**15.501/516**
**Problem Set 7**
**Long-term Debt, Leases and Off-Balance Sheet Financing**

## I. Accounting for bonds

On December 1, Sung Company obtained a 60-day loan for $50,000 from the City State Bank at an annual interest rate of 6 percent. On the maturity date, the bank renewed the note for another 30 days, and Sung company issued a check to the bank for the accrued interest. Sung Company closes its books annually on December 31.

*Required:*

(a) Present the BSE of Sung Company to record the issue of the note, the year-end adjustment, the renewal of the note, and the payment of cash at maturity of the renewed note.
(b) Present the BSE at the maturity date of Sung Company's original note for the following variations in the settlement of the note.
   1. Sung pays the original note at maturity.
   2. Sung Company renews the note for 30 days; the new note bears interest at 9 percent per annum. Sung did not pay interest on the old note at maturity.

## II. Present value calculations

O'Brien Corporation issues $8,000,000-par value, 8 percent semiannual coupon bonds maturing in 20 years. The market initially prices these bonds to yield 6 percent compounded semiannually.
*Required*:

(a) Compute the issue of these bonds.
(b) Compute interest expense for the first six-month period.
(c) Compute interest for the second six-month period.
(d) Compute the book value of the bonds after the second six-months period.

## III. Inferring bond contract parameters from bond disclosures

The following excerpts are from Macy's 1996 annual report relating to debt (in millions of dollars):

| | **1996** | **1995** |
|---|---|---|
| Zero coupon notes, due 2010 | $165 | $150 |
| 10% debentures, due 2010 | 250 | 250 |

The zero coupon notes are net of unamortized discounts. The debenture bonds require annual coupon payments. There are no bonds issued or retired in 1996.

a. Calculate the interest expense for Macy's in 1995 and 1996.
b. Based on the information, what is the principal amount of the zero coupon notes and the 10% debenture bonds?
c. Suppose that the zero coupon notes were issued in 1995, with proceeds totalling $139.53. Estimate the month in which the zero coupon notes were issued in 1995.
d. Suppose that on January 2, 1997 Macy's decided to redeem its 10% debentures for $240. Record the gain (or loss) on the debt redemption. What is the economic gain (or loss) of Macy's? Ignore taxes.

## IV. Accounting for a capital lease

Mackey Company acquired equipment on January 1, 1999, through a leasing agreement that required an annual payment of $30,000. Assume that the lease has a term of five year and that life of the equipment is also five years. The lease is treated as a capital lease, and the FMV of the equipment is $119,781. Mackey uses the straight-line method to depreciate its fixed assets. The effective annual interest rate on the lease is 8 percent.

*Required*:

a. Compute the amounts that would complete the table:

| Date | Balance Sheet Value of Equipment | LeaseHold Obligation | Interest Expense | Depreciation Expense | Total Expense |
|---|---|---|---|---|---|
| **1/1/99** | | | | | |
| **12/31/99** | | | | | |
| **12/31/00** | | | | | |
| **12/31/01** | | | | | |
| **12/31/02** | | | | | |
| **12/31/03** | | | | | |

b. Compute rent expense for 1999-2003 if the lease is treated as an operating lease.
c. Compute total expense over the 5-year period under the two methods and comment.
d. How would the debt-to-equity ratio (long-term debt/total equity) be affected by the accounting treatment (capital/operating) of the lease?