

CREDIT
AND
FINANCE

The Road to Success:

Understanding Business Economics and Financial Mathematics

**(Relevant to AAT Examination Paper 4 –
Business Economics and Financial Mathematics)**

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Overview

It is good to see Business Economics and Financial Mathematics included in the syllabus in the new HKIAAT examinations. As you may be aware, the Hong Kong Special Administration Region is currently undergoing an economic restructuring. The development of knowledge-based economy fits Hong Kong's comparative advantages. Nowadays, the majority of business activities demand sound and different skills. Accounting students need multiple-disciplinary knowledge and global skills to be prominent and to increase their value in today's business world. The HKIAAT has responded quickly to the need to uphold and promote the competencies of its members. The new business economics and financial mathematics syllabus will enhance students' economics knowledge and analytical skills, vital in decision making.

Preparation

Candidates preparing for Paper 4 – Business Economics and Financial Mathematics should be aware of the paper's special requirements.

The Paper 4 examination is a practice-oriented examination. Its questions are derived from a combination of theory, which is in the core reading, and real business cases. Candidates are expected to know business economics and financial mathematics concepts and approaches and understand how these can be applied to our day-to-day activities.

Key points to remember

The paper includes two main parts. The first part covers the basic principles of economics while the second part covers basic principles of financial and statistical analysis. Candidates are required not only to know the basics of business economics and financial mathematics; but a lot of statistical knowledge as well.

Candidates should note the knowledge/application requirements in each of the syllabus categories and the required level of competence. They should express their

ideas clearly in answering the essay-type questions. They will fail to gain the appropriate marks for unclear answers. It is important to include all workings when answering the computational questions. Standard symbols are required in the statistical part of the examination. Candidates are strongly encouraged to make required recommendations even on a wrong computation answers because marks will be given for reasonable answers. Candidates are reminded that they should study thoroughly in both parts of the syllabus. Any imbalance in their studies will result in not achieving high marks or even a failure sometimes. (though they do not need to gain minimum marks in both parts).

Study text

The study text is the student's reference book. It covers the syllabus and details primary topics and sub-topics under the seven units of competency. A large number of practice questions and exam-type questions reinforce knowledge. It is a good study tool for candidates preparing for the examination.

Examples

The following examples describe some of the typical issues that arise so as to help candidates understand business economics and financial mathematics ideas and approaches and how these apply to day-to day business activities.

Example 1: Absolute advantage and comparative advantage

Two manufacturing companies, JC and MS, produce two products, tables and chairs. The tables are produced in Hong Kong and chairs are produced in mainland China. Over ten thousands of each item are made each year. The average cost for each product manufactured by the two companies are as follows.

Company	Table, HK\$	Chair, RMB (¥)
JC	5.00	6.00
MS	7.00	6.60

We see that JC has an absolute advantage¹ in the two products as it can produce at a cost which is lower than MS's. JC, however, has a comparative advantage² in producing tables as the cost is \$2.00 lower than at MS. In contrast, the cost of producing a chair is only \$0.6 lower than for MS. Conversely, MS must have a comparative advantage in producing chairs.

Example 2: Relative measure – coefficient of variation

It is important to understand the different methodologies that can be used and when to use which one. The choice of methodology also affects the interpretation of the results. For example, a direct comparison of two or more measures of dispersion using standard deviation is sometimes not possible. Can we say that the standard deviation of \$2,000 for income distribution is greater than the standard deviation of five workers for the distribution of number of workers in a production line? Clearly not, because we cannot directly compare two or more distributions given in different units (such as dollars and number of workers). In order to make a meaningful comparison of the dispersion, we need to calculate the coefficient of variation:

$$\text{Coefficient of Variation (\%)} = \frac{\text{Standard deviation}}{\text{Arithmetic mean}} \times 100$$

1. Absolute advantage states that individuals produce goods or services more efficiently than someone else.
2. Comparative advantage states that individuals produce goods or services at a lower opportunity cost than someone else.

The application of coefficient of variation is illustrated below.

I: Coefficient of variation is used as the data are in difference units

In Example 1, the standard deviations for the two products at each manufacturing company are as follows:

Company	Table, HK\$	Chair, RMB (¥)
Standard deviation		
JC	0.015	0.018
MS	0.021	0.012

The variation in the production cost of chairs in China appears to be slightly larger than the tables in Hong Kong for JC manufacturing company ($0.018 > 0.015$) when we use the standard deviation as measure of dispersion. However this is incorrect, since the production cost of tables and chairs are expressed in different currencies. We cannot use the standard deviation here and need to convert the statistics to a coefficient of variation to make a meaningful comparison of the variations in production costs.

$$\text{JC Table: Coefficient of Variation (\%)} = \frac{0.015}{5.00} \times 100 = 0.3\%$$

$$\text{JC Chair: Coefficient of Variation (\%)} = \frac{0.018}{6.00} \times 100 = 0.3\%$$

Based on the coefficient of variation, there is no difference in the relative dispersion of the production cost of table in the two locations.

II: Coefficient of variation is used as the data are in same units, but the means are far apart

The variation in the average production cost of a table for JC is to be compared with the variation in the average production cost of table for MS. We can see that there is more variation in the production cost of a table at MS because $0.021 > 0.015$. This time, however, the production costs of two manufacturing companies are in the same currency, but the average costs are very far apart. Therefore, we need to convert the statistics again to the coefficient of variation.

$$\text{JC Chair: Coefficient of Variation (\%)} = \frac{0.021}{7.00} \times 100 = 0.3\%$$

$$\text{JC Table: Coefficient of Variation (\%)} = \frac{0.015}{5.00} \times 100 = 0.3\%$$

There is still no difference in the relative dispersion of the production cost of tables of the two manufacturing companies. **T/D**