

Date of Exam	March 9, 2012
Time Period	Start time: 4:30 pm End time: 6:00pm
Duration of Exam	1.5 hours
Number of Exam Pages (including this cover sheet):	9
Exam Type (open or closed book)	Closed
Additional Materials Allowed	Calculator

Marking Scheme:

Question	Score
1 13 marks	
2 8 marks	
3 7 marks	
4 11 marks	
5 8 marks	
6 11 marks	
Total 58 marks	

Question 1: Interest Bearing Assets (13 marks ~20 min.)

- i. Boogie Down Productions (BDP) issued 10,000 callable bonds 3 years ago with a face value of \$1,000 and a coupon rate of 8% with semi-annual payments. The yield to maturity is currently 6% with semi-annual compounding. Would it be in the best interest of BDP to call the bond? (4 marks)

In your answer define callable bond and explain why BDP should or should not call the bond.

A callable bond has a **call provision** that allows the issuer to buy back all or part of its outstanding bonds at a specified call price sometime before the bonds mature

- .5 Yes, anytime the current yield to maturity falls below the bonds coupon rate, the bonds should be called as the Company could re issue bonds with a lower coupon rate. 1.5

- ii. Describe and explain the three factors discussed in class which contributed to the Greek Debt Crisis. (9 marks)

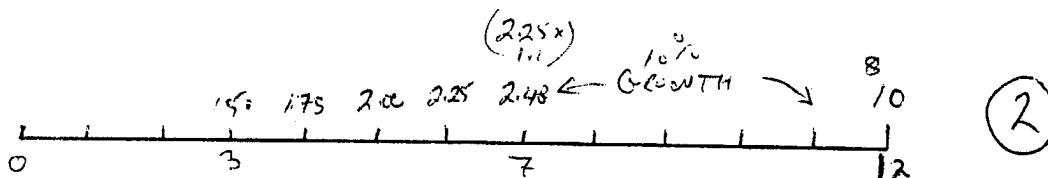
- 1) Deteriorating Fundamentals 3
- Higher inflation
 - Less competitive economy

- 2) Shift in market expectations pricing a possible exit of Greece from the EMU 3
- Lack of commitment by Greek authorities to undertake structural reforms
 - Successive governments failed to address deficits
 - Led to a crisis in confidence

- 3) Re-pricing of Greek debt to incorporate default risk 3
- Removal of the implicit guarantee of Greek debt by the other EMU countries, specifically Germany

Question 2: Dividend Discount Model (8 marks ~12 min.)

Taco Del Taco (TDT) currently pays no dividends. In three years TDT is expected to pay its first dividend of \$1.50 per share, after which dividends are expected to increase by \$0.25 per share per year for three years. Starting in year 7, dividends will grow at a rate of 10% per year for 5 years. The year following this period of growth, TDT will issue a liquidating dividend of \$10, cease all operations and pay no further dividends. What is the value per share of TDT today assuming a discount rate of 5% with annual compounding?



PART I.
$$PV_0 = \frac{1.50}{(1.05)^3} + \frac{1.75}{(1.05)^4} + \frac{2.00}{(1.05)^5} + \frac{2.25}{(1.05)^6}$$

$$= 5.98 \quad (2)$$

PART II.
$$PV_6 = \frac{C_1}{r-g} \left[1 - \frac{(1+g)^5}{(1+r)^5} \right] = 12.99$$

$C_1 = 2.48$
 $r = 5\%$
 $g = 10\%$
 $t = 5 \text{ years}$

$$PV_0 = \frac{12.99}{(1.05)^6} = 9.69 \quad (2)$$

(1)

PART III.
$$P_0 = \frac{10}{(1.05)^{12}} = 5.57 \quad (1)$$

VALUE / SHARE =
$$5.98 + \cancel{12.99} + 5.57$$

$$= \cancel{24.54} \quad \underline{\underline{\$21.24}}$$

Question 3: Mortgage / Financing (7 marks ~19 min)

You have just purchased a \$42,000 car. You have financed your purchase with a down payment of \$12,000 and a \$30,000 bank loan at an interest rate of 5% compounded annually. The car loan is to be amortized (paid back) over 5 years. Payments are to be made on a monthly basis (at the end of each month). The first payment will be one month from today.

- i. Calculate the monthly payment on the car loan. (3 marks)

$$EMR = (1 + EAR)^{1/12} - 1 = (1.05)^{1/12} - 1 = 0.004074 \quad (1)$$

$$PV_0 = \frac{C}{r} \left[1 - \frac{1}{(1+r)^t} \right] \Rightarrow 30,000 = \frac{C}{0.004074} \left[1 - \frac{1}{(1.004074)^{60}} \right]$$

$$C = \$564.61 \quad (2)$$

- ii. Calculate the interest portion and the principal portion of the 20th payment. To do this, calculate the principle remaining after the 19th payment, the interest component of the payment can be calculated using this value and the interest rate. (4 marks)

after 19 payments, $60 - 19 = 41$ remain (1)

$$PV \text{ of remaining payments} = \frac{C}{r} \left[1 - \frac{1}{(1+r)^t} \right] = \frac{564.61}{0.004074} \left[1 - \frac{1}{(1.004074)^{41}} \right]$$

$$= \$21,279.1699 \quad (2)$$

$$\text{interest portion} = 21,279.1699 \times 0.004074 = \$86.69 \quad (.5)$$

$$\text{principle portion} = 564.61 - 86.69 = 477.92 \quad (.5)$$

Question 4: Foreign Exchange (11 marks ~17 min.)

i. Describe the difference between a pegged and floating exchange rate currency. (2 marks)

Pegged Exchange Rate – The value of a currency is “pegged” or fixed to the currency of another country. Its value will not fluctuate in comparison to the currency it is pegged to. Small countries often peg their currency to a more major currency to foster economic stability. (1)

Floating Exchange rate – The value of the currency appreciates or depreciates (floats) based on supply and demand. (1)

ii. Describe and explain how the six factors discussed in class which influence exchange rates. (9 marks)

- Relative Price Levels .5
 - Consistent with PPP, an increase in local price levels causes a decrease in foreign demand and a drop in exchange rates (currency depreciates). |
- Trade Barriers .5
 - Limit foreign access to markets, limiting availability or increasing cost of imported goods. Act to increase exchange rates. |
- Productivity .5
 - As the productivity increases, costs decrease and foreign demand for domestic goods increases, causing currency appreciation. |
- Import and Export Demand .5
 - Increased demand for a country's exports causes its currency to appreciate in the long run; conversely, increased demand for imports causes the domestic currency to depreciate. |
- Expected Return on Domestic and Foreign Investments .5
 - Higher returns in the domestic market will lead to higher demand by both domestic and foreigners which will lead to domestic currency appreciation. |
- Monetary Supply .5
 - higher money supply will lead to a higher price level in the long run and hence to a lower expected future exchange rate |

.5	HEADING
.5	DESCRIPTION
.5	IMPACT
5	

Question 5: Ratio Analysis (8 marks ~12 min.)

Given the financial statement for Saputo and the mean industry ratios below, calculate the price to earnings and price to sales ratios for Saputo and record the results in the area provided below the statement. Provide a recommendation (buy, sell, or hold) for Saputo given its historical and comparative ratio analysis.

Key Financials ¹					Mean Industry Comparables Mar-31-2011A
For the Fiscal Period Ending Currency	12 months Mar-31-2008A CAD	12 months Mar-31-2009A CAD	12 months Mar-31-2010A CAD	12 months Mar-31-2011A CAD	
Total Revenue	5,058.9	5,793.3	5,810.6	6,025.5	
<i>Growth Over Prior Year</i>	26.4%	14.5%	0.3%	3.7%	
Gross Profit	526.0	558.2	700.0	790.1	
<i>Margin %</i>	10.4%	9.6%	12.0%	13.1%	
EBITDA	526.0	558.2	700.0	790.1	
<i>Margin %</i>	10.4%	9.6%	12.0%	13.1%	
EBIT	446.6	458.6	589.1	685.3	
<i>Margin %</i>	8.8%	7.9%	10.1%	11.4%	
Earnings from Cont. Ops.	288.2	278.9	382.7	451.1	
<i>Margin %</i>	5.7%	4.8%	6.6%	7.5%	
Net Income	288.2	278.9	382.7	451.1	
<i>Margin %</i>	5.7%	4.8%	6.6%	7.5%	
Diluted EPS Excl. Extra Items³	1.38	1.34	1.83	2.16	
<i>Growth Over Prior Year</i>	21.1%	(2.9%)	36.6%	18.0%	
Shares Outstanding	208.84	208.17	209.13	208.85	
Share Price	26.45	23.34	32.43	41.73	
Price/earnings	19.2	17.4	17.7	19.3	15.84
Sales/share	24.22	27.83	27.78	28.85	
Price/sales	1.09	.84	1.17	1.45	1.05

Recommendation: **Sell**

Analysis

② **Price/Earnings Ratio:** Over the last 4 years the price/earnings ratio has remained in a relatively tight range. However, it is currently trading at its highest P/E level during the analyzed period.

In comparison to its competitors in the industry, it is currently trading at a significantly higher Price/Earnings ratio, suggesting that it may be overvalued assuming that it has a growth rate in line with its competitors.

② **Price/Sales Ratio:** An analysis of the price/sales ratio reveals substantially more variability in comparison to the price/earnings ratio. Of note, is the fact that the most recent price/sales ratio is the highest by a significant amount over the analyzed period. This, combined with the fact that the most recent Company ratio is also significantly higher than the Industry average would lead one to conclude that Saputo's shares are currently overvalued.

① Both ratios independently suggest that the Company may currently be slightly overvalued. Therefore, it is my **opinion** that Saputo's shares should be rated as a sell.

Any reasonable argument for an alternative recommendation will be considered.

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Question 6: Derivatives (11 marks ~17 min.)

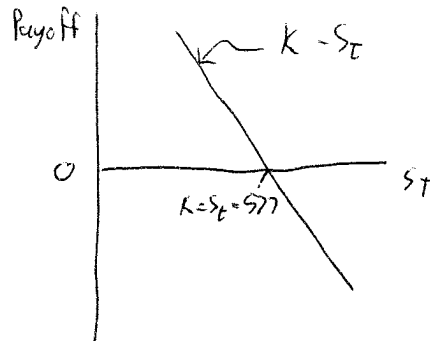
The spot price of gold is \$550 per ounce. Storage costs are \$5 per ounce per year payable at the end of the year. The risk-free interest rate is 4 percent per annum.

- i. Calculate the delivery price of a 1 year gold forward contract. What is the initial value of the forward contract and explain why.

$$F_0 = (S_0 + u)(1+r)^T = \left(550 + \frac{5}{1.04}\right)(1.04)^1 = \$577.00 \quad (2)$$

The value at time 0 is 0, as the contract is constructed such that $S_T - K = K - S_T = 0$ (1)

- ii. Graph the payoff of shorting one 1 year gold forward contract. Ensure that you label all portions of the graph and identify all values possible given the information in the question.



(4)

- iii. If in 6 months the forward contract price for 1 ounce of gold is \$590, what is the value of 1 long forward contract purchased at time 0. Assume the risk-free rate is still 4 percent per annum.

$$\begin{aligned} \text{Value} &= (590 - 577)(1.019804)^{-1} \\ &= 12.75 \quad (2) \end{aligned}$$

$$\begin{aligned} \text{ESR} &= (1.04)^{1/2} - 1 \\ &= 0.019804 \quad (2) \end{aligned}$$

or/

$$F_T = \left(590 + \frac{5}{1.019804}\right)(1.019804)^1 = 606.68 \quad (1)$$

$$\text{Value} = (606.68 - 577)(1.019804)^{-1} = 29.10 \quad (2)$$

Formula Sheet

Annuity: $\frac{C}{r} \left[1 - \frac{1}{(1+r)^T} \right]$

Growing Annuity: $\frac{C_1}{r-g} \left[1 - \frac{(1+g)^T}{(1+r)^T} \right]$

Perpetuity: C/r

Growing Perpetuity: $C_1/(r-g)$

Forward Price: $F_0 = S_0 (1+r)^T$