SOLUTIONS

DEPARTMENT OF MANAGEMENT
UNIVERSITY OF TORONTO MISSISSAUGA

MGT339H5S LEC0101 - Business Finance II
Summer 2013

Instructor: ADAM KADAR

QUIZ II – August 13, 2013

Duration: 35 minutes

Aid Allowed: Non-programmable calculator

ADAM

Instructions:

a) Answer all questions and write the answers in the spaces provided below.
b) Please show your work, where applicable.

LAST NAME: _____ FIRST NAME: _____

STUDENT NUMBER: _____

Question	Mark
Q1 [15]	
Q2 [20]	
Total [out of 35]:	

WORKING CAPITAL MANAGEMENT: [15 marks]

Identify the three primary components of a firm's working capital and how changes in each affect the firm's sustainable growth rate [6 marks]

1) A/R: collecting A/R quicker makes a firm more liquid and increases working capital thus allowing it to grow quicker.

2) Inventory: firms that have less inventory tied to sales have more cash on hand and are able to grow faster.

3) A/P: firms paying their bills slowly would be able to divert more funds towards growth.

Paris Enterprises collects 60% of its monthly sales immediately and the rest a month later, its production costs are 75% of sales, it holds 2.5 months of sales in inventory, and it pays 40% of its bills immediately and the remainder after one month.

a) What is Paris Enterprises' break-even sales growth rate[1]? [3 marks]

$$g = \frac{1 - 0.75}{0.75(0.4 + 2.5) - 0.6}$$

$\alpha = 60\%$
$b = 75\%$
$\gamma = 2.5$
$\beta = 40\%$

$g = 15.87\%$

b) What happens to this rate if it increases its inventory to 3 months' sales and offers more lenient credit terms that result in only 40% of sales being for cash, with the remainder being collected after 30 days? [3 marks]

$$g = \frac{1 - 0.75}{0.75(0.4 + 3) - 0.4}$$

$\alpha = 40\%$
$b = 75\%$
$\gamma = 3.0$
$\beta = 40\%$

$g = 11.63\%$

[1] $$g = \frac{1 - b}{[b(\beta + \gamma) - \alpha]}$$

c) What could you conclude if a firm's planned sales growth rate is less than its break-even sales growth rate? [3 marks]

If planned growth rate < break even rate firm not growing as fast as it can.
- might be economic reasons why firm not make substantial reinvestments in business
ex: mature products, substantial market penetration, decreasing returns to scale.

SWAPS: [20 marks]

Suppose AAA is a AAA rated firm that can borrow fixed at 5.2% and floating at Libor + 0.1%, while BBB is a BBB rated firm that can borrow fixed at 6.4% and floating at Libor + 0.8%. Both AAA and BBB want to borrow $100 million for 3 years, but AAA wants to borrow floating and BBB wants to borrow fixed.

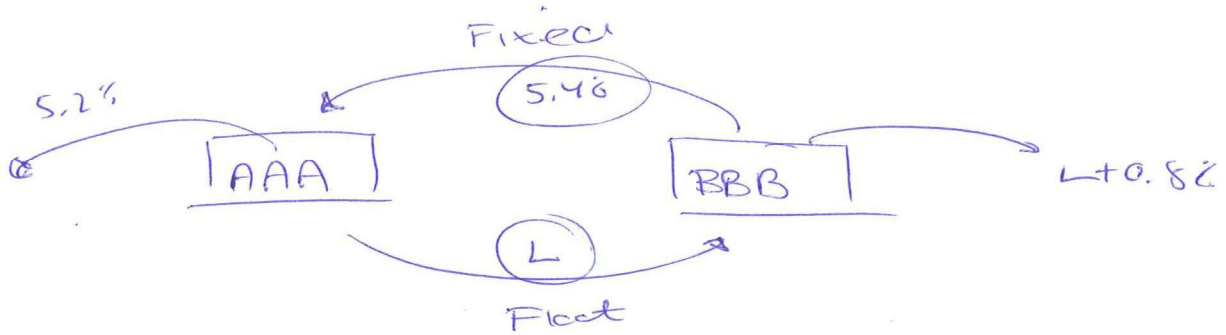
a) What is BBB's likely view on future interest rates (Libor rates)? [2 marks]

BBB most likely expects rates to rise since it wants to lock in a fixed rate.

b) What is the total net benefit available to AAA and BBB from entering into this SWAP? [2 marks]

	AAA	BBB	Difference
Fixed	5.2	6.4	1.2%
Float	L+0.1	L+0.8	- 0.7%
			0.5% → net benefit available via swap.

c) Explain in detail and show graphically how AAA and BBB can enter into a SWAP agreement where AAA gets 60% of the possible benefit and BBB gets the remainder. [6 marks]



Gain for AAA = 0.6 − 0.5% = 0.3%
Gain for BBB = 0.4 − 0.5% = 0.2%

∴ borrow float @
(L+0.2) − 0.3%
= L − 0.2%

∴ borrow fixed @
6.4 − 0.2 = 6.2%

AAA: −5.2% − L + Fixed = −(L − 0.2%)
Fixed = 5.4%

BBB: −(L+0.8%) − Fixed + L = −6.2%
Fixed = 5.4%

CHECK

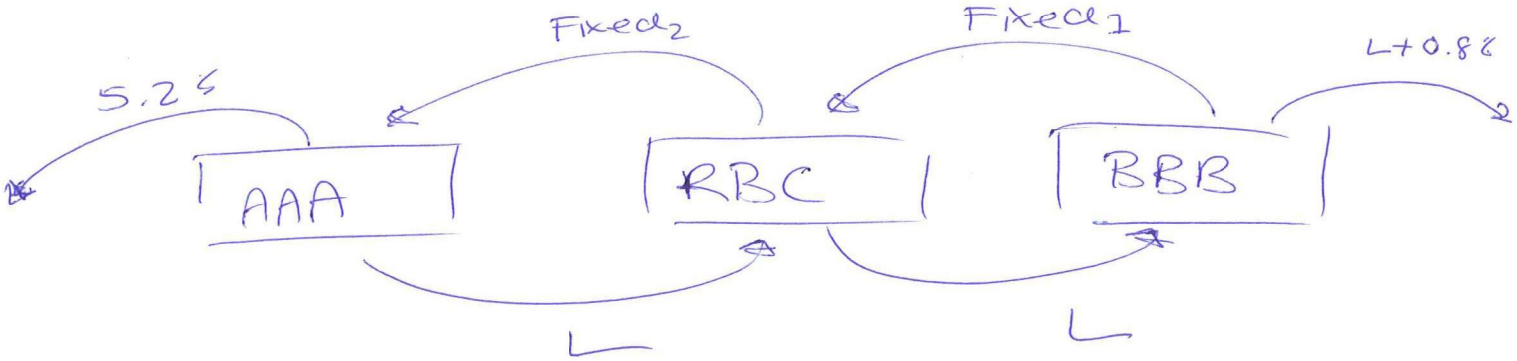
AAA pays BBB 'L'
BBB pays AAA 5.4%

Suppose instead that AAA and BBB used a financial intermediary (say RBC) to facilitate their arrangement. In return for providing this service RBC charges 10bps (0.2%). This fee is taken off the fixed rate portion of the swaps (i.e. RBC receives a fixed rate from party 1, RBC passes on that fixed rate – 0.2% to party 2).

d) What risk might AAA / BBB be trying to minimize by involving a financial intermediary? [2 marks]

A financial intermediary can help minimize default risk / counterparty credit risk.

e) Explain in detail and show graphically how AAA and BBB can enter into swap agreements with RBC where the final result would see them evenly split the remaining net benefits [i.e. benefits you calculated in part (b) – 0.2% paid to RBC]. [8 marks]



$Fixed_1 - Fixed_2 = 0.2\%$

$0.5\% - 0.2\% =$ net benefit for AAA/BBB } split 50/50 ∴ 0.15% each

∴ AAA borrow @ $(L+0.1) - 0.15\%$
$= [-(L-0.05\%)]$

BBB @ $6.4 - 0.15\% = [6.25\%]$

AAA: $-5.2 + Fixed_2 - L = -(L-0.05\%)$

$Fixed_2 = 5.25\%$

BBB: $-(L+0.8) + L - Fixed_1 = -6.25\%$

$Fixed_1 = 5.45\%$

CHECK → difference $= 0.2\%$ ✓

AAA → RBC "L" → BBB "L"

BBB → RBC 5.45% → AAA 5.25%