



# Examiner's report

## F9 Financial Management

### June 2015

#### General Comments

The F9 examination paper consists of Section A, with 20 multiple-choice questions worth two marks each, and Section B containing three questions worth 10 marks each and two questions worth 15 marks each. Both sections address all areas of the syllabus and all questions in the examination paper are compulsory.

This report considers each section in turn and addresses key learning points.

#### Specific Comments

##### Section A

As the questions in Section A draw on the whole syllabus of F9, no area of the syllabus can be neglected when studying and preparing for this examination. Two questions from this section of the examination paper are now reviewed here, with the objective of helping future F9 candidates to understand the kinds of questions that can be asked, as well as looking at relevant areas of the F9 syllabus. These two questions have been selected because many candidates were unable to answer them correctly.

##### Question 14

Which of the following statements are correct?

- 1 Interest rate options allow the buyer to take advantage of favourable interest rate movements
  - 2 A forward rate agreement does not allow a borrower to benefit from a decrease in interest rates
  - 3 Borrowers hedging against an interest rate increase will buy interest rate futures now and sell them at a future date
- A 1 and 2 only  
B 1 and 3 only  
C 2 and 3 only  
D 1, 2 and 3

The correct answer is A, that statements 1 and 2 only are correct. Many candidates chose answers B or D rather than answer A.

This question considered three ways to hedge interest rate risk. Interest rate options can be used to hedge an adverse interest rate movement, while allowing the buyer to let the option lapse in order to benefit from favourable interest rate movements. The first statement was therefore correct.

A forward rate agreement will lock a borrower into a specified interest rate for a specified period on a specified notional amount of money, from a specified future date. Depending on the actual interest rate on the specified future date, compensating payments are made either by the borrower to the bank (if the actual interest rate is favourable to the borrower), or by the bank to the borrower (if the interest rate is unfavourable to the borrower). The borrower cannot therefore benefit from a decrease in interest rates and so the second statement is correct.



With interest rate futures, a borrower hedges against an interest rate increase by selling futures now and buying futures on a future date, while a lender hedges against an interest rate decrease by buying futures now and selling them on a future date. The third statement is therefore incorrect.

### Question 15

A company needs \$150,000 each year for regular payments. Converting the company's short-term investments into cash to meet these regular payments incurs a fixed cost of \$400 per transaction. These short-term investments pay interest of 5% per year, while the company earns interest of only 1% on cash deposits.

According to the Baumol model, what is the optimum amount of short-term investments to convert into cash in each transaction?

- A \$38,730
- B \$48,990
- C \$54,772
- D \$63,246

The correct answer is C, that the optimum amount of short-term investments to convert into cash in each transaction is \$54,772. Many candidates chose answer B, while a minority of candidates chose answers A or D, rather than answer C.

It should be noted that the Baumol model applies the economic order quantity (EOQ) model to cash and that the EOQ formula is in the formulae sheet. The Baumol model essentially treats cash deposits as inventory, redefining the EOQ variables to deal with cash deposits. Demand for cash is \$150,000 per year and the fixed cost of getting cash from short-term investments (the ordering cost) is \$400 per transaction. The penalty or opportunity cost of holding cash rather than short-term investments (the holding cost) is the difference between the interest rates on the two items, namely 4% per year. The optimum amount of short-term investments to convert into cash in each transaction is therefore  $(2 \times 400 \times 150,000 / 0.04)^{0.5} = \$54,772$ .

### Section B

Candidates in general performed well on the calculation-based questions 1a, 2a, 3a and 5a. Candidates in general did not perform as well on discussion questions, for example questions 1b, 2c, 4b and 5b. Almost all candidates made a reasonable attempt at all five questions, although some candidates struggled with question 4.

As has been said before, it is essential to read the question requirement carefully in any examination, in order to understand clearly what you are being asked to do. Some candidates did not do this and as a result included irrelevant material in their answers. For example some candidates discussed credit control in question 3b when the question asked about credit analysis.

It is also important to manage your time carefully in the examination and to plan your answers to discussion questions if you can. You should therefore avoid writing too much for the marks offered, for example some candidates gave long answers to question 3b, which was only worth 3 marks.

### Question 1(a)

The requirement here was for candidates to evaluate whether a money market hedge of a forward market hedge would be preferred on financial grounds by a company. Many answers gained full marks here.

Since a euro receipt was expected in six months' time, a money market hedge would need to set up a euro liability of equal size in six months, by borrowing in euros now, converting to dollars and placing the dollars on deposit. The six-month euro borrowing interest rate, the spot exchange rate and the six-month dollar deposit interest rate were therefore needed.

The dollar deposit would give a future value that could be compared with value of the forward market hedge in six months. The hedge that gave the higher dollar value would be preferred on financial grounds.

Some answers made errors relating to incorrect interest rates or to incorrect exchange rates. Occasionally, an answer inverted the money-market hedge, treating the euro receipt as a euro payment and therefore making a euro deposit.

#### **Question 1(b)**

Candidates were asked here to briefly explain the nature of a forward rate agreement and to discuss how a company could use a forward rate agreement to manage interest rate risk.

Many candidates gained very low marks here because they thought that a forward rate agreement (FRA) was a forward exchange contract (FEC), and discussed how an FEC could be used to manage foreign currency risk, when the question asked about interest rate risk. An FRA is the interest rate equivalent of an FEC.

Candidates who understood the nature and use of an FRA gained good marks by explaining that it was a contract between a company and a bank for a specified interest rate on a nominal amount of money for a specified period. Compensation payments are made either by the bank or the company, based on the difference between the specified interest rate and the actual interest rate on the contract date, thereby fixing the interest rate for the company and insulating it from adverse or favourable interest rate movements for the period. The FRA is separate from the related debt transaction, which can be with a different bank.

The key learning point here is the importance of understanding the difference between an FEC and an FRA. In terms of examination technique, answers to this question reinforce the need for you to address the question requirement (interest rate risk) and avoid including irrelevant material (foreign currency risk, interest rate parity) in your answer.

#### **Question 2(a)**

This requirement here was to calculate the equity market value of a company using the dividend growth model. The correct approach was to calculate the total dividend paid for each of two years, calculate the dividend growth implied by the two figures, and then use the dividend growth model (DGM) to calculate the equity market value.



Many candidates struggled to gain full marks on this question. Many candidates also wasted time working on a per share basis, dividing by the number of shares at the start of their calculations and then multiplying by the number of shares at the end of their calculations.

Many students were not able to calculate the dividends paid. Errors made here included applying the dividend payout ratio to the nominal value per share; using earnings instead of dividends; using the payout ratio as the dividend; making an error in the (unnecessary) calculation of the number of ordinary shares; and taking the square root of the relative dividends (implying two years of dividend growth when only one year of growth occurred).

Even with the aid of the formulae sheet, many errors were made using the DGM, including using this year's dividend as next year's dividend; using earnings instead of dividends; using an integer form for the cost of equity but a decimal form for the dividend growth rate; subtracting the dividend growth rate instead of multiplying by it; and using the 'cost of equity' arrangement of the DGM, but claiming the cost of equity was the share price.

The key learning point here is the need for candidates to study the dividend growth model as a business valuation method, understanding the variables that are used by the model and avoiding unnecessary calculations on a per share basis when total figures can be used.

#### **Question 2(b)**

The requirement here was to calculate the equity market value of a company using the earnings yield method. The correct approach was to divide the total earnings by the dividend yield of similar listed companies. Both figures were provided and so the question requirement could be met by one calculation. Many candidates struggled to gain the two marks on offer.

There was no need to calculate earnings per share and there was no need to calculate the earnings yield of the company being valued: candidates making these calculations wasted valuable time. Some candidates made the mistake of multiplying earnings by the earnings yield, rather dividing by it. Some candidates offered no answer to this question.

A key learning point here is that any business valuation method in the syllabus could be examined, so candidates must be familiar with them all.

#### **Question 2(c)**

Candidates were asked to discuss the relative merits of the dividend growth model (DGM) and the earnings yield method as a way of valuing a company. A key phrase here is 'relative merits' and candidates' answers were expected to compare the two methods, although many answers did not do so.

Most answers failed to gain high marks, or gained low marks or no marks, because they were descriptive or because they discussed the two methods separately. Descriptive answers often stated the obvious: 'the DGM uses dividends to value a company'; 'the DGM includes the cost of equity'; 'the DGM looks at dividend growth'; without taking these points any further through discussion. Answers discussing the two methods separately might comment on the merits or demerits of one method, but not relate these points to the other method. Better answers, addressing the question requirement,

would make comparative points, for example contrasting dividends (cash) with earnings (profit) as bases for valuing a company.

A key learning point here is that candidates must develop the ability to critically discuss the techniques that they learn to apply, in order to understand why one technique might be preferred to another in a particular situation.

### **Question 3(a)**

The requirement here was to advise whether a factor's offer was financially acceptable to a company. Many candidates gained good marks, although a significant number of answers were poorly organised and difficult to follow.

The recommended approach is to think in terms of costs and benefits. The suggested answer calculates costs and benefits in an incremental way, however a before and after approach is also possible. Calculating the saving in bad debts as \$187,250 per year is an incremental calculation, while noting that bad debts change from \$267,500 to \$80,250 if the factor's offer is accepted is part of a before and after approach.

Some candidates ignored the instruction in the question to assume that there were 360 days in each year.

A number of candidates lost marks because of errors relating to trade receivables. For example, the factor offered to reduce average trade receivables days to 35 days, so the revised trade receivables figure was credit sales multiplied by 35/360: a number of answers multiplied current trade receivables by 35/360 instead. Some answers incorrectly based bad debts on trade receivables instead of credit sales. The terms of trade required customers to settle within 40 days, but on average they took longer: some answers calculated a trade receivable figure using 40 days and based their analysis on this, rather than on the trade receivables figure provided in the question.

Calculations of interest costs were a regular source of mistakes. From an incremental point of view, there were two elements: a reduction in interest costs arising from the decrease in the average level of trade receivables, and an increase in interest costs arising from the advance of 80% of the new level of trade receivables at 2% more than the 5% interest rate currently paid by the company. A number of answers mistakenly based interest rate calculations on credit sales rather than trade receivables. Some candidates used 7% as the incremental interest rate, rather than 2%, failing to recognise that the company currently paid 5%. Some answers treated the interest cost of the advance as a benefit rather than a cost.

It is suggested that many candidates would benefit from using a structured approach to questions like this, leading to a structured way of laying out their calculations.

### **Question 3(b)**

Candidates were asked here to briefly discuss how the creditworthiness of potential customers could be assessed. Many answers gained full marks and the suggested answer indicates appropriate points to discuss. A number of answers, however, lost marks as a result of discussing unnecessary material and thereby failing to address directly the question requirement. For example, although the question asked about credit analysis, some candidates offered (perhaps memorised) answers discussing credit

analysis, credit control and collection of amounts owing, with only a small part of the answer relating to the question requirement.

#### **Question 4(a)**

This question asked candidates to evaluate the effect on the wealth of shareholders of using rights issue funds to redeem loan notes. Many answers failed to gather many marks and a small number of candidates did not offer any answer at all.

Changes in share price are a way of assessing changes in shareholder wealth and so the share price after redeeming loan notes could be compared with the share price following the rights issue (the theoretical ex rights price or TERP). The share price after redeeming the loan notes could be found by multiplying the post redemption earnings per share (EPS) by the unchanged price/earnings ratio of the company.

A good way to start answering the question was to consider the planned rights issue, and many answers were able to calculate correctly the rights issue price, the number of new shares offered in the rights issue, the net cash raised after issue costs, and the TERP (whether or not considering issue costs).

Some answers stopped at this point, ignored the proposed redemption of loan notes, and mistakenly discussed how the wealth of shareholders had fallen because the TERP was lower the current market price.

Even though the question gave the amount of cash the company planned to raise, some answers calculated their own figure for the cash raised and incorrectly based their answer on that. For example, some answers adopted a 5 for 1 basis for the rights issue, rather than the 1 for 5 basis given in the question, while others added the issue costs to the cash raised figure provided.

The most direct way of assessing the effect of redeeming loan notes was calculating the after-tax interest cost saving, adding this to the current earnings, and calculating a revised EPS.

The interest cost saving is based on the nominal value of loan notes redeemed. Some answers incorrectly based the interest cost saving on the market value of loan notes redeemed.

Some answers incorrectly based an assessment of changes in shareholder wealth on changes in the capital structure of the company, which was provided in the question.

#### **Question 4(b)**

Candidates were asked to discuss whether the company might achieve its optimal capital structure following the rights issue. Even though optimal capital structure theory has been examined regularly, many answers were unsatisfactory.

There are several ways of answering this open-ended question. Many answers started with a definition of an optimal capital structure, which is the point where the weighted average cost of capital (WACC) is minimised and the market value of a company is maximised. Some answers incorrectly stated that an optimal capital structure was a 50/50 mix of equity and debt.

Since it was planned to replace debt with equity, gearing would fall. A number of answers considered whether this fall in gearing would result in an optimal capital structure from a theoretical point of view, touching on the traditional view and the views of Miller and Modigliani, gaining credit for this approach. Another approach adopted by some candidates was to consider the relative costs of equity and debt, arguing from a real-world standpoint that WACC was likely to rise if cheaper debt were replaced by more expensive equity.

### Question 5(a)

Candidates were required here to calculate the expected net present value (ENPV) of an investment project and to comment on its financial acceptability. Most answers gained good marks.

The selling price was forecasted to depend on the future state of the economy and most answers correctly used the probabilities of the future economic states to calculate an average selling price. Some answers, however, wasted valuable time by calculating an NPV for each the economic states.

The question gave the forecast total nominal variable costs, which some candidates incorrectly inflated. Nominal values, of course, include inflation.

Although the question stated that tax liabilities were paid in the year they arose, some answers incorrectly deferred the tax liabilities by one year.

Credit was given for tax benefits arising from tax-allowable depreciation whether the effect of the scrap value was accounted for in the final year of operation or on an average basis over the life of the investment project (the method used in the suggested answer), provided a straight-line approach was adopted. Some answers incorrectly used a 25% reducing balance approach to tax-allowable depreciation.

While the suggested answer uses tax benefits arising from tax-allowable depreciation, credit was also given where tax-allowable depreciation was subtracted to give taxable profit, then added back after the tax liability had been calculated. The after-tax cash flow would be the same irrespective of which approach were adopted. Some answers incorrectly treated tax-allowable depreciation as a positive cash flow.

Credit was given for including the scrap value whether it was placed in the fourth year or the fifth year, although the question did say that it was expected to arise at the end of four years.

Even though the question required candidates to calculate the ENPV, many answers commented on financial acceptability by stating that the NPV of the investment project was positive and therefore it was financially acceptable. This ignores the fact that the ENPV is an average NPV which is not expected to occur in practice. An average NPV might also include a negative NPV in its calculation.

A key learning point here is the need to read the question carefully, not just in order to clearly understand the question requirement, but also to understand the information provided by the question.

### Question 5(b)

The requirement here was to critically discuss if sensitivity analysis would assist a company in assessing the risk of an investment project. Many answers were not able to gain high marks, for several reasons.

Many answers were able to explain that sensitivity analysis considered the relative change in a project variable needed to make the NPV zero, or the change in the NPV arising from a specified change in a given project variable. Some answers discussed the idea of the key or critical variable, which was the project variable where the smallest relative change resulted in a zero NPV. The limitation of only changing one variable at a time in sensitivity analysis was often mentioned, with better answers pointing out that in reality project variables are often interrelated to a greater or lesser extent.

A key point in providing a good answer to this question was recognising that risk could be quantified using probabilities, unlike uncertainty. Having recognised this, better answers pointed out that, as sensitivity analysis did not consider probabilities, it could not assist a company in assessing the risk of an investment project.

Even though the requirement was for a critical discussion, many answers attempted to calculate sensitivities of project variables. No credit was given for these calculations because they were not required.