

Analysis of Company Performance Measurement using the Balanced Scorecard Method

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Abstract: This study aims to determine how the performance of the Regional Water Company of Sleman Regency by using the Balanced Scorecard method viewed from a financial perspective, customer perspective, internal business process perspective, and learning and growth perspective. The results of the study show that the performance of the Regional Water Company of Sleman Regency in 2015-2017 can be interpreted to be a good performance, and included in the "healthy" category, with a total performance value of 3,035 in 2015; 3,110 in 2016; and 3,480 in 2017.

Keywords: *Balanced Scorecard; Financial perspective; Customer perspective; Internal business process perspective; Learning and growth perspective*

Introduction

Performance measurement by relying solely on financial measures is not enough to conclude whether the performance of a company is good or not. Non-Financial conditions related to performance management in the internal company have a significant influence on the company's profits, one of which relates to customer satisfaction and employee loyalty in a business process. The disadvantage of traditional performance measurement or in financial terms is its inability to provide a comprehensive picture of company performance (Solichah, 2015).

In conducting performance measurements, data in the financial sector does not necessarily reflect the actual performance conditions that occur overall in the Regional Water Company. There are still many factors that must be considered in measuring Regional Water Company performance. Many companies only look at their financial factors by ignoring the performance of individuals in them. In fact, for companies such as Regional Water Company, customer service, and other operational matters regarding water sales also

play an essential role in improving Regional Water Company performance as a whole.

The Regional Water Company performance assessment is carried out using the Balanced Scorecard method, where Regional Water Company performance appraisal is prepared by applying balanced scoring principles that take into account the characteristics of the Regional Water Company. Through measuring performance with the Balanced Scorecard, it can be seen how effective management can assess the success of the organization in carrying out activities and can be used as a basis for developing systems within the organization to achieve the expected goals (Mulyadi, 2007:182).

The Balanced Scorecard complements a set of financial measures of past performance with measures driving future performance. The objectives and size of the scorecard are derived from the strategy. Objectives and measures look at corporate performance from four perspectives: financial, customer, internal business processes, and learning and growth (Kaplan and Norton, 1996:7).

The Balanced Scorecard maintains a balance between different strategic measures to achieve alignment of ideals, thereby encouraging employees to act in the best interests of the organization. It is a tool that helps focus companies, improve communication, set organizational goals, and provide feedback on strategies (Anthony, 2005:173). The purpose of this study was to determine the performance of the Regional Water Company of Sleman Regency in 2015-2017 with the Balanced Scorecard method.

Literature Review

Performance, Performance Measurement, and Balanced Scorecard

Performance is the achievement of a person, team, or work unit in carrying out tasks compared to the target targeted at him (Ismail & Prawironegoro, 2009:197). Sedarmayanti (2007: 195) revealed that performance measurement is used to assess the success/failure of the implementation of activities/programs/policies following the goals and objectives that have been set to realize the mission and vision of the organization. Therefore, it is an urgent matter to create a system that is capable of measuring organizational performance and success. A Balanced Scorecard is a group of integrated performance benchmarks that originate from corporate strategies and support corporate strategies throughout the organization. In the Balanced Scorecard approach, top management describes its strategy into performance benchmarks so that employees understand it and can implement something to achieve the strategy (Tunggal, 2000: 2).

Balanced Scorecard Perspective

Mowen, Hansen, and Heitger (2017: 723) explain that the Balanced Scorecard describes the organization's mission and strategy into operational objectives and performance measures for the following four perspectives:

- a. The financial perspective explains the economic consequences of actions carried out in three other perspectives.

- b. The customer perspective determines the customer and market segment where the business unit will compete.
- c. The internal business process perspective describes internal processes that provide value to customers and owners.
- d. The growth (infrastructure) and learning perspective explain the capabilities needed by organizations to create long-term growth and improvement. This perspective considers three main supporting factors: employee ability, information system capability, and employee attitudes

Research Methods

The data analysis method used in this study is quantitative because the data obtained is available and in the form of a calculation of financial statements using descriptive methods. Bungin (2005: 44) explains that quantitative research with descriptive format aims to explain, summarize various conditions, various situations, or various variables that arise in the community that is the object of research based on what happened.

In this study, the population used is all reports, both financial reports and non-financial reports made by the Regional Water Company of Sleman Regency. The sample in this study is a report made by the Regional Water Company of Sleman Regency, both financial and non-financial reports from 2015-2017. The sampling method in this study is a nonprobability sampling method, which is a sampling method that does not provide equal opportunity for each element or member of the population to be selected as a sample. The technique used was purposive sampling, meaning that the sample units contacted were adjusted to certain criteria applied based on the research objectives. In this study, the authors chose a sample report for 2015-2017.

The data collection method used is field research, which is conducted by conducting a direct review of the Regional Water Company of Sleman Regency which is the subject of research to obtain secondary data in the form of financial and non-financial reports. Besides, the

authors conducted a literature study by gathering theories, opinions expressed by experts obtained from library books, and other literature which served as a theoretical foundation to conduct

discussions. The measurement used to implement the Balanced Scorecard method in this study is presented in Table 1.

Table. 1. Variable Measurement

BSC Perspective	Indicator	Measurement
Financial Aspects	Return on Equity	$\frac{\text{Earning After Tax}}{\text{Total Equity}} \times 100\%$
	Operating Ratio	$\frac{\text{Operating Costs}}{\text{Operating Income}}$
	Cash Ratio	$\frac{\text{Cash} + \text{Cash Equivalent}}{\text{Current Liabilities}} \times 100\%$
	Billing Effectiveness	$\frac{\text{Amount of Water Account Receipt}}{\text{Total of Water Account}} \times 100\%$
	Solvability	$\frac{\text{Total Assets}}{\text{Total Liabilities}} \times 100\%$
Service Aspects	Service Coverage	$\frac{\text{Total Underserved Residents}}{\text{Total Residents}} \times 100\%$
	Customer Growth	$\frac{\text{Total Customers (this year - last year)}}{\text{Total Customers Last Year}} \times 100\%$
	Complaint Settlement Rate	$\frac{\text{Total Complaints Served}}{\text{Total Complaint}} \times 100\%$
	Customer Water Quality	$\frac{\text{The number of Water Quality Tests that meet the Requirements}}{\text{The number of water tested}} \times 100\%$
	Domestic Water Consumption	$\frac{\text{The amount of Water Sold for domestic customers/12}}{\text{Total Domestic Customers}}$
Operational Aspects	Production Efficiency	$\frac{\text{Capacity Utilized}}{\text{Total Installed Capacity}} \times 100\%$
	Level of Water Loss	$\frac{\text{The amount of Water Distribution - Water Sold}}{\text{Amount of Water Distribution}} \times 100\%$
	Service Operating Hours	$\frac{\text{Time of Water Distribution to Customers within one year}}{\text{evaluation Period (days)}}$
	Water Pressure at the Customer Connection	$\frac{\text{Total Customers Served with a Pressure of } > 0,7 \text{ bar}}{\text{Total Customers}} \times 100\%$
	Replacement of Customer Water Meters	$\frac{\text{The number of customer water meters that have been replaced for one year}}{\text{total Customers}} \times 100\%$
Human Resource Aspects	Employee Ratio per 1000 Customers	$\frac{\text{Total Employee}}{\text{Total Customer}} \times 1000$
	Employee Training Ratio	$\frac{\text{The number of employees participating in training}}{\text{total Employee}} \times 100\%$
	The ratio of Training Costs to Employee Costs	$\frac{\text{Total Training Costs}}{\text{Total Employee Costs}} \times 100\%$

Result and Discussion

In measuring the performance of Regional Water Company using the Balanced Scorecard method, each indicator in each perspective is given a relatively balanced weight following the characteristics of the aspects concerned, covering financial aspects with a weight of 25%, service aspects weighing 25%, operational aspects weighing 35%, and aspects of human resources with a weight of 15%. The steps in measuring the performance of the Regional Water Company of Sleman Regency in 2015-2017 with the Balanced Scorecard method are as follows:

1. Calculate the performance indicator value by using the formula for each indicator.
2. Compare the numbers obtained from the calculation of the formula with the standard of each indicator for each aspect.
3. From the comparison, a standard performance indicator value was obtained.
4. The standard value of the performance indicator was then multiplied by each indicator weight.

5. Multiplication between the standard value of the performance indicator and the weight of the performance indicator resulted in the performance value of the indicator.
6. The sum of all performance indicators provided a total value of performance.
7. Compares the total performance value with the range of performance criteria values, including:
 - Regional Water Company with a health condition, if the total performance value is more than 2,8.
 - Regional Water Company with an unhealthy condition, if the total value of performance is between 2,2-2,8.
 - Regional Water Company with the sick condition, if the total performance value is less than 2,2.

Based on the calculations that the author did before on various perspectives in the Regional Water Company of Sleman Regency in 2015-2017, the following results are obtained and presented in Table 2.

Table 2. The Overall Results of Performance Measurements using BSC

Ratio	2015				2016				2017			
	Condition	Value	Weight	Score	Condition	Value	Weight	Score	Condition	Value	Weight	Score
Financial Aspects:												
Return on Equity	9,88%	4	0,055	0,220	8,84%	4	0,055	0,220	32,94%	5	0,055	0,275
Operating Ratio	0,938	2	0,055	0,110	0,941	2	0,055	0,110	0,934	2	0,055	0,110
Cash Ratio	117,157%	5	0,055	0,275	36,218%	1	0,055	0,055	139,08%	5	0,055	0,275
Billing Effectiveness	97,666%	5	0,055	0,275	97,787%	5	0,055	0,275	98,05%	5	0,055	0,275
Solvability Ratio	133,137%	2	0,030	0,060	152,980%	3	0,030	0,090	511,36%	5	0,030	0,150
Financial Aspects Performance				0,940				0,750				1,085
Service Aspects:												
Service Coverage	15,14%	1	0,050	0,050	21,65%	2	0,050	0,100	23,01%	2	0,050	0,100
Customer Growth	12,29%	5	0,050	0,250	9,19%	4	0,050	0,200	9,69%	4	0,050	0,200
Complaint Settle. Rate	100%	5	0,025	0,125	100%	5	0,025	0,125	100%	5	0,025	0,125
Cust. Water Quality	-	1	0,075	0,075	75%	4	0,075	0,300	56,90%	3	0,075	0,225
Domestic Water Cons.	14,43 m ³	1	0,050	0,050	14,24 m ³	1	0,050	0,050	13,28 m ³	1	0,050	0,050
Service Aspects Performance				0,550				0,775				0,700
Operational Aspects:												
Production Efficiency	61,09%	2	0,070	0,140	56,86%	1	0,070	0,070	62,85%	2	0,070	0,140
Level of Water Loss	30,60%	3	0,070	0,210	28,31%	4	0,070	0,280	28,08%	4	0,070	0,280
Serv. Operating Hours	24 jam	5	0,080	0,400	24 jam	5	0,080	0,400	24 jam	5	0,080	0,400
Water Pressure Cust.	77,64%	4	0,065	0,260	64,10%	4	0,065	0,260	73,28%	4	0,065	0,260
Replace. Water Meter	0,96%	1	0,065	0,065	1,34%	1	0,065	0,065	1,38%	1	0,065	0,065
Operational Aspects Performance				1,075				1,075				1,145
Human Resource Aspects:												
Employee Ratio	6,52	5	0,070	0,350	6,25	5	0,070	0,350	6,04	5	0,070	0,350

Employee Training Rat.	31,82%	2	0,040	0,080	45,11%	3	0,040	0,120	52,82%	3	0,040	0,120
Training Cost Ratio	1,08%	1	0,040	0,040	0,56%	1	0,040	0,040	4,47%	2	0,040	0,080
Human Resource Aspects Performance				0,470				0,510				0,550
Total Performance				3,035				3,110				3,480
The Category of Regional Water Company	Healthy Condition			Healthy Condition			Healthy Condition					

The results of the performance tests of each perspective show that the measurement of the performance of the Regional Water Company of Sleman Regency by using the Balanced Scorecard method during 2015-2017 can be used by management to evaluate and improve its performance in the future. The results of calculations on the financial perspective during 2015-2017 show fluctuating performance values, with a value of 0,940 in 2015, slightly decreased in 2016 to 0,750 and increased in 2017 to 1,085.

The ROE value in 2015 showed a value of 9,88%. That is, every Rp. 1 equity yields a net profit of Rp. 0,0988 available to shareholders. In 2016 the ROE value decreased slightly to 8,84%. In 2017, there was a very high increase in net income, from Rp. 1.677.074.365,75 in 2016 to Rp. 18.471.284.406,14 in 2017. The amount of equity in 2017 also experienced a very sharp increase, reaching 196% from 2016. This situation made the ROE value in 2017 very high, which amounted to 32,94% and got a value of 5. While ROE in 2015 and 2016 gets a value of 4.

The value of the Operating Ratio during 2015-2017 did not undergo many changes. In 2015, the Regional Water Company produced an operating income of Rp. 22.524.621.720, while the operating expenses incurred, were Rp. 21.125.143.862,49 to obtain an operating ratio of 0,938. In 2016, the operating expenses incurred were still quite large, resulting in a higher operating ratio than in 2015, which was 0,941. In 2017, there was an increase in operating income and a decrease in some operating costs compared to previous years, so that in 2017 there was a slight improvement in performance related to operating cost efficiency, marked by a decrease in operating ratios to 0,934 after 0,938 in 2016 and 0,941 in 2016. However, over three years, the Regional Water

Company operating ratio only gets a value of 2 from a maximum value of 5.

The value of the Cash Ratio for 2015-2017 is volatile. In 2015, the Regional Water Company had more than enough cash and cash equivalents to guarantee its current liabilities, as seen from the cash ratio reaching 117,157%. That is, every Rp. 1 current liability is guaranteed by cash and cash equivalents of Rp. 1,1715. However, in 2016, the amount of cash and cash equivalents owned by Regional Water Company was not as much as in 2015 and was only able to guarantee short-term liabilities of 36,218%. In 2017, the amount of cash and cash equivalents of Regional Water Company can guarantee short-term liabilities of 139,08%, higher than in 2015 and 2016. With these conditions, the Regional Water Company of Sleman Regency scored 5 in 2015, 2 in 2016, and returned to 5 in 2017.

Billing Effectiveness value of Regional Water Company during 2015-2017 consistently gets a value of 5. It means that the Regional Water Company has effectively collected all of its customers. The number of accounts collected over the past three years has reached more than 90% of the total water accounts. The value of the billing effectiveness ratio reached 97,666% in 2015; 97,787% in 2016; and 98,05% in 2017.

The value of Regional Water Company Solvability has increased from year to year. In 2015, the Regional Water Company obtained a solvency ratio of 133,137% and obtained a score of 2. While in 2016, the total assets of Regional Water Company increased, and total liabilities decreased so that the solvency ratio increased to 152,980% and obtained a value of 3. Whereas in 2017, the total of Regional Water Company assets has increased from Rp. 54.781.535.027,05 in 2016 to Rp. 69.707.786.299,60 in 2017. The number of obligations in 2017 also decreased and not as much as liabilities in 2015 and 2016, resulting in

a very high solvency ratio, which reached 511,36% and got a maximum value of 5.

The calculation results on the customer's perspective (service aspect) also show fluctuating performance values. The service aspect performance value reaches 0,550 in 2015; increased to 0,775 in 2016; and slightly decreased to 0,700 in 2017.

The coverage of Regional Water Company services over the past three years shows unsatisfactory results. In 2015, the number of residents served was 176.190 people or only 15,14% of the population of Sleman Regency was 1.163.970. While in 2016, the number of residents served slightly increased by 21,65% of the population of the Sleman Regency. Whereas in 2017, the population served by the Regional Water Company reached 23,01% of the population of Sleman Regency. Even though it always goes up every year, this number is still relatively small based on the standards of BPPSPAM, so that in 2015 the score is 1, while 2016 and 2017 get a value of 2.

The growth of Regional Water Company customers over the past three years shows fluctuating results. Customer growth in 2015 was 12,29% by adding 2.953 new customers and getting the maximum value of 5. Meanwhile, customer growth in 2016 decreased compared to 2015, which amounted to 9,19% by adding 2.479 new customers and getting 4. While in 2017, the Regional Water Company managed to add 2.853 new customers and got 4 grades with a percentage of customer growth of 9,69%.

The level of the settlement of customer complaints to Regional Water Company during 2015-2017 managed to get a value of 5 because the Regional Water Company of Sleman Regency always resolved every complaint that came from the customer. It can be identified from the ratio of Regional Water Company complaints settlement rate which reached 100% over the past three years. From 1.184 complaints in 2015, 1.741 complaints in 2016, and 1.822 complaints in 2017, everything can be accommodated, handled, and resolved well by Regional Water Company of Sleman Regency.

The Water Quality of Regional Water Company of Sleman Regency customers in 2015-2017 show fluctuating results. In 2015, the Regional Water Company only received a score

of 1 because, in that year, the Regional Water Company had not yet implemented a water quality test that met the requirements. In 2016, the Regional Water Company tested the water quality, the result of which 75% of the water samples tested have met the requirements, thus getting a value of 4. In 2017, of the 58 water samples tested, only 33 water samples met the requirements in the Minister of Health Regulation, or equal to 56,90% of the total sample, to get a value of 3.

The Regional Water Company of Sleman Regency domestic water consumption indicator shows unsatisfactory results, because, over the past three years, the average amount of water sold for domestic customers (households) is still below $<15 \text{ m}^3$ per month, and is still very small according to the standards of BPPSPAM so that only get value 1.

The calculation results from the perspective of internal business processes (operational aspects) show fluctuating performance values. The value of operational aspect performance reached 1,075 in 2015; 1,075 in 2016; and rose to 1,145 in 2017.

Indicators of Regional Water Company production efficiency during 2015-2017 showed fluctuating results. In 2015, the installed production capacity was $12.828.844,80 \text{ m}^3$, and of that amount, the real production volume produced was $7.837.165,70 \text{ m}^3$ so that the production efficiency was 61,09% and only got a value of 2. In the year 2016, the Regional Water Company production efficiency dropped to only 56,86% and only got a value of 1. In 2017, the Regional Water Company production efficiency increased compared to 2015 and 2016, which amounted to 62,85% but still got a value of 2 from a maximum value of 5.

Unbilled water (the level of water loss) Regional Water Company of Sleman Regency shows better results from year to year. In 2015, the volume of water distributed to customers was $7.101.604 \text{ m}^3$. From this amount, the volume of water that has been sold to customers is $4.928.268 \text{ m}^3$, so that there is unbilled water of $2.173.336 \text{ m}^3$ or as much as 30,60% and gets a value of 3. In 2016, the amount of non-revenue water was reduced to be 28,31% and get a value of 4. In 2017, the amount of non-

revenue water decreased to 28,08%, so that it gets a value of 4 from a maximum value of 5.

The Regional Water Company of Sleman Regency Service Operation Hours indicator shows satisfactory results during 2015-2017 because it consistently gets a maximum value of 5, this is because Regional Water Company of Sleman Regency always provides services by flowing water to customers continuously for 24 hours every day.

Water Pressure Indicators at Customer Connections of Regional Water Company of Sleman Regency showed quite good results during 2015-2017 with consistently obtaining a value of 4 from the maximum value 5. In 2015, out of a total of 26.975 customers, 77,64% had been served with a minimum pressure of 0,7 bars. In 2016, the number of customers served with a minimum pressure of 0,7 bar slightly decreased to 64,10%. While in 2017, the number of customers with 0,7 bar water pressure increased to 73,28% of the total customers of the Regional Water Company of Sleman Regency.

Customers' Water Meter Replacement Indicators show unsatisfactory results during 2015-2017 because they only get a value of 1 from a maximum value of 5. During 2015, the Regional Water Company only made 259 customer water meter replacements or only 0,96% of the total customers. In 2016, the number of water meters replaced slightly increased to 395 or 1,34% of all customers. Not much different from 2016; in 2017, the number of water meters replaced was only 1,38% of all Regional Water Company customers. A maximum value of 5 is given if the customer water meter replacement rate is at least 20% of the total number of customers.

The calculation results from the perspective of learning and growth (aspects of human resources) show the value of performance that is getting better from year to year. The value of the performance of aspects of human resources reached 0,470 in 2015; 0,510 in 2016; and 0,550 in 2017.

The employee ratio per 1000 customers in the Regional Water Company of Sleman Regency in 2015-2017 shows satisfactory results because it consistently gets the maximum score of 5. It means that the Regional Water

Company can implement efficiency and effectiveness in using labor. Based on the standards of BPPSPAM, a maximum value of 5 is given if less than eight employees can serve every 1000 customers. While in Regional Water Company of Sleman Regency, the ratio of employees per 1000 customers shows 6,52 in 2015; 6,25 in 2016; and 6,04 in 2017.

The ratio of Employee Training in Regional Water Company of Sleman Regency shows results that are increasing from year to year. In 2015, out of 176 Regional Water Company employees, 56 employees or 31,82% had participated in training so that they got a score of 2. In 2016 the number of employees who participated in training increased to 45,11% and got a score of 3. While in 2017 the number of employees who participate in training is increasing to 52,82% of all employees so that they get a score of 4 from a maximum of 5.

The Training Cost Ratio to Employee Costs at Regional Water Company of Sleman Regency shows fluctuating results during 2015-2017. In 2015, the number of training costs incurred by the Regional Water Company was Rp. 72.327.500 or only 1,08% of the total employee cost of Rp. 6.713.776.065, so that only got a score of 1. In 2016, the number of training costs incurred dropped to 0,56% of the total employee costs so that they still got a score of 1. In 2017, there was a slight increase with the increase in allocations for training costs to amounting to 4,47% of total employee costs, so that get a value of 2 from a maximum value of 5.

Conclusion and Suggestion

Conclusion

In 2015, the Regional Water Company of Sleman Regency received a total value of 3,035 and was classified as a Regional Water Company with a healthy category. Maximum achievements are in the Cash Ratio, Billing Effectiveness, Customer Growth, Complaint Settlement Rate, Service Operation Hours, and Employee Ratio per 1000 Customers. While indicators that still show poor performance are Service Coverage, Customer Water Quality, Domestic Water Consumption, Replacement of

Customer Water Meters, and Training Cost Ratio to Employee Costs.

In 2016, the Regional Water Company of Sleman Regency received a total value of 3,110 and was classified as a Regional Water Company with a healthy category. Maximum achievement is in Billing Effectiveness, Complaint Settlement Rate, Service Operation Hours, and Employee Ratio per 1000 Customers, while indicators that still show poor performance are the Cash Ratio, Domestic Water Consumption, Production Efficiency, Substitution of Customer Water Meters, and the Training Cost Ratio to Employee Costs.

In 2017, the Regional Water Company of Sleman Regency got a total value of 3,480 and is classified as a Regional Water Company with a healthy category. Maximum achievement is on Return on Equity, Cash Ratio, Billing Effectiveness, Solvency Ratio, Complaint Settlement Rate, Service Operation Hours, and Employee Ratio per 1000 Customers. Meanwhile, indicators that still show poor performance are Domestic Water Consumption and Customer Water Meter Replacement.

Suggestion

The authors have several suggestions for the practice of Regional Water Company of Sleman Regency Improving the performance of financial aspects by Optimizing financial management through increased sales and cost-efficiency, improving utilization of current assets, especially cash and cash equivalents to provide more optimal results.

Enhance service aspect performance by Increasing service coverage by socializing the importance of clean water, improving water quality through testing by Minister of Health Regulation Number 492/MENKES/PER/IV/2010, and increasing the level of domestic water consumption by replacing and repairing damaged water pipes and reviewing water prices.

Enhance operational aspects of performance by Improving production efficiency by adding customers, improving services, and increasing supervision, increasing in the number of

customers served with a water pressure of more than 0.7 bar by expanding the pressure measurement area, reducing the level of water loss by repairing the distribution network system, replacing damaged/leaky pipes, replacing damaged customer water meters, supplying master meters, controlling illegal connections, and giving awards to meter recording officers who find indications of water theft.

Enhance the performance of aspects of human resources by improving planned employee development through training both at the management and operational levels and setting aside more funds for employee training that is needed for developing employee potential and increasing company value.

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