Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

April 2003

Subject 404 — UK Fellowship Pensions

Paper Two

EXAMINERS' REPORT

1 (i)

- the rate should reflect the value of the benefits accruing over the participation period
- including any risk benefits
- and expenses
- for the main scheme members, the minimum rates should be at the standard age-related dc contribution scale
- however the annuity rate guarantee has some value and this should be assessed
- one approach would be to consider the cost of buying an option where the value would move in line with prevailing annuity rates
- so that if interest rates fell the value of the option would match the increased liability
- though it would not be possible to use this to allow for improving mortality
- but this might be expensive
- and contracts of appropriate term may not be available
- and the basis of annuity prices might change (e.g. from gilts to corporate bonds)
- so at best such an approach would be an approximation
- it may be possible to use an insurance contract to the same effect
- an alternative approach would be to conduct some financial modelling
- and apply an "annuity price" probability distribution at all times in the future
- and a demographic projection of the retirement dates of the transferring members
- together with a model of future projected investment returns
- and future mortality rates
- these combined would provide a "best estimate" of the expected value of the guarantee

- given the complicated valuation approach which might materially increase the core contributions
- it would probably be sensible not to allow new entrants to participate!
- for the director, it is important to establish whether or not the guaranteed annuity rates also apply to excess contributions (above the standard scale) caused by the targeted 60ths promise
- a similar approach can be adopted to determine the value of ongoing accrual as for main scheme members
- with a further increment (if necessary) to allow for any deficit in the accrued position
- though the relevance of this will depend upon whether the director has secured a similar promise (i.e. targeted 60ths) with Newco plc
- if the accrued position shows a "surplus" it is unlikely that ABC plc would be prepared to reduce the rate below the standard scale

(ii)

- if ABC plc wants to provide reasonable value for the accrued entitlements then, many of the valuation features for the determination of the transfer value basis will be identical to those in determining the contributions in the participation period
- except the basis will apply to all accrued benefits at the end of the participation period
- and no allowance for risk benefits is likely to be made
- note that there is no explicit reserve in ABC plc's scheme for the guaranteed annuity rates
- so that any additional payment will need to come from elsewhere
- and will presumably be reflected in the "purchase" price
- it may therefore be tempting for ABC plc to "forget" about the existing of the GAR
- and simply offer the accrued funds as the transfer value
- though this would provide poor value for the members

- if properly advised, they would be unlikely to consent to the transfer
- so the liability would remain with ABC plc
- this wouldn't be a bad solution for the members
- but could present some communication challenges
- in relation to the HR director, there would either be a surplus or deficit of his actual dc fund against the target 60ths fund
- if the position was a surplus, the higher of the actual fund and the standard fund with a GAR increment could be offered
- but if the position was a deficit, it would be necessary to place a value on it
- using best estimate assumptions
- ideally reflecting the HRD's personal characteristics (re salary inflation, mortality etc.)
- although this may not be practicable
- ABC plc may be able to agree that the 60ths promise doesn't apply on a transfer of employment depending upon the precise wording of the agreement

(iii)

- a CARE scheme is defined benefit in nature
- and the transfer values will need to be converted in to an equivalent service period under the CARE scheme
- as such assumptions will need to be made, both financial (e.g. interest, salary, price inflation)
- and demographic (e.g. mortality in retirement)
- though note that if the CARE formula is RPI linked, then there is no profit on early leaving
- and so in service demographics can be ignored
- if the assumptions prove to be accurate, then the CARE scheme will generally provide a bigger benefit if interest rates rise (i.e. the guaranteed annuity rate wouldn't have applied)

- and a lower benefit if interest rates fall (i.e. the guaranteed annuity rate would have applied)
- because the transfer value would not in either case actually reflect the value (or lack of it) of the GAR
- individuals who experience higher than expected salary inflation will do well from the CARE scheme
- though not as well as if the receiving arrangement were final salary
- it is probably not necessary to offer an underpin (defined monetary amount) to the CARE scheme added years to protect early leavers
- since there is no early leaver profit
- for the director the final salary lift is lost
- there are no additional issues in relation to the director

(iv)

- the factors are a combination of the reasonableness of the assumptions made generally, together
- with the individuals own personal knowledge regarding how they apply to him/her
- will need to explain how the GAR has been valued
- which will be very difficult
- what interest rate assumption has been made in the CARE scheme added year conversion
- and how it has been determined
- so the employee can assess whether his dc fund might achieve superior returns
- the salary inflation assumption
- and that the employee ought to try to assess his/her own prospects as poor/average/good in terms of their own potential salary progression
- the mortality in possession assumption
- and that the employee should consider his/her own life expectancy in terms of shorter/neutral to/or longer than the average

- price inflation assumption used
- and the method of derivation
- though the member has no influence on this particular area of experience
- security concern

(v)

- if the transfer value basis is simply to be members' accrued funds then no additional investment issues arise
- however, if an additional payment to reflect the GAR is to be offered, ABC plc will want to protect itself from changes in the GAR value as soon as possible
- the option pricing and financial modelling approaches ought to produce similar results
- though the option price will have transaction and other expense charges associated with it
- ABC plc should therefore consider purchasing the option irrespective of the approach for determining the transfer value
- it should do this for all members who might transfer (not just those who ultimately decide to proceed)
- and, ideally, if it could afford to, for all remaining members too!
- if the deficit in the director's promise is to be paid across, it should be invested at an early stage
- in assets underlying the derivation of the amount that will ultimately be paid across

Question 1

This was generally poorly answered

(i) Candidates who structured their answer into the three areas requested scored more highly than those who did not. Many limited their answers by deciding that the guaranteed annuity rate would never be relevant -some stated this but others just ignored this altogether.

(ii) Answers were not wide enough, better candidates realised that the guaranteed annuity rate had not been reserved for previously but that the purchaser would be looking for an additional payment to cover this contingent liability. Only the better candidates covered separately the more straightforward issues relating to the director.

(iii) Many candidates were distracted by GN16 issues which were not relevant as individuals were being given the choice of whether to transfer. It was clear that many candidates did not understand the workings of career average revalued schemes.

(iv) Candidates were clearly confused as this was answered disappointingly. In all cases candidates gave a much better answer to the similar question in 2(iv) - perhaps because this was the more common situation of switching from defined benefit to money purchase.

(v) Very few candidates scored well here, most missed the significance of the guaranteed annuity rate and produced generic answers on setting investment strategy.

2 (i) who sets contribution rate under rules
what control does company have over rate
how does statutory minimum MFR interact with recommended rate
contribution rate is an estimate of funding required
actual cost not affected by funding
unless funding changes investment strategy

contribution rate made up of two parts future service rate
and adjustment for past service funding
stability of future service contribution rate will depend upon method
and whether assumptions are changed
assumptions likely to be prudent
with more than 50/50 chance of better than expected experience
trying to get a stable durable rate over time

method looks at cost of benefits accruing in year following valuation
but allowing for projected salaries at retirement
rate will be stable if membership profile stable
by age and salary profile

economic assumptions may change if market conditions change
mortality assumptions include allowance for improvement
stability will depend upon whether actual improvement quicker or slower
past service funding position will depend upon experience relative to assumptions
in particular investment returns
salary inflation
pension increases
price inflation
expense allowance
also statistical assumptions such as retirements
if not cost neutral
actual number of deaths
proportions married e.g. death of significant pensioner with no spouse
and withdrawals

other items which may change funding position include:

discretionary increases not allowed for
insurance position
changes in legislation
fraud
benefit improvements
individual augmentations without additional funding
bulk transfers in or out of scheme
changes in investment strategy
including bulk annuity purchases
whether contributions paid in accordance with recommendations
treatment of any past service deficit may change
over what period can it be spread
are there security issues which will change the position

Drafting 6 = structured sections, introduction, conclusion, clear English
4 = some structure, clear English
2 = some structure but jargon or bullet points only
1 = no real effort at drafting just about looks like a letter
0 = no drafting attempted

(ii) contributions are combination of final salary and money purchase

under final salary scheme average age likely to increase
future service funding rate will increase
but applied to a reducing salary roll as members retire, withdraw or die

may move to attained age method
where funded on level rate for future working lifetime
higher initial funding rate
to build up surpluses to reduce rate in the future

contribution rate will become more volatile as membership reduces
any surpluses/deficits being spread over reducing payroll
is it really closed? Any discretionary entrants?
particularly senior people who may distort rates

stability of money purchase contributions will depend upon design
fixed rate for everyone will be most stable
will have some variability if rates change by age/service/category
or are linked to amounts members are prepared to pay

may require extra funding under MP for any redundancy/early retirement exercises

(iii) powers will be set out in the trust deed
need to consider conditions to run a closed scheme
and conditions to wind up

need to act in the best interests of members
without favouring any particular group
has anything been agreed with the employer already

which option will maximise benefits for members
what is the financial strength of the company
ability to support scheme in the future
who controls contribution rate
is there currently a deficit
what could be recovered from company on wind up

members will need to be informed of closure
any potential members currently waiting to satisfy eligibility conditions
will there be any discretionary entrants
trustees will need to consider investment strategy
documentation will need changing to reflect closure

(iv) Personal circumstances

How old
Expected future earnings growth
Expected time with the company
Promotional prospects
Marital status
Attitude to risk, "guarantee" v expectation
Investment knowledge
How important is pensions in overall finances

Information about money purchase arrangement

company contribution rates
will they vary with age/grade
member contribution rates
investment medium
expenses
what are the death benefits
any other benefits

Company position

Future company commitment to final salary
Outlook and prospects for company

Information on final salary scheme

Any higher category benefits
Funding level
Particularly in context of security should scheme wind up
Or ability to provide discretionary benefits
Is there a history of discretionary increases
Any special early retirement terms
What are the death benefits
Ill health retirement benefits
Guaranteed pension increases

Expected benefits

From MP for future service at differing ages
From FS if remain in the scheme
From FS if switches to MP

Transfer

Will members be accepted
Will there be any special terms for transfers into MP scheme
Need full analysis of advantages and disadvantages of transferring
Might be better to transfer now for security reasons

Question 2

Candidates generally found this question more straightforward

(i) Drafting was generally of a high standard but often at the expense of content. The candidates who scored best detailed the individual assumptions needed to undertake a valuation (indeed it was surprising that this approach was missed by the majority of candidates) and separated their answers into the issues to be included in the report that were given in the question.

(ii) Reasonably well answered although many candidates failed to realise (or maybe to state) that at least in the short term employer contributions would be paid to both the final salary and money purchase arrangement and this would inevitably lead to some instability.

(iii) many candidates missed easy marks by not going through the list of trustees responsibilities (which had been covered in paper 1). Many were distracted by suggesting that the trustees would be involved in the design of the new defined contributions arrangement.

(iv) This was reasonably well answered. Those that considered the various events which might arise (death, early leaving etc) generally scored well.