| CH. 2 | USING FINANCIAL STATEMENTS AND BUDGETS |

WHY DO YOU NEED FINANCIAL STATEMENTS

- Before you plan for the future, you must figure out where you currently are.
  - ✓ Financial statements tell you where you are.
  - ✓ Balance Sheet reports your assets, liabilities, and net worth (equity) as of a specified date.
  - ✓ Income Statement reports how you did over a period of time – month, quarter or year.

RELATIONSHIP BETWEEN FINANCIAL PLANS AND FINANCIAL STATEMENTS
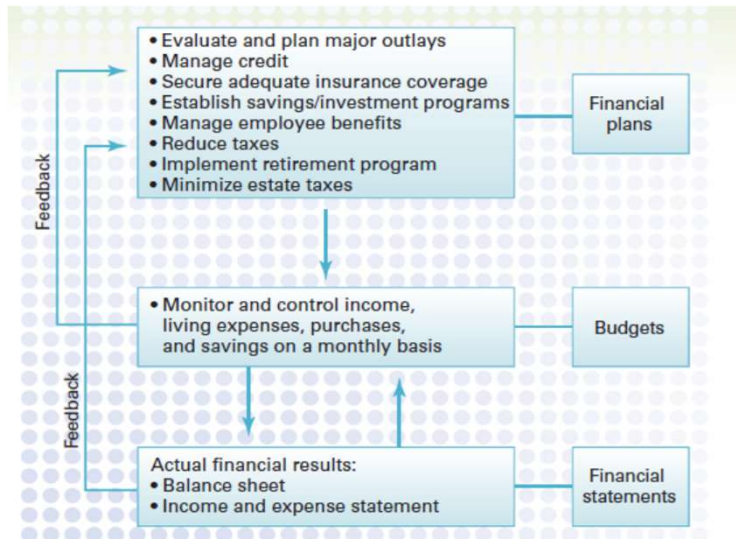
BALANCE SHEET – PERSONAL VIEW

- ● Assets
  - ✓ Total Liquid Assets
  - ✓ Total Investments
  - ✓ Total Real Property
  - ✓ Total Personal Property

- ● Liabilities and Net Worth
  - ✓ Total Current Liabilities
  - ✓ Total Long-term Liabilities

  - ✓ Net Worth (Equity)

$$\text{Assets} = \text{Liabilities} + \text{Net Worth (Equity)}$$

SOLVENCY

Assets $\qquad$ = Liabilities + Net Worth (Equity)

Assets − Liabilities $\quad$ = Net Worth (Equity)

- You are solvent when your net worth is positive.
- You are insolvent when your net worth is negative.

5

INCOME STATEMENT — PERSONAL VIEW

- Personal income statements are prepared on the cash basis.
  - ✓ A method of preparing financial statements in which only transactions involving actual cash receipts or actual cash outlays are recorded.
  - ✓ Income is earnings received as wages, salaries, bonuses, commissions, interest and dividends, or proceeds from the sale of assets.
  - ✓ Expenses are money spent on living costs and to pay taxes, purchase assets, or repay debt.
  - ✓ Cash surplus is an excess amount of income over expenses that results in increased net worth.
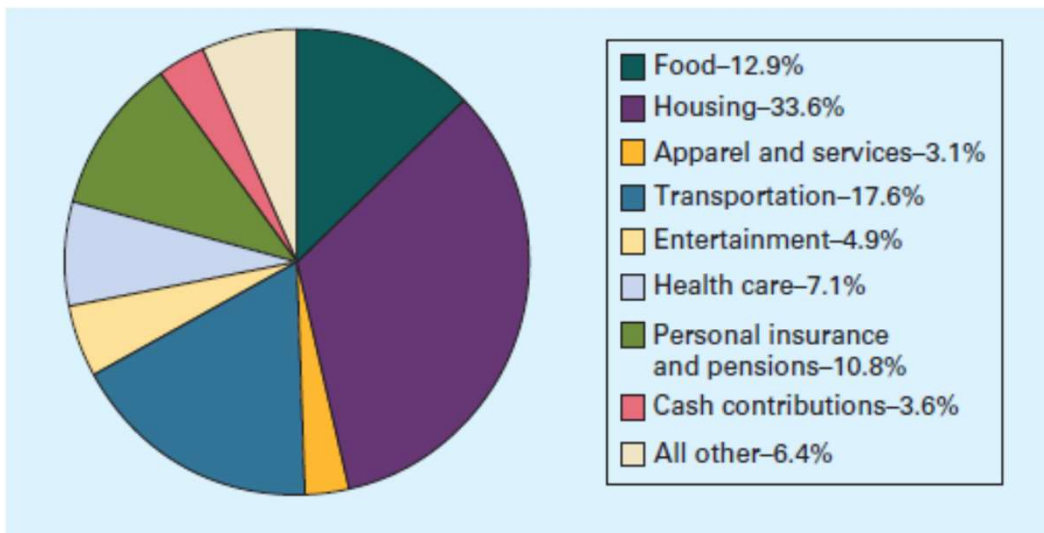
6

INCOME STATEMENT

- Income:
  - ✓ Wages and salaries
  - ✓ Self-employed income
  - ✓ Bonuses and commissions
  - ✓ Investment income
  - ✓ Pensions
  - ✓ Other income

- Expenses:
  - ✓ Housing and utilities
  - ✓ Food
  - ✓ Transportation
  - ✓ Medical
  - ✓ Clothing and personal care
  - ✓ Insurance and taxes
  - ✓ Appliances and furniture
  - ✓ Recreation
  - ✓ Other

7

HOW WE SPEND OUR INCOME

- Food–12.9%
- Housing–33.6%
- Apparel and services–3.1%
- Transportation–17.6%
- Entertainment–4.9%
- Health care–7.1%
- Personal insurance and pensions–10.8%
- Cash contributions–3.6%
- All other–6.4%

8

RATIOS FOR PERSONAL FINANCIAL STATEMENT

- Solvency Ratio = Total Net Worth ÷ Total Assets
  - ✓ Solvency ratio measures how much cushion you have before insolvency
  - ✓ The higher, the better.

- Liquidity Ratio = Total Liquid Assets ÷ Total Current Debt (liabilities)
  - ✓ Liquid assets include cash, savings accounts, money market accounts, and certificates of deposit.
  - ✓ Liquidity ratio shows how long you could continue to pay current debts with existing liquid assets
  - ✓ The higher, the better.

9

RATIOS FOR PERSONAL FINANCIAL STATEMENT

- Savings ratio = Cash Surplus ÷ Income After Taxes
  - ✓ The higher, the better.

- Debt Service Ratio = Total Monthly Loan Payments ÷ Monthly Gross Income (Before Tax)
  - ✓ The lower, the better.

10

BUDGETS – CASH IN VS. CASH OUT

- Cash budget compares the forecasted or estimated cash receipts and the forecasted or estimated cash expenses for the year. By reporting the cash budget by month, you can identify the month that you may have a problem such as short of cash.

- By comparing the actual cash receipts and expenses to the budget, you can control your spending. The difference is called a variance. If actual is greater than budgeted, you have a positive variance; otherwise, a negative variance.

DEALING WITH BUDGET DEFICIT

- Budget surpluses happen when your income exceeds your expenses.

- Budget deficits happen when your expenses exceed your income. If it happens, you need to
  - ✓ Liquidate enough savings and investments
  - ✓ Borrow enough to meet the total budget shortfall
  - ✓ Cut low-priority expenses from budget
  - ✓ Find ways to increase your income

TIME VALUE OF MONEY

- A dollar today is worth more than a dollar received in the future.

- Relies on compounding which is when interest earned each year is left in an account and becomes part of the balance on which interest is earned in subsequent years.

TIME VALUE OF MONEY

- Money now vs. Money later
  - ✓ Major factors that make money now worth more than money later
    1.
    2.
    3.
    4.

- Simple Interest: Interest earned only on the original investment

- Compound Interest: Interest earned on interest

INTEREST RATE

- APR: Annual percentage rate (simple interest)

  $$APR = r_m \times m$$

  r_m = periodic interest rate

  m = no. of compounding periods per year

- APY: Annual percentage yield (compound interest); also called EAR (Effective annual rate)

  $$APY\ (EAR)\ = (1+APR/m)^m - 1$$

  m = no. of compounding periods per year

15

FUTURE VALUES

Example - Simple Interest

Interest earned at a rate of 6% for five years on a principal balance of $100:

	Today	1	2	3	4	5
		Future Years				
Interest Earned		6	6	6	6	6
Value	100	106	112	118	124	**130**

Value at the end of Year 5 = $130

16

FUTURE VALUES

Example - Compound Interest

Interest earned at a rate of 6% for five years on the previous year's balance:

	Today					
		Future Years				
		1	**2**	**3**	**4**	**5**
Interest Earned		6.00	6.36	6.74	7.15	7.57
Value	100	106.00	112.36	119.10	126.25	133.82

Value at the end of Year 5 = $133.82

FUTURE VALUES

- <u>Future value</u>: The amount an investment is worth after one or more periods.

$$FV_t = \$CF_0 \times (1 + r)^t$$

Example - FV

What is the future value of $100 if interest is compounded annually at a rate of 6% for five years?

$$FV^5 = \$100 \times (1 + .06)^5 = \$133.82$$

PRESENT VALUES

- Present value: Current value of future cash flow discounted at the appropriate interest rate.

$$PV_0 = \$CF_t / (1 + r)^t$$

Example

Suppose you need $1000 to buy a new phone in two years. You can earn 7% on your money. How much do you have to put up today?

$PV_0 = \$1000/(1 + .07)^2 = \$873.4387$

19

VALUING MULTIPLE CASH FLOWS

- PVs can be added together to evaluate multiple cash flows.

$$PV_0 = \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \ldots + \frac{C_t}{(1+r)^t}$$

20

PV OF MULTIPLE CASH FLOWS

Example

You will receive $100 one year from today and another $100 two years from today. What is the PV of these two cash flows given 6% interest?

$$PV_A = \frac{100}{(1 + .06)^1} = 94.34$$

$$PV_B = \frac{100}{(1 + .06)^2} = 89.00$$

$$PV_{AB} = 89 + 94.34 = 183.34$$

21

VALUING MULTIPLE CASH FLOWS

● Annuity: Equally spaced level stream of cash flows for a limited period of time.

Ordinary Annuity

22

VALUING MULTIPLE CASH FLOWS

PV of **Ordinary Annuity** Formula

$$PVA_0 = C \times \left[\frac{1}{r} - \frac{1}{r \times (1+r)^t} \right]$$

C = cash payment for each period

r = interest rate

t = number of periods cash payment is received

VALUING MULTIPLE CASH FLOWS

Example – Ordinary Annuity

You are purchasing a car. You are scheduled to make monthly payment of $300 for five years with the first payment starting next month. Given a rate of interest of 6% APR, what is the price you are paying for the car (i.e. what is the PV)?

$$PV = 300 \times \left[\frac{1}{.005} - \left(\frac{1}{.005 \times (1+.005)^{5 \times 12}} \right) \right]$$

PV = $15,517.67

VALUING MULTIPLE CASH FLOWS

- FV of Annuity

$$FVA_t = C \times \left[\frac{(1+r)^t - 1}{r} \right]$$

C = cash payment for each period
r = interest rate
t = number of years cash payment is received

25

VALUING MULTIPLE CASH FLOWS

<u>Example - Future Value of annual payments</u>

You plan to save $4,000 every year for 20 years and then retire. Given a 10% rate of interest, what will be the FV of your retirement account?

$$FVA_t = 4,000 \times \left[\frac{(1+.10)^{20} - 1}{.10} \right] = \$229,100$$

26