Liability Management at General Motors: Case Questions

1. Objective of Risk Management. When managing interest rate risk what should GM's objective be? Some possible objectives would be for GM to ensure that changes in interest rates do not affect operating cash flow, the market value of the firm's assets, the market value of the firm's equity, or GM's ability to invest in new projects. Be prepared to discuss GM's stated policies (see pages 4-6 of case). Are they consistent with what you think should be the goals of GM's risk management program?

2. Interest rate exposure. How do changes in interest rates affect General Motors? To answer this question you should use both your intuition as well as the data provided in the case. According to the case, a one percent decrease in auto loans rates results in a 0.2% rise in sales revenues. This number was obtained

$$\text{Ln(Sales revenue)} = a_0 + a_1 \text{Auto loan rate} + e$$

by running the following regression.
The estimate of a_1 would be -0.002 in this case.[1] To answer the question of how changes in interest rates affect General Motors, you will need to run some regressions like equation (1). The necessary data is in Exhibit 3.[2]

3. Hedging GM=s interest rate exposure. I want you to consider four alternatives for adjusting the interest rate sensitivity of the $400M five year note which GM is issuing. For each alternative you should decide how it alters GM=s interest rate exposure. If it is useful you may want to consider the term structure for LIBOR. Exhibit 7 contains the LIBOR rates as of February, 1992 for maturities of one to five years. The forward rates implied by these rates are also calculated. The four alternatives to consider are:
   A. Do nothing.
   B. A 5 year interest rate swap. GM will agree to pay LIBOR and receive a fixed rate.
   C. Sell a 9 percent cap on LIBOR.

[1] This assumes that the interest rate is written as 9.00 for nine percent and not 0.09. Ln(Sales Revenue) stands for the natural logarithm of sales revenue. The natural log is often used to transform the dependent variable of a regression. You saw this in your statistics class. Transforming the dependent variable in this way is useful if you are interested in percentage changes, opposed to dollar changes, in the dependent variable. Thus the regression coefficient, a_1 reports the percentage change in sales when the interest rate changes by one percentage point (i.e. from 8 to 9).

[2] You can download Exhibits 2, 3, 5, and 7 from the Corporate Finance web page.

D. Purchase a bull spread.

I have intentionally restricted the number of instruments at which I want you to look, so you can examine how each affects GM's interest rate exposure. The mechanics of each transactions are described in the case and the prices of each instrument are described in Exhibit 8. The premia is the price at which you can buy or sell the instrument. Remember, you buy at the ask (the high price) and sell at the bid (the low price). This is how banks and traders make money.

When examining each of the hedging options (B-D), compare GM's borrowing cost under each alternative to the cost of the fixed rate debt instrument. The all-in-cost of the fixed rate debt instrument

$$399.9 - 1.8 - 0.2 = 397.9 = \left[\sum_{t=1}^{10} \frac{400 \frac{.07625}{2}}{\left(1 + \frac{r}{2}\right)^{t}} + \frac{400}{\left(1 + \frac{r}{2}\right)^{10}} \right] \rightarrow r = 7.75\%$$

is 7.75%, not 7.625%.

4. Policy recommendations. What should General Motors do? Given the goals of a risk management program and the effect of each alternative on the interest rate exposure of GM, what instrument would you recommend for GM? Assume that each of the instruments is fairly priced.

A. Answer the question if you were Stephane Bello.

B. Answer the question if you were Ms. Anne Armstrong, an outside director of GM.

Revised Exhibit 7: Current and Forward LIBOR
February 1992

	Years to Maturity				
	1	2	3	4	5
Now	4.31%	5.67%	6.38%	6.80%	7.31%
1	7.05%	7.43%	7.64%	8.07%	
2	7.81%	7.94%	8.42%		
3	8.07%	8.72%			
4	9.37%				

Note:

The row labeled "Now" gives the current LIBOR as of February, 1992. The other four rows contain forward rates. For example, two year LIBOR one year forward is 7.43%. This is the rate a borrower could lock in today for a loan commencing one year hence and due three years hence. The current 6 month LIBOR rate is 4.31% (i.e. the same as the current 1 year LIBOR rate).

The fixed rate payer is known as the buyer of the swap, the floating rate payer is known as the seller, and the fixed rate of interest is known as the price of the swap. The period of time over which the interest payments are exchanged is called the swap maturity. The fixed rate of interest is set at the beginning of the swap and is not changed for the duration of the swap. The floating rate is usually reset with the same frequency as the swap coupon payments. Swap payments are usually payment-in-arrears. This means that the floating rate applicable on the next payment date is set equal to the value of the floating rate index on the current payment date. Since the current floating rate is 4.31%, this will be the rate used to calculate payments at the end of the first 6 months. For the purpose of this case, you can assume that the floating rate is reset only once a year, even though payments are exchanged semi-annually (i.e. every 6 months). Thus the 4.31% rate will also be used to set payments at the end of the second six months (i.e. at the end of the first year).

If it is not clear how the rates in the above table are calculated, see Supplementary Exercise #3 at the end of Lecture Outline 2.