Chapter 9

Reporting and Interpreting Liabilities

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Key Terms

- Current Liability
- Long-term (noncurrent) liability
- Estimated Liability
- Ratios on Liquidity
- Time value of money
  - Present value
  - Future value
  - Compounded interest rate

Liabilities

- Probable debts or obligations result from past transaction and will be paid by assets or service
- Measured and reported at its current cash equivalent
  - Interest is accounted separately

Current Liabilities

- Accounts Payable
- Short-term notes payable (1 year or shorter maturity period)
- Current portion of Long-term debt
- Salary Payable
- Income taxes payable
- Payroll taxes payable (employee income tax withheld, FICA taxed employee share)
- Deferred Revenue

Long-term Liabilities

- Private debt:
  - Bank loans
  - Notes payable (> 1 year)
- Public debt: Bonds payable.
- Lease (more in intermediate accounting)

Estimated Liabilities - 1

- Estimated liabilities are reported on B/S
  - Probable, and
  - Measurable
- Example: Warranty payable
- Warranty liability and warranty expense are recorded at the time of sale; not at the time when cash was paid for repairs under warranty (why?)

Estimated Liabilities - Warranty

- Example, in December 2005, Best Buy sold XBOX 360 for $100,000. Along with the sale, a two-year warranty is included. The warranty expense is estimated to be 2% of the sale. In March, 2006, a repair within the warranty incurred, costing $160. Provide appropriate journal entries.

Estimated Liabilities - 2

- Liabilities are disclosed in Notes
  - Possible but not probable, or
  - Probably but the amount is not subject to estimate
- Remote liabilities are not disclosed

Tests of Liquidity

- Cash ratio
- Quick ratio
- Current ratio
- Working Capital
- Receivable turnover
- Inventory turnover

Time Value of Money

- Time value of Money
  - $1 today worth more than $1 tomorrow
  - Chances to earn interests (returns)
- Compounded interest rate
  - Unpaid interest is still earning interest

Present vs. Future Value

- Present Value
  - For money to be received in the future, how much doe it worth today?
- Future Value
  - For money saved today, how much doe it worth in the future?
- Present / Future Value depends on
  - Interest rate
  - Length of time
  - Frequency of compounding interest

Single amount vs. Annuity

- Single amount
- Annuity is a series of consecutive cash flows of same amount and equally spaced out

Future Value of A Single Amount

- If you put away $10,000 cash in the saving account today, how much does it worth 2 years later?
  - Interest rate: 6%
  - Assume interest is compounded annually.
  - What if interest is compounded semi-annually?

10,000 x (1+0.06) x (1+0.06) = $11,236

10,000 x (1+0.03) x (1+0.03) x (1+0.03) x (1+0.03) = $11,255

Present Value of A Single Amount

- How much does $100,000 worth today to be received 2 years later?
  - Interest rate: 6%
  - Assume interest is compounded annually.
  - What if interest is compounded semi-annually?

A x (1+0.06) x (1+0.06) = $10000
A = $100,000 / [(1+0.06) x (1+0.06)]=$89,000

B x (1+0.03) x (1+0.03) x (1+0.03) x (1+0.03) = $100,000
B = $100,000 / [(1+0.03) x (1+0.03) x (1+0.03) x (1+0.03)] = $88,850

Future Value of Annuity

- If you're going to save $1000 at the end of every year for 3 years, how much will you have at the end of third year?
  - Interest rate: 6%
  - Assume interest is compounded annually.

$$\underbrace{1000 \times (1+0.06) \times (1+0.06)}_{1^{st}\text{ year}} + \underbrace{1000 \times (1+0.06)}_{2^{nd}} + \underbrace{1000}_{3^{rd}}$$

= $1123.60 + 1060 + 1000 = $3,183.60

Present Value of Annuity

- If you're going to receive $1000 at the end of every year for 3 years, how much does it worth today?
  - Interest rate: 6%
  - Assume interest is compounded annually.

1000 /(1+0.06) — 1st year
+ 1000 /[(1+0.06) x (1+0.06)] — 2nd
+ 1000 /[(1+0.06) x (1+0.06) (1+0.06)] — 3rd

=$943.40 + $890 + $839.60 =$2,673

How to use the present / future value table?

- Appendix A in text
- Single amount or annuity
- Future value or Present Value
- Find the correct n & r, which gives a factor,
- Multiply the dollar amount in question by the factor

Summary of formula

- r= interest rate
- n= number of periods
- F= future value
- P= present value

Future value of $1: $F_n = \$1x\ (1+r)^n$

Present value of $1: $P_n = \$1\ /(1+r)^n$

Future value of $1 annuity: $F_n = \$1x\ [(1+r)^n - 1] / r$

Present value of $1 annuity : $Pn = \$1x[1- 1/(1+r)^n] / r$

Some clarification

- For single amount, n & r depends on how frequent the interest is compounded
- For annuity, n is the number of cash flows (receipt or payment), r is the corresponding interest rate

Exercises-1

Melissa is considering several possible investment alternatives.

- Option A: Melissa could receive $10,000 today.
- Option B: Melissa could receive $3,000 at the end of each year for four years.
- Option C: Melissa could receive $15,000 five years from now.
- Which option results in the greatest financial benefit to Melissa assuming Melissa can earn 8% on any of the investment funds?

Exercises-3

- Option A: The present value is $10,000.
- Option B: The present value is $3,000 x 3.3121 (present value of an annuity; 4 periods at 8%) or $9,936.30.
- Option C: The present value is $15,000 x 0.6806 (present value of $1; five periods at 8%) or $10,209.

Exercises-4

If you goal is to have $50,000 cash in you saving account 5 years from today. Assume interest is compounded annually.
1) How much money you need to put in today to a saving account with 6% compounding interest rate?
2) Instead of depositing a single amount, you decide to put away some fixed amount at the end of every year for 5 years. How much you should save every year?

Exercises-4

Suppose Y is the amount that you need to put in today:
using the future value table,
Y x 1.3382 (future value table of single amount, n=5, r= 6%) = $50,000,
Then solve for Y=$37,364.

Alternatively, you can use the present value table.
P.V. ($50,000) = ?
Factor = 0.7473

Suppose Z is the amount that you need to put at the end of every year:
Z x 5.6371 (future value table of annuity, n=5, r= 6%) = $50,000,
Then solve for Z = $8,870.