

Subject SA6 — Investment Specialist Applications

EXAMINERS' REPORT

April 2008

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

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Chairman of the Board of Examiners

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Comments

An often poorly answered paper, with candidates typically answering Question 2 better than the others. Many candidates appeared to be thrown by the introduction of a third question and their answers suggested they had left insufficient time to complete the question, even if they understood the key issues. Even where candidates appreciated the general content the examiners were looking for, their solutions typically lacked detail and scored lower accordingly. In particular, candidates appeared to struggle with Question 1(v) where few were able to calculate either the dollar profit required in (a) or the leverage asked for in (d). Given the examination is intended to test finance and investment risk and applications, too much time was spent detailing information on the liabilities and missing the more obvious scoring points on investment issues (a common failing in Question 2). That said, many candidates were poor at graphing the liability cashflows.

In every diet there will be candidates who are very close to the pass mark and yet receive an FA – indeed I suspect candidates would be very surprised to see just how tightly distributed the marks are; deciding where the pass mark falls will have a material impact on the numbers of candidates who are successful and the examiners take great care to ensure a consistency of standard across candidates, subjects and diets. It was fairly clear where the hurdle should have been set; as a result, the pass rate for this diet was slightly higher than last time and, encouragingly, the pass mark slightly higher too, albeit still lower than 2006 and earlier. It continues to be a disappointment that candidates, who are likely to be working as advisers or asset managers in this most practical of fields given that they have sat a specialist paper, achieve such low scores. Indeed, it is most astonishing the numbers who achieve grades of FC and FD since this would imply very little knowledge and understanding.

Candidates should note the bias in the paper towards recognising higher level skills and practical application – this is intentional and will continue. Likewise the examination system does properly allow for prior subject knowledge to be assumed. Investment is a necessarily practical subject and at this level, the examiners expect candidates to demonstrate a breadth and depth of competency as would be expected from a practising actuary or senior student in a frequently evolving discipline. Hence simple regurgitation of bookwork will never be sufficient to ensure a Pass grade.

As noted before, in order to succeed, candidates must ensure they familiarise themselves with the prevailing investment issues and the general market background facing institutional investors in the 18 months preceding a diet, more so the solutions (and sources of) being debated by the various stakeholders. A recurring theme in recent years has been a move towards capital market rather than purely insurance and asset management solutions – hence questions regarding banking and derivative approaches to asset and liability risk management or modern financial theory and commercial applications should be considered likely scope for examination. Likewise the increasing popularity of buyouts in order to manage pension risks has been a topical issue amongst companies and financial journalists for many months now.

All extenuating and mitigating circumstances were considered in awarding grades.

- 1**
- (i) Asset backed commercial paper is commercial paper that is issued by a bankruptcy remote...
...special purpose vehicle (SPV)...
...which then uses the proceeds to invest in a portfolio of assets.
As such it will have maturity of 360 days or less
...although US issues are typically 270 days or less.
- (ii) A Collateralised Debt Obligation (CDO) is an investment-grade security backed by a pool of bonds, loans and other assets. The pool of assets will be held within a Special Purpose Vehicle (SPV) to make it “bankruptcy remote” from the manager of the pool, and the SPV will issue CDO securities to finance the pool.
- (iii) Typically the CDO securities will be issued in a tranching manner:
- A bond with fixed coupon rate. This is the most senior security and its coupons are paid first. It is termed senior debt and might carry a AAA rating.
 - A bond whose coupons are paid as long as there is enough left after the payments to the senior debt is made. This bond might carry a BB rating, and is often known as the mezzanine tranche.
 - A claim on the residual cash flows from the original portfolio after the two senior classes are paid. This third tranche can either be structured as a high yield bond or an equity claim.
- By raising finance in this way, it is possible to minimise the cost of finance for the SPV as 80% or more of the total finance is likely to be senior debt. This might carry a spread over LIBOR that is comparable or only slightly higher than that on corporate bonds of a similar credit grade, whereas the spreads on the mezzanine tranche would be several hundred basis points and the equity tranche would carry a still higher yield (to reflect the significantly higher default risk).
Conversely the underlying assets are likely to be sub-investment grade or unrated issues.
Hence the CDO structure enables these assets to be packaged and financed at lower cost than if they were issued individually.
- (iv) The carry is the return obtained by holding an asset (eg positive carry could be the yield on a bond, and negative carry could be the storage costs for precious metals).
Negative carry trade examples: borrowing high-yielding currencies and lending low-yielding currencies (yield based on overnight interest rates), borrowing at overnight interest rates to invest in a commodity which is in contango/has a cost of carry.

- (v) (a) $\text{Profit} = 500,000,000 / 120 \times (5.3\% - 0.5\%) / 360 = \555.56 per day
- (b) A haircut is the extent of reduction from market value that is applied when assessing the quality of an asset for collateral purposes. This figure reflects the possible reduction in value that might occur before the collateral can be sold, in the event of the borrower defaulting.
- (c) Where a trade consists of borrowing and investing the proceeds in a high quality asset, it would normally be possible to post the asset as collateral against borrowings. Therefore capital only needs to be placed to cover the haircut, rather than the full economic exposure, creating leverage.
- (d) The maximum leverage ratio is $1 / 7.5\% = 13.3$ times.
- (vi) These assets may:
- Yield more than comparable corporate issues, after allowing for expected defaults – giving a reserving advantage over corporate issues.
- Have a higher expected return than comparable corporate issues, after allowing for expected defaults – giving a return advantage over corporate issues.
- The correlation of defaults on asset-backed issues with defaults of corporates may be relatively low (depending on the underlying assets within the CDO or SPV issuing the commercial paper), creating a diversification advantage for investment returns.
- In summary, these assets have a legitimate place within a diversified portfolio but the life office will need to “look through” to the underlying pool of assets to understand the risk exposures, both in terms of concentrations and the default experience of different underlying assets. Without this understanding, the case for investment is dubious.
- These assets may be less liquid than comparable corporate issues, therefore the life office will also want to structure its portfolio in a way that ensures adequate liquidity in the event of liability payments being accelerated compared to current estimates.
- (vii) In practice this level of leverage would not provide any contingency against overnight losses on the collateral relative to the underlying trade, which would require additional collateral to be posted to the lender/prime broker. Therefore some capital needs to be set aside to cover this risk, else the fund would be at high risk of insolvency through lack of liquidity.
- Additional capital would be required to ensure liquidity in the event of increasing correlations between the trading opportunities that are believed to be weakly correlated. Correlation tends to increase over short periods across illiquid and volatile asset classes when there is a shortage of liquidity in the financial markets, even where the long-term behaviour of asset classes is only weakly correlated. This reflects the “flight to quality”.
- The Compliance Manager will also want to ensure that the hedge fund has processes in place to monitor the value at risk (VaR) applying to each strategy on a daily basis to ensure that this does not breach limits for the fund, and this

is likely to further reduce the amount of leverage that can be applied. In addition to the VaR analysis, other tests such as stress testing may also be applied.

Capital needs to be available to cover the period between a counterparty to a trade defaulting and the position being closed out. Potentially this can represent several days of “naked” market risk.

There may also be a desire to ensure that there is some liquidity in the event of known future withdrawals of capital by investors.

2

(i)

- The main objective would be to match the liabilities as closely as possible at the lowest cost possible.
- Bonds are a relatively close match to deferred pensioner and pensioner liabilities, and relatively close cash-flow matching may be possible for the pensioner liabilities.
- Passive funds are likely to lead to lower expenses, in terms of investment expenses, management involvement and the costs of external advisers.
- A combination of Index linked bonds and corporate bonds is a good match for LPI liabilities because:
 - With IL the risk is that inflation is <0% i.e. deflation.
 - With corporate bonds (or conventional gilts) an assumed rate of inflation needs to be set. The risk is that actual inflation turns out to be greater than the assumed rate.
- The Trustees and Company have decided not to mismatch their liabilities by investing in equities to the extent that many other pension funds have because they are risk-averse.
- The plan may have a low funding level so is not able to mismatch its liabilities.
- The Company's covenant may not be sufficiently strong to justify mismatching liabilities for a fund this size.
- The Company may be concerned about ensuring that the pension asset or liability shown in its FRS17 disclosures is not excessively volatile.
- The fund could have considered winding-up, so adopting a matched investment strategy would reduce the uncertainty of the cost of a buy out in the future.
- The investment benchmark reflects the investment policy, and a peer group benchmark or some other measure is unlikely to be relevant/appropriate.

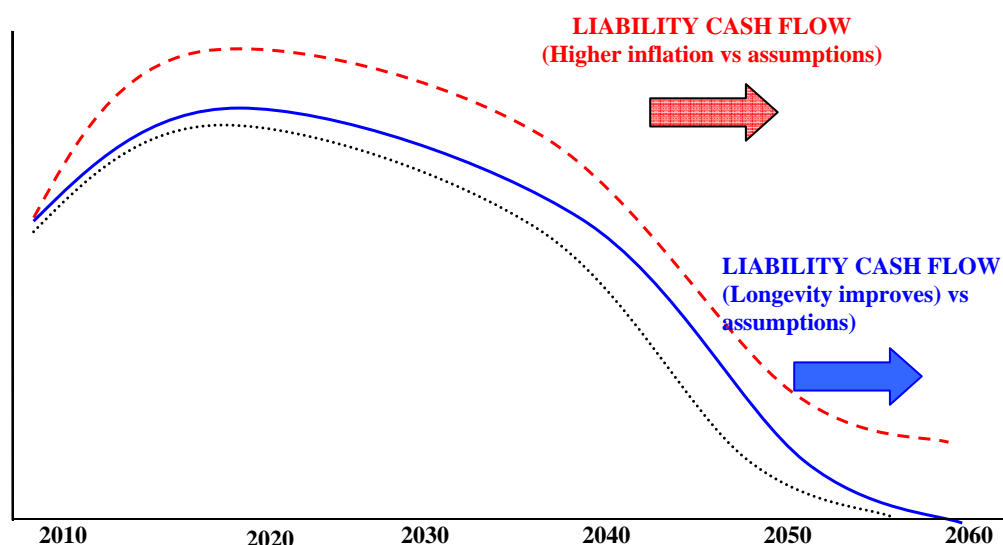
(ii)

- The main objective is to transfer the assets into the larger fund as quickly and efficiently as possible.
- The segregated fund's investment policy may be distorted a little for a period of time after the transfer due to the increased allocation to bonds. However size of new assets is small.
- This may be resolved either by a switch in investments, or by investing new contributions from the open plan in equities and other non-bond asset classes.

- Need to decide on whether cash or in-specie transfer is appropriate.
- For a transfer of this size it may be possible to arrange an in-specie transfer to the segregated fund.
- A transfer of a few selected equities may be possible in respect of the £5m of UK equities.
- This will avoid buying and selling costs.
- Stamp Duty Reserve Tax (0.5%) will be incurred if any new holdings of UK equities are purchased (but not UK bonds or cash, or non-UK assets).
- If cash is transferred need to consider fully the risk of being out of the various markets.
- The exact time of realisation of cash out of the pooled funds and settlement periods needs to be established.
- Consider buying futures ahead of receiving assets in order to maintain exposure or run down cash in the main segregated fund.
- An alternative to an asset transfer may be to reassign the pooled fund holdings from the plan into the segregated fund without transferring stocks or cash; realisation can be done at a later date.

3 (i)

Cashflow profile of a typical DB pension scheme



(ii)

- Extremely long-dated Liabilities often linked directly or indirectly to inflation (Salaries, RPI/CPI and LPI)
- Scheme deficit on a realistic or insurance basis
- High exposure to Equities, credit and non-fixed income investments
- *Rewarded* risk, but
- No interest rate immunising characteristics
- Too few interest rate sensitive assets (bonds)
- Bonds held often with a passive manager or actively exposed to credit or duration risk
- Too expensively “managed” for market exposure and available reward
- Too few inflation-linked assets
- No longevity risk protection
- The nominal and real rate bonds that are held are too short in duration in any case (due to lack of real supply)
- Leads to ineffectiveness in liability “matching” and so “curve” risk
 - Pension scheme exposed to changes in the level and shape (and volatility) of the nominal and real yield curves
- This is *unrewarded* risk

(iii)

- Shareholders want companies to increase revenues, reduce costs and manage their risks
- Company has very significant and disproportionate risks to earnings and balance sheet from pension fund exposure
 - The pension risk may be high relative to the size of the business
 - Even if pension risk exposures are manageable, the pension fund is a non-core business activity and consumes management time and potentially capital/cash at unpredictable times
- Any future demerger or corporate activity is hampered by need for trustee approval
 - Pension scheme members want security, affordable benefits and understanding of their position
 - Trustees and employees concerned about strength of changing sponsor “covenant”
 - Pensions regulators are likely to support any call for full funding at “Insurance Buy Out” level (*viz* Alliance Boots, Sainsbury)
- Direct costs arise from risk-based levy payments to funds such as the UK’s Pension Protection Fund (“PPF”) or US Pension Benefit Guaranty Corporation (“PBGC”) with potential increases in the cost of capital from poor risk management
 - Risk reduction and control should have direct financial benefit to company from reduced levy
- Funding level of pension scheme is highly sensitive to changes in nominal and real interest rates and asset risks
- Historically transferring risk was seen as expensive relative to typical funding and accounting valuation measures
 - Insurance buyout market is becoming more competitive due to new entrants, but overall capacity is still limited

- Market developments (interest rate and inflation swaps, fledgling mortality swap market) provides greater transparency about the true cost of maintaining a closely hedged low risk strategy for a pension scheme without transferring risk
- These cash and balance sheet risk arguments mean that it may be desirable to inject cash into the fund to facilitate a risk transfer to an insurance company
 - This is particularly the case for former employees (current and deferred pensioners) where corporate is simply the guarantor of liabilities, but has no current link to the scheme members

(iv) (a)

- Interest rates
- Inflation
- Asset (equity)
- Longevity
- Currency
- Credit
- Market
- Event
- Legal
- Operational
- Reputation

(b)

- Interest Rates: Risk that interest rates decrease i.e. rates used to discount the liabilities fall resulting in a higher present value of benefits
- Inflation/Salary: Risk that inflation increases, thus increasing benefit levels. Uncertainty on salary increases
- Equity: Risk of a decline in the value of the assets thus not having enough to secure the benefits
- Longevity: Uncertainty in people's life expectancy – more people are living longer but also how much longer and what is the rate of improvement? Increases the term over which benefits are paid

(c) Interest Rates:

- Unrewarded risk i.e. significant risk with no corresponding return potential
- Very easily removed in a cost effective way

Inflation:

- Unrewarded risk i.e. significant risk with no corresponding return potential
- Easily removed in a reasonably cost effective way

Equity:

- Increased deficit could also impact leverage of the sponsor
- Rewarded risk i.e. significant risk but potential for higher returns
- Easily removed in a reasonably cost effective way

Longevity:

- Standalone risk with no “matching” assets
- Difficult to remove cost-effectively without full risk transfer

(v) Asset and liability risks can be:

- Reduced (by changing investment policy but may increase long term cost to sponsor)
- Managed (by hedging unrewarded risks)
- Transferred (to insurance market)

Barriers to success

- Pension governance process moves much slower than capital market repricing
- Risk transfer requires clean data – and so time to restore
- If Scheme has significant investments in equity markets, unattractive to insurer
- If Scheme has significant investment in illiquid assets, unattractive to insurer
- All insurance companies are backed by same regulatory structure so should be indifferent on “quality”
 - Established insurers could sell their annuity book so that “brand value” is lost
 - Hence it is reasonable to go for cheapest quote, assuming same liabilities are being secured
 - Insurance company will guarantee basis of calculation, not level
- There could be cheaper “non-insured” alternatives
- Equity and credit markets remain volatile
 - Further fall could make funding buyout “gap” untenable
- Long-term Interest rates remain volatile
 - Ongoing pension fund and insurance company demand for limited supply could make buyout unaffordable again
- Insurance company needs to invest in riskless assets to satisfy its regulator
 - Insurance company will not have natural “matching” investments so will need to source externally
 - large trade will have market impact if implemented insensitively or too quickly
 - But slow implementation increases risk of asset inadequacy – and this will be priced in to quotes
- Need to consider also
 - Scope to hedge funding level quote to maintain affordability while risk is priced
 - Cost and ability to raise funds to bring Scheme to overall buyout funding level
 - Ability to pre-position investments ahead of buyout date or use overlay strategy to close the gap between what the Scheme has and what the preferred insurer needs
 - Blackout period needed to effect asset transition
 - Probably will appoint a transition manager or bank to work with preferred insurer to optimise realisation of existing assets and establish new investment policy

- How to derisk any retained assets and liabilities for active members
- When and how to disclose pension solution to market

END OF EXAMINERS' REPORT