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Examination Techniques Seminar on QP Module Examinations

Module B (December 2018 Session)

Date: 1 November 2018



Agenda

- 1 • Introduction
- 2 • Preparation Tips
- 3 • Examination Regulations
- 4 • Examination Techniques
- Markers' Sharing
- 5 • Q & A Session



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Part 1: Introduction



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Today's objective:
***Finding ways to pass the
Module Examination!***



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HKICPA QP Module Examinations

Examination Format:

- Section A - Case Questions (50%)
- Section B - Essay / Short Questions (50%)
- 3 hours duration for each Module
- All compulsory questions



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Part 2: Preparation Tips



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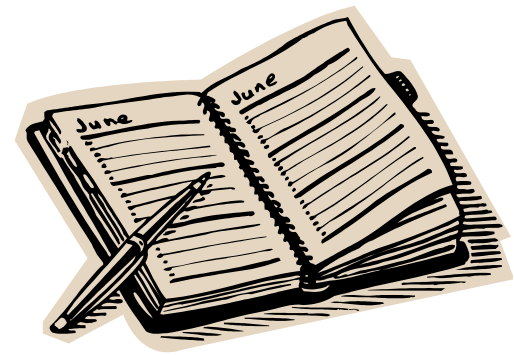


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Commit to your Study Plan

Advantages:

- Schedule ahead
- Build long term memories → maximize efficiency
- Avoid last minute work and minimize impact of unpredicted events...





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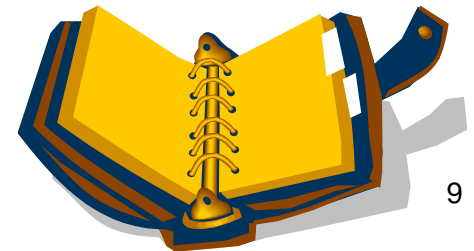
Prepare Critical File

How to prepare:

- Use different colour post-it for different standards / topics
- Organise materials by different standards / topics
- Understand theories behind each standards / topics
- Get familiar with this file

Advantages:

- Colour coding for standards / topics allows easy identification (same file used in examination - time saving!)
- Build up long term memories
- Avoid indexing without understanding

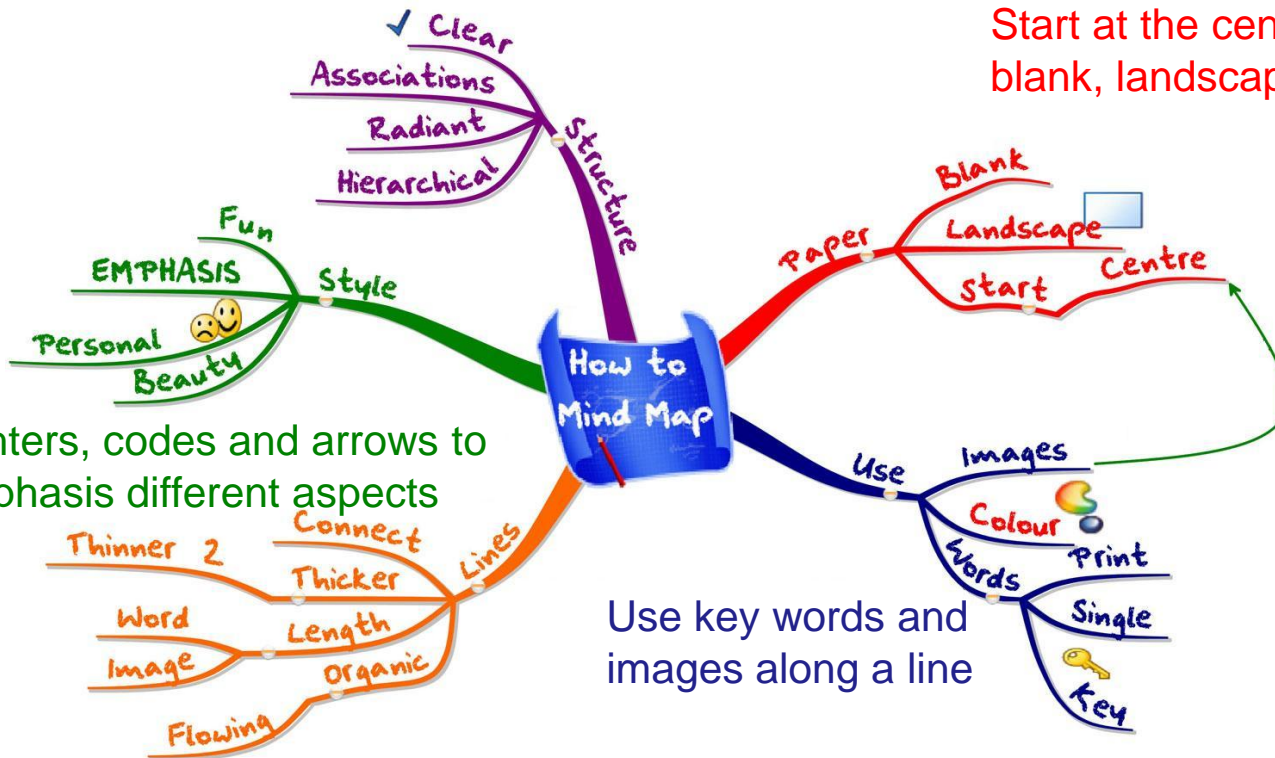


Mind Map

Radiate the ideas out from the central theme and main branches

Start at the centre of a blank, landscape paper

Use highlighters, codes and arrows to link and emphasize different aspects



Use key words and images along a line

Make the lines associate as clear as possible



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Other Preparation Tips

- Cover beyond LP
- Form Study Group with fellow students
- Visit QP Learning Centre
 - Past papers and Examiners' reports;
 - Special topics and/or Important notice; and
 - Module preparation seminar archives



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Part 3: Examination Regulations



Examination Regulations (highlights)

- Bring HKID card and Examination Attendance Docket ("EAD")
- Be aware of the **examination regulations** printed on the EAD which will be posted to students two weeks before the examination
- Arrive 45 minutes before the examination start
- Turn off your mobile phone or other electronic communication devices
- Don't write on the script booklet during the reading time (FE only)
- Don't write your name or personal information on anywhere of your script booklets
- Use blue or black ink pen
- Use appropriate script booklet to answer each section
- Stop writing immediately once the end of examination is announced

Failure to follow any of the examination regulations may result in marks penalty or even disqualification from the entire examination!

Noticeboard

Module A

Module B

Module C

Module D

Final Examination

Examination Support

Technical Articles

Webcasted Video

Audio Archives

Download

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Examination guidelines

This [video](#) provides guidance on preparing for your upcoming examinations. Make sure you are familiar with these guidelines.

If you are unable to open the video by Internet Explorer, try opening it in a different browser (e.g. Chrome).

Examination assistance

Here are some study tips to help QP students to get through their examinations (please click [here](#)).

To help QP students prepare for the four module examinations, the Institute organizes a series of examination assistance functions for each examination session. For more details, please click [here](#).



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Part 4:

Examination Techniques

- Markers' Sharing



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Common Areas to Improve in QP Examinations

A. Questions.

B. Answers.

C. Candidates.



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A. Common areas to improve to handle questions:

1. Difficulty in identifying the specific question requirements.
2. Misinterpretation of the question requirements.

B. Common areas to improve to prepare answers:

1. Approach or structure of answers are disorganized.
2. Answers are either too long or too short.
3. Answers are wrong, irrelevant, or lack of practical consideration.
4. Answers are not linked to the case facts.
5. Answers are straightly copied from learning pack or reference materials.
6. Did not attempt all questions.



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C. Common areas that candidates have to improve:

1. Inadequate or ineffective preparation.
2. Other commitments affecting examination preparation.
3. Not in a good form to perform on examination day.
4. Felt panicking or got nervous in the examination centre.
5. Poor time management.



Panelists' Report

Section A & B – Conclusion and Recommendation

1. Candidates did well on computational questions.
2. Some calculation steps were not clearly shown.
3. Candidates were very weak in handling application, analytical and discussion types of questions.
4. Discussions were too short and answers were directly copied from learning pack.
5. Answer format was inappropriate, such as memo format.
6. Candidates were urged to develop wide-ranging reading habits to improve their examination performance in the medium and long run.
7. Candidates need to sharpen their technical skills and to understand underlying concepts instead of just memorizing them.
8. Copying from the learning pack will not score any marks.



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Section A

Case Questions



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Panelists' Report

Section A – Case Questions

General Comments

1. Candidates performed relatively well in Question 1 and 4.
2. Candidates demonstrated reasonable ability to handle computational problems.
3. Candidates seemed having difficulties to handle analytical and qualitative types of questions.
4. Most candidates have problems to apply and understand the case information in tackling the problems.

Suggestions

1. Candidates should read and understand the questions carefully to identify the specific question requirement and to avoid misinterpretation.



Question 1 (11 marks – approximately 20 minutes)

- (a) Calculate the cost of acquiring HK Fintech Bank to DPA Bank if the merged bank was worth HK\$59 billion. (3 marks)
- (b) Calculate (i) DPA Bank's earnings per share after the deal, is it higher or lower than the earnings per share before the deal? (ii) DPA Bank's price / earnings ratio after the deal, is it higher or lower than the price / earnings ratio before the deal? Explain the reason for the change of earnings per share with the simultaneous change of price / earnings ratio. (5 marks)
- (c) Based on PESTEL analysis, describe the most significant factor that supports Sophia's strategic move in this merger. (3 marks)



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Question 1 (11 marks – approximately 20 minutes)

- (a) Calculate the cost of acquiring HK Fintech Bank to DPA Bank if the merged bank was worth HK\$59 billion.

(3 marks)

Question 1(a) – 3 Marks

This question required candidates to calculate the cost of acquiring HK Fintech Bank if the merged bank was worth HK\$59 billion. Candidates may not have been very familiar with capital market operations. The majority of the wrong answers demonstrated that they failed to understand the concept of exchange shares.



online or mobile banking. In this connection, DPA Bank plans to acquire HK Fintech Bank Limited ("HK Fintech Bank") by exchanging 900 million of its shares for all the shares in HK Fintech Bank. DPA Bank was listed on the Hong Kong Stock Exchange in 2004 whereas HK Fintech Bank was listed on the Hong Kong Stock Exchange in 2014. Assume that the two banks are carrying no debt.

Information extracted from the financial statements of the two banks as at 31 March 2017:

	DPA Bank	HK Fintech Bank
Stock price	HK\$19	HK\$79
Shares outstanding	1.9 billion	190 million
Total earnings	HK\$2.1 billion	HK\$1.9 billion



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Answer 1(a)

After the merger, DPA Bank will have **2.8 billion (1.9 billion + 900 million) shares** outstanding.

Because the total value of DPA Bank after the merger is HK\$59 billion, stock price per share = $\text{HK\$}59 / 2.8 = \text{HK\$}21.071$, up from HK\$19.

Because target's shareholders end up with 900 million shares in the merged bank, the cost of the merger to DPA Bank is $\text{HK\$}21.071 \times 900 \text{ million} = \text{HK\$}18.964 \text{ billion}$.



- (b) Calculate (i) DPA Bank's earnings per share after the deal, is it higher or lower than the earnings per share before the deal? (ii) DPA Bank's price / earnings ratio after the deal, is it higher or lower than the price / earnings ratio before the deal? Explain the reason for the change of earnings per share with the simultaneous change of price / earnings ratio.

(5 marks)

Question 1(b) – 5 Marks

This question required candidates to calculate earnings per share ("EPS"), price/earnings ("P/E") ratio and to explain the changes. Many candidates did well. The concepts of EPS and P/E ratios were clearly understood by the candidates.



Information extracted from the financial statements of the two banks as at 31 March 2017:

	DPA Bank	HK Fintech Bank
Stock price	HK\$19	HK\$79
Shares outstanding	1.9 billion	190 million
Total earnings	HK\$2.1 billion	HK\$1.9 billion



Answer 1(b)

After the deal, the merged firm will have HK\$4 billion in earnings, so earnings per share (EPS) will be $\text{HK\$4 billion} / 2.8 \text{ billion} = \text{HK\$1.4286}$.

Old EPS = $\text{HK\$2.1 billion} / 1.9 \text{ billion} = \text{HK\$1.1053}$

New EPS is higher.

The new price / earnings (P/E) ratio is $\text{HK\$21.071} / \text{HK\$1.4286} = 14.749$

The old P/E ratio was $\text{HK\$19} / \text{HK\$1.1053} = 17.190$

New P/E ratio is lower.

Even though the EPS has increased, the P/E ratio has gone down. The reason could be the **capital market is not confident** and **is sceptical about the sustainability of the synergy** between the two banks.



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- (c) Based on **PESTEL analysis**, describe the **most significant factor** that supports Sophia's strategic move in this merger.

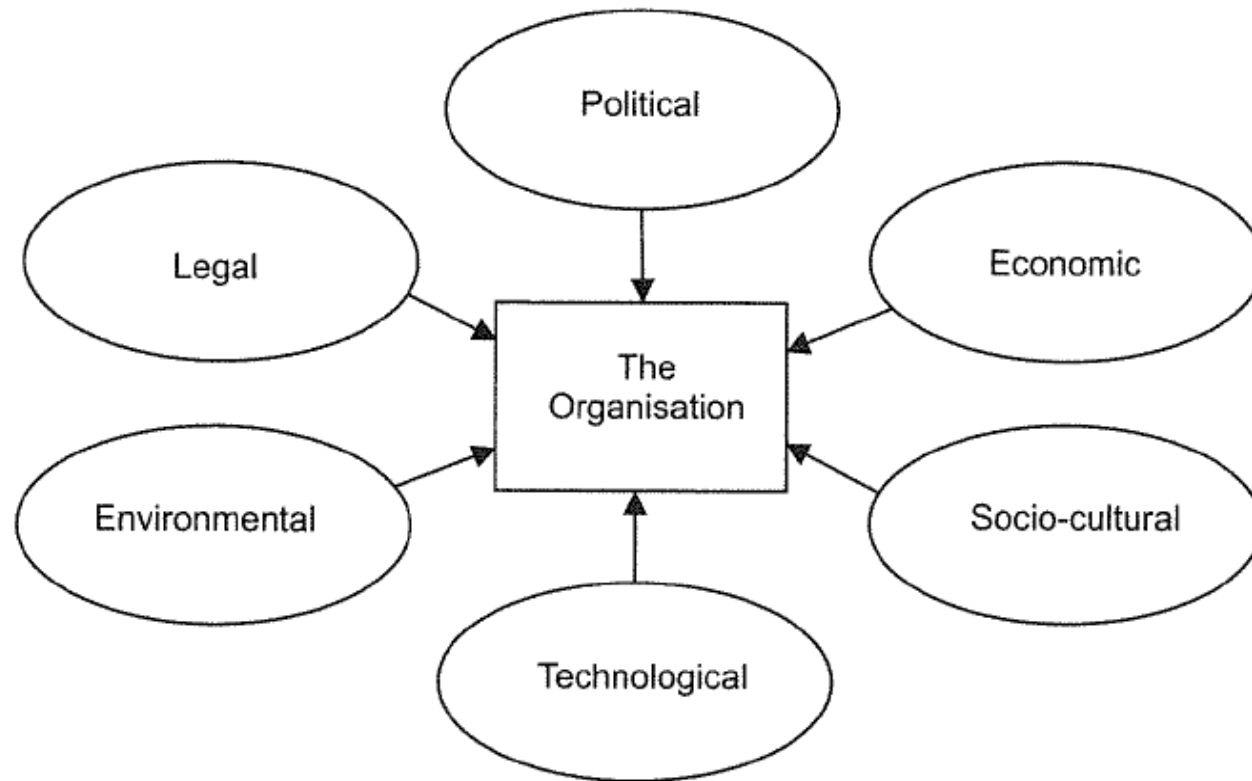
(3 marks)

Question 1(c) – 3 Marks

This question required candidates to **describe the most significant factor** that supported the merger attempt. The **performance in this question was satisfactory**. **Most candidates could choose the technology factor in the PESTEL analysis.**



Macro-environmental influences





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In February 2017, DPA Bank Limited (“DPA Bank”) found it hard to pull off a profitable banking business in the Hong Kong market anymore using high cost brick and mortar operations due to the expensive space and labour costs in the city. Besides, the increasing popularity of internet finance among Hong Kong consumers is obvious. Hong Kong, according to the latest survey, has the third highest digital banking penetration in the Asia Pacific region, following South Korea and China. The survey has found that 73% of the population uses online or mobile banking. **In this connection, DPA Bank plans to acquire** By acquiring HK Fintech Bank, Ms Sophia Chan, the CEO of DPA Bank announced during the press release in March 2017 of its intention to buy, “The marriage of the two banks will likely **transform conventional financial services in Hong Kong**”. It is generally believed by the banking industry that the **new player in internet finance** will lead the industry in some major changes in the years to come. **Digital banking is the way to go due to the sustainable cost advantage gain at the end of the day.** The traditional banks will have to accelerate branch closures. Yet there are also critics who question the sustainability of internet banks' expansion.



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Answer 1(c)

There is likely to be technological change in banking services. With the speed of computers getting faster and the popularity of mobile technology, banking services could be conducted easily online and on mobile platforms. Customers find it more and more convenient to bank using these platforms. Financial institutions could continue to improve handling information in sales and finance. As a result, this merger could enhance a new organisation structure to exploit this new technology. Moreover, it serves as a new media for communication with customers and within business to facilitate banking business globally.



Question 2 (12 marks – approximately 22 minutes)

- (a) **Analyse the three leading reasons to explain the high premium** offered by DPA Bank.
(6 marks)
- (b) **Explain three target firms' characteristics leading to a high premium** being required to be paid to HK Fintech Bank.
(6 marks)



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Question 2 (12 marks – approximately 22 minutes)

- (a) Analyse the three leading reasons to explain the high premium offered by DPA Bank.

(6 marks)

Question 2(a) – 6 Marks

This question required candidates to analyse three reasons to explain the high premium offered by the buyer. The overall performance in this question was acceptable. Candidates generally understood the requirement of the technical knowledge tested.



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HK Fintech Bank is the sole online-only bank operated by the city's dominant messaging app Whatsapp. It has taken the banking market by storm in more than ten years. The Hong Kong Monetary Authority is hoping that HK Fintech Bank will spur growth in the banking industry that has experienced slow growth amid increasing credit costs, tightening interest margins and heavy regulation. Dr Darren Yip, the CEO of HK Fintech Bank, established the firm in 2006 after graduating from Harvard University in the US. The employees of HK Fintech Bank are generally happy with the growth of the business. Staff turnover is lower than the industry average and morale is positive in general. Stock compensation is widely used to reward staff's outstanding performance as a bonus payment. Darren is aware that there are other potential suitors interested in taking control of his bank from Hong Kong and China.



Answer 2(a)

Typically, a target premium is paid to the target's shareholders. The two leading explanations include **pre-emptive bidding** and target resistance. The pre-emptive bidding reason suggests that **takeover premiums are determined not only by actual, but also by potential competition.** If entry into takeover contests is costly, as an initial bidder, **DPA Bank could deter a rival by making a bid that signals a high valuation for the target.** Premiums paid in single bidder takeovers then reflect the **cost of deterring rival bidders from entry.**

According to the **target resistance** explanation, target shareholders could resist takeover proposals if the premium offered is not high enough. **This resistance could reflect information on future takeover opportunities or the value of large shareholders' private benefits.** High premiums in successful single bidder contests are mainly **determined by target resistance.**

The **accelerated time to market is another factor** because buying a business is faster than building a business. There would be **synergy** between an on-line and off-line bank.

Besides, DPA Bank could **leapfrog the learning curve**, i.e. **avoid the business risk of exploring the fintech market from scratch.**



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- (b) **Explain three target firms' characteristics leading to a high premium being required to be paid to HK Fintech Bank.**

(6 marks)

Question 2(b) – 6 Marks

This question required candidates to explain three target firms' characteristics leading to a high premium being required to be paid to HK Fintech Bank. **Many candidates did not understand the question requirement. Most candidates provided generic answers without linking them to the case background.**



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Answer 2(b)

A target with an above median entrenchment situation and governance issues exhibits higher resistance. The presence of a founder-CEO is also associated with higher target resistance, consistent with the notion that founders attach a high value to maintaining control of the target Bank. Besides, a relative low managerial percentage ownership in the target firm is correlated with higher resistance. This result lends support to the view that stock-based compensation aligns the interests of managers and shareholders and therefore it will likely reduce target firm managerial resistance to takeover offers. Resistance is more severe for a target that is subsequently acquired in a separate contest. This is consistent with the idea that a target that is more likely to anticipate an attractive future takeover opportunity exhibits higher resistance to the current offer.



Question 3 (13 marks – approximately 23 minutes)

- (a) Explain and calculate the **expected percentage return on DPA Bank's equity before the announcement of the bond issue.** (2 marks)
- (b) **Construct DPA Bank's balance sheet based on market value before the announcement of the bond issue and calculate the price per share of the firm's equity. Construct with steps on DPA Bank's balance sheet based on market value immediately after the announcement of the bond issue.** (5 marks)
- (c) **Calculate DPA Bank's stock price per share immediately after the repurchase announcement. Justify any improvement after the repurchase announcement.** (2 marks)
- (d) **Calculate the number of shares DPA Bank will repurchase as a result of the bond issue and advise as to whether the existing shareholders are better off. Calculate the number of shares of common stock which will remain after the repurchase and advise as to whether the changes in common shares defend DPA Bank against potential acquisition from others in the future.** (4 marks)



Question 3 (13 marks – approximately 23 minutes)

- (a) Explain and calculate the **expected percentage return on DPA Bank's equity before the announcement of the bond issue.**

(2 marks)

Question 3(a) – 2 Marks

This question required candidates to explain and calculate the expected percentage return on DPA Bank's equity before the announcement of the bond issue. **The question was simple and straightforward. A majority of candidates did not calculate the after-tax earnings.**



Information extracted from the financial statements of the two banks as at 31 March 2017:

	DPA Bank	HK Fintech Bank
Stock price	HK\$19	HK\$79
Shares outstanding	1.9 billion	190 million
Total earnings	HK\$2.1 billion	HK\$1.9 billion

As a result, DPA Bank announced that it would issue HK\$20 billion of perpetual bonds and used the proceeds to repurchase its common stock in December 2017. The bond sold at par with a coupon rate of 5%. DPA Bank was an all-equity firm worth HK\$59 billion. After the bond issue, DPA Bank will maintain the new capital structure indefinitely. DPA Bank has annual pre-tax earnings of HK\$4 billion, and this is expected to remain constant in perpetuity. It is subject to a corporate tax of 16.5%.



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Answer 3(a)

The expected return on a firm's equity is the ratio of annual after-tax earnings to the market value of the firm's equity. The amount the firm must pay each year in taxes will be:

$$\text{Taxes} = 16.5\% \times \text{HK\$}4,000 \text{ million} = \text{HK\$}660 \text{ million}$$

So, the return on the unlevered equity will be:

$$R_0 = (\text{HK\$}4,000 \text{ million} - \text{HK\$}660 \text{ million}) / \text{HK\$}59,000 \text{ million}$$

$$R_0 = 5.66\%$$



- (b) **Construct DPA Bank's balance sheet based on market value before the announcement of the bond issue and calculate the price per share of the firm's equity. Construct with steps on DPA Bank's balance sheet based on market value immediately after the announcement of the bond issue.**

(5 marks)

Question 3(b) – 5 Marks

This question required candidates to construct a balance sheet based on market value before and after the bond issue announcement and calculate the price per share before the announcement. **A majority of candidates did not understand the technical knowledge regarding tax shield present value, and the construction of a balance sheet based on market value. A relatively high percentage of candidates chose not to attempt this part.**



Answer 3(b)

Before the announcement of the bond issue

	HK\$ million		HK\$ million
		Debt	-
Assets	<u>59,000</u>	Equity	<u>59,000</u>
Total Assets	<u>59,000</u>	Total Debt & Equity	<u>59,000</u>

The price per share is simply the total market value of the stock divided by the shares outstanding:

$$\text{Price per share} = \text{HK\$}59,000 \text{ million} / 2,800 \text{ million} = \text{HK\$}21.07$$



Immediately after the announcement of the bond issue

Modigliani-Miller Proposition I states that in a world with corporate taxes:

$$V_g = V_U + DT$$

When DPA Bank announces the debt issue, the value of the Bank will increase by the present value of the tax shield on the debt. The present value of the tax shield is:

$$PV(\text{Tax Shield}) = DT$$

$$PV(\text{Tax Shield}) = 0.165 \times \text{HK\$}20,000 \text{ million}$$

$$PV(\text{Tax Shield}) = \text{HK\$}3,300 \text{ million}$$

Therefore, the value of DPA Bank will increase by HK\$3,300 million as a result of the bond issue. The value of the Bank after the repurchase announcement is:

$$V_g = V_U + DT$$

$$V_g = \text{HK\$}59,000 \text{ million} + (0.165 \times \text{HK\$}20,000 \text{ million})$$

$$V_g = \text{HK\$}62,300 \text{ million}$$

Since the firm has not yet issued any debt, DPA Bank's equity is also worth HK\$62,300 million.



After the announcement of the bond issue

	HK\$ million		HK\$ million
Old Assets	59,000	Debt	-
PV(tax shield)	<u>3,300</u>	Equity	<u>62,300</u>
Total Assets	<u>62,300</u>	Total Debt & Equity	<u>62,300</u>



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- (c) Calculate DPA Bank's stock price per share immediately after the repurchase announcement. Justify any improvement after the repurchase announcement.
(2 marks)

Question 3(c) – 2 Marks

This question required candidates to calculate DPA Bank's stock price per share immediately after the repurchase announcement and to justify any improvement after the announcement. A majority of the candidates did not calculate the new share price correctly because they were not able to calculate the market value of DPA Bank in the previous part.



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Answer 3(c)

The share price immediately after the announcement of the bond issue will be:

$$\text{New share price} = \text{HK\$}62,300 \text{ million} / 2,800 \text{ million} = \text{HK\$}22.25$$

Share price moves up with the tax shield creating value upon bond issue.



- (d) Calculate the number of shares DPA Bank will repurchase as a result of the bond issue and advise as to whether the existing shareholders are better off. Calculate the number of shares of common stock which will remain after the repurchase and advise as to whether the changes in common shares defend DPA Bank against potential acquisition from others in the future.

(4 marks)

Question 3(d) – 4 Marks

This question required candidates to calculate the number of shares repurchased and how it would affect existing shareholders. In addition, candidates had to decide the number of shares remaining and how this was related to a defence against future acquisition. A majority of candidates could not calculate the number of shares repurchased and the new shares outstanding correctly.



Answer 3(d)

The number of shares repurchased will be the amount of the bond issue divided by the new share price:

$$\text{Shares repurchased} = \text{HK\$20,000 million} / \text{HK\$22.25} = 898,876,404$$

Existing shareholders are better off because of increased share price.

The number of shares outstanding will be the current number of shares minus the number of shares repurchased:

$$\text{New shares outstanding} = 2,800,000,000 - 898,876,404 = 1,901,123,596$$

The reduction in the number of shares outstanding could mitigate the chance of an outside suitor getting control of DPA Bank.



Question 4 (14 marks – approximately 25 minutes)

(a) Assume the **stock price went up** upon the debt issue announcement. **Recommend the methods which would avoid bankers and executives from frontrunning on the stock price movement.**

(4 marks)

(b) Advise as to **performance objective for each of the four perspectives of the balanced scorecard** of DPA Bank. **Recommend one measure for each performance objective.**

(10 marks)



Question 4 (14 marks – approximately 25 minutes)

- (a) Assume the **stock price went up** upon the debt issue announcement. **Recommend the methods which would avoid bankers and executives from frontrunning on the stock price movement.**

(4 marks)

Question 4(a) – 4 Marks

This question required candidates to **recommend the methods to avoid bankers and executives from frontrunning on the stock price movement.** **Candidates wrongly focused on the changes in share price, the advantages of such changes and the strategy of dealing with debt issue.** Around **20% to 30% of candidates did not answer this question.**



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Answer 4(a)

The tax benefit of the debt issuance of DPA Bank and the willingness to be monitored by creditors would improve the equity price in the capital market. There have to be internal guidelines and communication to the executives to avoid frontrunning or trading on the stocks or derivatives before any corporate finance exercise. For instance, the reputation risk of the bank to the public needs to be highlighted. The penalty of violation of insider trading under Securities and Futures Ordinance has to be communicated and updated to the executives regularly. The expectation of the ethical standard of executives by the public has to be addressed.



- (b) Advise as to performance objective for each of the four perspectives of the balanced scorecard of DPA Bank. Recommend one measure for each performance objective.

(10 marks)

Question 4(b) – 10 Marks

This question required candidates to advise performance objectives and the respective measurements for the perspectives of the balanced scorecard of DPA Bank. Overall performance was satisfactory. Most candidates had a good understanding of the balance scorecard concept and its measurement. The majority of candidates could not provide numerical examples or quantitative targets of the performance objectives.



Illustration: Balanced scorecard

An example of how a balanced scorecard might appear is offered below:

Balanced scorecard

Financial Perspective	
GOALS	MEASURES
Survive	Cash flow
Succeed	Monthly sales growth and operating income by division
Prosper	Increase market share and ROI

Customer Perspective	
GOALS	MEASURES
New products	Percentage of sales from new products
Responsive supply	On time delivery (defined by customer)
Preferred supplier	Share of key accounts' purchases Ranking by key accounts
Customer partnership	Number of co-operative engineering efforts

Internal Business Perspective	
GOALS	MEASURES
Technology capability	Manufacturing configuration vs. competition
Manufacturing excellence	Cycle time Unit cost Yield
Design productivity	Silicon efficiency Engineering efficiency
New product introduction	Actual Introduction schedule vs. plan

Innovation and Learning Perspective	
GOALS	MEASURES
Technology leadership	Time to develop next generation of products
Manufacturing learning	Process time to maturity
Design focus	Percentage of products that equal 80% sales
New product introduction	New product introduction vs. competition



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Based on the latest consultant's opinion, DPA Bank plans to implement a balanced scorecard. Its mission statement highlights that the bank builds top quality and reliable services at competitive prices. DPA Bank will further expand its banking service from traditional face to face to online banking. It will strive to deliver its banking services through an internet platform and mobile platforms to reach customers anywhere at anytime.



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Answer 4(b)

The **customer perspective** analyses the role of customers in DPA Bank's success. Performance objective is to **increase the size of loyal customer numbers.**

Measurement of number of return customers and number of new customers.

The **financial perspective** analyses the financial results of DPA Bank's operation. Performance objective is to achieve the profit level in the **top three quintile in the banking industry.**

Measurement of operating profit margin and absolute profit level.



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The **internal business process perspective** analyses DPA Bank's internal procedures and practices leading to its success. **Performance objective is to continue to innovate a quality service to customers.**

Measurement of **repeating customer frequency, referral customer frequency, customer satisfaction level quality control, compliance of banking internal process efficiency**, e.g. customer order handling speed, the frequency and handling of customer complaints, innovation, productivity.

The **learning and growth perspective** analyses the continuous improvement effort in DPA Bank's success. **Performance objective is investing in productive staff and promoting life-long learning among employees.**

Measurement of **employee turnover rate and retention rate, number of suggestions for improvement from staff.** The Bank could provide the right incentive to motivate employee's performance.



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Section B

Essay / Short Questions



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Panelists' Report

Section B – Essay / Short Questions

General Comments

1. The performance of this section was disappointment.
2. Some questions were designed to test basic understanding of key technical concepts that should be learnt in corporate finance courses in tertiary level studies.
3. Candidates tended to copy directly from the learning pack in particular in application type questions that tested candidates' abilities to apply technical tools to the case.
4. Heavy reliance on financial calculators did not score partial marks if the final answers were not correct.



Question 5 (18 marks – approximately 32 minutes)

GoodValue Ltd (“GoodValue”) is considering issuing new equity to finance its expansion and attempts to value its share based on the dividend valuation method (“DVM”). Under this method, dividends are assumed to be the main drivers of share value. Equity risk is not considered.

The last four annual dividends per share in chronological order were HK\$0.5, HK\$0.52, HK\$0.55 and HK\$0.59. The dividend of HK\$0.59 was paid yesterday. Estimated growth rate of dividends for the next three years will be the same as the compound annual growth rate of the past four dividends.

Due to the repayment of a large loan at the end of year four, GoodValue is not expected to pay a dividend in order to conserve cash in that year. Afterwards, starting at the end of year five, the expected dividend per share will be HK\$1.5 and will grow at 6% per year thereafter. The required return on equity starting year five is expected to be lower by 2% due to paying off the big loan in year four.

The Financial Controller also notes that the US Treasury Note return is 3.5% and market return is 12%. Historical equity beta is estimated at 0.85. Since the business and financial risks of the business are expected to go up in the future due to the expansion project, the equity beta will increase by 0.4.



Question 5 (18 marks – approximately 32 minutes)

Required:

- (a) Calculate the price of a GoodValue share based on the DVM. (8 marks)
- (b) Analyse under what circumstances DVM is not appropriate for GoodValue. (4 marks)
- (c) If GoodValue has not been paying dividends before, explain what other methods are available to estimate its share value. (6 marks)



Question 5 (18 marks – approximately 32 minutes)

Required:

- (a) Calculate the price of a GoodValue share based on the DVM.

(8 marks)

Question 5(a) – 8 marks

This question required candidates to calculate the value of a company's share using the dividend valuation method ("DVM"). Overall performance was quite disappointing reflecting that candidates' technical competence needed improvement. It is also surprising that a substantial number of candidates failed to calculate the compound annual growth rate. The general DVM formula is simple but this question included complications in beta and the discount rate to test candidates' understanding of how to apply the formula. Most candidates failed to demonstrate competence in handling these two complications.



2.3 The dividend growth model

Shareholders will normally expect dividends to increase year by year and not to remain constant in perpetuity. The fundamental theory of share values states that the market price of a share is the present value of the discounted future cash flows of revenues from the share, so the market value given an expected constant annual growth in dividends would be:

$$P_0 = \frac{d_0(1+g)}{(1+k_e)} + \frac{d_0(1+g)^2}{(1+k_e)^2} + \dots$$

Where: P_0 is the current market price (ex div)

d_0 is the current net dividend

k_e is the cost of equity capital

g is the expected annual growth in dividend payments

and both k_e and g are expressed as percentages.

It is often convenient to assume a constant expected dividend growth rate in perpetuity.

The formula above then simplifies to:

$$P_0 \frac{d_0(1+g)}{(k_e - g)} = \frac{d_1}{(k_e - g)}$$



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Answer 5(a)

Past dividends (Years from current period)

3	HK\$0.5
2	HK\$0.52
1	HK\$0.55
0	HK\$0.59

Annual compound growth rate **$0.056722 [(0.59 / 0.5)^{1/3} - 1]$**
(Compound annual growth rate method)

Expected dividend in year 5 HK\$1.5

Expected growth rate starting year 5 6%

Discount rate:

Risk free rate = r_f 3.5%

Market return = r_M 12.0%

Beta **$1.25 (0.85 + 0.4)$**



Stock price is equal to the present value of all future dividends

Cash flows (in HK\$)

Years	0	1	2	3	4	5	6 and later
Dividends	0.5900	0.6235	0.6588	0.6962	0.0000	1.5000	grows at 6%
Discount rate		0.14125	0.14125	0.14125	0.14125	0.12125	0.12125
$r = [CAPM = r_f + \text{Beta} (r_M - r_f)]$							
Discount factor		0.87623	0.76778	0.67276	0.58949	0.52574	
Present value		0.54630	0.50584	0.46837	0.00000	0.78862	13.64789*
Share value		15.957					

*[PV of dividends starting year 6 = $[D_5 (1 + g) / (R_6 - g) \times 1 / (1 + R_5) \times 1 / (1 + R_4)^4]$

R_4 discount rate at year 4

R_5 discount rate at year 5



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- (b) Analyse under what circumstances DVM is not appropriate for GoodValue.
(4 marks)

Question 5(b) – 4 marks

This question required candidates to demonstrate their understanding of when the DVM is not appropriate to value a share. Performance was satisfactory, despite some discussions that were too generic because they failed to link them to the issues in the case.



2.5 Assumptions of dividend models

The dividend models are underpinned by a number of assumptions:

- (a) Investors act rationally and homogenously. The model fails to take into account the different expectations of shareholders, nor how much they are motivated by dividends versus future capital appreciation on their shares.
- (b) The d_0 figure used does not vary significantly from the trend of dividends. If d_0 does appear to be a rogue figure, it may be better to use an adjusted trend figure, calculated on the basis of the past few years' dividends.
- (c) The estimates of future dividends and prices used, and also the cost of capital are reasonable. As with other methods, it may be difficult to make a confident estimate of the cost of capital. Dividend estimates may be made from historical trends that may not be a good guide for a future, or derived from uncertain forecasts about future earnings.



- (d) Investors' attitudes to receiving different cash flows at different times can be modelled using discounted cash flow arithmetic.
- (e) Directors use dividends to signal the strength of the company's position (however, companies that pay zero dividends do not have zero share values).
- (f) Dividends either show no growth or constant growth. If the growth rate is calculated using $g=bR$, then the model assumes that b and R are constant.
- (g) Other influences on share prices are ignored.
- (h) The company's earnings will increase sufficiently to maintain dividend growth levels.
- (i) The discount rate used exceeds the dividend growth rate.



2.6 Weaknesses of the DVM approach

- (a) The model does not incorporate risk.
- (b) Dividends do not grow smoothly in reality, so g is only an approximation.
- (c) The model fails to take capital gains into account, however it is argued that a change of share ownership does not affect the present value of the dividend stream.
- (d) No allowance is made for the effects of taxation, although the model can be modified to incorporate tax.
- (e) It assumes there are no issue costs for new shares.



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Answer 5(b)

Dividend valuation method ("DVM") is not appropriate for GoodValue under the following circumstances:

- When **no dividend is paid or dividend is not constant.** The key assumption of the DVM is that dividends should be relatively constant.
- **To estimate the required return of shares, beta of equity is required.** Beta is derived with reference to historical share prices and since a private company has no observable market prices, **any beta estimate may not be accurate to reflect the risk of equity.**
- When **growth rate is higher than required return,** it will render the DVM equation to be not applicable.
- The method does **not consider the impact of business and financial risks on the share price.**



- (c) If GoodValue has not been paying dividends before, explain what other methods are available to estimate its share value.

(6 marks)

Question 5(c) – 6 marks

This question required candidates to discuss alternative methods to value a share when DVM is not applicable. Results were average. A lot of direct copying from the learning pack was noted. Quite a few candidates forgot to subtract the value of debt from firm value arising from the discounted free cash flow method since the question asked for share value estimation, not firm value.



Topic list

- 1 **Introduction to business valuations**
 - 1.1 Information requirements for valuation
- 2 **Asset based valuation method**
 - 2.1 Net assets basis
- 3 **Dividend based valuation method**
 - 3.1 The Dividend Valuation Model (DVM)
- 4 **Earnings based valuation method**
 - 4.1 P/E ratios
 - 4.2 Significance of high P/E ratio
 - 4.3 Problems with using P/E ratios
 - 4.4 Guidelines for a P/E ratio-based valuation
 - 4.5 Use of a bidder's P/E ratio
 - 4.6 Use of forecast earnings
 - 4.7 The earnings yield valuation method
- 5 **Discounted Cash Flow (DCF) based valuation method**
 - 5.1 The FCFF Model
 - 5.2 Applying the DCF approach
- 6 **The comparables method**
 - 6.1 The P/E method for comparables
 - 6.2 Enterprise value using EBIT and EBITDA
 - 6.3 Using the comparables approach
- 7 **The valuation of debt**
 - 7.1 Irredeemable debt
 - 7.2 Redeemable debt
 - 7.3 Convertible debt
 - 7.4 Preference shares
- 8 **Use of valuation methods in practice**



Answer 5(c)

- **Net assets valuation:** market (book) value of asset – market (book) value of debt. This method is based on accounting information available from the financial statements. **Asset and debt values can be replaced by market values. This approach will reduce the objectivity and improve the relevance for decision-making purpose.**
- **P/E ratios:** P/E ratio of a similar investment x latest / average earnings. This method is applicable to listed companies since the P/E ratio is readily available from market data. **For private companies, adjustment to a similar listed company ratio is often adopted as an alternative approach.**
- **Discounted free cash flow (“FCF”) minus debt:** firm value based on discounting free cash flows minus market value of debt. This method **requires the estimation of cash flows as well as discount rate and is less objective than the other two methods mentioned above.** Another issue is whether market value of debt is available. If not, book value can be used as a substitute.



Question 6 (17 marks – approximately 31 minutes)

FinSmart Limited (“FinSmart”) is considering alternative ways to **finance an exciting HK\$30 million acquisition** in order to capture the potential of a new market for its products. FinSmart uses a rolling forecast on cash needs and, based on the latest estimate, it will be able to deploy up to **HK\$10 million of its current cash balance** to partially finance the investment. Cash is earning 2% per annum.

FinSmart currently has a **HK\$5 million, 5.5% loan** due in two years’ time. The number of **shares issued and outstanding is 40 million.**

Two financing options are under evaluation:

- Option 1: Further **issue HK\$20 million 6% loan, due three years after issuance**
- Option 2: **Issue new shares at HK\$5 per share**

For option 1, as a condition of the loan, FinSmart and the bank agree that after the HK\$20 million loan is made, the times interest earned ratio, defined as earnings before interest and tax (“EBIT”) / interest including any new loan beyond the total HK\$25 million, cannot be reduced by more than 30%. The cost of any further borrowing after the HK\$20 million tranche debt is expected to be at 8% due to higher gearing. It is expected the EBIT in the next three years will remain stable at HK\$18 million. Tax rate is 16.5%

It is expected the shareholders will not object to both options and the execution of either option will not have a material impact on the investment schedule.



Question 6 (17 marks – approximately 31 minutes)

Required:

- (a) Calculate the **breakeven EBIT** that will result in the **same earnings per share under both options.** (6 marks)
- (b) **Which option should FinSmart adopt? Explain your rationale and support with calculation.** (3 marks)
- (c) **After the HK\$20 million loan contemplated in this exercise has been executed, calculate how much more the company can borrow in order not to violate the time interest earned loan covenant assuming EBIT remains at HK\$18 million during the term of the loan.** Assume repayment capacity is not an issue. (8 marks)



Question 6 (17 marks – approximately 31 minutes)

Required:

- (a) Calculate the **breakeven EBIT** that will result in the **same earnings per share under both options.**

(6 marks)

Question 6(a) – 6 marks

This question required candidates to calculate the breakeven earnings before interest and tax (“EBIT”), which is the earnings that gives the same EPS for two different capital structure/long term financing decisions. **Performance was below expectations. Most candidates understood the meaning of breakeven EBIT but failed to take into account the complications embedded in the questions, i.e. interest expenses and share number calculations.**



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Answer 6(a)

All numbers are in millions except otherwise stated:

For option 1

Amount of additional financing needed	HK\$20 million
Interest expense:	
Existing loan	HK\$5 million
Interest rate (%)	5.5
Original interest	HK\$0.275 million (loan x rate)
Additional loan	HK\$20 million
Interest rate (%)	6.0
New loan interest	HK\$1.200 million
Total interest cost	HK\$1.475 million (existing + new loan)



For option 2

Original number of shares	40 million
Amount of additional financing needed	HK\$20 million
Issue price	HK\$5
Number of additional shares	4 million
Total shares	44 million
Tax rate (%)	16.5
Expected EBIT	18

Assume x = EBIT that gives the same EPS

$$\frac{x - 0.275}{44} = \frac{x - 1.475}{40}$$

$$x = 13.48$$

$(x - \text{original interest}) (1 - t) / \text{new number of shares} = (x - \text{total interest}) (1 - t) / \text{original number of shares}$

The EBIT that will give the same EPS is HK\$13.48 million.

check:

EPS additional borrowing (\$ / share)	HK\$0.251
EPS equity financing (\$ / share)	HK\$0.251



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(b) **Which option should FinSmart adopt? Explain your rationale and support with calculation.**

(3 marks)

Question 6(b) – 3 marks

This question required candidates to recommend the better financing decisions discussed in the question, with supporting rationale and calculation. **Performance was disappointing. A lot of candidates successfully chose the correct financing option, but failed to argue and justify the recommendation in writing, which carried most marks.**



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- (c) After the HK\$20 million loan contemplated in this exercise has been executed, calculate how much more the company can borrow in order not to violate the time interest earned loan covenant assuming EBIT remains at HK\$18 million during the term of the loan. Assume repayment capacity is not an issue.
(8 marks)

Question 6(c) – 8 marks

This question required candidates to demonstrate competence in estimating subsequent borrowing subject to a tighter loan covenant as a result of higher gearing. The question was a difficult one as it involves a lot of data, analysis and technical competence in a real world situation. Performance was poor.



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For option 1, as a condition of the loan, FinSmart and the bank agree that after the HK\$20 million loan is made, the times interest earned ratio, defined as earnings before interest and tax ("EBIT") / interest including any new loan beyond the total HK\$25 million, cannot be reduced by more than 30%. The cost of any further borrowing after the HK\$20 million tranche debt is expected to be at 8% due to higher gearing. It is expected the EBIT in the next three years will remain stable at HK\$18 million. Tax rate is 16.5%



Answer 6(c)

TIE after new loan	12.20 times	EBIT / Interest = HK\$18 million / HK\$1.475 million
TIE percentage reduction allowed	30%	
TIE after 30% reduction	8.54 times	
The total amount of interest allowed	HK\$2.107 million	Interest allowed = EBIT / TIE
Additional interest allowed	HK\$0.632 million	(total amount of interest under reduced TIE – total interest under option 1) = HK\$2.107 – HK\$1.475 million
Additional loan allowed	HK\$7.90 million	(additional interest allowed / interest rate) = HK\$0.632 million / 0.08



Answer 6(c) - Another Approach

Let Y = additional loan the company can borrow after \$20 million loan not to violate the time interest earned loan covenant:

$$\frac{18\text{m}}{(5\text{m} \times 5.5\% + 20\text{m} \times 6\% + 8\% \times Y)} = \frac{18\text{m}}{(5\text{m} \times 5.5\% + 20\text{m} \times 6\%)} \times (1 - 0.3)$$

$$Y = 7.901\text{m}$$



Question 7 (15 marks – approximately 27 minutes)

DivFree is a company listed on the stock exchange of Hong Kong. The board of directors is reviewing dividends to be declared.

DivFree is engaged in a manufacturing business that is considered as mature and subject to intensive competition. It expects there is a need to use about 50% of its estimated profit to renew manufacturing equipment investment.

DivFree's profit for last year has increased 25% mainly due to the sale of an investment property resulting in a substantial one-off profit causing a 20% increase in profit. The remaining 5% was fueled by normal business.

A substantial convertible bond will be due next year, refinancing from a loan is unlikely due to the current high gearing. Conversion is uncertain. **To repay the loan requires about 50% of the gain from the investment property disposal to be retained in the company.** A potential shareholder has indicated its interest to invest into DivFree but negotiation has not started.



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There is a new technology that will be launched next year and the industry competitors are expected to invest in this technology to stay competitive. If DivFree does not follow, its competitive advantage may be threatened.

A major institutional shareholder has pressured the board to declare substantially higher dividends due to its own financial needs. Management believes that if the company pays a large dividend as suggested, new financing will be required for future investment opportunities. If new financing comes from issuing equity, existing shareholders' ownership will be diluted. The company understands the majority of shareholders will not welcome such a consequence.

In deciding the dividend, the board is being reminded that one of its fiduciary duties is to look after the interests of the company as a whole.

During the board meeting, some directors indicate management should not worry about the dividend policy, based on the dividend irrelevance theory. Other directors do not agree and believe dividend policy is important and a company should be careful about declaring dividends.



Question 7 (15 marks – approximately 27 minutes)

Required:

Assume you are the CFO, draft a **memo** to:

- (a) Explain the merits of the **two contrasting views about dividend policy** as discussed by the directors.
- (b) **Explain the factors** that the board should consider before declaring a significant increase in dividends according to the preference of the major institutional shareholder. **Recommend a dividend policy** for the company.

Note: Mark(s) will be awarded for proper memo format with logical presentation.

(15 marks)



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Question 7 – 15 marks

This question required candidates to demonstrate understanding of two contrasting views of dividend policy and payment. Further, the question tested candidates' understanding of the signalling effect of a dividend policy. Overall performance was satisfactory. However, this was another question where massive direct copying from the learning pack of irrelevant materials was noted from quite a number of candidates. Not all candidates demonstrated a clear understanding of a memo format and so lost the opportunity to score some easy marks.



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Required:

Assume you are the CFO, draft a **memo** to:

- (a) Explain the merits of the **two contrasting views about dividend policy** as discussed by the directors.

Note: Mark(s) will be awarded for proper memo format with logical presentation.



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Answer 7(a) & (b)

From: xxxx, CFO

To: Board of directors

Date: xxxxxxxx

Subject: Dividend Policy

Note: Mark(s) will be awarded for proper memo format with logical presentation.



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- (a) Dividend policy can be construed from two perspectives:
 - (i) **Timing** of dividend payment

Dividend policy from the perspective of timing means **either paying dividend now or keeping it in the company** which then is assumed to reinvest the retained earnings at the required rate of return of equity and then distribute it later back to shareholders, resulting in either higher dividends or share price or both. From this perspective, **dividend policy does not matter since the shareholders' wealth remains the same,** and as such the current share price is not affected. In this case, management should not worry about dividend policy.



- (ii) **Amount of dividend** i.e. dividend per share ("DPS"), determined based on, for example, percentage of net income, a constant amount or growing amount.

From this perspective, the dividend amount is based on a certain assumption which can change at the management's discretion. In this case, **dividend policy does affect share price since the higher the dividend, the higher the share price, assuming earnings growth is sustainable to support a higher dividend in the future.** In real life, the dividend does affect the share price if the company changes the amount of dividend paid. **Shareholders will reprice the shares based on the latest dividend together with expectations of future distribution.** As such, management should carefully consider and adopt a policy that suits the company's investment and financing strategies as well as shareholders' expectations.



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- (b) **Explain the factors** that the board should consider before declaring a significant increase in dividends according to the preference of the major institutional shareholder. **Recommend a dividend policy** for the company.

Note: Mark(s) will be awarded for proper memo format with logical presentation.

(15 marks)



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When deciding upon the level of dividend payout to shareholders, the key management consideration will be the amount of earnings they wish to retain to meet the company's financing needs. As well as future financing requirements, the decision on how much of the company's profits should be retained, and how much paid out to shareholders, will be influenced by a number of factors:

- (a) The ease with which the company could raise extra finance from sources other than retained earnings. Smaller companies tend to have more difficulty in raising finance and might rely more heavily on retained earnings.
- (b) The company's liquidity position.
- (c) **The need to repay debt in the near future.**
- (d) There may be dividend restraints imposed by loan agreements.
- (e) The company's required gearing level (payment of dividends reduces equity funds).



- (f) **The signalling effect of dividends to shareholders and the financial markets in general** (discussed below).
- (g) The need to retain some profit within the business just to counteract the effect of inflation and maintain its operating capability unchanged.
- (h) The law on distributable profits, as companies can generally only pay dividends solely out of accumulated net realised profits less net accumulated losses.
- (i) The need to remain profitable, as an unprofitable company cannot continue for ever paying dividends out of historic retained profits.
- (j) Adopting a conservative dividend policy in times of economic instability can improve balance sheet flexibility and provide a source of internal finance when capital markets are volatile and external fundraising is expensive. For a good discussion of this see: Dobbs, Karakolev and Raj; 'Preparing for the next downturn'; *Perspectives on Corporate Finance and Strategy*; McKinsey; Spring 2007.



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A substantial convertible bond will be due next year, refinancing from a loan is unlikely due to the current high gearing. Conversion is uncertain. To repay the loan requires about 50% of the gain from the investment property disposal to be retained in the company. A potential shareholder has indicated its interest to invest into DivFree but negotiation has not started.

There is a new technology that will be launched next year and the industry competitors are expected to invest in this technology to stay competitive. If DivFree does not follow, its competitive advantage may be threatened.

A major institutional shareholder has pressured the board to declare substantially higher dividends due to its own financial needs. Management believes that if the company pays a large dividend as suggested, new financing will be required for future investment opportunities. If new financing comes from issuing equity, existing shareholders' ownership will be diluted. The company understands the majority of shareholders will not welcome such a consequence.

In deciding the dividend, the board is being reminded that one of its fiduciary duties is to look after the interests of the company as a whole.



(b) Factors for dividend policy decision and recommendation:

- Proper **signalling from dividends**: market will interpret from dividends paid about the future prospects of the company. As such, any amount declared should not be misleading. The **paying of a large dividend** upon request of the institutional shareholder, if not properly categorized, will **give the wrong information to the market about the future profitability and growth.**
- **Shareholders not wanting to be diluted**: if cash is depleted by paying large dividends, further investment and repayment of bond next year will require external financing. **Further borrowing is being ruled out given the current high gearing and issuing new shares is the only alternative.** Such action will cause dilution of ownership to existing shareholders, which, as indicated in the question, is not welcome.



- Future investment needs due to new technology: cash should be conserved for capital investment in order to stay competitive.
- Repayment of loan: cash is also needed to repay a huge loan next year.
- Share buyback is another way to return money to shareholders and is more flexible in terms of cash needs and will not have the same signalling effect consideration as dividends.
- Recommendation: Overall consideration from the board should be the best interests of and be fair to all shareholders instead of to the preference of a particular group of shareholders. In this case, given the above analysis, it seems paying a moderate special dividend for the sale of the investment property plus a regular dividend based on previous history and further prospects seem appropriate. In addition, share repurchase can be used in conjunction with or as a stand-alone initiative to dividends.



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Summary of Examination Techniques

- Don't panic
- Manage your time (1.8 mins./mark)
- Attempt all questions and review your answers at last
- Read question requirements and identify the issues carefully
 - Highlight key words (e.g. Calculate / Advise / Propose etc...)
- Pay attention to specific format requirement (e.g. Memo)
- Give relevant answers
- Write clearly and check for careless mistakes
- Apply technical knowledge and don't copy from LP



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Part 5: Q & A Session