

December 2012

QP Module B – Financial Management

Final Mock Exam *(More important)*

Question Paper	
Time allowed	3 hours
This paper is divided into two sections	ALL questions are compulsory
<u>Section A</u>	Case study questions
<u>Section B</u>	Essay/Short questions

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SECTION A – CASE QUESTIONS (Total: 50 marks)

Answer ALL of the following questions. Marks will be awarded for logical argumentation and appropriate presentation of the answers.

CASE

The island of Msadarsar attracts thousands of tourists every year. They come to enjoy the beaches, the climate and to explore the architecture and history of this ancient island. Msadarsar is also an important trading nation in the region and it enjoys close economic links with neighbouring countries. Msadarsar has four main airports and until 2002 had three airlines, one based in the west (WestAir) and one based in the east (EastAir) of the island, and another based in central (National Airlines). However, in 2002 WestAir and EastAir merged into one airline – EastWest Airlines (EWA) with the intention of exploiting the booming growth in business and leisure travel to and from Msadarsar.

EWA serves two main sectors. The first sector is a network of routes to the major cities of neighbouring countries. EWA management refer to this as the regional sector. The average flight time in this sector is one and a half hours and most flights are timed to allow business people to arrive in time to attend a meeting and then to return to their homes in the evening. Twenty five major cities are served in the regional sector with, on average, three return flights per day. There is also significant leisure travel, with many families visiting relatives in the region. The second sector is what EWA management refer to as the international sector. This is a network of flights to continental capitals. The average flight time in this sector is four hours. These flights attract both business and leisure travelers. The leisure travelers are primarily holiday-makers from the continent. Twenty cities are served in this sector with, on average, one return flight per day to each city.

EWA is the airline of choice for most of the citizens of Msadarsar. A recent survey suggested that 90% of people preferred to travel EWA for regional flights and 70% preferred to travel with EWA for international flights. 85% of the respondents were proud of their airline and felt that it projected a positive image of Msadarsar. The company also has an excellent safety record, with no fatal accident recorded since the merging of the airlines in 2002. The customer service of EWA has also been recognized by the airline industry itself. In 2010 it was voted Regional Airline of the Year by the International Passenger Group (IPG) and one year later the IPG awarded the EWA catering department the prestigious Golden Bowl as provider of the best airline food in the world. The courtesy and motivation of its employees (mainly Msadarsar residents) is recognized throughout the region. 95% of EWA employees belong to recognized trade unions. EWA is perceived as an excellent employer. It pays above industry average salaries, offers excellent benefits (such as free health care) and has a generous non-contributory pension scheme. In 2009 EWA employed 5400 people, rising to 5600 in 2010 and 5800 in 2011.

Fleet details are given in Table 1. Nineteen of the Boeing 737s were originally in the fleet of WestAir. Boeing 737s are primarily used in the international sector. Twenty-three of the Airbus A320s were originally part of the EastAir fleet. Airbuses are primarily used in the regional sector. EWA also used three Embraer RJ145 jets in the regional sector.

	Boeing 737	Airbus A320	Embraer RJ145
Total aircraft in service			
2011	21	27	3
2010	21	27	3
2009	20	26	2
Capacity (passengers)	147	149	50
Introduced	October 1996	November 2003	January 2004
Average age	12.1 years	12.9 years	6.5 years
Utilisation (hrs per day)	8.70	7.41	7.50

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Since 2009 EWA has begun to experience significant competition from “no frills” low-cost budget airlines, particularly in the international sector. Establish continental operators now each offer, on average, three low fares flights to Msadarsar every day. “No frills” low-cost budget airlines are also having some impact on the regional sector. A number of very small airlines (some with only one aircraft) have been established in some regional capitals and a few of these are offering low-cost flights to Msadarsar. A recent survey for EWA showed that its average international fare was double that of its low-cost competitors. Some of the key operational statistics for 2011 are summarized in Table 2.

Table 2: Key operational statistics for EWA in 2011

	Regional	International	Low-cost Competitor Average
Contribution to revenue (\$m)			
Passenger	400	280	Not applicable
Cargo	35	15	Not applicable
Passenger load factor			
Standard Class	73%	67%	87%
Business Class	90%	74%	75%
Average annual pilot salary	\$106,700	\$112,500	\$96,500
Source of revenue			
On-line sales	40%	60%	84%
Direct sales	10%	5%	12%
Commission sales	50%	35%	4%
Average age of aircraft	See Table 1		4.5 years
Utilisation (hrs per day)	See Table 1		9.10

EWA have made a number of operational changes in the last few years. Their website, for example, now allows passengers to book over the internet and to either have their tickets posted to them or to pick them up at the airport prior to travelling. Special promotional fares are also available for customers who book on-line. However, the website does not currently allow passengers to check-in on-line, a facility provided by some competitors. Furthermore, as Table 2 shows, a large percentage of sales are still commission sales made through travel agents. Direct sales are those sales made over the telephone or at the airport itself. Most leisure travelers pay standard or economy fares and travel in the standard class section of the plane. Although many business travelers also travel in standard class, some of them choose to travel business class for which they pay a price premium.

In the last three years, the financial performance of EWA has not matched its operational success. In a period (2009-2011) when world-wide passenger air travel revenue increased by 12% (and revenue from air travel to Msadarsar by 15%) and cargo revenue by 10%, EWA only recorded a 4.6% increase in passenger revenue.

The management team at EWA are keen to develop a strategy to address the airline's financial and operational weaknesses. One suggestion has been to re-position EWA itself as a “no frills” low-cost budget airline. However, this has been angrily dismissed by the CEO as likely to lead “to an unnecessary and bloody revolution that could cause the death of the airline itself”.

Extracted Financial Information

all figures in \$m

Extracted from the Balance Sheet

	2011	2010	2009
<i>Non-current assets</i>			
Property, plant and equipment	788	785	775
Other non-current assets	60	56	64
Total	848	841	839
<i>Current assets</i>			
Inventories	8	7	7
Trade receivables	68	71	69
Cash and cash equivalents	289	291	299
Total	365	369	375
Total assets	1213	1210	1214
<i>Total shareholders' equity</i>			
	250	259	264
<i>Non-current liabilities</i>			
Interest bearing long-term loans	310	325	335
Employee benefit obligations	180	178	170
Other provisions	126	145	143
Total non-current liabilities	616	648	648
<i>Current liabilities</i>			
Trade payables	282	265	255
Current tax payable	9	12	12
Other current liabilities	56	26	35
Total current liabilities	347	303	302
Total equity and liabilities	1213	1210	1214

Extracted from the income statement

<i>Revenue</i>			
Passenger	680	675	650
Cargo	50	48	45
Other revenue	119	112	115
Total	849	835	810
<i>Cost of Sales</i>			
Purchases	535	525	510
Total	535	525	510
Gross Profit	314	310	300
Wages & Salaries	215	198	187
Directors' Salaries	17	16	15
Interest payable	22	21	18
Total	254	235	220
Net Profit before tax	60	75	80
Tax Expense	18	23	24
Net Profit after tax	42	52	56

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Question 1 (12 marks – approximately 22 minutes)

Using the information provided in the scenario, evaluate the strengths and weaknesses of EWA and their impact on its performance.

(12 marks)

Question 2 (15 marks – approximately 27 minutes)

The CEO of EWA has already strongly rejected the re-positioning of EWA as a “no frills” low-cost budget airline.

(a) Explain the key features of a “no frills” low-cost strategy.

(4 marks)

(b) Analyse why moving to a “no frills” low-cost strategy would be inappropriate for EWA.

(11 marks)

Question 3 (8 marks – approximately 14 minutes)

An electrical company, Equiguard, provides repairing service to EWA. Equiguard is facing high staff turnover issue and its HR director has suggested that the company should introduce two new performance related pay measures. The first is a team based bonus based on the average time it takes for the company request to respond to a repair request. He proposes that this should be based on the time taken between the customer request for a repair being logged and the date of the engineer attending to fix the problem. He argues that customers value quick response times and so the shorter this time the greater the bonus should be for the whole team.

In addition, he proposes an individual bonus. This will be based on the average time taken for an engineers to fix a reported fault once they have arrived. This is the average time taken for the engineer to repair the fault from the start time of the job to its completion. He argues that the company values quick repair time as this increases business efficiency and so the quicker the fix the greater the bonus should be for the individual.

Required:

Analyse the limitations of the proposed performance measures suggested by the HR director.

(8 marks)

Question 4 (15 marks – approximately 27 minutes)

With the possibility of future competition and financing, EWA is considering listing its shares in Msadarsar Stock Exchange. National Airline is considered to be a comparable company to EWA in terms of the business profile. The ordinary shares of National Airline (20 million shares outstanding) are listed on the Msadarsar Stock Exchange. The latest projected information for the year ended 31 December 2011 is as follows:

	National Airline	EWA
Depreciation and amortisation	\$10 million	\$9 million
Profit before interest and tax (EBIT)	\$80 million	\$82 million
Profit after tax	\$60 million	\$42 million
Share price	\$30	N/A

Information with respect to EWA's future cash flow was also projected:

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Description	EWA
Sales for 2011	\$849 million
Growth rate from 2012 to 2014	12.5% per annum
Growth rate from 2015 onwards	6% per annum perpetually
Operating profit margin before interest and tax	30%
Outstanding debt	\$310 million
Depreciation and amortisation	11% of profit before interest and tax
Working capital requirement	9% of sales
Annual capital expenditure	14% of sales
Weighted average cost of capital	15%
Tax rate	30%

Required:

Estimate the equity values of EWA as at 31 December 2011 by using the Comparable Method(s) and the Free Cash Flow to the Firm (FCFF) model. Briefly comment on the results obtained.

(15 marks)

* * * END OF SECTION A * * *

SECTION B – ESSAY / SHORT QUESTIONS (Total: 50 marks)

Answer ALL of the following questions. Marks will be awarded for logical argumentation and appropriate presentation of the answers.

Question 5 (20 marks – approximately 36 minutes)

The following financial information related to BBKing Ltd.:

	2007		2006		
	\$000	\$000	\$000	\$000	
Sales (all on credit)		37,400		26,720	
Cost of sales		<u>34,408</u>		<u>23,781</u>	
Operating profit		2,992		2,939	
Finance costs (interest payments)		355		274	
Profit before taxation		<u>2,637</u>		<u>2,665</u>	
	\$000	2007	\$000	2006	\$000
Non-current assets		13,632			12,750
Current assets					
Inventory	4,600			2,400	
Trade receivables	<u>4,600</u>			<u>2,200</u>	
		9,200		4,600	
Current liabilities					
Trade payables	4,750			2,000	
Overdraft	<u>3,225</u>			<u>1,600</u>	
		7,975		3,600	
Net current assets		<u>1,225</u>			1,000
8% Bonds		<u>14,857</u>			<u>13,750</u>
		<u>2,425</u>			<u>2,425</u>
		<u>12,432</u>			<u>11,325</u>
Capital and reserves					
Share capital		6,000			6,000
Reserves		<u>6,432</u>			<u>5,325</u>
		<u>12,432</u>			<u>11,325</u>

The average variable overdraft interest rate in each year was 5%. The 8% bonds are redeemable in ten years' time.

A factor has offered to take over the administration of trade receivables on a non-recourse basis for an annual fee of 3% of credit sales. The factor will maintain a trade receivables collection period of 30 days and BBKing Ltd will save \$100,000 per year in administration costs and \$350,000 per year in bad debts. A condition of the factoring agreement is that the factor would advance 80% of the face value of receivables at an annual interest rate of 7%.

Required:

- (a) Use the above financial information to discuss, with supporting calculations, whether or not BBKing Ltd is overtrading. (10 marks)
- (b) Evaluate whether the proposal to factor trade receivables is financially acceptable. Assume an average cost of short-term finance in this part of the question only. (5 marks)

- (c) BBKing Ltd Finance Manager, John, had been consistently diverting disproportionately large amount of interest rate derivative business to ABC Bank. In a private meeting with John, he told you that his wife was working in the dealing room of ABC Bank, but he emphasized that the aggregate exposure to the bank was still within the limits of the policy. Comment on John's behavior.

(5 marks)

Question 6 (15 marks – approximately 27 minutes)

The One Ltd is a company listed in Hong Kong Exchange that manufactures electronic products and it is planning to expand its existing business. The investment cost of \$5 million will be met by a 1 for 4 rights issue. The current share price of The One Ltd is \$2.50 per share and the rights issue price will be at a 20% discount to this. The finance director of it expects that the expansion of existing business will allow the average growth rate of earnings per share over the last four years to be maintained into the foreseeable future.

The earnings per share and dividends paid by The One Ltd over the last four years are as follows:

	2003	2004	2005	2006	2007
Earnings per share (cents)	27.7	29.0	29.0	30.2	32.4
Dividend per share (cents)	12.8	13.5	13.5	14.5	15.0

The One Ltd has a cost of equity of 10%. The price/earnings ratio of The One Ltd has been approximately constant in recent years. Ignore issue costs.

Required:

- (a) Calculate the theoretical ex rights price per share prior to investing in the proposed business expansion. (3 marks)
- (b) Calculate the expected share price following the proposed business expansion using the price/earnings ratio method. (3 marks)
- (c) Why did finance theorists Modigliani and Miller argue that the financing decision doesn't matter in perfect capital markets? What is the weakness in their argument? (4 marks)
- (d) Explain how The One Ltd might use the FRICT framework in considering capital structure issues. (5 marks)

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Question 7 (15 marks – approximately 27 minutes)

You are a CPA employed by Moon Co which is a manufacturing company listed on the Hong Kong Stock Exchange.

Moon Co has in issue five million shares with a market value of \$3.81 per share. The equity beta of the company is 1.2. The yield on short-term government debt is 4.5% per year and the equity risk premium is approximately 5% per year.

The debt finance of Moon Co consists of bonds with a total book value of \$2 million. These bonds pay annual interest before tax of 7%. The par value and market value of each bond is \$100.

Moon Co pays taxation at an annual rate of 16%.

Required:

- (a) Calculate the after-tax weighted average cost of capital of Moon Co. (4 marks)
- (b) Explain the meaning of each of the elements in the WACC calculation, and outline two other areas of the company's operations for which the WACC may be useful. (4 marks)
- (c) MOON Co wishes to minimise its inventory costs. Annual demand for a raw material costing \$12 per unit is 60,000 units per year. Inventory management costs for this raw material are as follows:

Ordering cost:	\$6 per order
Holding cost:	\$0.5 per unit per year

The supplier of this raw material has offered a bulk purchase discount of 1% for orders of 10,000 units or more. If bulk purchase orders are made regularly, it is expected that annual holding cost for this raw material will increase to \$2 per unit per year.

Required:

- (i) Calculate the total cost of inventory for the raw material when using the economic order quantity. (4 marks)
- (ii) Determine whether accepting the discount offered by the supplier will minimise the total cost of inventory for the raw material. (3 marks)

****End Of Section B and Final Mock Examination Paper****

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Answers

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SECTION A – CASE QUESTIONS (Total: 50 marks)

Answer 1

Strengths

- Strong brand identity particularly with the citizens of Msadarsar. A quoted recent survey suggested that 90% of people preferred to travel EWA for regional flights and 70% preferred to travel EWA for international flights. 85% of respondents were proud of their airline and felt that it projected a positive image of Msadarsar.
- EWA have an exemplary safety record. There have been no fatal accidents since its formation in 2002.
- Excellent customer service recognized by the Regional Airline of the Year award and the Golden Bowl as provider of the best airline food in the world.
- High business class load factors, particularly in the regional sector. This appears to suggest that EWA are particularly strong in the business market.
- Relatively strong cargo performance. In the period 2005-2011 when passenger air travel revenue had increased by 12% (and air travel to Msadarsar by 15%) and cargo revenue by 10%, EWA increased cargo revenue by 11%, just above the industry average.
- Financially, although the net profit margin has fallen (see weaknesses), the gross profit margin remains relatively stable. Hence the cost of sales (excluding wages, salaries and financing) has moved roughly in line with revenue. The gross profit margin for 2009 is 37.04% and for 2011 it is 36.98%, very little change.
- The settlement of debt is an important issue for an organization. The average settlement period for receivables is concerned with how long it takes for customers to pay the amounts owing. This is low at EWA (29 days) and reducing, suggesting effective credit control and an industry where many customers pay before they are able to use the service. It is likely that much of the debt is tied-up with commission sales and cargo services.
- The gearing ratio measures the contribution of long-term lenders to the long-term capital structure of the business. Gearing for EWA remained relatively stable during the period 2009-2011. It stood at 71.13% in 2011, a marginal increase on the 2009 figure of 71.05%.
- Conveniently scheduled flights to business travel for the regional sector. Allows business to be conducted in one day, with a flight out in the morning and a flight back in the evening. Most cities in this sector also receive an extra flight in the middle of the day.
- Highly motivated, courteous employees.

Weaknesses

- High cost base. The most tangible evidence of this is the average pilot salary given in Table 1. Pilot salary costs appear to be over 10% higher than their competitors. The scenario also suggests that EWA pay above industry average salaries, offer excellent benefits (such as free health care) and have a generous non-contributory pension scheme. Other hints of high costs (insourced non-core activities such as catering, highly unionized) are also mentioned in the scenario. High costs are also hinted at in Tables 1 and 2, with EWA having relatively older aircraft, presumably requiring more maintenance, and lower utilization hours than their competitors. The average wage of an employee rose by about 7% during the period under consideration.
- Poor growth rate. The scenario makes the point that in the period 2009-2011, passenger air travel revenue has increased world-wide by 12% (and revenue from air travel to Msadarsar by 15%). However, EWA only recorded a 4.6% increase in passenger revenue in this period.
- Low frequency of flights in the international sector, where there is on average only one flight per day to each destination. This makes it very difficult for the airline to gain any operational economies of scale in this sector.
- The mixed airliner fleet is largely a result of the merger of the two airlines that formed EWA. The airframes for the bulk of the fleet are from two competing manufacturers (Boeing and Airbus). The information given in Table 1 suggests that the two aircraft types (Boeing 737 and A320) are very similar. The need to service and maintain two aircraft types creates an unnecessary cost.
- Although the airline offers on-line booking, it does not currently offer on-line check-in. Hence overheads still remain in the embarkation process. Business travelers particularly favour on-line check-in as it means they can leave their homes and meetings

later. In 2011 the New Straits Times reported a recent global survey that showed that air travelers spend an average of four days in a year in queues at airline check-in counters.

- Table 2 shows below average load factors in standard class seating. This is particularly significant on international sector flights.
- Return on capital employed (ROCE) and return on ordinary shareholders funds (ROSF) are important measures of profitability. Both of these ratios show a significant fall in 2011. The fall can be largely attributed to a decline in net profit due to increases in costs outstripping increases in revenue.
- The reduction in profitability is also revealed by the net profit margin which has reduced from 12.10% in 2009 to 9.66% in 2011. However, the gross profit percentage remains relatively stable and so it appears that it is the increased cost of wages, salaries and borrowing that has caused EWA profitability problems.
- Efficiency ratios are used to examine how well the resources of the business are managed. The sales revenue per employee has reduced during the period, perhaps suggesting a reduction in productivity that needs to be investigated. In contrast, the average settlement period for payables shows a marginal rise. Trade payables provide a free source of finance, but extending the average settlement period too far can lead to loss of goodwill with suppliers. EWA already have a high settlement period for payables, although this may be typical in this industry.
- Liquidity (both current and acid test ratios) fell significantly in 2011. This may affect the ability of the company to meet its short-term obligations.
- Finally, the interest cover ratio has declined considerably during the period covered in Table 1. In 2009, it was 5.44, but by 2011 it had declined to 3.73. The lower the level of profit coverage, the greater the risk to lenders that interest payments will not be met.

Answer 2(a)

A “no frills” strategy combines low price with low perceived benefits of the product or service. It is primarily associated with commodity goods and services where customers do not discern or value differences in the products or services offered by competing suppliers. In some circumstances the customer cannot afford the better quality product or service of a particular supplier. “No frills” strategies are particularly attractive in price-sensitive markets. Within the airline sector, the term “no frills” is associated with a low cost pricing strategy. “No frills” strategies usually exist in markets where buyers have high power coupled with low switching costs and so there is little brand loyalty. It is also prevalent in markets where there are few providers with similar market shares. As a result of this the cost structure of each provider is similar and new product and service initiatives are quickly copied. Finally a “no frills” strategy might be pursued by a company entering the market, using this as a strategy to gain market share before progressing to alternative strategies.

Answer 2(b)

“No frills” low-cost budget airlines are usually associated with the following characteristics. Each of these characteristics is considered in the context of EWA.

Operational economies of scale

Increase flight frequency brings operational economies and is attractive to both business and leisure travelers. In the international sector where EWA is currently experiencing competition from established “no frills” low-cost budget airlines EWA has, on average, one flight per day to each city. It would have to greatly extend its flight network, flights frequency and the size of its aircraft fleet if it planned to become a “no frills” carrier in this sector. This fleet expansion appears counter to the culture of an organization that has expanded very gradually since its formation. Table 1 shows only three aircraft added to the fleet in the period 2009-2011. It is likely that the fleet size would have to double for EWA to become a serious “no frills” operator in the international sector. In the regional sector, the flight density, an average of three flights per day, is more characteristics of a “no frills” airline. However, EWA would have to address the relatively low utilization of its aircraft (see Tables 1 and 2) and the cost of maintenance associated with a relatively old fleet of aircraft.

Reduced costs through direct sales

On-line booking is primarily aimed at eliminating commission sales (usually made through travel agents). "No frills" low-cost budget airlines typically achieve over 80% of their sales on-line. The comparative figure for EWA (see Table 2) is 40% for regional sales and 60% for international sales, compared with an average of 84% for their competitors. Clearly a major change in selling channels would have to take place for EWA to become a "no frills" low-cost budget airline. It is difficult to know whether this is possible. The low percentage of regional on-line sales seems to suggest that the citizens of Msadarsar may be more comfortable buying through third parties such as travel agents.

Reduced customer service

"No frills" low-cost budget airlines usually do not offer customer services such as free meals, free drinks and the allocation of passengers to specific seats. EWA prides itself on its in-flight customer service and this was one of the major factors that led to its accolade as Regional Airline of the Year. To move to a "No frills" strategy, EWA would have to abandon a long held tradition of excellent customer service. This would require a major cultural change within the organization. It would also probably lead to disbanding the award winning catering department and the redundancies of catering staff could prove difficult to implement in a heavily unionized organization.

To achieve competitive advantage through low price strategy, it has two basic choices –

1. To try and identify a market segment which is unattractive to competitors and in this way avoid competitive pressures to erode price. It is possible for EWA to pursue this policy in the international sector because of significant competition from established continental "no frills" low-cost budget airlines. It may be a candidate strategy for the regional sector, but the emergence of small "no frills" low-cost budget airlines in these countries threaten this. Many of these airlines enter the market with very low overheads and use the "no frills" approach as a strategy to gain market share before progressing to alternative strategies.

2. A "no frills" strategy depends for its success on margin. Evidence from the scenario suggests that EWA does not have a low cost base. It continues to maintain overheads (such as a catering department) that its competitors have either disbanded or outsourced. More fundamentally (from Table 2), its flight crew enjoy above average wages and the whole company is heavily unionized. The scenario acknowledges that the company pays above industry salaries and offers excellent benefits such as a generous non-contributory pension. Aircraft utilization and aircraft age also suggest a relatively high cost base. The aircraft are older than their competitors and presumably incur greater maintenance costs. EWA's utilization of its aircraft is also lower than its competitors. It seems highly unlikely that EWA can achieve the changes required in culture, cost base and operations required for it to become a "no frills" low-cost budget airline. Other factors serve to reinforce this. For example:

- Many "no frills" low-cost budget airlines fly into airports that offer cheaper taking off and landing fees. Many of these airports are relatively remote from the cities they serve. This may be acceptable to leisure travelers, but not to business travelers – EWA's primary market in the regional sector.
- Most "no frills" low-cost budget airlines have a standardized fleet leading to commonality and familiarity in maintenance. Although EWA has a relatively small fleet it is split between three aircraft types. This is due to historical reasons. The Boeing 737s and airbus A320s appear to be very similar aircraft. However, the Boeings were inherited from WestAir and the Airbuses from EastAir.

In conclusion, the CEO's decision to reject a "no frills" strategy for EWA appears to be justifiable. It would require major changes in structure, cost and culture that would be difficult to justify given EWA's current position. Moving EWA to a "no frills" model would require seismic changes in cost and culture. If EWA really wanted to move into this sector then they would be better advised to start afresh with a separate brand and airline and to concentrate on the regional sector where it has a head start over many of its competitors.

Answer 3

In performance related pay, income is tied to the level of ability and output. Advocates of this approach suggest that a job's performance measures demonstrate to the employee what the employer considers to be the key tasks they want employees to perform. Measures also suggest what level of performance is expected in those key tasks. However, for these measures to be successful, the employee has to perceive that the measures are both relevant and achievable. There are at least two significant issues here (both of which appear in the performance measures suggested by the HR director).

Firstly, that the parameters that underpin the measure are under the control of the employee who is attempting to achieve a defined performance. There is little point in setting targets that are outside the scope of the employee's influence.

Secondly, that the measures that relate to the employee are not at odds with the measures applicable to the whole organization. So employees are not encouraged to work in a way that maximizes their income but which reduces the performance or profitability of the organization as a whole.

The HR director at Equiguard has proposed two performance measures. The first is a team-based on an average time it takes for the company to respond to a repair request. He proposes that this should be based on the time taken between the customer request for a repair being logged and the date of the engineer attending to fix the problem. He argues that customers value quick response times and so the shorter time the greater the bonus should be. Although quick response to a customer request for a repair is important, the potential problem with this measure is that it is influenced by parameters largely outside the influence of the team. Firstly, it depends upon the availability of an engineer and this availability is largely determined by how many engineers the company decides to employ. Secondly, the scenario makes it clear that the visit is scheduled "at the earliest possible time convenient to the customer". This may be some considerable time in the future, particularly for householders who have to make arrangements to stay at home to allow the engineer access to the equipment they are repairing. To make this a legitimate performance measure the lead time to repair has to be in the hands of the team, which it clearly is not.

In addition, the HR director proposes an individual bonus. This will be based on the average time taken for an engineer to fix a reported fault once they have arrived. This is the average time taken for the engineer to repair the fault from the start time of the job to its completion. He argues that the company values quick response time as this increases efficiency and so the quicker the fix the greater the bonus.

At least this measure is partly in the hands of the repairer. However, there are at least three problems with this measure:

- The length of the repair is likely to depend upon the complexity of the problem and the design of the equipment being repaired. The measure would penalize engineers working on complicated problems on complex equipment.
- The length of the repair may influence the quality of the repair. There might be a temptation to perform a relatively quick fix, with a high probability of a future failure. Indeed the measure might encourage engineers to maximize their income by performing a number of quick repairs that do not address the underlying problem. The effect of this on Equiguard could be potentially disastrous. Their current business model depends upon the company minimizing calls and repairs during the warranty period. In contrast, the performance measure might lead to more calls, increasing the pay of the engineer but undermining the profitability of the company.
- There could be problems with engineers reliably reporting the correct start and end time of a job. The engineer may be tempted to falsify these times, reducing job time but perhaps increasing the time apparently spend in travelling and performing administration.

Answer 4

Comparable methods

The comparable methods approach the valuation by examining data of a comparable firm. Price/earnings (P/E) ratio and enterprise value (EBIT/EBITDA) ratio are popular comparable approaches.

P/E ratio

National Airline's earnings per share = \$60 million / 20 million shares = \$3 per share
Thus National Airline's P/E ratio = \$30/\$3 = 10

Based on a P/E ratio of 10, EWA's total equity value = \$42 million x 10 = \$420 million.

EBIT ratio

National Airline's enterprise value (EV) per EBIT = (\$30 x 20 million) / \$80 million = 7.5

Based on an EV/EBIT of 7.5, EWA's total equity value = HK\$82 million x 7.5 = \$615 million.

EBITDA ratio

National Airline's enterprise value (EV) per EBITDA = (\$30 x 20 million) / (\$80 million + \$10 million) = 6.6667

Based on an EV/EBITDA of 6.6667, EWA's total equity value = (\$82 million + \$9 million) x 6.6667 = \$606.67 million.

Free cash flow to the firm (FCFF) model

FCFF represents the cash flow that is available to pay interest and principal to lenders and dividends to shareholders. It can be measured as:

FCFF = EBIT x (1 – tax rate) + depreciation and amortisation – capital expenditure – increase in net working capital.

	2011	2012	2013	2014	2015
Sales growth		12.5%	12.5%	12.5%	6%
	\$'000	\$'000	\$'000	\$'000	\$'000
Sales	<u>849,000</u>	<u>955,125</u>	<u>1,074,516</u>	<u>1,208,830</u>	<u>1,281,360</u>
EBIT = sales x 30%		286,538	322,355	362,649	384,408
Less: tax at 30%		(85,961)	(96,707)	(108,795)	(115,322)
Add: depreciation at 11%		31,519	35,459	39,891	42,285
Less: capital expenditure 14%		(133,718)	(150,432)	(169,236)	(179,390)
Less: increase in working capital*		<u>(9,551)</u>	<u>(10,747)</u>	<u>(12,089)</u>	<u>(6,527)</u>
Free cash flow		<u>88,827</u>	<u>99,928</u>	<u>112,420</u>	<u>125,454</u>
Terminal value of 2015 and after = 125,454 / (15% - 6%)				<u>1,393,933</u>	
				<u>1,506,353</u>	
Discount factor at 15%		<u>0.870</u>	<u>0.756</u>	<u>0.658</u>	
Present value		<u>77,279</u>	<u>75,546</u>	<u>991,180</u>	
Net present value	1,144,005				
Less: debt	<u>(310,000)</u>				
Value of equity	<u>834,005</u>				

* Working capital requirement at 9% of sales

	76,410	85,961	96,706	108,795	115,322
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Comment

It is unlikely that one method of equity valuation would be used in isolation. Several valuations will be used, each using a different technique and assumptions. The valuation could then be compared, and a final price reached as a compromise between the different values.

The Free Cash Flow to the Firm (FCFF) model values the total company, i.e. enterprise value, rather than just the equity stake. The value of the firm obtained is the present value of the expected future cash flows to all investors of the firm. Once the value of the firm is established, subtracting the value of net debt derives the value of equity.

*****End of Section A ***
(ANSWERS)**

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SECTION B – ESSAY / SHORT QUESTIONS (Total: 50 marks)

Answer 5(a)

Financial analysis		2007	2006
Inventory days	(365 x 2,400)/23,781 (365 x 4,600)/34,408	37 days	49 days
Receivables days	(365 x 2,200)/26,720 (365 x 4,600)/37,400	30 days	45 days
Payables days	(365 x 2,000)/23,781 (365 x 4,750)/34,408	31 days	51 days
Current ratio	4,600/3,600 9,200/7,975	1.3 times	1.15 times
Quick ratio	2,200/3,600 4,600/7,975	0.61 times	0.58 times
Sales/net working capital	26,720/1,000 37,400/1,225	26.7 times	30.5 times
Turnover increase	37,400/26,720	40%	
Non-current assets increase	13,632/12,750		7%
Inventory increase	4,600/2,400	92%	
Receivables increase	4,600/2,200		109%
Payables increase	4,750/2,000	138%	
Overdraft increase	3,225/1,600		102%

Discussion

Overtrading or undercapitalisation arises when a company has too small a capital base to support its level of business activity.

Difficulties with liquidity may arise as an overtrading company may have insufficient capital to meet its liabilities as they fall due. Overtrading is often associated with a rapid increase in turnover and BBKing Co has experienced a 40% increase in turnover over the last year. Investment in working capital has not matched the increase in sales, however, since the sales/net working capital ratio has increased from 26.7 times to 30.5 times.

Overtrading could be indicated by a deterioration in inventory days. Here, inventory days have increased from 37 days to 49 days, while inventory has increased by 92% compared to the 40% increase in turnover. It is possible that inventory has been stockpiled in anticipation of a further increase in turnover, leading to an increase in operating costs.

Overtrading could also be indicated by deterioration in receivables days. In this case, receivables have increased by 109% compared to the 40% increase in turnover. The increase in turnover may have been fuelled in part by a relaxation of credit terms.

As the liquidity problem associated with overtrading deepens, the overtrading company increases its reliance on short-term sources of finance, including overdraft, trade payables and leasing. The overdraft of BBKing Co has more than doubled in size to \$3.225 million, while trade payables have increased by \$2.74 million or 137%. Both increases are much greater than the 40% increase in turnover. There is evidence here of an increased reliance on short-term finance sources.

Overtrading can also be indicated by decreases in the current ratio and the quick ratio. The current ratio of BBKing Co has fallen from 1.3 times to 1.15 times, while its quick ratio has fallen from 0.61 times to 0.58 times.

There are clear indications that BBKing Co is experiencing the kinds of symptoms usually associated with overtrading. A more complete and meaningful analysis could be undertaken if appropriate benchmarks were available, such as key ratios from comparable companies in the same industry sector, or additional financial information from prior years so as to establish trends in key ratios.

Answer 5(b)

Current receivables = \$4,600,000
Receivables under factor = $37,400,000 \times 30/365 = \$3,074,000$
Reduction in receivables = $4,600 - 3,074 = \$1,526,000$
Reduction in finance cost = $1,526,000 \times 0.05 = \$76,300$ per year
Administration cost savings = \$100,000 per year
Bad debt savings = \$350,000 per year
Factor's annual fee = $37,400,000 \times 0.03 = \$1,122,000$ per year
Extra interest cost on advance = $3,074,000 \times 80\% \times (7\% - 5\%) = \$49,184$ per year
Net cost of factoring = $76,300 + 100,000 + 350,000 - 1,122,000 - 49,184 = \$644,884$

The factor's offer cannot be recommended, since the evaluation shows no financial benefit arising.

Answer 5(c)

John's argument on aggregate limit is not a valid defence of his improper act. The major issue is the potential conflict of interest. John's behavior cast doubts on his professional integrity. It is an even more serious offence if favouritism is involved.

If John is deemed to be accepting advantages without his employer's permission, his action may constitute a criminal offence.

Prior disclosure of the fact to the supervisor is necessary. A fair bidding system could be one of the solutions. If necessary, John should avoid involvement in the dealing function (e.g. he should take a back-office role).

Answer 6(a)

Rights issue price = $2.5 \times 0.8 = \$2.00$ per share

Theoretical ex rights price = $((2.50 \times 4) + (1 \times 2.00))/5 = \2.40 per share

Answer 6(b)

Current price/earnings ratio = $250/32.4 = 7.7$ times

Average growth rate of earnings per share = $100 \times ((32.4/27.7)^{0.25} - 1) = 4.0\%$

Earnings per share following expansion = $32.4 \times 1.04 = 33.7$ cents per share

Share price predicted by price/earnings ratio method = $33.7 \times 7.7 = \$2.60$

Since the price/earnings ratio of The One Ltd has remained constant in recent years and the expansion is of existing business, it seems reasonable to apply the existing price/earnings ratio to the revised earnings per share value.

Answer 6(c)

Finance theorists Modigliani and Miller (M&M) argued that the financing decision doesn't matter in perfect capital markets because business value is concerned only with the asset side of the balance sheet, and substituting debt for equity on the other side doesn't change this business value. Investors are only concerned with the expected return on their money, and changes in the capital structure won't alter this return.

But the M&M theory ignores taxation, which is one of the most important reasons for firms to use debt financing. Only earnings after interest payments are taxable, so a financial incentive is created for firms to use debt (referred to as an interest tax shield).

Answer 6(d)

The FRICT framework is often used to examine the potential of each financing alternative and to set strategy for making financing decisions over several years. The acronym FRICT stands for Flexibility, Risk, Income, Control and Timing. Victory Vending Machines would be encouraged to consider a range of questions under each heading, including:

Flexibility – How many financing alternatives does the firm have, and does one alternative make more sense than another given transaction costs, the amount of finance required, the time frame within which the finance is required and the firm's financial condition?

Risk – How much additional financial risk can the firm afford given its business risk, financial leverage, bond rating, quality of earnings and assets, liquidity position and predictions for interest rates?

Income – What impact will each financing alternative have on earnings per share (EPS) and cash flow after interest and dividends?

Control – If debt finance were raised would the covenants imposed be too restrictive, or if equity finance were used, to what extent would current ownership be diluted?

Timing – Which of the financing alternatives would bring the actual capital structure more into line with the optimal capital structure, and do future expectations for interest rates make one vehicle more attractive than others?

Answer 7(a)

Calculation of weighted average cost of capital

$$\text{Cost of equity} = 4.5 + (1.2 \times 5) = 10.5\%$$

The company's bonds are trading at par and therefore the before-tax cost of debt is the same as the interest rate on the bonds, which is 7%.

$$\text{After-tax cost of debt} = 7 \times (1 - 0.25) = 5.25\%$$

$$\text{Market value of equity} = 5\text{m} \times 3.81 = \$19.05 \text{ million}$$

Market value of debt is equal to its par value of \$2 million

$$\text{Sum of market values of equity and debt} = 19.05 + 2 = \$21.05 \text{ million}$$

$$\text{WACC} = (10.5 \times 19.05/21.05) + (5.25 \times 2/21.05) = 10.0\%$$

Answer 7(b)

Meaning of the elements of WACC calculation

Risk Free Rate – The rate of interest on government securities. This is usually the yield on a five year bond.

Market Risk Premium – The extra return investors require for them to hold the market portfolio rather than the risk free government security.

Beta – A measure of the riskiness of an individual company's shares relative to the market portfolio. Equity analysts typically estimate the beta of a listed company using regression analysis applied to monthly returns on the share, and the market index over the most recent three-year or five-year period.

Pre-tax Cost of Debt – Measures the current cost to the firm of borrowed funds.

Two other areas of the firm's operations where WACC may be used:

If it is necessary to value the firm's shares using the Discounted Cash Flow (DCF) approach, the WACC will be needed as the discount rate.

The WACC can also be used when the performance of Divisions is being evaluated using ROI. Each Division's ROI can be compared with WACC to determine if it is operating effectively.

Similarly, if the Economic Value Added (EVA) of the company or its divisions is being evaluated, the WACC needs to be employed as part of that process.

Answer 7(c)

- (i) Economic order quantity = $(2 \times 6 \times 60,000/0.5)^{0.5} = 1,200$ units
Number of orders = $60,000/1,200 = 50$ order per year
Annual ordering cost = $50 \times 6 = \$300$ per year
Average inventory = $1,200/2 = 600$ units
Annual holding cost = $600 \times 0.5 = \$300$ per year
Inventory cost = $60,000 \times 12 = \$720,000$
Total cost of inventory with EOQ policy = $720,000 + 300 + 300 = \$720,600$ per year
- (ii) Order size for bulk discounts = 10,000 units
Number of orders = $60,000/10,000 = 6$ orders per year
Annual ordering cost = $6 \times 6 = \$36$ per year
Average inventory = $10,000/2 = 5,000$ units
Annual holding cost = $5,000 \times 2 = \$10,000$ per year
Discounted material cost = $12 \times 0.99 = \$11.88$ per unit
Inventory cost = $60,000 \times 11.88 = \$712,800$
Total cost of inventory with discount = $712,800 + 36 + 10,000 = \$722,836$ per year
The EOQ approach results in a slightly lower total inventory cost

*** End of Section B and Final Mock Examination Paper ***
(ANSWERS)