

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2011 Examinations

Subject CA1 — Actuarial Risk Management

Paper Two

Purpose of Examiners' Reports

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and who are using past papers as a revision aid, and also those who have previously failed the subject. The Examiners are charged by Council with examining the published syllabus. Although Examiners have access to the Core Reading, which is designed to interpret the syllabus, the Examiners are not required to examine the content of Core Reading. Notwithstanding that, the questions set, and the following comments, will generally be based on Core Reading.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report. Other valid approaches are always given appropriate credit; where there is a commonly used alternative approach, this is also noted in the report. For essay-style questions, and particularly the open-ended questions in the later subjects, this report contains all the points for which the Examiners awarded marks. This is much more than a model solution – it would be impossible to write down all the points in the report in the time allowed for the question.

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Chairman of the Board of Examiners

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General comments on Subject CA1

This subject examines applications in practical situations of the core actuarial techniques and concepts. To perform well in this subject requires good general business awareness and the ability to use common sense in the situations posed, as much as learning the content of the core reading.

The examiners therefore look for candidates to apply answers to the specific situation that the examiners asked, having read the question carefully. Too many candidates write around the subject matter of the question in more general fashion, and gain few marks. On the other hand, detailed specialist knowledge is not required nor is very detailed development of particular points.

Good candidates demonstrate that they have used the planning time well – an attempt to get a logical flow is a big advantage in making points clearly and without repetition. This also enables candidates to use the later parts of questions to generate ideas for answers to the earlier parts. Time management is important so that candidates give answers to all questions that are roughly proportionate to the number of marks available.

Comments on the September 2011 paper

The general performance was slightly worse than in April 2011, but better than Paper 1. As in previous diets, questions that required an element of explanation or analysis, such as Q4(vii) and Q6(iii), were less well answered. The comments that follow the questions concentrate on areas where candidates could have improved their performance. Candidates approaching the subject for the first time are advised to use these points to aid their revision.

- 1** (i) A statutory role is a role that can only be taken by an Actuary, as required by legislation.

The statutory roles for actuaries mainly relate to the certification of the adequacy of the valuation of assets and liabilities for a life insurer, general insurer or pension scheme.

- (ii) Certification requirements could include:

In his or her opinion proper records have been kept for the purpose of the valuation of the liabilities.

Proper provision for the liabilities has been made.

The liabilities have been valued in accordance with any legislative rules setting out the method and assumptions for their valuation.

The liabilities have been valued in the context of the assets, which in turn have been valued in accordance with the appropriate rules.

In his or her opinion the premiums/contributions for future years will be sufficient, on reasonable actuarial assumptions,

and taking into account the free assets of the provider to enable it to meet its commitments in respect of the contracts written, or pensions promised.

A statement of the difference between the value of the provider's assets and its liabilities.

That he or she has complied with professional guidance notes.

This should have been a straightforward bookwork question as a good start to the paper but a disappointingly small number of candidates scored highly on this one.

- 2** (i) Compulsory insurance is where there is legislation requiring certain individuals or organisations in certain circumstances to take out insurance cover.

- (ii) The main types are likely to be:
- Employers' liability insurance
 - Third party motor liability insurance
 - Medical insurance (including long term healthcare)
 - Civil aviation insurance
 - Product liability
 - Life insurance cover for a mortgage or other large loan
 - Professional indemnity
 - Public liability

(iii) **Employers' liability**

To ensure that employees will be adequately compensated if they suffer illness, injury or death during the course of their employment.

Insurance is required because an employer may not have the financial resources to fully compensate an employee where injuries are serious.

The significantly reduces the likelihood of the costs from such injuries falling back on the state or causing serious hardship for the employee.

Third party motor liability

Motor vehicles can cause very significant damage to a wide range of both property and individuals.

Individuals are unlikely to have the financial resources to compensate those they cause loss to. Particularly as there is the potential for very large losses.

A legal minimum compulsory level of cover is used to ensure that those suffering losses can be compensated.

Again, without such cover, the state would have to pick up the cost or individuals would suffer hardship through no fault of their own.

Medical insurance

To cover the cost of treatment should a person become ill or have an accident.

The aim would be to ensure that the whole population has access to adequate medical care i.e. as a top-up or an alternative to state provision.

Compulsion can also be used to oblige employers to contribute to their employees' medical costs rather than relying on state provision.

It can also be set up so that, in effect, the better off subsidise the medical costs of the less well off.

Civil aviation insurance

This provides third party cover, passenger cover and cover for risks of war and terrorism.

Aeroplanes can represent a significant risk to both passengers and third parties in the event of an accident – given the large number of individuals potentially involved in one incident.

Because of this possible impact, they can be deliberately targeted in war or by terrorists.

The airline operators will not have the resources to fully compensate those affected and so a minimum level of insurance cover will be needed to cover such costs.

Product liability

Some companies e.g. pharmaceutical manufacturers supply products that can be harmful if used inappropriately.

Similarly, many products could be dangerous if manufactured negligently or with a defect – e.g. electrical goods.

Given the large number of potential consumers that could be affected and the level of damages that could be due to any particular individual, manufacturers could be put out of business by claims for liability.

Hence, compulsory cover is required to protect the general public and any burden that may fall on the state.

Life cover on a mortgage

Housing costs can represent a significant outgoing for many people both in terms of debt owed and servicing costs.

Should the main earner in a household die, their dependents may not be able to continue with loan repayments or payoff the debt outstanding.

In such circumstances, affected people may become homeless or have to rely on substandard or state accommodation.

Hence, compulsory cover is required to protect potentially vulnerable members of the general public and any burden that may fall on the state.

Cover may also help the banking sector in times of declining house prices. Requiring compulsory insurance (not just against death) from borrowers may prevent severe losses if mortgage defaults rise markedly.

Professional Indemnity

Many individuals or organisations rely on professional advice when making important decisions or taking important actions.

The financial consequence of poor or negligent advice could be very serious for those affected.

Many professionals operate within structures (e.g. partnerships) where capital available to pay compensation is limited.

Hence compulsory insurance ensures that those affected will be adequately protected.

Compulsory insurance may be a way that the authorities can attract a greater share of professional services business to their markets ie more clients if they feel more secure.

Public Liability

Many individuals or organisations carry out their affairs in such a way that they have a de-facto duty of care to members of the public.

In particular, their activities (or those of entities they are responsible for) can be responsible for causing death or injury to members of the public.

Such events could be numerous (e.g. local authorities) or have significant financial consequences.

In many cases, the parties judged to be at fault will not have the resources to provide adequate compensation. Hence compulsory insurance will be needed.

In particular, such insurance may protect taxpayers from the costs of dealing with claims if public bodies are involved or if other burdens fall back on the state.

On part (i), most candidates got full marks but some lost easy marks by not being thorough enough. The examiners look for candidates to be precise with pure bookwork and get the legislative angle.

Part (ii) was answered well, with a large number of insurance products to choose from, though just saying motor or product liability wasn't enough to score full marks.

On part (iii) better candidates explained what cover was provided and why, and extended answers to discuss what problems would arise/consequences of the event occurring and insurance not being in place.

3 (i) The policy could be made paid-up.

Premiums would cease but the policy would remain in force.

On maturity or on death before the end of the term, the policyholder would receive reduced benefits relative to those originally offered

Alternatively, the policy could be surrendered.

The policyholder would receive an immediate cash sum and the policy would be cancelled with no further benefits due.

The cash sum would normally be calculated as the current value of the paid-up benefits outlined above.

But, especially for surrenders a short time after inception, the surrender value may be based on premiums paid (possibly with interest). The premiums paid calculation may, in general, act as a guaranteed surrender value.

Other options may be available in certain circumstances.

The insurance company may agree to the policyholder paying reduced premiums with correspondingly reduced benefits.

Premiums could be deferred. That is stopped for a period and recommenced. Missed premiums could be lost or caught up later. Benefits would again be adjusted depending on the nature and amount of the missed premiums.

The policy could be converted to without profit.

The policy could be converted to life cover only.

The insurance company may agree to provide the policyholder with a loan using the projected policy proceeds as security.

The policies are with profit and so some allowance will be needed for bonuses.

This will include both bonuses already declared and potential future bonus declarations.

The treatment will depend on the split between reversionary and terminal bonuses.

(ii) The treatment will differ primarily because:

Term assurance policies have no savings element (and there is no certainty that benefits will be paid) and so reserves are not built up.

Hence, if premiums were to cease, it is unlikely that any benefits (paid-up or surrender) would be due.

They tend to be without profit – so no premium is being set aside to fund future bonuses.

In effect, each year's premium is the expected cost of providing the death benefit over the year. So all the premium is used up in providing next years' benefits.

There is also the need to cover expenses (which are relatively high given the low premiums) and a market tradition of using any surrender profits to fund expenses or higher death benefits.

The market for term assurance policies is often very competitive. Hence paying surrender or paid up benefits may further erode margins.

However, if the terms were very long or were taken out at older ages i.e. where mortality rates increase a lot over the term, then benefits may be payable.

In effect, the early premiums more than cover the cost of providing the early years' benefits and so a fund is being built up – these policies are getting close to whole life policies where a benefit will ultimately be paid hence it will be provisioned for.

Reduced benefits for reduced premiums would be a possible option. However, this request might be a sign that the policyholder was in better health than previously thought – so reducing the premium reduces profit potential (but better this than a lapse e.g. if another company would charge less).

The company would be wary about deferring premiums. Any wish to reinstate may reflect a deterioration in health and so may require underwriting or a higher premium rate.

Part (i) was fairly well answered – higher marks were gained for explaining what would happen to both the premiums and the benefit payments under each option. The question asked for description and many candidates just stated surrender or stop premiums without explaining what that meant. Some others repeated the same point in many different forms.

On part (ii) few candidates scored well. Many candidates failed to discuss why term assurance is differed in terms of lack of savings element etc.

- 4** (i) Profits are likely to be volatile primarily because sales are likely to be very variable.

Their products could be viewed as non-essentials or luxuries. Hence demand could fall (or rise) a lot depending on economic conditions

Likewise, they have a narrow target market and so are exposed to good or bad times for these customers.

Their stores are concentrated in a small geographical area. So again local economic conditions will be significant.

Irrespective of economic conditions, their products are subject to sentiment or trends. These fashions are hard to predict. If they stock the right products they could do very well and vice versa if they make mistakes.

But even if they get it right one year, there is no guarantee for the next year since fashions will change very quickly.

Unpredictable events e.g. weather or competitor action could mean that projected sales are not made (e.g. stock out of date or needs replacing).

Being a small company, they are exposed to problems with suppliers. For example there could be difficulty in getting stock, quality control or bad debts – they are not treated as well as bigger retailers.

Other cost type issues could come into play e.g. reliance on a few key staff, vulnerable to rent increases, high fixed costs or shifting patterns of good retail sites (transport issues say) or even fluctuations in raw material costs.

- (ii) The key to reducing volatility in profits will be to stabilise demand for its products.

This will probably involve diversification.

But it will also involve altering the nature of the products it sells. There is little point in diversifying into products that are highly correlated to the existing range.

For example, they could sell menswear or children's clothes as well – both markets are less volatile.

They could target a wider range of female customers by for example being less "fashionable".

They could sell more basic or essential products where demand is less reliant on economic conditions. These tend to be lower margin, higher volume products.

Extending the product ranges e.g. away from just clothes may help since exposure to a "mistake" is reduced.

Moving into online sales may diversify the customer base.

Offering incentives or loyalty schemes for customers may smooth out fluctuations in sales.

Controlling relative wage costs say by moving to a more commission based package may reduce the impact of fixed costs.

It may be possible to diversify suppliers or improve existing locations. Likewise entering longer term arrangements or contracts where risks are shared may help.

- (iii) The aims are to get good staff and to keep them.

Hence any scheme will need to offer a benefit to employees that should be linked in some way to performance and should provide benefits that are more favourable to long-serving employees.

However, employees shouldn't have to wait a long time for benefits to be apparent or payable – otherwise the scheme will not look attractive.

Any scheme should be simple and easy for employees to understand.

It should compare favourably with schemes offered by competitors to their employees.

A savings scheme implies employees will be expected to contribute. But to be attractive, employer contributions will also be needed.

In order to encourage long service, these employer contributions could be staggered in some way.

For example, employer contributions could start off at a low level then increase after say 3 years and then increase again after say 6 years.

Alternatively, employer contributions could stay fixed but bonuses be credited after certain service anniversaries.

They could be linked to employees' contributions. That is, the more the employee pays, the more the employer would pay.

In order to encourage performance, contributions or bonuses could be linked to profitability.

This could be done on a company basis or in relation to individual targets for each employee or store (so as to encourage teamwork).

To target the scheme on "good" employees, some form of waiting period may be incorporated.

In order to be eligible, employees may have to complete a probationary period, reach a certain grade or pass a test/review.

Likewise to remain eligible, certain performance standards should be set eg from an annual assessment.

There could be a penalty on early leaving e.g. removal of part of the fund relating to employer contributions.

It is likely that the benefits will be in the form of an accumulated fund with interest being added. This will reduce risk and volatility – enabling employees to have flexibility over when to withdraw funds.

This is because the arrangement is still likely to be relatively short term e.g. with a minimum period before funds can be withdrawn – flexibility over when and how much can be drawn down/reinvested will be attractive.

Returns could be expressed in the form of a guaranteed rate – say fixed for a few years or a lower rate but with bonuses depending upon investment performance.

In any event, returns are likely to be a lot better than the individual could get via a personal arrangement.

Or the scheme could be share based allowing employees to acquire equity in the company – this could encourage staff loyalty and retention.

To increase attractiveness, discounts could be offered on other insurance company products or say better death in service benefits provided.

The scheme should be set up so as to maximise any incentives or tax breaks offered by the authorities.

(iv) **Salary supplement**

The employee will receive an increase in take home pay.

However the top up may be taxed. Hence any pension provision made from it may not be tax efficient.

In theory, the employee has flexibility in choosing the nature of benefits and the particular provider.

This may appeal to employees who want non-standard benefits e.g. no spouses' benefits or early retirement.

But such flexibility (even with a recommended arrangement) may come with associated hassles for the employee e.g. time involved with admin. They may also not have the expertise to choose correctly.

However, employees who change jobs may not be able to maintain any arrangements since the top up may no longer apply. Also charges on a personal arrangement could be relatively high.

It is unlikely that any arrangements (including the recommended one) will provide benefits linked to salary – they will probably be defined contribution. That is uncertain future benefits.

Alternatively, the employee could join the plan with the insurance company. The attractiveness of this will depend on what “encourage” covers.

In particular, the employer is effectively contributing but will there be any incentives for further contributions say from employees or for the use of the pay rise for pension purposes – e.g. tax breaks?

If such encouragement means better value for money (e.g. lower charges, ancillary benefits) or includes flexibility (e.g. on changing employment – new employer contributions allowable) then the option may be attractive.

Alternatively, given that we have a small employer and an effectively voluntary arrangement, any such benefits may be limited – just a dressed up personal arrangement – possibly with limited flexibility.

There could be a temptation to use the net pay rise to contribute to the savings scheme. This is all well and good as the employee gets a double benefit.

The employee simply could spend the extra salary or repay debt

This may mean they end up with relatively low retirement benefits.

This may not be an issue if the benefit system provides a disincentive to save (offsets, means-testing etc.).

However, the extra salary per-se could have implications for existing benefits e.g. tax credits.

Government top up scheme

The employee will see disposable take home pay fall.

But explicit employer and employee contributions are made. In effect employee contributions are compulsory whereas above they were voluntary.

As employee contributions are likely to be taken from pay, they may attract tax relief or be otherwise tax efficient.

The benefits are linked to salary hence there is some certainty for employees.

However, benefits are linked to basic salary. Hence employees with large elements of non-basic pay (commissions, overtime etc) may end up with lower than expected benefits.

It is likely that the terms of the benefits will be very prescriptive (e.g. spouses' benefits, retirement ages, pension increases) – so reducing flexibility.

Payments from the government are likely to be very secure in that they will be made.

But, partly as a result of this, the effective returns employees receive could be relatively low.

In particular, the government may change the terms for future (or even past) service to the detriment of employees.

The effect of extra contributions should mean that employees receive relatively higher retirement benefits (ignoring means-testing).

The arrangement will probably be available for a wide range of employers and so may still apply if employees change jobs and the mechanics are the same for all employers – i.e. less confusing for employees.

However, a large bureaucracy will be involved making mistakes more likely and their correction more difficult.

In theory, this arrangement has cross subsidies. In particular, unless contributions or benefits are age dependent, older employees will get a worse deal.

- (v) The problems for the company will be due to the loss of staff for a period and the costs of covering for them (e.g. paying twice for the same job). In addition, there is uncertainty as to when/if the affected staff will return to work.

The easiest way to reduce the cost would be to reduce pay of those on maternity or paternity leave. For example say $\frac{3}{4}$ pay for six months and then $\frac{1}{2}$ for the next six months.

It may also be possible to suspend contributions to the savings scheme or pensions arrangement.

In many countries, the state may provide statutory maternity pay albeit at a low level. If so, the company may decide just to pay that (and reclaim it from the state).

However, this would still involve disruption.

Creating a good working environment where staff communicated with management, may give management more information and make it easier for them to plan pre maternity leave.

Another option may be to try and encourage staff to return to work as soon as possible. For example, by paying towards childcare costs or permitting flexible working. Creches may be impractical for this employer but may be viable because of the geographical concentration.

To cover the absences, the company may have a pool of “floating” workers (possible here due to the concentration of shops and transferability of skills from shop to shop). These workers would move from shop to shop covering any absences e.g. due to sickness or as staff leave.

In this way, the company avoids the costs of recruiting temporary staff who may not be as motivated or as good as permanent staff or may not be available as desired e.g. in senior roles.

Regular communication with the absent employee will help reduce uncertainty. That is, showing a caring attitude may encourage the employee to return earlier and will help with planning.

The crudest approach may be to use recruitment or promotion methods. By not employing people likely to want maternity leave or restricting them to lower grades say on relatively few hours, costs could be controlled.

Such a policy may be extremely difficult to implement unless very restrictive criteria are used, or even illegal or cause bad PR. It is also likely to conflict with the aim of attracting good staff i.e. the best staff maybe the ones thought of as being most likely to take leave.

- (vi) The yield on a conventional government bond can be expressed as risk free real yield + expected inflation + risk premium.

Traditionally, government debt was viewed as risk free (in terms of default). However, there could be worries over the ability of the domestic government to make repayments hence a significant relative risk premium could exist (e.g. Greece, Italy ...).

Other elements of the risk premium include IRP and/or a low marketability premium. For short-term government debt, these are unlikely to be significant. But under extreme circumstances they could be an issue (mark for either both not needed but only 1 mark overall).

Differences in the expected rate of inflation over the relevant term are likely to be significant influences. That is, the major economy is expected to have lower inflation over the next 5 years.

It is possible that different yields pertain to different economies due to supply and demand factors. For example the need to fund a budget deficit or regulations requiring investment in government debt could apply.

Both the above points are likely to tie in with expected currency changes. Lower returns will tend to imply a stronger currency. In that higher yields are needed to offset currency devaluation and the inflation that often causes it.

- (vii) The essential risk is that borrowing costs are higher than they would have been if they had used a domestic currency bond.

There is also the uncertainty over the ultimate cost in domestic currency terms. In that with a domestic currency bond, payments are known with certainty.

This centres on the currency risk. The company will need to make payments to lenders in a foreign currency, both coupons and final repayment of the principal. These future payments have an unknown cost in domestic currency terms. If the domestic currency devalues, the cost of repayments will increase in domestic currency terms.

All the company's revenue is likely to be in domestic currency. Hence there are no matching inflows that could offset the currency risk.

However, they may purchase supplies from overseas. If so, they may have some expertise in hedging currency risk (e.g. they need foreign currency to buy stock).

But it will be a lot more difficult and expensive to hedge bond payments over 5 years. For example, the terms of any hedge may reflect the bond yield differentials – so no net gain is expected.

The 3% difference in government bond yields does not mean that there would be the same yield differential on the retailer's bonds.

- the domestic government may have a low credit rating and so perhaps the retailer could issue domestic bonds more cheaply than 5%;
- or the overseas government may be particularly strong and so the retailer's bonds would have to yield much more than 2%

It is extremely unlikely that they will be able to issue the bond to domestic investors. Hence they will need to go to the major overseas market to find investors.

But it will be difficult for a small overseas company to attract investors in this market (e.g. a relatively small issue from an unknown company).

They will need to employ local contacts to market the bond, raise investor awareness and deal with the legal mechanics etc. This could be expensive particularly if regulations are complex or unfamiliar.

There will also be ongoing expenses for example in terms of communication and disclosure to investors. These expenses will probably be higher than under a domestic bond. All such expenses will increase effective borrowing costs.

For example, the company will need to buy foreign currency to make the repayments (and convert the initial funds raised into domestic currency). Fees and commissions will be payable.

From the perspective of overseas investors, the bond could be viewed as risky or at least, it will come with great uncertainty.

Hence, a significant risk margin over the low government bond yield will be needed to attract investors.

Likewise, there is likely to be a marketability premium in that it may be difficult to trade the bond.

The company also risks upsetting domestic contacts and markets. In that they will lose out on potential profits and so raising money in the future could be harder or more expensive.

Many candidates scored almost full marks on part (i), giving a good range of ideas as to why profits may be volatile, touching on both income and expenditure components.

Again part (ii) was answered fairly well – with most candidates who picked up on diversification scoring full marks.

On part (iii) many candidates made good attempts, however most failed to generate enough points to score top marks on this section. For those candidates who did mention reasons how the retailer could retain good staff via bonuses etc., many then failed to expand on this and explain how it could work.

Part (iv) in the main was done fairly well. Most candidates appreciated the key points and explained them well, though not many made a clear distinction between DC and DB, which meant that some obvious issues were missed. Some candidates lost out on the "obvious" marks e.g. take home pay falling/rising – possibly by assuming this is implied by the question.

On part (v) many candidates failed to answer or at least gave a very short attempt at an answer. Those that did gain good marks were those that did not just think about reducing pay but also about how the company could work with the employee to make the arrangement more hassle free and encourage early return to work.

Most candidates answered part (vi) well.

Part (vii) was often the weakest part of the question. Some candidates just recited bookwork without expanding on points to explain the reasons for them. Many talked about currency risk – though few looked at volatility. Many answered from the point of view of an investor buying an overseas asset.

5 (i) Expected return on equities =

Initial gross dividend yield (d) + expected dividend growth (g).

Required return on equities =

Required risk free real rate of return + expected inflation + equity risk premium (ERP).

(ii) National earning growth could be expressed as:

Expected inflation + real earnings growth.

Assuming that we can equate expected and required returns on equities.

The expected return on equities will exceed earnings inflation if the risk free real rate of return + ERP exceeds real earnings growth.

Or from A above, if d + real dividend growth exceeds real earnings growth.

Typically, real earnings growth would be expected, over the long term, to be in line with real growth in GDP.

Likewise, over the long term, real dividend growth would be expected to be in line with real growth in GDP.

Hence, over the long term, we would expect returns on equities to exceed earnings inflation by the dividend yield.

Hence, over the long term, it would appear that equities would be suitable for salary-linked liabilities since higher salary growth would be compensated by higher equity returns.

But this link may break down due to short-term volatility. Lags or timing differences or periods where real dividend growth is relatively low may apply. Hence to say consistently is pushing things too far

Given that we would expect over the long term, earnings (and hence dividend) dividend growth to exceed inflation (i.e. real earnings growth is > 0), equities would also be suitable to match price-linked liabilities by the same argument as above.

In situations where volatility in equity returns would be a problem e.g. members of a pension scheme close to retirement, equities may not be suitable.

The above argument only really applies to growth in capital values i.e. where long-term fund growth matters e.g. terminal bonuses on with-profits insurance funds.

Many real liabilities will be of a cash flow nature.

Generally these will be inflation linked. Though some e.g. insurance company expenses could be earnings linked.

With such liabilities, suitability depends on having asset proceeds that match liability outgo over the short term.

Typically, much of the return from equities is in the form of capital appreciation i.e. dividend levels may be too low and/or volatile to match real liability payments.

Relying on being able to sell equities to cover income requirements will not be suitable given the short term volatility of equity prices.

However for some institutions eg those with strong positive cash flows, high free reserves or where cash flow liabilities are a small proportion of total liabilities, equities may be suitable for their real liabilities since volatility over the short term is less of an issue.

- (iii) Lower public sector pay awards will reduce national earnings growth.

Lower public sector pay rises may also lead to lower private sector pay rises further reducing growth in national earnings.

Combined with lower state benefits, there will be reduced demand for goods and services (people have less to spend).

Costs for producers will, in general, rise by less than expected.

These factors will tend to reduce prices for consumers.

The new inflation measure is lower and more stable than the one previously used.

Hence it will be easier for the government to meet any given inflation target (e.g. 2% p.a.) without having to raise interest rates. It may also be easier to cut interest rates if desired without breaching the target

A lower than previously expected outlook for short term interest rates will be inflationary i.e. it will lead to higher actual prices.

This is because lower interest rates will tend to encourage borrowing, investment and consumption.

- (iv) The initial factors are likely to be lower interest rates and lower salary costs for private sector companies.

Broadly speaking, these will be viewed as positive for equities and so initially, prices may rise.

The effect of lower consumer purchasing power will kick in later.

This will reduce demand for private sector products and services and so prices may fall as outlook for profits worsen.

Clearly there will be differences between different types of companies.

For example, capital-intensive companies that are not exposed to domestic demand may do relatively well.

Whereas service companies that rely on consumer spending may do badly as the effect of lower purchasing power will impact them most.

This will be especially true if they are labour intensive and/or they can't control payroll costs in line with the anticipated lower public sector pay rises.

On part (i) candidates who took care scored well, but this showed the importance of thinking through the equation e.g. "real" return rather than learning by rote.

For part (ii) very few candidates used the themes from part (i) as a helpful prompt. Those that scored well tackled each component of the question separately, giving clear structure – weaker candidates often commented only on the earnings link component and not on suitability.

Part (iii) was a very variable section – lots of good clear answers that scored full marks but many weak ones that missed the crux.

On part (iv) candidates in general did not give enough detail regarding the effect from both reduced demand and reduced costs.

- 6** (i) The 2 key objectives are ensuring security and obtaining high long-term investment returns.

A desire for security could:

Encourage a cautious approach

Lead to the choice of assets that follow a benchmark or target.

A desire for high returns could:

Encourage a move away from a benchmark.

Generally lead to more risk due to an active approach.

- (ii) In this case, the 3 components of risk can be interpreted as:

Strategic risk: a mismatch between the liabilities and the strategic benchmark.

Structural risk: a mismatch between the aggregate of the individual (sector) benchmarks and the total fund (strategic) benchmark.

Active risk: stock selection risk by individual active managers moving away from the sector benchmarks in order to maximise returns.

In order to monitor the risk budget, returns on the benchmarks, the overall fund and the liabilities will be needed at regular intervals e.g. quarterly.

In addition, it will be necessary to check that the chosen benchmarks continue to be fit for purpose and represent what they are intended to do.

A top down approach means starting at the highest level i.e. the strategic benchmark.

The strategic benchmark should be relatively stable as it represents the long-term appropriate allocation.

Generally, it will be reviewed in conjunction with a significant change in the characteristics of the liabilities.

This could arise gradually or due to a large one-off event e.g. a bulk transfer out from a pension scheme.

Individual sector benchmarks will be reviewed more frequently.

For example the approach to risk within a sector may change (e.g. corporate as opposed to government bonds), the sector liabilities may change (e.g. terms of annuities) or new assets or even classes may become available/appropriate (derivative products say).

As sectors benchmarks are changed, it will be necessary to monitor the structural risk by looking at how the new combination of sector benchmarks compares to the desired strategic benchmark. This may lead to a further adjustment in the sector benchmarks.

The returns achieved by each individual manager will need to be monitored relative to their particular benchmark target.

Allowance will need to be made for any specific constraints applying to them in terms of how this would affect benchmark returns.

Looking at returns may help to monitor the active risk taken by managers but other qualitative approaches may be needed e.g. assessing portfolio make up and/or relative active money positions.

In order to do this monitoring, investment reports will be needed. In particular, we need the rationale behind the stock selection policy. This will help to assess the split between luck and judgement i.e. help as a guide to the future.

In addition to looking at the individual components, it will be necessary to monitor the combined overall risk budget across the whole portfolio.

- (iii) Systemic risk is risk that affects an entire financial market or system, and not just specific participants

For equity investments, the risk of a decline in the stock market as a whole, with all stocks being affected, is a systemic risk

It is not possible to avoid systemic risk through diversification

As the insurance company needs to invest in equity (e.g. to meet customer's expectations, treat customers fairly, earn competitive returns etc.), systemic risk cannot be avoided. Nor would closing to new business be sensible

Systemic risks of the equity portfolio can be managed by

- Retaining the systemic risk:
 - The insurance company will have an established risk appetite
 - And will monitor its equity exposure to ensure the portfolio remains within the stated risk appetite

- Allowing for this in the capital held by the company
- Mitigating the systemic risk:
 - By using hedging strategies for example
- Transfer/share the systemic risk:
 - The company could share risk with policyholders
 - By writing more with profit or unit-linked business
 - The company could transfer the policy book to another insurance company but this could be costly

The company could ensure that equities are not held in respect of guaranteed benefits.

That is a policy of asset liability matching could lessen the impact of systemic risk.

Diversifiable risks arise from an individual component of a financial market or system.

In the context of equity markets, diversifiable risk occurs when the price of an individual share falls.

The risk of a decline in the value of a particular security can be mitigated by an investor spreading the risk and investing in a large number of smaller holdings within each market and by covering a range of markets since the fund is not restricted to domestic equities.

In developed markets (e.g. UK or US), a portfolio of 30 to 40 shares will render the portfolio sufficiently diversified to limit exposure to systemic risk only.

Such a portfolio will need to cover a range of sectors to be efficient.

More shares would be required in developing markets because of higher equity volatility.

That is the impact of the movement of a particular share could be more significant.

Investment theories assume that a rational investor should not take on any diversifiable risk.

As only non-diversifiable risks are rewarded within the scope of most financial systems.

This implies that a passive or index tracking strategy should be followed.

However, the company may wish to aim for a particular level of exposure to diversifiable risk in following a particular investment strategy.

That is they may decide to follow an active management policy with the aim of beating a passive/tracking approach.

There will thus be a trade off between the diversifiable risk taken on and the projected extra expected return.

The level of exposure taken will be documented within the company's risk appetite and monitored in order to manage the risk.

The risk will also be factored into capital requirements.

The company could mitigate the risk through tailored derivative strategies.

Part (i) was disappointingly answered. The majority of candidates wrote down the two investment aims of return via risk and security encouraging caution, but did not extend this to how it would influence the risk budget.

In part (ii) most candidates picked up marks for explaining the three types of risk, but did not go into detail of how to set benchmarks or how to monitor each.

Part (iii) was possibly the weakest section of the paper with many candidates simply not getting beyond core definitions. This could be because this was the last part of the paper to be answered – there was a lot of evidence of time trouble. There were a lot of easy points here for fairly standard bookwork or natural application so it's important to give enough time to do it justice. Those that scored well went into detail on what the two types of risk were, then describing how to manage them.

END OF EXAMINERS' REPORT