible for the actuarial function) and, where applicable, the WPA (PRA, 2014). The PRA added, "The actuarial function plays a unique and critical role in ensuring the safety and soundness of an insurer, given its responsibility for determining insurance liabilities and advising on capital needs" (para 2.9). Solvency II may be considered as a structural change with implications for actuarial resources, and the same may also apply to the expected new international financial reporting standard (IFRS) for insurance, still being developed (International Accounting Standards Board, 2013).

Another change is that the Financial Reporting Council ('FRC') became responsible for oversight of the actuarial profession in 2006, and the Board for Actuarial Standards ('BAS') was established to issue Technical Actuarial Standards ('TASs'), which took the place of the profession's guidance notes that were technical in nature. In 2012 the FRC took direct responsibility for what had been BAS's remit.

It is worth adding that the need for an actuarial function is recognised in the principles for insurance regulation set by the International Association of Insurance Supervisors (2013). Among those principles is that supervisors should require that insurers have an effective actuarial function capable of evaluating and providing advice to the insurer regarding, at a minimum, technical provisions, premium and pricing activities, and compliance with related statutory and regulatory requirements.

2.4 Consultants in reserved roles

The AA role did not need to be taken by an employee of the life office and could be a consultant, with Johnston (1989) indicating that this was so for about 20% of companies, it being common for a new or small office to use a consultant as AA. Shelley's (1992) survey confirmed the proportion of consultants at 20%.

The AA was in a different position from an auditor, as he could have a financial interest in the company he worked for (Barrow, 1973), and it was recognised that the employed AA could have financial incentives creating a conflict of interest, such as shares, share options, profit-related pay and a with-profits policy (Johnston, 1989). Mutuals may have been able to manage the incentive problems more easily than proprietary offices (Needleman et al, 2002).

An external appointment may, however, have a lesser understanding of the business (FSA, 2003a), which led Morris (2005) to conclude that, in relation to the new AFH and WPA roles, it would be

inappropriate to require an external appointment. On the other hand, one perspective on the WPA role, reported by Dewing & Russell (2010), was that if it was to protect policyholder interests, it should be an independent appointment. While the issue of understanding the business could be addressed by the actuary becoming sufficiently involved, this may dilute the advantage gained from independence (Needleman et al, 2002).

There is some evidence of increasing use of consultants. In mutual with-profits offices, the proportion of AAs who were consultants increased from 49% in 1995 to 72% in 2003 (Diacon et al, 2004). A trend to outsource WPAs was noted by Kaye (2008), who found 42% being in consulting firms. She suggested reasons for this may be: the responsibilities of a WPA are increasingly complex and burdensome: "the view is increasingly that corporate regulatory actuarial compliance has become too complex to be dealt with in-house" (p. 41); the governing body takes comfort from the regulatory support and internal peer reviewing that come with the consultancy contract; and many with-profits funds are closed to new business, with management of with-profits business not seen as a core function. Further, in-house actuaries may be reluctant to become a WPA as they are not allowed to be a director. Dewing & Russell (2010) also found evidence of insurers using more external advice from both consulting actuaries and others (accountants and lawyers): there was "the desire to obtain increased comfort by additional checks and reviews" (p. 1962).

2.5 Actuaries as directors of life offices

Shelley's (1992) survey found that, of 237 life offices, 111 (47%) had the AA as a director; in 30 others the AA attended board meetings. GN1 had, from 1975-2001, a section on the actuary as director and was positive about actuaries (not only the AA) as directors, stating: "It is clearly in the public interest that actuaries should be available to act as directors of insurance companies, particularly those transacting long-term insurance, where by their professional training they are especially fitted to make a useful contribution".

Where the AA was a director of a life office, this gave the potential for him to have greater influence, although the obligation to advise the board on the interpretation of PRE heightened the potential conflict of interest, especially in a proprietary office (Needleman et al, 2002). There is evidence of AAs being less likely to be directors as time went on as reported by Daykin (1999); and a survey by Diakon et al (2004) of mutual with-profits offices found that, over 1995-2003, the proportion of AAs who were directors fell from 44% to 9%, this being linked to an increasing use of consultants.

Of course, the board could include not only the AA or AFH but one or more other actuaries, with different responsibilities, such as strategy or marketing. This was also possibly becoming less common: one actuary in Collins et al's (2009) survey noted that, instead of running insurance companies, "actuaries have been relegated from the boardroom to the backroom" (p. 261). However, with boards of life offices taking responsibilities for matters where they previously relied on the AA, an increased demand for non-executive actuaries on boards was foreseen by Taylor (2002). Frost (2002) highlighted to actuaries that being a board member requires careful preparation, and recommended publications from the Institute of Directors as excellent reading for those about to take on a board role.

2.6 The actuary as policyholders' champion

A number of actuarial papers have focussed on the policyholder perspective, including the interpretation of PRE (e.g. Brindley et al, 1990). According to Taylor (2002), the profession used to consider that the AA was the policyholders' champion, a view also expressed by Dewing & Russell (2006). Similarly, Akhurst (1992) described the AA as a "...a kind of policeman in behalf of policyholders" (p. 24). These views may have been revised following the personal pension mis-selling scandal of 1988-94 (Taylor, 2002), and Foote & Wilson (1996) issued a challenge: "Were we as actuaries too far removed in our ivory towers, playing with our computers as Rome burned?" (para. 2.10); and "If we are to move into management roles in the future, should we be fine tuning our commercialism and communication skills? When we stand up to be counted can we put our views across more effectively?" (para. 9.5).

The AA was not seen as 'policyholders' champion' by the interviewees in Needleman et al's (2002) survey: the general view was the AA should take a balanced view. Indeed it would be difficult for the AA to be a director or to advise the directors on fairness if the role were to be one as negotiator on behalf of policyholders. Post-2004 the WPA role was established but with specific responsibilities in the FSA (and, later, FCA) rules rather than as a policyholder's champion as such.

2.7 Compliance role

Regulatory requirements have become more detailed, and ensuring compliance has taken on a higher profile, such as the WPA's annual report referring to the PPFM. It was suggested that if the AA became over-weighted towards a government certification role as perceived by fellow managers, this could lead to reduced actuarial management influence in the running of the office (Akhurst, 1992). This concern was shared by Daykin (1999), who saw "... a danger that the AA is regarded as having principally a compliance orientation rather than making an indispensable contribution to the commercial and prudential management of the business" (p. 544). Actuaries also said that their freedom for action was reduced when PPFMs documented the procedures for operating with-profits funds (Dewing & Russell, 2010).

2.8 Actuaries' management roles in life offices

The AA was expected to have managerial duties in addition to his statutory AA responsibilities as these, even as filled out by GN1, did not form a full-time job in themselves (Johnston, 1989). Several AAs were also in charge of non-actuarial functions: the survey by Shelley (1992) established that 76 AAs were responsible for accounts, 28 for administration, 21 for investment, 18 for systems and 8 for marketing/sales. While, in many cases, the AA had a veto over non-statutory responsibilities or had never been over-ruled, there were also many instances where the AA had been over-ruled. For example, 83 AAs said this was the case in relation to investment strategy, 57 on financial strategy and 49 on product development.

Senior managerial roles in life offices have, in the past, often been occupied by actuaries, whether or not AAs; Barrow (1976) referred to "the high proportion of senior members of the Institute who have been principal officers of life assurance companies..." (p. 137). However, there was a growing number of unit-linked offices, which "had multi-disciplinary executive teams thus knocking actuaries

off their traditional perch. No longer did you need to be an FIA or FFA to run a life office" (Taylor, 2002, p. 3).

There is, of course, a range of actuarial work in life offices; examples listed by Needleman et al (2002), included solvency and capital management; profit reporting and shareholder issues; investment policy and asset-liability management; bonus policy for with-profits business; and unit pricing. One-off transactions would also give rise to actuarial involvement. Morris (2004) reported that, in addition to the AA role, life offices employed actuaries supporting AAs in reserving and valuation functions, and working in areas such as pricing and product development, marketing, research, risk management and regulation. Hence, there were still opportunities for actuaries outside traditional actuarial areas.

Goford et al (2001) suggested a number of roles that actuaries were likely to take up, some not confined to areas of traditional actuarial strengths, including development of IT systems, management of financial services companies, and also the role of Chief Risk Officer ('CRO'), responsible for the assessment, valuation and management of all risks to which an enterprise is exposed.

Risk management in life offices has become more prominent and more formal, a result of a number of factors, including volatility in financial conditions and the growth in use of derivatives (Hitchcox et al, 2011), while regulatory pressure has also been important (FSA, 2006). Stochastic modelling and stress tests have been developed as important risk management tools. Deighton et al (2008) saw the CRO's skills as a solid knowledge of the business and its risks; communication; and having an independent view. Dumbreck (2007) explained that actuarial profession was devoting much effort to positioning actuaries as the natural choice for senior risk management roles in the financial services industry; actuaries have tools for quantitative risk management but it was recognised that those intending to specialise in enterprise risk management ('ERM') would need to understand strategic and operational risk and how to implement ERM processes in a firm. Hitchcox et al (2011) felt there were opportunities for actuaries in insurers' ERM, especially as regards strategic issues. Deighton et al (2009) thought that actuaries could contribute much to the risk agenda, especially playing a key role in performing the detailed calculations underlying the numerical aspects of certain risks, but they did not have an automatic claim on the CRO role. Indeed, a number of professions, not only actuaries, could stake a claim for being responsible for risk management in insurers: Dowd & Blake (2006, p.221) remarked that "the stage was set for a classic turf war".

2.9 Actuaries' skills

In considering the skills required by actuaries, the IFoA (2014d) state, "...what really sets actuaries apart is their natural mathematical, economic and statistical awareness, and their ability to apply this to real business issues".

However, it would be wrong to assume that actuaries' technical skills have always been a strength. Morris's (2004) review found that the profession had, in the past, failed to keep up-to-date with developments in financial economics and financial markets; indeed, back in 1992 there was comment that actuaries were late in their interest in modern investment theory (Akhurst, 1992).

Penrose (2004) noted that stochastic modelling techniques were available in the 1990s but, in the case of Equitable Life, were not used, and he had concerns that actuarial work may be produced without adequate controls and effective scrutiny. Collins et al's (2009) interviews with actuaries and others found a number of comments that actuaries had not kept up-to-date with developments in financial economics and their core competence as technical experts was being lost.

The technical demands on life actuaries increased with the new FSA rules on ICAs and 'realistic reporting'. Dumbreck (2007) commented, "I believe that actuaries responded extremely well to the challenge and that the whole experience has been hugely beneficial for the profession" (p. 5). He argued that actuaries had improved their understanding of financial economics and adapted and used concepts developed outside the actuarial profession; and also referred to the increased specialisation in roles: for example there was a new position of mortality actuary in some offices. However, while technical skills had advanced, it may be useful to recall the FSA's (2009) comment at the time of the global financial crisis about the role of "over-reliance on sophisticated maths". While this view was not focussed on actuaries, it is relevant to their work, and; actuaries have had to recognise issues in using models, for example as in Frankland et al. (2009).

Some positive news on actuaries' competencies can be found in the report of the Professional Oversight Board (2012), which noted that the profession had significantly updated its promotion of the technical skills of actuaries during 2011/12. Its survey established that the proportion of (life and general) insurance directors' having confidence in the competence of the actuarial profession was 95% in 2012 (it averaged 89% over 2007-12).

2.10 Opportunities and challenges for life actuaries

The demand for life actuaries will reflect the size and structure of the life insurance market. Morris (2004) saw that industry consolidation could lead to a reduction. However, also relevant is the extent to which there are functions to be carried on in life offices which suit the traditional skills that actuaries have, or where actuaries have expanded their skills in order to take on new roles. Dumbreck (2007) indicated that the regulatory and accounting developments, of increasing technical complexity, have contributed to an increased demand for actuaries in life insurance. He added that a negative factor was the reducing importance of with-profits business, where traditional actuarial skills were at the forefront.

One of the challenges to the future role of actuaries is how well they compete with other professions. The threat to actuaries from specialists such as corporate financiers, risk managers, statisticians, financial economists and accountants was noted by Akhurst (1992). However, while life offices are less secure as employers of actuaries than they were (Bellis, 2000), it is open to actuaries to expand and apply their competencies to a wider range of roles than those they traditionally occupied (Goford et al, 2001).

The literature review has identified a number of questions that our research has considered:

- What are the current skills of actuaries, and are technical skills a strength?
- To what extent are actuaries in senior roles, in particular as directors of life offices?

- For actuaries in reserved roles (AFH and WPA), are they directors, are they internal appointments and how experienced are they?
- What is the nature and range of actuaries' roles in life offices?
- To what extent are actuaries seen as the policyholders' champion?
- What are the challenges and opportunities for actuaries?

We use the analysis of data on senior roles in life offices, the questionnaire survey and interviews to address these questions.

3. Analysis of data on senior roles in life offices

3.1 Introduction

This section seeks to establish the extent to which actuaries are directors of life offices; whether those in reserved roles are directors, and are they internal appointments; and, by ascertaining the year of qualification, we can also gain some insights on the level of experience of actuaries in senior positions.

We used data from the annual reports of life offices relating to a balance sheet date in 2012 (usually 31 December). We documented who were the directors at the time the accounts were signed (typically spring or summer 2013) and established whether each was an executive or non-executive and whether or not an actuary (defined as a Fellow of a professional actuarial body). Some directors sat on more than one board, sometimes executive on one board, non-executive on another (hence the total of executives and non-executives can exceed the total of directors). We also ascertained who was the AFH and, where applicable, the WPA. In some cases an office had two AFHs or WPAs. We also documented whether the AFH or WPA was an internal appointment (as distinct from a consultant) and his or her year of qualification. To supplement information from offices' accounts, we also used the Financial Services Register and the Actuarial Directory.

The life offices we considered were all those writing long-term insurance business at end-2012, comprising friendly societies which were subject to EU Insurance Directives or were incorporated ('friendly societies'); and others (which we refer to as 'life companies'). Multiple life offices in a group were each included separately. We did not include pure reinsurers or overseas companies operating through a branch in the UK. The offices were identified using the SynThesys Life database from Standard & Poor's.

We also analysed the information on directors of the UK-listed firms writing long-term insurance. In addition, we sought to identify the Chief Risk Officer ('CRO') to determine whether this role was held by an actuary. The sample size is relatively small and the outcome potentially quite variable. With this in mind, we collected two years' data, using the 2012 and 2013 accounts, thereby providing data for 2013 and 2014.

We made some comparisons with the role of actuaries at an earlier time by analysing life companies using the 1989 accounts, reporting typically at spring or summer 1990 (it was not practicable to collect data for intervening years). To simplify the work, we chose a sample of 20% of life companies

then writing business; to ensure that the sample was representative of firms of different size we took the 3rd, 8th, 13th etc according to size of company measured by assets in the long-term business fund. We relied largely on Manning (1990) for information, supplemented by lists of members of the Faculty of Actuaries and Institute of Actuaries, directories published by the Post Magazine and internet searches; and again using SynThesys Life. Information concerning friendly societies was not available. We also examined the directors of the two listed firms in 2014 which were listed in 1990.

3.2 Data

Table 1 contains the basic data on actuaries and their post-qualification experience, which we use in the subsequent sections.

Table 1. Number of actuaries and years' post-qualification experience (PQE)

	Number	Mean PQE	Minimum PQE
2014			
Listed firms (11)			
Executive directors	5	25	15
Non-executive directors	12	34	26
All directors	17	32	15
2013			
Listed firms (9)			
Executive directors	1	33	33
Non-executive directors	9	32	24
All directors	10	32	24
Life companies (93)			
Executive directors	48	24	11
Non-executive directors	55	35	14
All directors	101	30	11
Life offices (110)			
<i>Directors</i>			
Executive directors	51	24	11
Non-executive directors	64	34	14
All directors	113	30	11
<i>Actuarial function heads</i>			
Internal	48	19	6
External	24	24	14
All	72	21	6
<i>With-profits actuaries</i>			
Internal	22	22	12
External	16	27	14
All	38	24	12
1990 (sample) (41)			
Life companies			
<i>Directors</i>			
Executive directors	45	22	5
Non-executive directors	13	32	21
All directors	56	24	5

Notes: The number of listed firms, life companies and life offices is shown in brackets
PQE is calculated as 2014, 2013 or 1990 minus year of qualification

3.3 Listed life insurers

We examine the data on the 11 listed firms in 2014 (see Appendix B; these are holding companies rather than life offices). The number of actuaries on the boards totalled 17 (Table 1), comprising 5 executive and 12 non-executives; the average board included 1.6 actuaries out of a total of 11.4 directors (Table 2). In 2013, when there were 9 listed firms, there was only 1 executive actuary on the boards, with 3 of the 4 new executives in 2014 being from newly listed firms. Two of the firms can be compared with their board in 1990. Those two had no actuaries among their 27 directors in 2014; in 1990 one firm had one actuary (executive) among their 16 directors; the other had 4 actuaries (one executive, three former executives) among the 21 members. This suggests that the actuarial contribution to boards is lower than it has been. We also identified a Chief Risk Officer in 9 of the 11 firms in 2014: in 4 cases the position was held by an actuary.

Table 2. Mean composition of boards 1990 and 2013/14

	EXDA	EXDN	NEDA	NEDN	CORP	Total
2014						
Listed firms	0.5	2.5	1.1	7.3	0.0	11.4
2013						
Listed firms	0.1	3.3	1.0	8.2	0.0	12.7
Life offices						
Life companies	0.8	2.8	0.9	1.8	0.1	6.5
Friendly societies	0.1	1.8	0.5	6.6	0.0	9.1
All life offices	0.7	2.6	0.8	2.9	0.0	7.1
1990 (sample)						
Life companies	1.2	1.9	0.3	3.0	0.0	6.4

EXDA = executive director, actuary; EXDN = executive director, non-actuary

NEDA = non-executive director, actuary; NEDN = non-executive director, non-actuary

CORP = corporate director

3.4 Life offices

We now examine the life companies and friendly societies, together referred to as life offices.

We first compare the 93 life companies in 2013 with the sample from 1990, where there were 203 life companies, 41 being included in the sample examined. The average board size in 1990 (6.4) was about the same as in 2013 (6.5): see Table 2. The average number of actuaries on a board increased slightly from 1.5 to 1.7. However, this hides an important change. Executive actuaries on the board reduced from 1.2 to 0.8. Actuaries as non-executives increased from 0.3 to 0.9, which is consistent with Taylor's (2002) forecast that this category would increase. The 2013 data also cover 27 friendly societies, which had larger boards, with a greater proportion of non-executives and fewer actuaries compared with life companies. On average, a friendly society board had 9.1 members, including just 0.6 actuaries. The 'All life offices' average has 0.7 executive and 0.8 non-executive actuaries on the board, making 1.5 in total.

The chief executive officer ('CEO') was identified for 79 of the 93 life companies in 2013. There were 65 distinct CEOs, of which 15 (23%) were actuaries, and the median size (measured by assets) of the life companies headed by actuaries was £7.8bn compared with the overall median of £5.7bn. There were 2 actuaries among the 27 friendly society CEOs (7%). Overall, the mean post-qualification experience of the 17 CEO actuaries was 28 years, the least being 14 years.

There were all-actuary boards at 3 (associated) life companies in 2013, there being 5 directors in each case. There were no actuaries on the boards of 20 life companies and 13 friendly societies: among these were two life companies in the ten with the largest with-profits liabilities. In 1990, the sample of 41 life companies included 12 without actuaries on the board, proportionately greater than in 2013.

3.5 Actuaries and non-actuaries on boards

The decline in actuarial representation as executives on boards, but increased non-executive presence, is also apparent if we examine the individuals who acted as director on one or more boards: see Table 3. In 2013 there were 101 actuaries on the boards of life companies, representing 22.1% of directors, around the same as in 1990: 22.0%. However, the proportion of executive directors who were actuaries more than halved from 38.1% to 18.4%. For non-executives, the actuarial proportion increased from 9.4% to 27.9%. The 'All life offices' figures, which include friendly societies, show lower actuarial proportions than for life companies.

Table 3. Actuaries as a proportion of directors 1990 and 2013/14

	Executive			Non-executive			All individuals		
	Total	A	A%	Total	A	A%	Total	A	A%
2014									
Listed firms	33	5	15.2%	89	12	13.5%	122	17	13.9%
2013									
Listed firms	31	1	3.2%	82	9	11.0%	113	10	8.8%
Life companies	261	48	18.4%	197	55	27.9%	456	101	22.1%
All life offices	312	51	16.3%	379	64	16.9%	689	113	16.4%
1990 (sample)									
Life companies	118	45	38.1%	138	13	9.4%	254	56	22.0%

Total = no. of directors, A = actuaries among directors, A% = actuaries as % of directors

Notes: (1) some directors were executive for one board, non-executive for another

(2) life companies also had 5 corporate directors in 2013

3.6 Senior actuarial roles; and internal or other appointments

With-profits actuaries are not allowed to be a director of the office, but AFHs are. In practice, though, very few AFHs are directors: in only 8% of life offices (see Table 4). Excluding AFHs who are external appointments, the proportion of internal AFHs who are directors (9/68, i.e. 13%) is much lower than the proportion of appointed actuaries who were directors in the past, calculated as 47% in Shelley's (1992) survey. Around 30% (combined) of AFH and WPA appointments in life companies were external, with higher proportions applying in friendly societies. The consultancy proportion is therefore rather higher than the 20% found by Johnston (1989) and Shelley (1992).

Table 4. Senior actuarial roles in firms

	Firms	Actuaries	Internal	Internal %	Directors	Directors %
2013						
<i>Actuarial function holders</i>						
Life companies	91	93	61	66%	9	10%
Friendly societies	27	27	7	26%	0	0%
All life offices	118	120	68	57%	9	8%
<i>With-profits actuaries</i>						
Life companies	34	36	26	72%	0	
Friendly societies	25	25	3	12%	0	
All life offices	59	61	29	48%	0	

The proportion of internal appointments is higher in larger life companies and, for AFHs, that proportion is higher where the firm writes with-profits business, as shown in Table 5.

Table 5. Proportion of life companies with internal appointments

	AFH: with-profits firms	AFH: other firms	AFH: all firms	WPA
Firm size				
Small	89% (n=9)	47% (n=36)	56% (n=45)	64% (n=11)
Large	100% (n=23)	55% (n=22)	78% (n=45)	83% (n=23)
All	97% (n=32)	50% (n=58)	67% (n=90)	76% (n=34)

Notes: excludes one life company which has two AFHs, of which one is internal.

'Large' means having more assets than the median life company.

n is the number of firms in the category.

3.7 Post-qualification experience

We can also use the data in Table 1 to consider the post-qualification experience of actuaries. Executive directors of life companies in 1990 had around 22 years' experience post-qualification; by 2013 this figure was 24 years, which also applied to life offices overall. The average for AFHs was 21 years; for WPAs, 24 years. Internal AFHs and WPAs had less time since qualification compared with externals. Of the directors, the minimum post-qualification experience was 11 years. For AFHs, the minimum was 6 years, for WPAs 12 years.

3.8 Summary

We summarise the main conclusions of this section as follows:

- The proportion of executive directors of life companies who are actuaries is (in 2013) 18%, this having reduced from about 38% in 1990;
- The proportion of non-executive directors of life companies who are actuaries is 28%, being markedly higher than about 9% in 1990;
- Around 30% of AFHs and WPAs are external appointments, compared with 20% in 1990 or thereabouts;
- In only 10% of cases is the AFH a life company director; and

- AFHs had, on average, less post-qualification experience than WPAs.

4. Questionnaire results

We designed a questionnaire to establish information about the role of actuaries in life offices and views on skills and role content. We sent the questionnaire to a senior actuary in each life office that employs at least one actuary. Using the Financial Services Register and the Actuarial Directory we identified the offices concerned and contacted the AFH in each office where that person was an internal appointment. In other cases we contacted the WPA, if applicable and an internal appointment or, otherwise, the longest-qualified actuary. A draft was sent to two AFHs for comment; we made some changes to the questionnaire as a result. The questionnaire was then distributed by the IFoA staff and was completed anonymously. A copy of the questionnaire used is obtainable from the corresponding author.

The questionnaires were completed in March and April 2014. We had what we regard a satisfactory response rate: out of a possible 57, there were 27 respondents (including 6 who worked for a friendly society). 19 of the questionnaires were from AFHs, 9 of whom reported to the CEO, 6 to the Chief Financial Officer (CFO); two also had non-actuarial responsibilities.

The mean number in the executive management team was 7.0, of whom 1.8 were actuaries (by which is meant, in this paper, fellows). In 4 cases, which included 2 friendly societies, there was no actuary in the executive management team. There was considerable variation in the size of the actuarial function, some having over 100 staff: using medians, the typical number of fellows was 4, also 4 associates or trainees, and 8 non-actuarial staff.

In 4 firms the AFH was also the CRO. In 11 the CRO was another actuary; in 8 he or she was not an actuary. In 4 firms there was no CRO.

Table 6 provides information on reporting relationships. In most cases the CRO and AFH reported through separate reporting lines, although there were 4 instances of the AFH reporting to the CRO, but none of the reverse, although 4 AFHs were also the CRO. Similarly, the majority position was for the Actuarial and Finance functions to report through separate lines, although it was not uncommon for the AFH to report to the CFO. Information is available for 13 firms where there is a WPA who is a member of staff. In one case the WPA was the AFH; otherwise, the usual position (9 cases) was for the WPA not to report to the AFH; and in 8 cases did not report to a director. This perhaps suggests a relatively low position in the hierarchy, considering that the WPA is, in part, a replacement for the AA role.

Table 6. Reporting relationships

Risk function	
AFH is the CRO	4
AFH reports to CRO	4
Functions report separately	17
Finance function	
AFH is the CFO	2
AFH reports to CFO	8

Functions report separately	17
WPA	
WPA is the AFH	1
Reports to AFH (who is a director)	0
Reports to AFH (who is not a director)	3
Is not AFH and reports to a director	4
Is not AFH and does not report to a director	5

Notes: There were two non-respondents regarding the Risk function.

The question regarding the WPA applied where the firm had a WPA who is an employee.

To what extent do actuaries have a presence in functions was the subject of Table 7. In some firms there was a major role for actuaries in the Finance or Risk functions. The majority of Marketing functions had no actuary, which is noteworthy as marketing is often referred to as involving complex products requiring actuarial input on, inter alia, pricing. It was also noted that most firms had no actuary in Internal Audit. The 6 firms where no actuary was in the Risk function included 3 friendly societies.

Table 7. Actuaries' presence in functions

Function	Major	Significant	Minor	None	Total
Finance	5	9	5	8	27
Risk	4	12	4	6	26
Internal Audit	0	1	7	19	27
Marketing	1	2	9	15	27
Strategy	3	5	3	13	24
Customer Services	0	0	8	18	26

Notes: the table indicates the frequency of responses,

e.g. actuaries had a major presence in the Finance function in 5 cases.

Respondents were left to interpret 'Major' etc as appropriate for their circumstances.

Respondents were asked what were the three most important skills required, from a list we provided, firstly for their role and, secondly, for the team of actuaries and other actuarial staff reporting to them (Table 8). For the respondents' own role, those skills scoring most highly were analytical, critical and strategic thinking; communication; leadership and decision-making. There was little difference between AFHs and others responding. Analytical skills were clearly required for actuarial teams, for whom teamwork was also noticeable as an important requirement. Leadership, strategic thinking and decision-making were the skills that were noticeably more important for AFHs (and other respondents) compared with their teams.

Table 8. Most important skills required for roles

	(1) AFHs only	(2) All respondents	(3) Teams of all respondents
Analytical	1.05	0.96	2.19
Written communication	0.95	0.89	0.62
Critical thinking	0.95	0.67	0.85
Leadership	0.79	0.96	0.12

Verbal communication	0.58	0.67	0.35
Strategic thinking	0.58	0.56	0.04
Decision-making	0.53	0.67	0.12
People motivation	0.32	0.37	0.23
Willingness to take on responsibility	0.11	0.07	0.31
Negotiation	0.05	0.07	0.00
Learning	0.05	0.04	0.12
Presentation	0.05	0.04	0.00
Innovation	0.00	0.04	0.08
Teamwork	0.00	0.00	0.65
Self-motivation	0.00	0.00	0.12

Note: (1) refers to the skills indicated by the AFHs for their role

(2) refers to the skills indicated by all respondents for their role

(3) refers to the skills indicated by all respondents for the team of actuarial staff reporting to them.

The figure shown is the average score for each skill, where the scores are 3 for the 1st ranked, 2 for the 2nd ranked and 1 for the 3rd ranked skill.

Table 9 indicates the areas that occupied most time of the respondents, where regulatory reporting and financial management were at the top. However, the need for more generalist skills is apparent from other areas scoring highly, notably communication/management with senior stakeholders, risk management and business strategy. This is consistent with Table 10 showing clearly that the group with whom the respondents spent most time was the senior management team in the firm. It also indicates the importance of interactions with accountants and investment specialists. One observation we make is that Table 9 shows product management as an area occupying significant time, yet Table 10 shows that sales teams rank relatively low among groups with whom respondents spent time, while marketing specialists did not rank much higher.

Table 9. Areas of most effort

	AFHs	All respondents
Regulatory financial reporting	4.3	4.0
Financial management	4.2	4.1
Senior stakeholder communication/management	3.8	3.9
Risk management	3.6	3.6
Business strategy	3.6	3.6
Dealing with regulators	3.4	3.5
Investment strategy	3.4	3.4
Product management	2.6	2.8
Operations strategy	1.7	1.8
Customer support	1.6	1.8

Note: respondents were asked to indicate the importance of the areas, according to the time spent on them, from a list provided. The figure shown is the average score where the score is 5 for very significant, 1 = little effort, etc.

If AFHs who are CROs are excluded, the score for risk management is 3.3 for AFHs, 3.4 for all respondents.

Table 10. Groups the respondents spent most time with

	AFHs	All respondents
Senior management team	2.68	2.78
Accountants	1.42	1.41
Investment specialists	0.95	0.81
Regulators	0.32	0.37
Marketing specialists	0.26	0.19
Lawyers	0.11	0.19
Tax specialists	0.11	0.07
Sales teams	0.11	0.11
Underwriters	0.00	0.04

Note: respondents were asked to indicate the three groups with whom they spent most time, from a list provided.

The figure shown is the average for each group, where the scores are 3 for the 1st ranked, 2 for the 2nd ranked and 1 for the 3rd ranked group.

5. Interviews

5.1 Introduction

The working party carried out eleven interviews, with individuals selected to cover a range of senior roles in life offices, in order to investigate the research questions further. Three interviews were with AFHs; one with a CEO who is an actuary; two with CROs, one an actuary, the other not; three with CFOs, of whom one is an actuary; a consulting actuary who had previously worked for a life office; and a retired actuary who had been a director of a life office. Nine of the interviews were carried out face to face, two by telephone. The interviews were semi-structured, and the content was adapted to meet the circumstances of interviewees' roles. The interviews took place from October 2013 to April 2014. Below, we summarise comments made by the interviewees, grouped according to the subject matter covered.

5.2 Technical strengths

It was noticeable that the non-actuaries interviewed commended the technical skills of actuaries; for example, one commented that the actuarial discipline often provides assurance and credibility to many actuarial deliverables. One CFO non-actuary perceived actuaries as having strong technical skills; another, asked if actuaries provided support in making financial sense of the future, said, "Absolutely yes, vital within life offices". Another said that the actuarial profession is small and has strong quality control; "We should keep the bar high and stay respected".

The AFHs highlighted the advances in actuarial methods that have taken place, with stochastic modelling and financial economic modelling driving changes in the skill sets needed by actuaries. One AFH commented that the actuarial profession has responded well to the demands of regulators for new modelling methods, including making those into repeatable processes, and communicating and interacting with senior management. Solvency II has clearly led to increased technical demands

and it was felt that there will be an increased emphasis on capital management and risk; the actuarial function will contribute strongly to the internal model and advise the risk function.

Modelling did have potential problems, however. A CRO non-actuary saw actuaries as having good modelling skills, although there is a risk that there could be fundamental flaws in these models. A CRO actuary said that too many actuaries are focusing on using and building models and assume that is reality. While it was recognised that technical actuarial work was complex, a CRO actuary said that the thinking and analysing required by actuaries causes delay in a world that is moving 10 times faster than it used to.

The retired director commented that there is likely to be a problem for the profession as work related to Solvency II technical requirements starts to wane; a CRO actuary foresaw actuaries taking pay cuts and looking for a career change. However, a non-actuary saw the Solvency II regime and low interest rate environment leading to business challenges where the quantitative skills and knowledge would be important and could be positive for actuaries.

5.3 Communication skills

Several interviewees highlighted the requirement for actuaries to have good skills in communication, especially to non-actuaries: a CFO non-actuary commented that an actuary wishing to progress has to be able to explain complicated concepts in simple language. One AFH highlighted the way in which actuaries working in the second or third lines of defence had to be good communicators, challenging output from line one rather than thinking along similar lines. One perspective, from a non-actuary, was that there wasn't as much diversity among actuaries compared with other professionals such as accountants: perhaps this can be an issue.

However, we did not find evidence that communication skills were a weakness of actuaries. Some non-actuaries interviewed commented positively on actuarial explanations and communications, which could provide technical support for business concerns. This was notwithstanding a comment of the CEO that the kind of people attracted to the profession are generally relatively thoughtful and not natural communicators.

5.4 Specialisation

A number of interviewees, both actuaries and others, commented that regulatory and related changes had led to more specialised and technical roles for some actuaries. An example was an 'ERM actuary'. A CRO actuary noted that, in the past, actuaries' modelling capabilities were limited and actuaries had to engage with the wider business, which encouraged a better appreciation of the business, whereas today actuaries are much more siloed. He went on, "The face-to-face meetings with the sales guy are now replaced with spending hours facing the computer and writing e-mails and memos; the biggest enemies to the actuarial profession are probably Excel and e-mail".

Some non-actuaries also commented that actuaries were often siloed. One indicated that they were much less comfortable "off their home turf" as they had limited exposure to other skill sets.

5.5 Controls

A number of interviewees referred to the greater needs for controls on life office actuarial work than was previously the case, and there was an associated need for transparency. There was less reverence for professionals in the insurance industry: one actuary said, "The good old days when the actuary said, 'Trust me, I'm an actuary' are gone". A CFO non-actuary said that documenting methodology and expert judgment, and adopting more of an audit mind-set were becoming more important and would be even more so under Solvency II.

5.6 Regulation: FRC and TASs

Although one AFH said there has probably been little impact from the FRC, another referred to Technical Actuarial Standards (TASs) having helped ensure discipline in producing reports. The CRO non-actuary added that TAS requirements, combined with IFoA training, especially in report writing, have worked well.

5.7 Consumers' champion

While the actuarial profession had, in the past, been heavily involved in assessing what PRE was, it is now the regulator, not actuaries who, according to the retired director, determines what is best for consumers. However, rules still need to be interpreted and applied: a non-actuary applauded actuaries' role in ensuring consumers are protected. Treating customers fairly (TCF) is now central to actuarial work in life offices and is an extension of PRE, in the view of an AFH.

One non-actuary said that some actuaries often saw themselves as the customers' champion but some were overly focussed on rules (as in the PPFM) rather than the consumer as such; while another felt actuaries may use TCF as a tool to hide behind in commercial decision-making. Indeed, the retired director commented that it does not work if an actuary acts as consumer advocate and is disconnected to the firm – which needs to show a return on capital.

It was still felt that actuaries had to understand customers' needs and how product designs would affect sales behaviour. The CEO said it has been common for actuaries to work in the marketing function, understanding customer needs and translating this into products and combining this with technical and operational perspectives; however, it is "now a struggle" to find actuaries able to do so. The retired director commented that actuaries have tremendous skills that can be applied to designing, developing, pricing and monitoring products and ensuring their suitability to customer needs: the skills "can add a huge amount of value to consumers and the industry." An AFH said that actuaries should be well positioned to understand the nature of the risks involved in products and the propensity for consumers to lapse or buy other products.

5.8 The WPA role

The CEO commented that a good actuary may regard the WPA role as limiting his or her career as it could lead to a collision course with the management team. However, the role should not be seen as a "kiss of death" according to the consultant: if a WPA embarks on a constructive search for ways of meeting all needs this may involve less conflict than initially taking a dogmatic position.

Outsourcing the WPA role is now found in not only small but also some medium-sized and large offices. Interviewees thought that this was to help ensure independence. One commented that, increasingly, insurance executives have a short career span, being incentivised on shorter time

metrics, which is not conducive to long-term management of with-profits funds; outsourcing the WPA role helps avoid the conflicts of interest that can arise in an in-house appointment.

5.9 Actuaries in a range of roles

A number of interviewees indicated that there was a wide range of roles for actuaries. A non-actuary said that intellect and knowledge of the life industry were strengths of actuaries. This could lead to several new opportunities; mention was made of operational risk, model validation and compliance; one interviewee saw the investment area as a "huge opportunity"; while two interviewees mentioned 'big data', perhaps applied to dynamic pricing. Hence while some are moving more towards a compliance role, actuaries can be at the heart of most business areas in a life office, using their technical skills in a commercial role.

5.10 Actuaries in senior 'non-actuarial' roles

Actuaries are now less often found in senior non-actuarial roles such as Customer Services and IT. One interviewee suggested that there is a natural tendency for recruits to the profession to be mathematicians, economists and engineers, being quantitative and introverted types who do not have the attributes to be, say, a successful marketing manager. Another said that actuaries are trained for doing technical tasks but they do not have the time to learn about the practical side of the business and take the jump into management; indeed, a move into other roles could mean a pay cut.

The retired director explained that the business model has changed in life insurance, with greater emphasis on return on capital, and fewer mutuals, so there will be specialists running other functions such as Customer Services. An actuary in such a role would have to demonstrate the skills to be successful. Other areas have become more complex and/or acquired their own professional disciplines, so that actuaries do not have the skill sets required.

The CEO commented that the emphasis in examinations has been towards a mathematical and statistical based skills set, less business-based: that has an effect on the mind-set of actuaries who qualify. It was thought that actuaries emerging during the last 5-10 years were better equipped to do the technical jobs but less well equipped to do the general management jobs.

5.11 Actuaries as CFOs

A number of interviewees commented on there being few actuaries as CFOs of life offices. One CFO non-actuary found this surprising. Another said that pure technical ability is not sufficient for this role: leadership and commercial skills were important together with being pragmatic. Accountants' knowledge covers accounting standards (in detail), and taxation, while they also have some legal training. The consultant saw CFOs as entrepreneurial, and majoring on strategic issues and delivery of the results: they typically have focus, certainty and confidence. The retired director regarded the CFO as a broad leadership role needing a range of strategic and leadership skills, and he or she may well have had the commercial experience of running businesses. Good communication skills were also a prerequisite. It was pointed out by an AFH that CFOs have, in recent years, been much involved in cutting costs – perhaps an area to which accountants are more suited.

A CFO actuary saw the CFO role as looking at the business top-down from the shareholder's perspective and focussed on classical concepts such as margins, profitability, quality of earnings and tax: all these were within the grasp of an actuary but coming from a different standpoint. He went on to say that an actuarial training equips an insurance CFO with a great understanding of the business and an approach to problem-solving that an accountant would not have. Indeed, a CFO non-actuary said that accountants don't usually understand the drivers of life insurance business.

One suggestion was that an actuary seeking such a role may need to choose to do so at a relatively early stage and seek out finance and commercial roles, exploring other qualifications such as an MBA and developing the softer skills and broader business awareness required. Another interviewee felt that there had been a prejudice against actuaries in such a role but that may have passed.

5.12 Actuaries in risk management

The Solvency II Directive has a requirement for both an actuarial and a risk function: one AFH said he saw this creating new opportunities for actuaries to play a wider role and take a broader view of the business. A CFO actuary said that CRO roles have opened up "another branch on the career tree", with the ability to contribute at senior levels; an AFH highlighted the Own Risk and Solvency Assessment (ORSA) report as an area where actuaries can contribute strongly. Interviewees pointed to the quantification of risk as a large part of risk management, which sits well with the actuarial skill set, although the CEO saw a danger that actuaries could end up as calculators for the risk function. The non-actuary CRO did, however, suggest that actuaries could develop their contribution into operational risk.

5.13 Actuaries as CROs

The CRO role is not narrowly actuarial. Interviewees suggested that the skills needed include good commercial experience and a good understanding of the business model; a strong appreciation of the governance and process aspects of the business; creativity and lateral thinking to think the perhaps hitherto unthinkable. The consulting actuary indicated that the CRO does not have the same regulatory authority as the WPA or AFH and so is likely to rely more on persuasive skills to influence the business appropriately. The 'C' in CRO leads to a need to manage and lead people. The CRO should be a good communicator, especially when dealing with boards and regulators.

Hence it was thought that the CRO role should be an opportunity for rather than a threat to actuaries, although a CRO actuary suggested that whether the CRO position was best filled by an actuary depended on the make-up of the executive team and how actuarial skills were represented there.

5.14 Actuaries in Internal Audit

Internal Audit was not seen as a typical long-term assignment for an actuary, unless that person understands the discipline as a result of being involved early on; it was thought that such a 'third line of defence' position has a different mind-set from traditional actuarial work. However, it was acknowledged that this type of work could suit some actuaries, while experience of working in this area could be useful in gaining broader perspectives. Indeed, whereas the typical internal auditor tests the operation of controls, the actuaries' contribution can be to assess whether the controls are the right ones.

5.15 Actuaries in senior roles

The actuaries interviewed recognised that more than technical skills are required for senior roles. Personality is important, as are communication, leadership and networking skills, while also highlighted was the requirement for commercial judgement. One actuary commented that it is the additional skills and experiences gained that enable an actuary to rise to the top, another that the key is getting things done and quickly.

The CEO commented that as actuaries were having to focus on increasingly complex calculations, this weakened their ability to be commercial and restricted their ability to get to top-level roles in life offices. Although there had been an increase in non-executive actuaries, some interviewees felt this was not a permanent change, instead regarding this as reflecting the previous generation of senior actuaries having commonly been directors.

A CFO non-actuary said that the importance given to senior 'policing' roles (AFH, WPA) has not helped increase the presence of actuaries on boards. However, a CFO actuary said that the AFH role remains influential and will require a broader contribution than "just being the referee" and applying the rules: there is an opportunity to make a broader contribution to the business as a senior player.

One actuary said that actuaries can aspire to the top jobs but the skills obtained from the profession are really a starting point; what is important is the skills and experiences developed and how the actuary moves on to other roles.

5.16 Actuaries' contributions to life offices

One actuary emphasised that while the statutory and senior roles are important to the prestige of the profession, these should be seen in the context of the wider profession; "it is important to celebrate the success of a middle management actuary who spent their career in an internal audit function if that role fulfilled their personal ambition and served their company and consumers". A CFO non-actuary said some actuaries will be happy to have a specialised technical role, such as valuation actuary, and that is fine.

A non-actuary commented that a strength of actuaries is that they understand the business well; and they have the potential for very effective stakeholder management. The CEO suggested that perhaps the profession could pitch that actuaries are people with the analytical skills to make things better.

It is recognised that influencing and communication skills are important in enabling actuaries to contribute effectively. One actuary said that actuaries' success as individuals and as a collective profession will require actuaries to be better at getting messages across: "We may like to make jokes about looking at each other's shoes but the very fact that many of us enjoy this is a potential problem".

5.17 Examination content

One actuary said that the exams should include subjects of wider management expertise, such as marketing, with both written and verbal communication involved; consumer behavioural science was also absent from the examinations: "it does not hurt actuarial students to study the wider non-

actuarial subjects". Another commented that if there was little in the exams and CPD beyond core actuarial areas, this could be seen as encouraging many actuaries to remain in the actuarial silo.

However, another view was that the syllabus should not be expanded to cover other areas such as marketing. Once they have core actuarial skills, actuaries need to develop softer skills and they should be encouraged to gain experience in their wider world and through CPD. Actuaries are responsible themselves for developing the skills in whatever area motivates them: it should not be forced on them through CPD. Some interviewees spoke positively about the MBA qualification, which was one possibility.

5.18 Advice to students and actuaries

There was a variety of advice to actuaries and actuarial students. A non-actuary suggested taking different opportunities, not always upwards, with a focus on personal development and leadership skills; students could be more demanding on getting experience during training. One actuary advised engaging more with the profession, while another indicated that actuaries could look outside actuarial training to get the skills they need. This may require the actuary to be proactive, for example to get good commercial training, while rotational moves into internal audit or management accounting could be beneficial. It was also recognised that the industry was changing and actuaries have to be adaptable to change. Another piece of advice was to do what you think is interesting and have a passion about it.

However, the progress that an actuary would make in a life office depended on his or her personal skills and motivation. The CEO said actuaries who want to progress have to get out of their comfort zone: "there is a whole wide world out there". Another actuary said that the successful actuary would want to extend beyond the actuarial skill set; get out more and "have more fire in the belly".

6. Conclusions and discussion

We now use the research findings to conclude on the questions raised at the end of section 2.

6.1 Skills

The evidence from the questionnaire survey is that analytical, critical and strategic thinking skills were regarded as highly important for actuaries, and there was much agreement, among interviewees, that actuaries have developed new technical skills in, for example, financial economics, stochastic modelling and financial projections, thereby advancing the financial management of life offices. Written and verbal communication were also rated in the questionnaire survey as important skills; and interviewees made positive comments on actuarial communications, which could provide technical support for business concerns. Leadership skills are naturally a requirement for senior roles, though the difference between management and leadership skills needs to be clearly understood. One concern expressed by both actuary and non-actuary interviewees was that the increasing technical demands on actuaries are leading to actuaries being siloed as pure quantitative analysts, and this may hinder development of life insurance business and management skills at a senior level. However, we identified from the analysis of senior roles that

23% of life company CEOs are actuaries, which implies that some actuaries have been quite capable of acquiring both technical and general management skills.

6.2 Seniority of actuaries

The importance of the actuarial role in the management of life offices is clear. This is evidenced by many actuaries being directors and by the regulators specifying roles that are reserved for actuaries. The group with whom our questionnaire respondents spend most of their time is the office's senior management group, again indicating the importance of actuaries' contribution. And non-actuary interviewees were complimentary: for example, asked if actuaries provided support in making financial sense of the future, one said, "Absolutely yes, vital within life offices".

As noted from the analysis of senior roles, actuaries are less commonly found as executive directors than was the case. To some extent, this may reflect the way in which, in the past, actuaries (and, sometimes, appointed actuaries) were, according to interviewees, more often found in positions such as head of Marketing, IT or Customer Services (also supported by Shelley, 1992, see section 2.8 above). Interviewees suggested that such functions were now headed by their own specialists, and it may be unreasonable to think that, in most cases, actuaries are especially suited to such roles. As regards the WPA and AFH, a non-actuary interviewee felt that these being 'policing' roles was negative for actuaries on boards; the WPA cannot be a director and, as regards the AFH, perhaps firms value the advice that he or she can give without being subject to possible conflicts as a board member (only 10% of life company AFHs were directors).

Some evidence on the position of actuaries in the life office hierarchy is the finding from the questionnaire survey that 8 of 27 AFHs reported to the CFO, there being no examples of the reverse (although, in most cases, the functions reported separately). The working party noted the limited number of actuaries as CFOs. While interviewees suggested a number of explanations, such as this role being more suited to generalists, the working party felt that some actuaries may wish to develop into that area, although a CFO actuary whom we interviewed indicated that it was beneficial to initiate such a move early in one's career.

Several interviewees commented that actuaries had an important role to play in risk management. This is already the case in many firms: the questionnaire survey found that actuaries had a major or significant representation in the majority of life offices' risk functions, and 15 of 23 life office CROs were actuaries. However, while we noted that, in 4 cases, the AFH was the CRO, there were 4 other AFHs reporting to the CRO with no examples of the reverse. The analysis of senior roles identified nine listed firms' CROs, of whom four were actuaries.

Actuaries have become more prominent as non-executive directors, although some interviewees felt this trend would reverse as there are currently fewer executive director actuaries to take a non-executive role in the future. However, the working party felt that actuaries' understanding of the life market and the finances of life offices may continue to provide non-executive possibilities for actuaries, including those who are or have been consultants, and the profession may wish to take further steps to encourage the development of skills relevant to such roles. Similarly there is the potential for actuaries to have non-executive roles on with-profits committees and scheme of arrangement oversight boards.

6.3 Actuaries in reserved roles

The analysis of senior roles enables us to comment on actuaries in reserved roles. The proportion of AFHs and WPAs who are consultants is around 30%, higher than was previously the case with AAs. It may be that independence is more highly valued than it was. Excluding AFHs who are external appointments, the proportion of internal AFHs who are directors (13%) is much lower than the proportion of appointed actuaries who were directors in the past, calculated as 47% in Shelley's (1992) survey: this may help AFHs from appearing to be conflicted. Although many AFHs reported to a CEO, it was not uncommon to find them reporting to the CFO or CRO. The average post-qualification experience of WPAs was greater than that of AFHs, although the fact that many WPAs did not report to a director suggested a relatively low position in the life office hierarchy for a reserved role. An issue arising is whether the WPA role will be attractive to young actuaries in the future.

It would be too narrow a focus to dwell unduly on actuaries in board and reserved roles. As one interviewee said, we should celebrate the success of those not at senior level who fulfil their personal ambition and meet the needs of firms and customers.

6.4 Nature and range of actuaries' roles in life offices

Actuaries' contributions extend beyond the actuarial function. The questionnaire results showed that, in the majority of life offices' finance and risk functions, actuaries have a major or significant representation; these are areas where actuaries' specialism in financial modelling is valuable. They also play a part in other functions; and making a contribution in several areas is consistent with actuaries' reputation for having a good understanding of the industry and demonstrates that their financial skills can be employed in a number of applications. However, a number of interviewees commented that heading other functions is best done by other specialists, which is consistent with actuaries being less prominent as executive directors than they were. Hence it does appear, as a number of interviewees commented, that actuaries have become more siloed, with an increased focus on quantitative skills.

6.5 Actuaries as consumers' champion

Actuaries have sometimes been thought of as the consumers' champion, although, as regulators have made rules about life offices' treatment of customers, actuaries' role has been changed. The reserved role of WPA demonstrates the importance attributed by regulators to the profession's contribution in this area, although, rather than actuaries acting as a customer advocate, it is arguably more appropriate to regard them as providing a balanced opinion on issues.

6.6 Challenges and opportunities for actuaries

Some interviewees suggested that the opportunities for actuaries in life offices will be more limited in the future, noting that the preparatory work for Solvency II that has occupied many actuaries will come to an end. However, Solvency II does require an actuarial function, and we see important ongoing roles for actuaries in connection with liability calculations, modelling and risk management, even though the Directive does not specify a requirement for actuaries. The job numbers will, of course, depend on the size and nature of the industry, which we have not attempted to forecast, except that it is fair to think that there will be a continued decline in the size of the with-profits

sector, where actuaries have been particularly prominent. In other sectors of the industry, other professionals with mathematical and financial skills may provide a challenge. The Institute of Actuaries of Australia (2014) have emphasised that actuaries have business skills that can be used outside insurance and finance, and it may be that some actuaries in the UK as well as in Australia, will decide to pursue those opportunities.

Actuaries' skills in life offices relate to finance and risks, and the questionnaire survey confirmed that actuaries are often prominent in, and sometimes head, finance and risk functions. Therefore, a major contribution by actuaries to life offices may not depend on a regulatory requirement for an actuarial function as such.

6.7 Four possible opportunities and the implications for action

The working party suggests four areas that may provide increased opportunities for actuaries. While our focus is UK life offices, we felt that the introduction of Solvency II would also make it easier for actuaries to use their skills elsewhere in the European Union.

First, we felt that there would continue to be opportunities for actuaries in life offices' risk management, an area highlighted by several interviewees. Actuaries are already playing an important part here, as identified from the questionnaire survey and analysis of senior roles, and this can develop further, for example in operational risk. The risk function has a specific role under Solvency II, and this may well develop over time; interviewees saw actuaries as having an important contribution to the ORSA report. However, the CRO is also concerned with helping understand how risk management can help a life office meet objectives such as shareholder value, and one of the challenges is to combine this with meeting regulators' requirements.

Taking the opportunities in this area will require actuaries to keep abreast of the regulatory changes as they affect risk functions. Since the Solvency II regulations are expected to be similar for general insurers, there would appear to be merit in research and/or events in conjunction with general insurance actuaries. There is also a need to continue to develop the skills to operate in roles that go beyond risk measurement, for which actuaries appear well-equipped. The CRO in particular is in a general management role and has to develop a broad appreciation of the business.

Second is the financial analysis and management of life offices, an area where actuaries are involved under current reporting regimes but where there will be new challenges from Solvency II and IFRS. These reporting regimes are new, different and complex, and life offices will need to design new metrics to analyse, understand and communicate the results; and then determine what their business and financial strategy should be. This needs not only financial skills but also a good understanding of the business, which a non-actuary interviewee said was a strength of actuaries. Recall the comments of two CFO non-actuaries: accountants may not fully appreciate the drivers of business, while actuaries are strong on intellect and knowledge of the industry. These factors suggest that actuaries can grasp the opportunity to interpret and apply the results to take a major role in life office financial management in the more demanding environment of Solvency II and IFRS.

These opportunities are already recognised, although further steps may be needed. For example, research may be helpful in assessing how financial management may work best when insurers are preparing data in accordance with Solvency II and IFRS together with other measures such as

embedded values. There may be knowledge gaps, such as in accounting standards which, when identified, could be addressed by CPD. Further, actuaries in life offices may need to apply their communication and leadership skills in order that they are accepted not only as model builders but also as experts in financial analysis and management.

Third are opportunities in what two interviewees described as 'big data'. This may be open to a number of interpretations. Some life offices are using techniques of this nature but further developments can be expected, for example with relatively unstructured data. Many of the skills required, in an insurance context, are similar to what many actuaries are already comfortable with. However, there are issues such as understanding, collecting and structuring the new sources of data, applying appropriate analytical techniques, and recognising the 'behavioural' issues, which actuaries are less familiar with. Although there will be competition from other professionals with experience in this area, actuaries can still expect opportunities from applying their skills here.

Acquiring the relevant skills will require effort. This raises questions such as should those skills, particularly those of mathematical nature, be included in the syllabus for qualification as a fellow and, if so, is that compulsory? Or is it a matter for CPD? Is this going down a path of making actuaries more technical and perhaps more siloed and potentially making it more difficult to gain general management positions?

Fourth, we see opportunities in product development. While interviewees thought that actuaries were not clearly suited to head a marketing function, some felt that product development was an area where actuaries had skills that could add value. With their knowledge of the industry (and lessons learned from past mis-selling), and their understanding of the financial drivers of the business, the working party felt that this was an area in which actuaries could increase their impact in the future, and this could extend to developing the customer proposition, including the delivery of advice. This opportunity may be facilitated by a reduction in Solvency II preparatory work (which has perhaps been a hindrance to actuaries' work on product development in recent years). The changes to rules on pension provision announced in the 2014 Budget show how the life insurance market can change, with offices needing staff with skills in finance, risk and the industry that can be applied to add value in product development: hence the opportunity for actuaries (our interviews were completed before the Budget).

Taking this opportunity may need actuaries to develop relevant skills and carry out further research.

The working party also acknowledges the comments made by some interviewees that the examination syllabus of actuaries needs to be fit for the roles that actuaries are expected to be undertaking, and suggests that those reviewing the syllabus take into account the opportunities we have identified and, in particular, the need to have relevant business skills.

We summarise the actions that we suggest that the Life Board of the profession considers:

- Arranging risk management research and/or events in conjunction with general insurance actuaries; promoting the development of the skills to operate in 'risk' roles that go beyond risk measurement;
- Research to assess how financial management may work best when insurers are preparing data in accordance with Solvency II and IFRS together with other measures such as

embedded values; identify and address knowledge gaps, such as in accounting standards, which could be addressed by CPD; encourage the development and application of communication and leadership skills in order that actuaries are accepted not only as model builders but also as experts in financial analysis and management;

- Assist actuaries in acquiring the skills relevant to work in connection with 'big data' and consider whether those skills, particularly those of mathematical nature, should be included in the syllabus for qualification;
- Assist actuaries to develop skills relevant to product development and carry out further research in that area;
- Assist actuaries in developing the skills needed for non-executive roles (as referred to in section 6.2); and
- Review the examination syllabus to take into account the opportunities we have identified and, in particular, the need to have relevant business skills.

6.8 Concluding comments

It is clear that the roles that actuaries undertake have undergone significant changes, reflecting regulations on life office governance (e.g. the new AFH and WPA roles), regulatory developments in the industry (e.g. Solvency II and IFRS), and commercial changes in the industry (mis-selling and the changing use of technology are examples of a rather different nature).

One outcome is that actuaries no longer have a stronghold in life insurance business management, as other professions have been increasingly prominent in the industry. Actuaries have tended to become more focussed on roles that use financial modelling and related skills. It can be a concern that actuaries are increasingly being siloed as quantitative analysts.

The positive news is that new opportunities have emerged and are evolving. The outlook for those who accept the challenges can be fulfilling and rewarding. Such achievements, as noted by many actuaries we interviewed, will likely come from actuaries' own personal motivation and skills: beyond the professional qualification it is an actuary's personal responsibility to develop his or her career.

Limitations

There are, of course, limitations to this research. In comparing the boards of life offices, we examined the position in 1990 only, and hence do not have a complete picture of changes over the years. Further, the interviews we carried out were necessarily limited in number and will reflect their specific circumstances; other individuals will have different views. Additional questions might have been asked in the interviews and questionnaire, although this may have reduced the response rate. Of course, there are inevitably factors that are uncertain, although we hope we have provided some thoughts that will be found useful and a basis for further discussion.

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APPENDIX A. EXTRACT FROM SOLVENCY II OMNIBUS DIRECTIVE

Article 48

Actuarial function

1.

Insurance and reinsurance undertakings shall provide for an effective actuarial function to:

- (a) co-ordinate the calculation of technical provisions;
- (b) ensure the appropriateness of the methodologies and underlying models used as well as the assumptions made in the calculation of technical provisions;
- (c) assess the sufficiency and quality of the data used in the calculation of technical provisions;
- (d) compare best estimates against experience;

(e) inform the administrative, management or supervisory body of the reliability and adequacy of the calculation of technical provisions;

(f) oversee the calculation of technical provisions in the cases set out in Article 82;

(g) express an opinion on the overall underwriting policy;

(h) express an opinion on the adequacy of reinsurance arrangements; and

(i) contribute to the effective implementation of the risk-management system referred to in Article 44, in particular with respect to the risk modelling underlying the calculation of the capital requirements set out in Chapter VI, Sections 4 and 5, and to the assessment referred to in Article 45.

2.

The actuarial function shall be carried out by persons who have knowledge of actuarial and financial mathematics, commensurate with the nature, scale and complexity of the risks inherent in the business of the insurance or reinsurance undertaking, and who are able to demonstrate their relevant experience with applicable professional and other standards.

APPENDIX B. LISTED FIRMS INCLUDED IN THE ANALYSIS IN SECTION 3

Aviva

Chesnara

Just Retirement*

Legal & General†

Old Mutual

Partnership*

Phoenix

Prudential†

Resolution

St James Place

Standard Life

* Not included in data for boards in 2013

† Included for comparison with boards in 1990



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London

7th Floor · Holborn Gate · 326-330 High Holborn · London · WC1V 7PP
Tel: +44 (0) 20 7632 2100 · Fax: +44 (0) 20 7632 2111

Edinburgh

Maclaurin House · 18 Dublin Street · Edinburgh · EH1 3PP
Tel: +44 (0) 131 240 1300 · Fax: +44 (0) 131 240 1313

Oxford

1st Floor · Park Central · 40/41 Park End Street · Oxford · OX1 1JD
Tel: +44 (0) 1865 268 200 · Fax: +44 (0) 1865 268 211

Hong Kong

2202 Tower Two · Lippo Centre · 89 Queensway · Hong Kong
Tel: +11 (0) 852 2147 9418 · Fax: +11 (0) 852 2147 2497

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