Accounting for Financial and Managerial Decision and Control [AFMDC]

Unit 5

Performance Measurement: Value Added Statement, Return on Investment and Residual Income

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Contents

- Value added analysis and performance measurement
- Measurement and interpretation of return on investment and residual income

Learning Objectives

- Explain the concept and meaning of value added statement
- Prepare value added statement
- Measure the performance of organization using value added statement
- Describe the meaning of return on investment and residual income
- Calculate and measure return on investment and residual income

Concept and Meaning of Value Added Statement

- The value added concept has become increasingly important in recent years.
- Many firms have used it as a measure of performance.
- Value added is the difference between sales incomes and bought in goods and services.
- It measures the added value by the enterprise to its product or a service provided.
- A manufacturing firm begins with a certain quantum of raw materials and engages itself in a conversion process to yield a product with new utility and market value, which is different from the original cost of material.
- The excess of market value over and above the cost of materials is defined as value added.

Concept and Meaning of Value Added Statement

- Value added statement could help us to access the relative efficiency of the firm.
- The value added performance of a company is a good measure of the overall productivity of the firm.
- The term "Value Added" is defined as "The increase in realizable value resulting from an alternation in form, location or availability of a product or service, excluding the cost of purchased material and service." [C.I.M.A. Official Terminology]

Concept and Meaning of Value Added Statement

- The terminology also defines it as "Sales Value less the cost of purchased materials and services. This represents the worth of an alteration in form, location or availability of a product or service."
- An organization in the process of manufacturing adds utility or value to raw materials by converting them into finished product and therefore, the sale value is higher than cost of raw materials.
- The excess of the sales value over the cost of materials is known as value added.

Concept and Meaning of Value Added Statement

- Value Added = Sales (Net of Excise Duty) – Cost of Bought in Materials and Services

  or,

- Value Added = Profit + All Conversion and Other Costs

  or,

- Profit = Value Added – All Conversion and Other Costs

Note: Conversion cost includes direct labour and manufacturing overhead, and other costs cover selling and distribution cost, interest, depreciation, etc.

Concept and Meaning of Value Added Statement

Examples of value added activities:

Steel Plant	: Adds value to Iron Ore
Biscuit Plant	: Adds value to Flour
Jute Textile plant	: Adds value to Jute Fiber
A Trading Co	: Adds value by linking Supplier and Consumer
Readymade Garments	: Adds value to Cloth

Preparation of Value Added Statement

Value Added Statement
For the Year Ended.....

Particulars		Rs.	Rs.
Sales Revenue			x x x
Less:	Cost of Bought in Materials and Services		x x x
	Raw Material	x x x	
	Power/Fuel	x x x	
	Supplies	x x x	
	Auditor's Remuneration	x x x	
	Overhead Expenses	x x x	
Add:	Investment Income/Other Income		x x x
	Value Added		x x x
Applied as Follows:			
1.	To Pay Employees (Wages, Salaries, Pension, Provident Fund, Benefits and Allowances etc.)		x x x
2.	To Pay Government (Income Tax, Wealth Tax and Other Taxes)		x x x
3.	To Pay Providers of Capital (Interest on Loan, Dividends to Shareholders)		x x x
4.	To Provide for Maintenance and Expansion of Assets (Depreciation, Retained Profits)		x x x
	Value Added		x x x

Preparation of Value Added Statement

Value Added Statement
For the Year Ended.....

Particulars	Rs.	Rs.
Sales Revenue		×××
Add: Closing Stock		×××
Finished Goods	×××	
WIP	×××	
Raw Materials	×××	
		×××
Less: Opening Stock		×××
Finished Goods	×××	
WIP	×××	
Raw Materials	×××	
		×××
Less: Cost of Bought in Materials and Services		×××
Raw Material	×××	
Power/Fuel	×××	
Supplies	×××	
Auditor's Remuneration	×××	
Overhead Expenses	×××	
Add: Investment Income/Other Income		×××
Value Added		×××

Applied as Follows:	
1. To Pay Employees	
(Wages, Salaries, Pension, Provident Fund, Benefits and Allowances etc.)	×××
2. To Pay Government	
(Income Tax, Wealth Tax and Other Taxes)	×××
3. To Pay Providers of Capital	
(Interest on Loan, Dividends to Shareholders)	×××
4. To Provide for Maintenance and Expansion of Assets	
(Depreciation, Retained Profits)	×××
Value Added	×××

Question 1

A company provide you the following information for the year ended last year.

Sales	Rs. 40,00,000
Raw Material Consumed	15,00,000
Power and fuel	6,00,000
Stores	1,00,000
Salaries to staffs	7,50,000
Provident fund contribution	75,000
Other fringe benefits	1,50,000
Administration/Selling overhead	2,00,000
Interest on loan	50,000
Divided to shareholders	1,00,000
Income tax paid	45,000
Other tax paid	25,000
Depreciation	30,000
Retained earning	4,00,000
Other income	25,000

Required: Value added statement and its interpentation.

Solution 1

Value Added Statement
As on end of last year

Particulars	Amount (Rs)	Amount (Rs.)	Percentage
Sales		40,00,000	
Less: Cost of material and services		24,00,000	
Raw Materials	15,00,000		
Power and fuel	6,00,000		
Stores	1,00,000		
Adm./Selling overhead	2,00,000		
Value added by operations		16,00,000	98.46
Add: Other income		25,000	1.54
Total value added		16,25,000	100.00
Value distributed as follows:			
to employees		9,75,000	60.000
Salaries	75,000		
Provident fund contribution	75,000		
Other fringe benefits	1,50,000		
to capital providers		1,50,000	9.23
Interest on loan	50,000		
Dividend to shareholders	1,00,000		
to Government		70,000	4.31
Income tax	45,000		
Other tax	25,000		
to Expansion and growth		4,30,000	26.46
Depreciation	30,000		
Retained earning	4,00,000		
Total value added		1,62,5000	100.00

Interpretation:

Value added is the value which a business added by its operations to its bought in materials and services. The above value added statement shows how the surplus has been allocated. Majority of the surplus (60 percent) value is allocated to employees, which seems too high. Similarly, 9.23 percent and 4.31 percent of total value added distributed to providers of capital and Government respectively. Approximately one-fourth of surplus has been allocated to expansion and growth of business.

Question 2

From the accounts of New Readymade Co. Ltd. the following manufacturing and profit and loss account for the year ended, 20xx is extracted:

Manufacturing and Profit and Loss Account
For the Year Ended, 20xx

Particulars	Rs.	Particulars	Rs.
To Materials:		By Materials:	
Opening Stock	59,000	Closing Stock	89,600
Purchases	3,73,000	By Cost of Good Manuf.	13,9,900
To Wages Paid	5,62,000		
To Wages Accrued	34,000		
To Factory Expenses	3,81,500		
	14,09,500		14,09,500
To Cost of Goods Manuf.	13,19,900	By Sales	18,24,000
To Adm. Expenses	2,45,000	By Closing Stock	2,35,200
To Selling and Dist. Exp.	3,28,000		
To Depreciation	16,300		
To Net Profit	1,50,000		
	20,59,200		20,59,200

Required: Prepare value added statement for the year ended

Solution 2

New Readymade Co. Ltd.
Value Added Statement
For the Year Ended, 20xx

Particulars		Rs.	Rs.
Sales Revenue			18,24,000
Add:	Closing Stock		
	Finished Goods	2,35,200	
	Raw Materials	89,600	3,24,800
			21,48,800
Less:	Opening Stock		
	Raw Materials		59,000
			20,89,800
Less:	Cost of Bought in Materials and Services		
	Raw Material Purchased	3,73,000	
	Factory Expenses	3,81,500	
	Administration Expenses	2,45,000	
	Selling and Distribution Expenses	3,28,000	13,27,500
Value Added			7,62,300
Applied as Follows:			
	Wages Paid		5,62,000
	Wages Outstanding		34,000
	Depreciation		16,300
	Net Profit		1,50,000
Value Added			7,62,300

Measuring Organizational Performance

Labour Productivity Ratio

(a) Value added per employee $= \frac{\text{Total value added}}{\text{Number of employees}}$

(b) Labour equipment ratio $= \frac{\text{Net fixed assets}}{\text{Number of employees}}$

(c) Wages distribution ratio $= \frac{\text{Total wages}}{\text{Total value added}}$

(d) Value added to salary & wages $= \frac{\text{Value added}}{\text{Salary \& wages}}$

(e) Value added per period $= \frac{\text{Value added}}{\text{Period}}$

(f) Value added to factory overhead $= \frac{\text{Value added}}{\text{Factory overhead}}$

Measuring Organizational Performance

Capital Productivity Ratio

(a) Value added to capital employed $= \frac{\text{Value added}}{\text{Capital employed or Net worth}}$

(b) Value added to total assets $= \frac{\text{Value added}}{\text{Total assets}}$

(c) Value added to fixed assets $= \frac{\text{Value added}}{\text{Fixed assets}}$

(d) Value added to equipment $= \frac{\text{Value added}}{\text{Plant and equipments}}$

(e) Value added to tangivle assets $= \frac{\text{Value added}}{\text{Tangible assets}}$

(f) Value added to material used $= \frac{\text{Value added}}{\text{Raw material consumed}}$

(g) Value added to cost of bought in material and services $= \frac{\text{Value added}}{\text{Cost of bought in material}}$

(h) Value added to sales revenue $= \frac{\text{Value added}}{\text{Sales revenue}}$

(i) Net income to value added $= \frac{\text{Net income}}{\text{value added}}$

Question 3

The following information are extracted from the accounting records of a company, for the year ending 31st, December, last year.

	Rs.
Sales for the period	42,00,000
Material purchased	12,00,000
Stores	1,20,000
Power & fuel	2,00,000
Other manufacturing, selling & administrative cost	6,00,000
Salaries & wages	10,00,000
Income tax	90,000
Wealth tax	20,000
Interest paid	1,00,000
Dividend paid	90,000
Additional information:	
Number of employees	10,400
Net worth	Rs. 34,66,666.67
Fixed assets including plant	Rs. 8,32,000
Plant and equipment	Rs. 4,00,000
Total working days	320 days.

Required: (i) Value added statement (ii) Ratios for performance appraisal

Solution 3

(i) Value Added Statement
For the year ended 31st Dec.

Particulars		Amount (Rs)	Amount (Rs.)
	Sales Revenue		42,00,000
Less:	Cost of bought in material:		
	Material	12,00,000	
	Stores	1,20,000	
	Power and fuel	2,00,000	
	Other manufacturing, selling and distribution cost	6,00,000	21,20,000
	Value added		20,80,000
Applied as follows:			
	Salaries and wages		10,00,000
	Income tax		90,000
	Wealth tax		20,000
	Interest paid		1,00,000
	Dividend paid		90,000
	Retained earning		7,80,000
	Value added		20,80,000

Solution 3: Labour Prodcutivity Ratio

(ii) Ratios for performance appraisal:

(a) Value added per employee $= \frac{\text{Total value added}}{\text{No. of employees}} = \frac{20,80,000}{10,400} = \text{Rs. } 200$

(b) Labour equipment ratio $= \frac{\text{Net fixed assets}}{\text{No. of employees}} = \frac{8,32,000}{10,400} = \text{Rs. } 80$

(c) Wages distribution ratio $= \frac{\text{Total wages}}{\text{Total value added}} = \frac{10,00,000}{20,80,000} = 0.4808 \text{ or } 48.08\%$

(d) Value added to salaries & wages $= \frac{\text{Value added}}{\text{Salaries \& wages}} = \frac{20,80,000}{10,00,000} = 2.08 \text{ times}$

(e) Value added per period $= \frac{\text{Value added}}{\text{Period}} = \frac{20,80,000}{320} = \text{Rs. } 6,500$

(f) Value added to factory overhead $= \frac{\text{Value added}}{\text{Factory overhead}}$

(Information provided is not sufficient. Hence it can not calculate)

Solution 3: Capital Productivity Ratio

(g) Value added to capital employed $= \frac{\text{Value added}}{\text{Capital employed (Net worth)}} = \frac{20,80,000}{34,66,666.67} = 0.6$ or 60%

(h) Value added to total assets $= \frac{\text{Value added}}{\text{Total assets}}$

(Information is not sufficient for the calculation)

(i) Value added to fixed assets $= \frac{\text{Value added}}{\text{Fixed assets}} = \frac{20,80,000}{8,32,000} = 2.5$ or 250%

(j) Value added to equipment $= \frac{\text{Value added}}{\text{Plant \& equipment}} = \frac{20,80,000}{4,00,000} = 5.2$ or 52%

(k) Value added to tangible assets $= \frac{\text{Value added}}{\text{Tangible assets}} = \frac{20,80,000}{8,00,000} = 2.6$ or 260%

(l) Value added to material used $= \frac{\text{Value added}}{\text{Material used}} = \frac{20,80,000}{12,00,000} = 1.73$ or 173%

(m) Value added to bought in material cost $= \frac{\text{Value added}}{\text{Bought in material cost}} = \frac{20,80,000}{21,20,000} = 0.9811$ or 98.11%

(n) Value added to sales revenue $= \frac{\text{Value added}}{\text{Sales revenue}} = \frac{20,80,000}{42,00,000} = 0.4952$ or 49.52%

(o) Net income to value added $= \frac{\text{Net income (Retained Earning)}}{\text{Value added}} = \frac{7,80,000}{20,80,000} = 0.375$ or 37.50%

Measuring Performance in Investment Centres
Return on Investment (ROI)

$$\text{ROI} = \frac{\text{Operating Income}}{\text{Invested Capital}}$$

Operating profit: net income before interest and taxes;
Invested capital: average, of capital employed for the period.
Capital investment: operating assets (cash, account receivable, inventory, plant and machinery, and other productive assets), excluding assets that are not held for productive use.

$$\text{ROI} = \text{Profit Margin Ratio} \times \text{Capital Turnover Ratio}$$

$$= \frac{\text{Operating Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested Capital}}$$

Profit margin ratio measure of profitability or operating efficiency, whereas capital turnover ratio measures how well a division manages its invested capital.

Measuring Performance in Investment Centres
Return on Investment (ROI)

Improvement of ROI

* Improve margin
* Improve turnover
* Improve both margin and turnover

Measuring Performance in Investment Centres
Residual Income (RI)

- Return on investment ignores cost of capital and considers a specific rate of return.
- But Residual income considers amount of income rather than a specific rate of return.
- RI is another measure of performance.
- Residual income can be defined as the net income less the imputed capital charged on the assets used by the division.
- It is the operating income that an investment centre earns above a minimum desired return on invested capital.
- Residual income is not a ratio but it is an amount. The amount of profit left after subtracting a pre-determined desired income level is known as RI.

$$\text{RI} = \text{Operating Income} - (\text{Desired ROI} \times \text{Invested Capital})$$

Question 4

A company reports the following information relating to operating income, sales and invested capital (average operating assets):

Operating Income	Rs. 30,000
Sales Revenue	5,00,000
Invested Capital	2,00,000

Required: (i) ROI and ROI showing profit margin and capital turnover; (ii) RI assume that the required minimum rate of return (desired ROI) is 10%.

$$\text{ROI} = \frac{\text{Operating Income}}{\text{Invested Capital}} = \frac{\text{Rs. 30,000}}{\text{Rs. 2,00,000}} = 15\%$$

$$\text{RI} = \text{Operating Income} - (\text{Desired ROI} \times \text{Invested Capital})$$
$$= \text{Rs. 30,000} - (10\% \times \text{Rs. 2,00,000})$$
$$= \text{Rs. 10,000}$$

Similarly,

$$\text{ROI} = \frac{\text{Operating Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested Capital}}$$

$$= \frac{30,000}{5,00,000} \times \frac{5,00,000}{2,00,000}$$

$$= 6\% \times 2.50$$

$$= 15\%$$

Question 5

A company provide you the following information:

Average operating assets = Rs. 2,00,000
Operating income = Rs. 30,000
Minimum required rate of return = 10%

The company is proposing to invest in new project that yield 12% on additional investment amounting Rs. 1,00,000.

Required: (i) Does the company accept the investment proposal using ROI?

(ii) Does the company accept the investment proposal using RI?

Solution 5

(i) Under ROI Method

	Existing project	New project	Total
Average operating assets	Rs. 2,00,000	Rs. 1,00,000	Rs. 3,00,000
Operating income	Rs. 30,000	Rs. 12,000	Rs. 42,000
ROI	15%	12%	14%

(ii) Under RI Method

	Existing project	New project	Total
Average operating assets	Rs. 2,00,000	Rs. 1,00,000	Rs. 3,00,000
Operating income (a)	Rs. 30,000	Rs. 12,000	Rs. 42,000
Minimum required rate of return @ 10% (b)	20,000	10,000	30,000
RI (a – b)	10,000	2,000	12,000

Under ROI method, the company manager would not accept the new investment proposal with 12% expected rate of return since the company is already earning 15%. If accepted, the overall ROI will reduce to 14%.

Under RI method, the company would accept the new investment proposal, which increase the overall residual income to Rs. 12,000. In other, it provides a higher rate of return 12% than minimum rate of return 10%.

Thus, on the basis of the above analysis, it can be concluded that the residual income encourages managers to make profitable investment that would be rejected by managers using ROI.

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Thank You