

Assignment 4**Data:**

Steve and Mary Jo, both 35, own a house worth \$150,000, have a yearly income of \$50,000, monetary assets of \$5,000, two cars worth \$20,000, and furniture worth \$10,000. The house has a \$100,000 mortgage, they have college loans of \$10,000 outstanding, and the cars have outstanding loans of \$10,000 each. Bills totaling \$1,150 for this month have not been paid (\$1,000 is to pay off their credit card that they use for bills). They are requesting your help.

Calculations:

Using the data above, create a balance sheet to calculate Steve and Mary Jo's net worth. How are they doing?

Steve and Mary Jo's balance sheet

assets		liabilities	
monetary assets	\$ 5,000	mortgage	\$ 100,000
house	150,000	college loans	10,000
cars	20,000	car loans (\$10,000*2)	20,000
furniture	<u>10,000</u>	bills	<u>1,150</u>
total assets	\$ 185,000	total liabilities	\$ 131,150
		equity = assets - liabilities	
		= 185,000 – 131,150	= \$ 53,850

Their net worth is equity which is equal to \$53,850 as computed. They are doing fine judging from the positive net worth. However, considering the components inside the balance sheet, only 2.7% of their assets are cash and most of their debts are long-term. They may need to consider increasing their liquid asset (cash) to provide for unforeseeable contingencies.

Data:

Steve and Mary Jo, who make \$50,000 per year, calculated their average tax rate at 15 percent. They contributed 12 percent of their income to charity and pay themselves 10 percent of their income. They have 25 years and \$100,000 remaining on their 6-percent mortgage (\$7,730 per year), three years and \$20,000 remaining on their 7-percent auto loan (\$7,410), and 10 years and \$10,000 remaining on their 3-percent college loan (\$1,160). In addition, utilities and property taxes were \$2,270 per year, food \$6,000, insurance \$1,500, and other expenses were \$5,430.

Calculations:

Calculate their income statement using the "better" method, and round values to the nearest \$10. How are they doing?

This is the way Steve and Mary Jo calculated their annual expenses:

Mortgage $PV = \$100,000$, $I = 6\%$, $N = 25 \times 12$, $PMT = ? \times 12 = \$7,730$

College Loan $PV = \$10,000$, $I = 3\%$, $N = 10 \times 12$, $PMT = ? \times 12 = \$1,160$

Car $PV = \$20,000$, $I = 7\%$, $N = 3 \times 12$, $PMT = ? \times 12 = \$7,410$

Steve and Mary Jo's income statement

annual income		annual expenses	
income	\$ 50,000	mortgage	\$ 7,730
taxes (15%)	<u>7,500</u>	auto loan payment	7,410
income after taxes	42,500	college loan payment	1,160
charity contribution (12%)	6,000	utilities and property taxes	2,270
payment to selves (10%)	<u>5,000</u>	food	6,000
total income	\$ 31,500	insurance	1,500
		other expenses	<u>5,430</u>
		total expenses	\$ 31,500

Their net income is zero since total income equals total expenses. They are not doing so bad because their income covers all the expenses and they also have \$ 5,000 saved for themselves each year. However, they might need to consider saving more to provide for any contingency e.g. medical expense.

Data:

Steve and Mary Jo would like you to help them understand where they are financially. You have Steve and Mary Jo's balance sheet and income statements, which were prepared earlier.

Calculations:

They ask for help to calculate the following ratios: Liquidity Ratios, Debt Ratios, and Savings Ratios.

Application:

Using the data and calculations, comment on how well they are doing. What can and should they be doing to improve?

Liquidity Ratios

$$\text{current ratio} = \frac{\text{current assets}}{\text{current liabilities}} = \frac{\$5,000}{\$1,150} = 4.35$$

$$\text{month's living expense covered ratio} = \frac{\text{monetary assets}}{\text{annual living expenses}/12} = \frac{\$5,000}{\$31,500/12} = 1.9$$

Steve and Mary Jo's current ratio of 4.35 means that their current assets are sufficient to cover for over four times the amount of their short-term debt. This also means they have some money to provide for some contingencies that may happen in the short term. However, from their month's living expense covered ratio, their total liquid asset (cash) can cover living expense for less than two months. Thus, they need to earn more cash and/or cut their expenses. Note that about half of their total expenses are debt payment (mortgage, auto loan, and college loan payments). These payments

are compulsory. Thus, what they can do is to cut other expenses e.g. food and utilities. They might also consider liquidating some of their assets e.g. selling some of unnecessary furniture.

Debt Ratios

$$\text{debt ratio} = \frac{\text{total liabilities}}{\text{total assets}} = \frac{\$131,150}{\$185,000} = 0.709 = 70.9\%$$

$$\begin{aligned}\text{long-term debt coverage ratio} &= \frac{\text{income available for living expenses}}{\text{long-term debt payments}} \\ &= \frac{\$42,500}{\$7,730 + \$7,410 + \$1,160} = 2.61\end{aligned}$$

Steve and Mary Jo's debt ratio of 70.9% indicates that they are highly leveraged: 70.9% of their assets are financed by debt. Based on the long-term debt coverage ratio of over 1, they have enough income to pay for their debt obligations. The long-term debt coverage ratio of 2.61 means that their income can cover 2.61 times of their debt obligations. Therefore, the higher the ratio, the better Steve and Mary Jo's financial situation. The inverse of this ratio equals to $1/2.61 = 0.383 = 38.3\%$ indicating that 38.3% of their income is used to pay for long-term debts. What they could do is to reduce their debt by, for example, selling one of their cars in order to lower the share of income that is used to pay debts or, in other words, in order to increase the long-term debt coverage ratio.

Savings Ratios

$$\text{saving ratio} = \frac{\text{income available for savings and investment}}{\text{income available for living expenses}} = \frac{\$5,000}{\$42,500} = 0.1176 = 11.76\%$$

$$\text{gross savings ratio} = \frac{\text{income available for savings and investment}}{\text{gross salary}} = \frac{\$5,000}{\$50,000} = 0.1 = 10\%$$

Steve and Mary Jo allocate 10% of their gross salary to savings. They currently save 11.76% of their income available for living expenses which is 85% of their gross salary (income before taxes). Their current saving is reasonable if they have saved for quite some time. However, cash in their balance sheet of only \$5,000 implies that they just began saving last year. According to the liquidity ratio computed earlier, they should have more cash in their balance sheet; therefore, they should save more. What they could do is to increase payment to themselves by 10-15%. This would allow them to have savings of \$10,000-\$12,500 per year.