

CHAPTER 9

MEASURING EARNINGS

Problem 1

| Year | Operating Lease Expense | Present Value at 7% |
|------|-------------------------|---------------------|
| 1 | 90 | 84.11215 |
| 2 | 90 | 78.60949 |
| 3 | 85 | 69.38532 |
| 4 | 80 | 61.03162 |
| 5 | 80 | 57.03889 |
| 6-10 | 75 | 219.2538 |
| | Sum of present values | 569.4313 |

The debt value of operating leases is \$569.4313 million. Including this amount in debt, the book value debt to equity ratio becomes 569/1000 or 0.5694

Problem 2

If EBIT (with operating leases expensed) equals \$200 million, and we wish to capitalize operating leases and compute adjusted operating income, we need to make an assumption regarding the depreciation on the asset created by the operating lease capitalization. A convenient assumption is that the interest expense equals the difference between the actual operating lease payment and the depreciation on the asset. Hence the total amount to be expensed in the computation of net income is the actual lease payment.

However, in order to compute operating income alone, we need to add back the imputed interest payment, which would be 7% of the value of the capitalized operating leases as of one year ago. This would have been $(569.4313 + 85)/1.07 = 611.62$. Seven percent of this equals \$42.81. Adjusted operating income is, therefore, \$242.81.

Problem 3

If the book value of capital is \$1 billion, and the reported debt to capital ratio is 10%, the book value of debt equals \$100 million. If the present value of lease commitments is \$750 million, the revised debt to capital ratio is $(100+750)/(1000+750) = 48.57\%$.

The after-tax return on capital is $0.25 \times 1000/1750 = 14.29\%$

Problem 4

| Year | R&D Expenses | Current Year Amortization | Unamortized amount | Percentage of Original Expense |
|------|--------------|---------------------------|--------------------|--------------------------------|
| | | | | |

| | | | | <i>Unamortized</i> |
|--------------|-----|----|-----|--------------------|
| -5 | 50 | 10 | 0 | 0 |
| -4 | 60 | 12 | 12 | 20 |
| -3 | 70 | 14 | 28 | 40 |
| -2 | 80 | 16 | 48 | 60 |
| -1 | 90 | 18 | 72 | 80 |
| Current year | 100 | | 100 | 100 |
| Sum | | 70 | 260 | |

I am assuming that the current year's R&D expense will not be amortized this year.

- The value of the research asset equals \$260 million.
- The amount of R&D amortization this year is \$70 millions.
- The adjustment to operating income is to reduce it by $100 - 70$ or \$30 m.

Problem 5

Capital Invested is \$1500 million. The value of the research asset is \$1000 million. Hence the adjusted value of capital invested is \$2500 million. EBIT(1-t) originally calculated was \$1500 million; adjusted EBIT(1-t) equals approximately $1500 + 250 - 150 = 1600$; hence Stellar Computer's adjusted return on capital is $1600/2500 = 64\%$.