

Engineering Economics & Management

Financial Management & Economics

23rd May 16

Case Study

Income Statement & Balance Sheets

23rd May 16

Parameters to calculate for a firm

23rd May 16

A

Gross Profit Margin
Operating Profit Margin
Net Profit Margin
Retained Earnings

B

Financial Structure
Capital Structure
Asset Structure

C

Inventory Holding Period
Collection Period
Payment Period
Operating Cycle

Formulas

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Formulas (A)

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Gross Profit Margin = Gross profit / Sales revenue x 100%

Operating Profit Margin = EBIT / Sales revenue x 100%

Net Profit Margin = EAT / Sales revenue x 100%

Retained Earnings = EAT - Dividends

Formulas (B)

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Financial Structure = Invested capital / Owners Equity

Capital Structure = Owners Equity / Long term liabilities

Asset Structure = Fixed assets / Current assets

Formulas (C)

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Inventory Holding Period = Inventories / COS x 365

Collection Period = Accounts receivable / Sales revenue x 365

Payment Period = Accounts payable / COS x 365

**Operating Cycle = Inventory Holding Period + Collection Period -
Payment Period**

Income Statement & Balance Sheets

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Income Statement

23rd May 16

Income Statement

	2009	2010
Net Sales	10,655,000	13,851,000
Cost of goods sold	8,940,000	11,671,000
Selling, general & admin expense	1,554,000	1,925,000
Depreciation expense	44,000	55,000
Earnings before interest & tax	117,000	200,000
Net interest expense	62,000	90,000
Earnings before tax	55,000	110,000
Income tax expense	23,000	44,000
Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Balance sheet

23rd May 16

Balance Sheet

	2009	2010		2009	2010
Net fixed assets	733,000	818,000	Owners equity	2,514,000	2,536,000
Cash	160,000	6,0000	Long term debt	800,000	750,000
Accounts receivable	1,953,000	2,616,000	Short term debt	50,000	880,000
Inventories	1,986,000	2,694,000	Accounts payable	1,450,000	1,950,000
Prepaid expenses	80,000	42000	Accrued expenses	98,000	114,000
Total assets	4,912,000	6,230,000	Total liabilities & owners equity	4,912,000	6,230,000

Identification of Parameters (A)

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Identification of Parameters (A)

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Gross Profit Margin = Gross profit / Sales revenue x 100%

Operating Profit Margin = EBIT / Sales revenue x 100%

Net Profit Margin = EAT / Sales revenue x 100%

Retained Earnings = EAT - Dividends

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Dividends	5,000	44,000

Identification of Parameters (A)

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$$\begin{aligned}\text{Gross Profit Margin} &= \text{Gross profit} / \text{Sales revenue} \times 100\% \\ &= \text{Sales} - \text{COS} / \text{Sales revenue} \times 100\% \\ &= 10655000 - 8940000 / 10655000 \times 100\% \\ &= 16.096\%\end{aligned}$$

	2009	2010
Net Sales	10,655,000	13,851,000
Cost of goods sold	8,940,000	11,671,000
Selling, general & admin expense	1,554,000	1,925,000
Depreciation expense	44,000	55,000
Earnings before interest & tax	117,000	200,000
Net interest expense	62,000	90,000
Earnings before tax	55,000	110,000
Income tax expense	23,000	44,000
Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Identification of Parameters (A)

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$$\begin{aligned}\text{Operating Profit Margin} &= \text{EBIT} / \text{Sales revenue} \times 100\% \\ &= 117000 / 10655000 \times 100\% \\ &= 1.098\%\end{aligned}$$

	2009	2010
Net Sales	10,655,000	13,851,000
Cost of goods sold	8,940,000	11,671,000
Selling, general & admin expense	1,554,000	1,925,000
Depreciation expense	44,000	55,000
Earnings before interest & tax	117,000	200,000
Net interest expense	62,000	90,000
Earnings before tax	55,000	110,000
Income tax expense	23,000	44,000
Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Identification of Parameters (A)

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$$\begin{aligned}\text{Net Profit Margin} &= \text{EAT} / \text{Sales revenue} \times 100\% \\ &= 32000 / 10655000 \times 100\% \\ &= 0.300\%\end{aligned}$$

	2009	2010
Net Sales	10,655,000	13,851,000
Cost of goods sold	8,940,000	11,671,000
Selling, general & admin expense	1,554,000	1,925,000
Depreciation expense	44,000	55,000
Earnings before interest & tax	117,000	200,000
Net interest expense	62,000	90,000
Earnings before tax	55,000	110,000
Income tax expense	23,000	44,000
Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Identification of Parameters (A)

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$$\begin{aligned}\text{Retained Earnings} &= \text{EAT} - \text{Dividends} \\ &= 32000 - 5000 \\ &= 27000\end{aligned}$$

	2009	2010
Net Sales	10,655,000	13,851,000
Cost of goods sold	8,940,000	11,671,000
Selling, general & admin expense	1,554,000	1,925,000
Depreciation expense	44,000	55,000
Earnings before interest & tax	117,000	200,000
Net interest expense	62,000	90,000
Earnings before tax	55,000	110,000
Income tax expense	23,000	44,000
Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Identification of Parameters (B)

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Identification of Parameters (B)

23rd May 16

Balance Sheet

	2009	2010		2009	2010
Net fixed assets	733,000	818,000	Owners equity	2,514,000	2,536,000
Cash	160,000	6,0000	Long term debt	800,000	750,000
Accounts receivable	1,953,000	2,616,000	Short term debt	50,000	880,000
Inventories	1,986,000	2,694,000	Accounts payable	1,450,000	1,950,000
Prepaid expenses	80,000	42000	Accrued expenses	98,000	114,000
Total assets	4,912,000	6,230,000	Total liabilities & owners equity	4,912,000	6,230,000

Financial Structure = Invested capital / Owners Equity

Capital Structure = Owners Equity / Long term liabilities

Asset Structure = Fixed assets / Current assets

Identification of Parameters (B)

23rd May 16

Balance Sheet

	2009	2010		2009	2010
Net fixed assets	733,000	818,000	Owners equity	2,514,000	2,536,000
Cash	160,000	6,0000	Long term debt	800,000	750,000
Accounts receivable	1,953,000	2,616,000	Short term debt	50,000	880,000
Inventories	1,986,000	2,694,000	Accounts payable	1,450,000	1,950,000
Prepaid expenses	80,000	42000	Accrued expenses	98,000	114,000
Total assets	4,912,000	6,230,000	Total liabilities & owners equity	4,912,000	6,230,000

$$\begin{aligned}\text{Financial Structure} &= \text{Invested capital} / \text{Owners Equity} \\ &= (2514000 + 800000) / 2514000 \\ &= 1.318\end{aligned}$$

Identification of Parameters (B)

23rd May 16

Balance Sheet

	2009	2010		2009	2010
Net fixed assets	733,000	818,000	Owners equity	2,514,000	2,536,000
Cash	160,000	6,0000	Long term debt	800,000	750,000
Accounts receivable	1,953,000	2,616,000	Short term debt	50,000	880,000
Inventories	1,986,000	2,694,000	Accounts payable	1,450,000	1,950,000
Prepaid expenses	80,000	42000	Accrued expenses	98,000	114,000
Total assets	4,912,000	6,230,000	Total liabilities & owners equity	4,912,000	6,230,000

$$\begin{aligned}\text{Capital Structure} &= \text{Owners Equity} / \text{Long term liabilities} \\ &= 2514000 / 800000 \\ &= 3.143\end{aligned}$$

Identification of Parameters (B)

23rd May 16

Balance Sheet

	2009	2010		2009	2010
Net fixed assets	733,000	818,000	Owners equity	2,514,000	2,536,000
Cash	160,000	6,0000	Long term debt	800,000	750,000
Accounts receivable	1,953,000	2,616,000	Short term debt	50,000	880,000
Inventories	1,986,000	2,694,000	Accounts payable	1,450,000	1,950,000
Prepaid expenses	80,000	42000	Accrued expenses	98,000	114,000
Total assets	4,912,000	6,230,000	Total liabilities & owners equity	4,912,000	6,230,000

$$\begin{aligned}\text{Asset Structure} &= \text{Fixed assets} / \text{Current assets} \\ &= 733000 / (4912000 - 733000) \\ &= 0.175\end{aligned}$$

Identification of Parameters (C)

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Identification of Parameters (C)

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	2009	2010
Net Sales	10,655,000	13,851,000
Cost of goods sold	8,940,000	11,671,000
Selling, general & admin expense	1,554,000	1,925,000
Depreciation expense	44,000	55,000
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Earnings before tax	55,000	110,000
Income tax expense	23,000	44,000
Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Inventory Holding Period = Inventories / COS x 365

Collection Period = Accounts receivable / Sales revenue x 365

Payment Period = Accounts payable / COS x 365

Operating Cycle = Inventory Holding Period + Collection Period - Payment Period

	2009	2010
Net fixed assets	733,000	818,000
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Inventories	1,986,000	2,694,000
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	2009	2010
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Accrued expenses	98,000	114,000
Total liabilities & owners equity	4,912,000	6,230,000

Identification of Parameters (C)

23rd May 16

	2009	2010
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Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Inventory Holding Period =

Inventories / COS x 365

= 1986000 / 8940000 x 365

= 82 days

	2009	2010
Net fixed assets	733,000	818,000
Cash	160,000	6,0000
Accounts receivable	1,953,000	2,616,000
Inventories	1,986,000	2,694,000
Prepaid expenses	80,000	42000
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	2009	2010
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23rd May 16

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Dividends	5,000	44,000

Collection Period =

Accounts receivable / Sales revenue x 365

= 1953000 / 10655000 x 365

= 67 days

	2009	2010
Net fixed assets	733,000	818,000
Cash	160,000	6,000
Accounts receivable	1,953,000	2,616,000
Inventories	1,986,000	2,694,000
Prepaid expenses	80,000	42,000
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Income tax expense	23,000	44,000
Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Payment Period =

Accounts payable / COS x 365

= 1450000 / 8940000 x 365

= 60 days

	2009	2010
Net fixed assets	733,000	818,000
Cash	160,000	6,0000
Accounts receivable	1,953,000	2,616,000
Inventories	1,986,000	2,694,000
Prepaid expenses	80,000	42000
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Earnings after tax	32,000	66,000
Dividends	5,000	44,000

Operating Cycle =

**Inventory Holding Period + Collection Period -
Payment Period**

$$= 82 + 67 - 60$$

$$= 89 \text{ days}$$

	2009	2010
Net fixed assets	733,000	818,000
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Total assets	4,912,000	6,230,000

	2009	2010
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Thankyou

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