



The Institute of Certified Management Accountants

FINANCIAL STATEMENT ANALYSIS

INSTRUCTIONS TO CANDIDATES

1. CANDIDATE ID No: _____

EXAM PAPER IS TO BE HANDED IN INTACT INSIDE YOUR ANSWER SCRIPT BOOKS AT CONCLUSION OF EXAM.

2. READING TIME IS OF 10 MINUTES DURATION
3. EXAMINATION IS OF 3 HOURS DURATION
4. This paper consists of 7 questions. PLEASE CHECK BEFORE COMMENCING.
5. This is a FINAL paper.
6. **THIS IS AN OPEN BOOK EXAM.** All material is permitted excepting for laptop computers, and mobile phones
7. Please read instructions at the top of each section carefully before answering.
8. Each section has an equal weighting in the allocation of marks.
9. Electronic hand held calculators are permitted.

PART A

Answer any Two of Questions 1, 2 and 3 in this Part

Question 1

Section A: Describe the conditions under which revenue would be recognized:

- i. At the time of production, but prior to sale
- ii. At the time of sale, but prior to cash collection
- iii. Only when cash collection has occurred **(5 marks)**

Section B: The A, B, C, and D companies are identical in every respect except for their revenue recognition methods:

- i. A recognizes sales when an order is received.
- ii. B recognizes sales at the time of production.
- iii. C recognizes sale at the time of shipment.
- iv. D recognizes sales when cash is collected.

After the first year of operation, C's closing inventory was \$30,000 and accounts receivable was \$50,000. Backorders, for which production has not yet started, were \$10,000. C recognizes sales of \$100,000 for the year.

Required:

1. Assuming that each company charges a markup of 100% over cost, complete the following table:

	A	B	C	D
Sales
Cost of Goods sold
Net Profit

2. Ignoring income taxes which company will have the largest cash balance at year-end?
3. Which company will report the largest cash from operations?

(14 + 2 + 4 = 20 marks)

Question Two

The following financial statements are from the 20x2 Annual report of the Niagra Company:

Profit and Loss Statement for the Year Ended 31 December 20x2

Sales	\$1,000
Cost of goods sold	(650)
Depreciation expense	(100)
Sales and general expenses	(100)
Interest expense	<u>(50)</u>
<i>Net profit</i>	<u>\$ 60</u>

Balance Sheet as at 31 December 20x1 and 20x2

	20x1	20x2
Assets		
Cash	\$ 50	\$ 60
Accounts receivable	500	520
Inventory	<u>750</u>	<u>770</u>
Current assets	\$1,300	\$1,350
Fixed assets (net)	<u>500</u>	<u>550</u>
<i>Total assets</i>	<u>\$1,800</u>	<u>\$1,900</u>

Liabilities and Equity:

Notes payable to banks	\$ 100	\$ 75
Accounts payable	590	615
Interest payable	<u>10</u>	<u>20</u>
<i>Current liabilities</i>	\$ 700	\$ 710
Long-term debt	300	350
Deferred income tax	300	310
Ordinary share capital	400	400
Retained earnings	<u>100</u>	<u>130</u>
<i>Total liabilities and equity</i>	<u>\$1,800</u>	<u>\$1,900</u>

Required:

1. Prepare a statement of cash flows for the year ended 31 December 20x2 classifying the statement into cash flows from operating activities, cash flows from investing activities and cash flows from financing activities.
2. Discuss from an analyst's view point, the purpose of classifying cash flows into three categories used in part A.
3. Discuss whether any of the cash flows should be classified differently.
4. Discuss the significance of the change in cash during 20x2 as an indicator of Niagara's performance.

(15 + 4 + 3 + 3 = 25 marks)**Question Three**

Examine the information given in the following table:

	1996	1999
Income Statement data:		
Revenue	\$542	\$979
Operating Income	38	76
Depreciation & Amortisation	3	9
Interest Expense	<u>3</u>	<u>0</u>
Before-tax Income	32	67
Income Taxes	<u>13</u>	<u>37</u>
<i>Net Income after Tax</i>	<u>19</u>	<u>30</u>
Balance Sheet data:		
Fixed Assets	\$ 41	\$ 70
Total Assets	245	291
Working Capital	123	157
<i>Total Debt</i>	16	0
<i>Shareholders' Equity</i>	159	220

The extended Du Pont formula as discussed in class defines the net return on shareholders' equity as a function of five financial ratios:

<i>Operating Margin</i>	<i>Asset Turnover</i>	<i>Interest Burden</i>
<i>Financial Leverage</i>	<i>Income Tax rate</i>	

Required:

- Using the data given in the table above, calculate the five components listed above for 1996 and 1999. Calculate the ROE = return on equity for the two years using these five ratios.
- Explain briefly the impact of the changes in asset turnover and financial leverage on the change in the ROE over 1996 and 1999.

(19 + 6 = 25 marks)

PART B

Answer any ONE of the Questions 4 and 5 in This Part

Question Four

Digital Equipment first began to capitalize computer software development costs in 1987. Its footnote at that time stated :

During the year, the company capitalized \$35,115,000 of computer software development costs, which are included in other assets, net on the balance sheet. These costs are amortized over three years from the date the products are available for general release. Costs amortized during the year were \$1,431,000.

Exhibit below presents the amount of computer software development costs amortized each year for 1987 to 1995 and the balance of the unamortized computer software development costs; other selected financial information for digital is provided for the years 1984 to 1995 (\$ in millions).

Exhibit: DIGITAL EQUIPMENT

Capitalized Software Costs and Selected Financial Data, Years Ended June 30 (\$millions)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
<i>Capitalized Software Costs</i>												
Amortization expense	\$ 0	\$ 0	\$ 0	\$ 1	\$ 12	\$ 27	\$ 37	\$ 44	\$ 64	\$ 69	\$ 68	\$ 59
Unamortized cost (year-end)	\$ 0	\$ 0	\$ 0	\$ 34	\$ 66	\$ 90	\$ 110	\$ 112	\$ 134	\$ 138	\$ 125	\$ 101

<i>Selected Financial Data</i>												
Research and engineering costs*	\$631	\$717	\$814	\$1,010	\$1,306	\$1,525	\$1,614	\$1,649	\$1,754	\$1,530	\$1,301	\$1,040
Operating income**	395	450	829	1,612	1,635	1,336	563	511	(636)	(237)	(790)	108
Total assets (year end)	5,593	6,369	7,173	8,407	10,112	10,668	11,655	11,875	11,284	10,950	10,580	9,947
Stockholders' equity (year-end)	\$3,979	\$4,555	\$5,728	\$6,294	\$7,510	\$8,036	\$8,182	\$7,624	\$4,931	\$4,885	\$3,280	\$3,528

*Assumes that research and engineering costs include amortized portion of software costs.

** Operating income calculated prior to restructuring charges taken in 1990 to 1992

Source: *Digital equipment, 1987-1995 Annual Reports*

Required:

1. Compute Digital's expenditure for computer software development for each year during the period 1987 to 1995.
2. Discuss the rationale for expensing research and engineering costs as incurred while capitalizing computer software development costs by Digital.
3. Assuming that Digital expensed computer software development costs as incurred, compare the (adjusted) operating income, return on assets, and return on equity with the amounts reported for 1987 to 1992. (Ignore income tax effects).
4. Repeat part C (above), assuming that Digital capitalized all research and engineering cost (as well as software development costs) and amortized them over three years beginning the following year.
5. Digital Equipment's cash from operations was \$47 million, \$375 million, and 4348 million in the years 1993, 1994, and 1995 respectively. How would the accounting assumptions made in parts C and D affect these reported numbers?

(5 + 5 + 5 + 5 + 5 = 25 marks)

Question Five

On January 1, 2003, two identical companies, Caramino Corp. and Aglianico, Inc., lease similar assets with the following characteristics:

- i. Economic life is eight years
- ii. Lease term is five years
- iii. Lease payments of \$10,000 per year are payable at the beginning of each year, with the first payment due on 1st January 2003.
- iv. Fair market value is \$48,000
- v. Each firm has an incremental borrowing rate of 8% and a tax rate of 40%.
- vi. Present value of an annuity factor (payment due at end of each year) @8% for 5 years is: 3.993; and for 4 years is: 3.312
- vii. Assume zero salvage value.

Caramino capitalizes the lease, whereas Aglianico uses the operating lease method. Both firms use straight-line depreciation for all assets on their financial statements. Assume that both firms treat the lease as an operating lease on their tax returns. Assume that each firm generates income before lease-related expense and income taxes of \$20,000 in 2003.

Required:

1. Compute earnings before interest and taxes and earnings before taxes for 2003 for each firm. Identify the sources of the difference.
2. Compute the effect of the lease on the 2003 reported cash flow from operations for both firms. Explain the difference.
3. Compute the impact of the lease on the 2003 reported financing cash flows of both firms. Explain the difference.
4. Compute the impact of the lease on the 2003 reported cash flow for investing of both firms. Explain the difference.
5. Using your answers to parts B through D, compute the effect of the lease on the 2003 reported net cash flow of both firms. Explain why they are identical.

(5 + 5 + 5 + 5 + 5 = 25 marks)

PART C

Answer One of the Questions 6 & 7 in this Part

Question Six

The Philip Morris Company is one of the world's largest cigarette manufacturers as well as a major producer and distributor of a broad line of food and beverage products. The company has compiled a steady record of growth in sales, earnings, and cash flow.

In October 1988, Philip Morris announced an unsolicited cash tender offer for all the 124 million outstanding shares of Kraft at \$90 per share. Kraft subsequently accepted a \$106-per-share all-cash offer from Philip Morris.

Kraft's major products include cheese, edible oils, nonfluid dairy products, and frozen foods. Exhibit 1 provides projected financial data for Philip Morris and Kraft individually and on a consolidated basis.

Exhibit 2 reports the median values, according to bond rating category, for the following three financial ratios:

- i. Pre-tax interest coverage
- ii. Long-term debt as a percentage of capitalization
- iii. Cash flow as a percentage of total debt (note the definition of cash flow in Exhibit 2)

EXHIBIT 1 PHILIP MORRIS COMPANIES, INC.

Projected Financial Data, 1988 to 1989 (\$ in millions)

	1988 Estimate		1989 Estimate		
	Excluding	Before	Kraft	Adjustments	
	Kraft	Kraft	Only	Consolidated	

A. Selected Income Statement Data

Total sales	\$30,450	\$33,080	\$11,610		\$44,690
Total operating income	\$ 4,875	\$ 5,550	\$ 1,050	\$ (210)	\$ 6,390
As a % of sales	16.0%	16.8%	9.0%		14.3%
Interest expense	(575)	(500)	(75)	(1,025)	(1,600)
Corporate expense	(200)	(225)	(100)	(40)	(365)
Other expense	(5)	(5)			(5)
Pretax income	\$ 4,095	\$4,820	\$ 875	\$(1,275)	\$ 4,420
As a % of sales	13.4%	14.6%	7.5%		9.9%
Income taxes	(1,740)	(2000)	(349)	493	(1,856)
Tax rate	42.5%	41.5%	39.9%		42.0%
Net income	\$ 2,355	\$2,820	\$526	\$ (782)	\$2,564

B. Selected Balance Sheet Data as of Year-End

Short-term debt	\$1,125	\$1,100	\$683		\$1,783
Long-term debt	4,757	3,883	895	\$11,000	15,778
Stockholders' equity	8,141	9,931	2,150	(2,406)	9,675

C. Other Selected Financial Data

Depreciation and amortization	\$720	\$750	\$190	\$295	\$1,235
Deferred taxes	100	100	10	280	390
Equity in undistributed earnings of unconsolidated subsidiaries	110	125			125

EXHIBIT 2

Median Ratios According to Bond Rating Category

Ratio	AAA	AA	A	BBB	BB	B	CCC
Pretax interest coverage	14.10X	9.678X	5.40X	3.63X	2.25X	1.58X	(0.42X)
Long-term debt as a % of capitalization	11.5%	18.7%	28.3%	34.3%	48.4%	57.2%	73.2%
Cash flow* as a % of total debt	111.8%	86.0%	50.9%	34.2%	22.8%	14.1%	6.2%

*For the purpose of calculating this ratio, Standard and Poor's defines cash flow as "net income plus depreciation, amortization and deferred taxes, less equity in undistributed earnings of unconsolidated subsidiaries" *Source : Standard & Poor's.*

Required: Using the information provided in Exhibits 1 and 2:

1. Calculate the three ratios listed for Philip Morris for 1989, first, using the figures prior to the Kraft acquisition and, second, using the consolidated figures after the acquisition.

2. Compare these two sets of ratios to the medians for each rating category and comment on the results.
3. Formulate and support an opinion as to the appropriate rating category for Philip Morris (before and after the Kraft acquisition).
4. Given the variables used in Altman's (1968)-bankruptcy model, calculate the 'Z' score for Philip Morris before and after the acquisition of Kraft. Discuss the impact of the Kraft acquisition on the probability that Philip Morris will become insolvent (Use the data in Exhibit 1 as part of your answer).

- Notes:** i. Altman's (1968) 'Z' score model is calculated as:

$$Z = 1.2 \left(\frac{\text{Working Capital}}{\text{Total Assets}} \right) + 1.4 \left(\frac{\text{Retained Earnings}}{\text{Total Assets}} \right) + 3.3 \left(\frac{\text{EBIT}}{\text{Total Sales}} \right) + 0.6 \left(\frac{\text{Market Value of Equities}}{\text{Book Value of Debt}} \right) + 1.0 \left(\frac{\text{Sales}}{\text{Total Assets}} \right).$$
(Critical Value of Z = 2.675)
- ii. Phillip Morris's market values of equity were: 1988: \$12,343;
 Before Kraft: \$13947; and consolidated: \$12,235.
(4 + 3 + 4 + 14 = 25 marks)

Question Seven

The following relationship is used for financial forecast of what will happen if some of the ratios in that equation changes as the firm plans its future operations.

$$\text{Growth} = [(1 - \text{tax}) (\text{Retention rate})] \left[\frac{D}{E} \left(\frac{\text{Net Inc.}}{\text{Equity}} - \text{Interest rate} \right) + \left(\frac{\text{Net Inc.}}{\text{Equity}} \right) \right]$$

You are a financial planner in a major corporation in Australia with the following ratios :

<i>Tax rate = 0.5;</i>	<i>Retention rate = 0.40;</i>	<i>Net Inc./Equity = 25%</i>
<i>D/E = Firm has no debt;</i>	<i>Interest rate = 6% p.a.</i>	

Required:

1. Estimate for this firm, the growth rate that it can sustain without debt finance.
2. Presently the firm has equity of \$100 million. Assuming that all other ratios will remain roughly the same. Generate a set of sustainable growth the firm can manage with 10%, 20%, 30%, 40% and 50% debt.
3. Identify and explain the best among the four proposed debt structure. Sketch a graph of the D/E and growth relationship for this firm.
(10 + 10 + 5 = 25 marks)