

# **Examiner's Report**

**June 2017 Session**

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**Paper 4  
Business Economics and  
Financial Mathematics**

## **General Comments**

This paper consisted of three sections. Section A contained multiple-choice questions; Section B had two compulsory short questions and Section C had three long optional questions. The questions tested candidates' understanding and knowledge of both economics and financial mathematics. The overall pass rate was higher than that in the previous session. The performance in the compulsory questions, which were designed to test candidates' knowledge and understanding of key issues in economics and mathematics finance, was still poor. This indicated that most candidates had failed to demonstrate a solid understanding of the major concepts in economics (both micro and macroeconomics) and basic calculation techniques commonly applied in the finance, or more broadly, business world.

### **Section A – 15 Multiple-choice Questions**

The questions in this section were compulsory and divided into two parts. The first part consisted of ten questions, each correct answer of which was worth one mark. The latter part had five questions, which was worth two marks each. The general performance (in terms of the average score and pass rate) was better than that in the previous session. As these multiple-choice questions were designed to cover the whole syllabus and the calculation techniques involved were fundamental to business decision-making purpose, a solid performance in this section would reflect that candidates had prepared well for the examination and had a comprehensive understanding of the basic issues and techniques in the syllabus.

An efficient and effective way for candidates to gain a basic understanding of the whole syllabus and the types of questions that they might face in the examination is to go through the entire study text on this Paper. If necessary, they should also study relevant sections of the supplementary readings (including books) assigned for this Paper.

### **Section B – 2 Compulsory Questions**

#### **Question B1**

This question, consisting of two separate parts, was designed to test candidates' knowledge and understanding of the two most commonly used government (including central bank) policies and how they could be used to influence macroeconomic outcomes. Candidates were also required to provide examples and/or brief explanations of the relevant concepts. The overall performance was very poor.

Part (a), made up of two sub-parts, focused on fiscal policy and how it helped stabilise the economy through business cycles. Part (a)(i) asked candidates to define fiscal and monetary policy. Part (a)(ii) focused on how fiscal policy could be used to stabilise the business cycle (i.e. to reduce the impact of the ups and downs in economic activities through the cycle). Most candidates seemed to have problem even defining clearly what fiscal and monetary policies were, let alone how fiscal policies were implemented through changes in government spending and taxation. This clearly reflected candidates' weak background in economics and/or the lack of proper preparation for the examination.

Part (b) was divided into two sub-parts, which focused on how monetary policy could be used to manage inflation. Part (b)(i) tested candidates' basic knowledge of price index (an essential metric for inflation) and its application in simple inflation rate calculation. Candidates were also asked to give two examples of any two price indices. Part (b)(ii) was a concept-based question, focusing on how (i.e. the channels through which) monetary policy could be used to manage (excessive) inflation. The performance was as poor as in part (b)(i).

Given that both questions were designed in a way to test candidates' basic knowledge of government policies and the economic indicators for price, the poor result highlighted the importance of sufficient preparation in successfully handling "knowledge-based" questions (e.g. definition-based questions and questions that involve very standard and straightforward application of quantitative techniques in an economic setting).

Candidates are strongly advised to read not only the study text but also the supplementary reading materials on macroeconomics.

## **Question B2**

This question comprised three parts, with the last part further divided into three sub-parts. The entire question was calculation-based. It was designed to test candidates' ability to apply basic time value of money concepts and calculation techniques. Unlike Question B1, all parts (including the three sub-parts in part (c)) were related by the interest rate that was common to all questions.

Part (a) involved the basic calculation of the (effective) weekly interest rate being charged on the loan. Part (b) required candidates to convert the weekly interest rate into the corresponding yearly rate (assuming there are 52 weeks every year). It is important for candidates to note that these kinds of basic quantitative techniques are of high relevance to daily business decision-making and thus should be part of the basic financial toolbox for everyone working in the accounting field.

Part (c) focused on how the weekly interest rate derived in part (a) could be applied to the calculation of the size of the interest and principal payments on a one-year loan under various repayment arrangements. Specifically, it was assumed in part (c)(i) that no interest NOR principal repayment would be made until the loan fell due in one year. In part (c)(ii), the borrower was required to make weekly interest payments (while no principal repayments were made) during the 52-week loan period. Finally, part (c)(iii) considered the case resembling a typical "pay-off-by-weekly-installment" scenario. Running behind all the calculations were the insight that anyone taking out a loan must somehow repay the principal (the amount borrowed) along with interest payments (composed of interest on principal and/or interest on interest, depending on the repayment arrangement) eventually.

It follows that if no payments were made during the loan period (as in part (c)(i)), the borrower must pay back at the maturity of the loan not only the principal and the total interests of principal owed, but also the interest-on-interest arising from the fact that the borrower did not pay the interest on principal every period (weekly in this case). The total amount needed to be repaid at maturity could be easily calculated using the compound interest future value formula for single cash flow (see the suggested answer for the exact numerical formula). If interest on principal was paid every period (as in part (c)(ii)), the borrower would not have to pay interest on interest on the loan. The total amount of interests for the loan would thus only be made up of 52 weeks' interest on principal, which was significantly less than the total amount of interests paid under the payment arrangement in part (c)(i). Part (c)(iii) of the question simply required candidates to apply mechanically the present value of an annuity formula to calculate the size of the fixed weekly repayment under a 52-week instalment repayment schedule. Along the line of argument spelt out for parts (c)(i) and (c)(ii) above, candidates should readily see that the total interests paid would be the least among the three repayment arrangements (although this was not part of the question in part (c)(iii)).

The overall performance in this question was poor. Disappointingly, most of the candidates could not even seem to understand the setting behind parts (c)(i) and (c)(ii). Their answers also indicated that they were not even familiar with the basic future value formulas. This seemed to reflect that candidates were not only weak in economics at the introductory level but also lacking in efforts when it came to reading basic economics materials. The only way to improve upon this is to do sufficient reading of the assigned supplementary reading materials to build up the basic economics knowledge base.

## Section C – 3 Optional Questions

### Question C1

This question, made up of two separate parts, was entirely on microeconomics. The question was designed to test candidates' knowledge and understanding of basic demand and supply analysis and issues related to the pricing and output decisions made in a monopolistic (product) market. Although this was the most attempted question in Section C and candidates' performance was not the worst among the three optional questions, it could only be concluded that the overall performance was poor.

Part (a), made up of two separate sub-parts, required candidates to use non-graphic demand and supply analysis to determine what would happen to the (equilibrium) market price and quantity (transaction amount) after the occurrence of certain events. Unlike analyses based on demand and supply diagrams, this analysis required candidates to give a clear written argument focusing on cause and effect. Firstly, candidates should state clearly if the event would affect only the demand or supply, or both. Once that was determined, the focus should then be directed to the explanation of whether the event would result in a movement along the given demand/supply curve or a shift in the demand/supply curve. This required candidates to have a solid understanding of the so-called assumption of "ceteris paribus" (also known as "all other factors fixed") commonly adopted in economic analyses. Although the general performance was up to a satisfactory level, most candidates only managed to score a portion of the marks allocated to each part of the question.

Part (b) comprised six sub-parts, of which the first four were interrelated. Although parts (b)(i) to (b)(iv) were calculation-based, candidates would only be able to carry out the very straightforward calculations correctly if they were familiar with the pricing and output decision rules of a monopoly. The performance in these parts was satisfactory. Unlike the first few parts, parts (b)(v) and (b)(vi) were concept-based and independent from each other. The focus here was on the Law of Demand and how it imposed on a monopolist a trade-off decision between price and sales volume (quantity demanded). The performance in both parts was very poor, with most candidates giving completely incorrect answers.

To prepare for the questions in Section C, candidates are strongly advised to study past examination papers in detail to familiarise themselves with the key issues of each topic that have been examined in the recent past.

### Question C2

The question tested candidates' knowledge as well as capability of applying relevant concepts and calculation techniques (mainly present value calculations involving single and multiple cash flows) in assessing capital budgeting problems. The whole question was calculation-based and made up of two separate parts.

Part (a) was divided into two interrelated sub-parts, with the answer to part (a)(i) used as an input for the calculation of the answer to part (a)(ii). Both questions were about the application of two capital budgeting decision rules, namely, payback and net present value (NPV). Candidates' overall performance was very poor.

Part (b) was a capital budgeting question comprising four interrelated calculation-based sub-parts. The design and sequence of these sub-questions generally followed the timeline of a project: starting from the making of capital investment at the beginning of the project, followed by the receipt of yearly recurring cash inflows in the form of operating cash flows (OCF), and then the assessment of salvage values of relevant assets at the end of the project. This aimed at drawing candidates' attention to the pertinent financial issues when making capital budgeting decisions. Although quite a lot of candidates performed satisfactorily in the first three sub-parts, the overall performance was dragged down by the fact that most candidates failed to carry out the present

value calculations (of multi-period cash flows) as required in the last sub-part. The calculation error was largely due to candidates getting the present value of annuity formula incorrect, reflecting once again the lack of preparation.

This was the least attempted question in Section C and candidates' performance was the worst. To improve their performance in capital budgeting questions, candidates should study past examination papers such as the one for the December 2015 session and the relevant technical articles (available at the HKIAAT website <http://www.hkiaat.org/index.php/services/index/199>) published in 2014 and 2015.

### **Question C3**

This question focused on both descriptive and inferential statistical issues, and was divided into four parts. Like the other two optional questions, this one also involved both conceptual and calculation-based questions.

Part (a) was divided into three conceptually-related parts, with the first two focusing on the relationship between a sample and a population. Part (a)(i) was a definition-based question while part (a)(ii) required straightforward application of the concepts. Part (a)(iii) was also a definition-based question but with a broader focus (i.e. on the difference between descriptive and inferential statistics). The overall performance was satisfactory.

Part (b) was a standard numerical question on descriptive statistics. Specifically, candidates were required to construct relative and cumulative frequency distributions (in table form) based on the data provided. The overall performance was good.

Part (c) focused on the calculations of mean and standard deviation. The easiest way to do the calculations (also the most commonly used approach by candidates) was to construct a table to arrive at the key input numbers. The overall performance was good.

Part (d) was a concept-based question designed to test candidates' understanding of the differences between standard deviation and coefficient of variation as measures of absolute and relative dispersions. Although most candidates were able to put down some arguments to justify under what conditions the two dispersion measures would be more appropriate, the wording often failed to point out standard deviation (SD) is unit-sensitive while the coefficient of variation (CV), which is the ratio of SD to mean, is unit-free and thus serves better as a measure of relative dispersion (i.e. providing a more accurate comparison of the two groups' performance (in terms of commission)).

Based on the overall performance, it seems that candidates in general had better prepared for answering calculation-based statistics questions.

**[ END OF EXAMINER'S REPORT ]**