

LO 1: Describe Standard Costs

Terms

Standard costs	Direct labor price standard
Ideal standards	Standard predetermined overhead rate
Normal standards	Normal capacity
Direct material price standard	

Standards:

- Standards are benchmarks or “norms” for measuring performance. Standards relate to the quantity and costs of inputs used in manufacturing goods or providing services.
- Price Standards specify how much should be paid for each unit of the input.
- Quantity Standards specify how much of an input such as raw material should be used to make a product or provide service.
- Concerned with each individual cost component that makes up the entire budget- a standard cost is a unit amount

Direct Materials				
Standard direct materials price	X	Standard direct material quantity	=	Standard direct materials cost per unit
Direct Labor				
Standard direct labor rate	X	Standard direct labor hours	=	Standard direct labor cost per unit
Manufacturing Overhead				
Budgeted overhead costs	/	Expected standard activity index	=	Standard predetermined overhead rate
Standard predetermined overhead rate	X	Activity index quantity standard	=	Standard manufacturing overhead cost per unit

+ Standard direct materials cost per unit
+ Standard direct labor cost per unit
+ Standard manufacturing overhead cost per unit
= Total Standard Cost per Unit

Advantage of using standard costs:

- Facilitate management planning
- Promote cost-conscious awareness
- Useful in price setting
- Contribute to management control
- Useful in highlighting variances in management by exception
- Simplifies costing of inventories

Setting standards:

- Ideal standards are optimum levels at perfect conditions
- Normal standards are efficient, but achievable levels
- Overhead is set using normal capacity, which is the average activity output the company should experience over the long run

Practice #1

Firefly, Inc accumulated the following standard cost data for the glow pillow.

Direct materials: 2 lbs at \$3 per pound

Direct labor: .5 hours at \$15 per hour

Manufacturing overhead: based on direct labor hour, predetermined rate of \$20 per direct labor hour

Compute the standard cost of one glow pillow.

LO 2: Direct Materials Variance

Terms

Variances

Unfavorable

Favorable

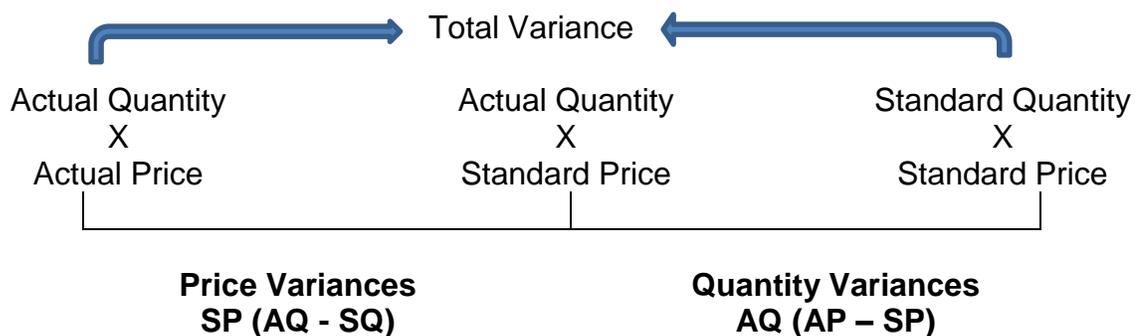
Total material variance

Material price variance

Material quantity variance

All Variances:

- Variances are computed for each manufacturing cost: direct materials, direct labor, variable overhead and fixed overhead.
- The total variance for each manufacturing cost is the difference between the actual costs incurred and the standard costs that should have been incurred
 - Material variance + labor variance + overhead variance = total variance
- The total variance is divided into price and quantity (hours) variances for each manufacturing cost.
- All variances are favorable or unfavorable.
 - Favorable if actual price or quantity is less than standard price or quantity.
 - Unfavorable if actual price or quantity is greater than standard price or quantity.
- The general variance model is:



LO 2: Direct Materials Variances

- **Material Price Variance**
 - The difference between the actual unit price paid and the standard price per unit of direct materials, multiplied by the quantity purchased.
 - May result from many factors such as receiving more cash or quantity discounts than expected, price reductions or increases from the supplier or purchasing a different quality of materials. This usually begins in the purchasing department
 - Identified at time of purchase; formula is
 - $(\text{Actual Quantity} \times \text{Actual Price}) - (\text{Actual Quantity} \times \text{Standard Price})$
 - Or $(\text{AQ} \times \text{AP}) - (\text{AQ} \times \text{SP})$
 - Or simplified: $\text{AQ} (\text{AP} - \text{SP})$

- **Material Quantity Variance**
 - The difference between the actual quantity of materials used in production and the standard quantity allowed for the actual output, multiplied by the standard price per unit of materials.
 - May result from many factors such as shortchanging the actual amount of material used, fewer rejects or spoilage than expected, faulty machines, inferior materials quality, untrained workers, and poor supervision.
 - Identified at time of usage; formula is
 - $(\text{Actual Quantity} \times \text{Standard Price}) - (\text{Standard Quantity} \times \text{Standard Price})$
 - Or $(\text{AQ} \times \text{SP}) - (\text{SQ} \times \text{SP})$
 - Or Simplified: $\text{SP} (\text{AQ} - \text{SQ})$

Practice #2

H Company manufactures a number of consumer items for general household use. During the recent month, the company manufactured 4,000 chopping blocks using 11,000 feet of hardwood. The hardwood cost the company \$18,700 when purchased. According to the standard cost card, each chopping block requires 2.5 board feet of hardwood, at a cost of \$1.80 per board feet.

Required: Compute the material quantity variance and material price variance.

LO 3: Direct Labor Variances and Manufacturing Overhead

Terms

Total labor variance
 Labor price variance
 Labor quantity variance

Total overhead variance
 Standard hours allowed

LO 3: Direct Labor Variances

- Labor Price Variance
 - The difference between the actual hourly labor rate and the standard rate per hour, multiplied by the actual number of hours worked during the period.
 - May result from many factors such as using workers with different wage rates than expected, different benefits costs per hour, annual wage rate increases more or less than expected, or a different number of overtime hours than expected.
 - Identified when direct labor hours are worked; formula is
 - $(\text{Actual Hours} \times \text{Actual Rate}) - (\text{Actual Hours} \times \text{Standard Rate})$
 - Or $(\text{AH} \times \text{AR}) - (\text{AH} \times \text{SR})$
 - Or Simplified: $\text{AH}(\text{AR} - \text{SR})$

- Labor Quantity Variance
 - The difference between the actual hours worked and the standard hours allowed for the actual output, multiplied by the standard hourly labor rate.
 - May result from many factors such as poorly trained or motivated workers, materials of a different quality than standard, faulty equipment causing breakdowns and work interruptions, fewer equipment breakdowns than expected, poor supervision of workers, or using workers with different level of skills than expected.
 - Identified when direct labor hours are worked; formula is
 - $(\text{Actual Hours} \times \text{Standard Rate}) - (\text{Standard Hours} \times \text{Standard Rate})$
 - Or $(\text{AH} \times \text{SR}) - (\text{SH} \times \text{SR})$
 - Or Simplified: $\text{SR} (\text{AH} - \text{SH})$

Practice #3

Z Company produces custom-painted cake plates for a number of major department stores. During the most recent week, the company prepared 6,000 plates using 1,150 direct labor-hours. The company paid its direct labor workers at an average pay rate of \$10.00 per hour. According to the standard cost card, each plate should require .20 direct-hours at a cost of \$9.50 per hour.

Required: Compute the labor price variance and a labor quantity variance.

LO 3: Total Overhead Variance

- The difference between the actual overhead costs and overhead costs applied based on standard hours allowed for the amount of goods produced
- Overhead variances may be separated into Overhead Controllable (price) and Overhead Volume (quantity) Variances.

Actual Overhead	-	Overhead Applied	=	Total Overhead Variance
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LO 4: Variance Reports and Balanced Scorecard

Terms

Balanced scorecard
 Financial perspective
 Customer perspective

Internal process perspective
 Learning and growth perspective

Variance Reports:

- The form and content of reports can vary, but should be given to managers as soon as possible, and should include explanations for variances
- Facilitate management by exception
- The costing of inventories using standards is allowed under GAAP when there are no significant difference between actual and standard, and may be presented in the financial statements at standard

Balanced Scorecard:

- Provide financial and non-financial features to better assess performance and anticipate results
- Creates linkages so high-level goals are communicated throughout the company
- Provides measurable objectives for non-financial measures
- Integrates all company's goals into a single performance measurement
- Uses four categories
 - Financial
 - Customer
 - Internal process
 - Learning and growth

Perspective	Objective
Financial 	Return on assets. Net income. Credit rating. Share price. Profit per employee.
Customer 	Percentage of customers who would recommend product. Customer retention. Response time per customer request. Brand recognition. Customer service expense per customer.
Internal Process 	Percentage of defect-free products. Stockouts. Labor utilization rates. Waste reduction. Planning accuracy.
Learning and Growth 	Percentage of employees leaving in less than one year. Number of cross-trained employees. Ethics violations. Training hours. Reportable accidents.

LO 6: Overhead Variances

Terms

Overhead Controllable Variance
Overhead Volume Variance

Overhead Controllable Variance:

- Shows if overhead costs are effectively controlled
- Generally relates to variable costs
- Actual overhead costs incurred compared to budgeted costs for the standard hours allowed
- A flexible budget is used to determine budgeted costs
- Overhead budgeted is based on standard hours allowed

Actual Overhead	-	Overhead Budgeted	=	Total Controllable Variance
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Overhead Volume Variance:

- Relates to whether fixed costs were over or under applied during the year
- The difference between the normal capacity hours and standard hours allowed times the fixed overhead rate
- Unfavorable if production is less than normal capacity, Favorable if production is over normal capacity

Budgeted Fixed Overhead	/	Standard hours at normal capacity	=	Fixed Overhead Rate
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Fixed Overhead Rate	X	(Normal Capacity Hours-Standard Hours Allowed)	=	Overhead Volume Variance
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Practice #4

F Company maintains warehouses that store and distribute items carried by the company. In the most recent month, employees worked 28,500 direct labor hours. The company incurred a total of \$463,100 in variable overhead costs and \$240,000 in fixed overhead costs. For the month, the static budget at normal capacity included \$489,000 of variable overhead and \$240,000 of fixed overhead for 30,000 direct labor hours to be worked.

Required: Compute controllable overhead variance and the volume variance.

Solution #1

<u>Manufacturing</u> <u>Cost Element</u>	<u>Standard</u> <u>Quantity</u>	X	<u>Standard</u> <u>Price</u>	=	<u>Standard</u> <u>Cost</u>
Direct materials	2		\$3		\$6

Direct labor	0.5	\$15	\$8
Manufacturing overhead	0.5	\$20	<u>\$10</u>
Total			\$24

Solution #2

AQ 11,000 X AP \$1.70 = \$18,700	AQ 11,000 X SP \$1.80 = \$19,800	SQ 4,000 x 2.5 X SP \$1.80 = \$18,000
\$1,100 F Price Variance AQ (AP – SP) 11,000(\$1.70-\$1.80)		\$1,800 U Quantity Variance SP (AQ - SQ) \$1.80(11,000 – 10,000)

Solution #3

AH 1,150 X AR \$10.00 = \$11,500	AH 1,150 X SR \$9.50 = \$10,925	SH 6,000 x .20 X SR \$9.50 = \$11,400
\$575 U Rate Variance AH (AR – SR) 1,150(\$10.00-\$9.50)		\$475 F Quantity Variance SR (AH - SH) \$9.50(1,150-1,200)

Practice Problem #4

Overhead Controllable Variance:

	Flexible Budget	
Hours	<u>30,000</u>	<u>28,500</u>
Variable Costs	489,000	464,550
Fixed Costs	240,000	240,000

Actual Overhead (463,100+240,000)	-	Overhead Budgeted (464,550+240,000)	=	Total Controllable Variance 1,450 Favorable
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Overhead Volume Variance:

Budgeted Fixed Overhead 240,000	/	Standard hours at normal capacity 30,000	=	Fixed Overhead Rate \$8
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Fixed Overhead Rate \$8	X	(Normal Capacity Hours- Standard Hours Allowed) (30,000-28,500)	=	Overhead Volume Variance 12,000 U
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