Cost Accounting Prof. Varadraj Bapat School of Management Indian Institute of Technology, Bombay

Lecture - 18 Standard Costing and Variance Analysis

[FL] Today we are going to discuss about standard costing and variance analysis. So, far in our course in cost and management accounting we have discussed various techniques which were targeted at cost control as well as decision making. If you remember we are already discuss techniques like marginal costing, CVP analysis, BEP. Most of them were useful for decision making. We are also learned budgeting and budgetary control. This technique is useful for both decision making as well as cost control.

Today we are going to learn a technique known as standard costing or variance analysis that is primarily useful for cost control purposes. Now what is mean by cost control in cost control? We set a benchmark, we set a standard and try to achieve that standard. In other words efforts are directed to ensure that actual cost does not exceed the benchmark or does not exceed the standard cost. Since we are discussing cost accounting the aim is to cut down the cost aim is to reduce the costs.

So, all efforts are made to improve efficiency and to keep costs within the given benchmark. So, in cost accounting the efforts will be made first to make or set a correct standard then major the actual try to see that we do not deviate from the standard. If we do deviate then there is what is known as variance then we will try to analyze the reasons for that variance. So, that timely corrective action can be taken. This is in a nutshell what is standard costing and variance analysis. Let us discuss it in little more details. (Refer Slide Time: 02:50)



Now, in this presentation we are going to learn about the definition, the steps, the types of standards, variances and the type of variances and analysis of variances and the advantages and disadvantages of standard costing.

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Now, what is a standard costs? As the name suggests it is a standard or a benchmark. So, it needs to be pre determined and it is based on the standards of efficient operations. So, it is a predetermined cost which will be incurred provided the operations are made very

efficiently. It may be used as a basis for price fixing and primarily it is useful for cost control through variance analysis.

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We can also look at it as a budget for production of one unit and it is chosen as a benchmark in the budgetary control system.

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Now, these are the steps in standard costing. First we set the standard then we study the actual, compute the variances and analyze the variances that is break them down for knowing the reasons for variances.

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Now, setting the standard. Now it is a pre determined or a standard cost per unit. It is a budgeted cost which is determined based on the standard costing. Next step is study of actuals. Now we need to calculate the actual costs. So, that they can be compared with the standards.

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The third step is varia cost variances. Now the actual is compared with the variance actual is compared with the budget or the standard cost and the cost variance is calculated then we break down the variances and fix the responsibility for controlling the costs. If the variance is more than what is desired suitable action will be taken. So, that such instances of deviation are not repeated and if required one may go for resetting the standard based on the feedback from the actual cost.

Now, what are the types of standards? As we have seen the first step in the standard costing is setting up of standard. If the standards are too high they become unachievable. So, it demotivates the people to put their effort to achieve them. At this same time if standards are too low it becomes senseless to put effort to achieve them because they would automatically be achieved and hardly there will be any motivation to improve the performance. That is why it is very much necessary to set the standards correctly for that let us understand different types of standards. So, that we can choose a suitable standard for ourselves.

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The first one is ideal standards. Now they represent the level of performance attainable when the prices and the labor are most favorable and when the highest output is achieved and the best equipment and layout is used and the maximum utilization of all the resources happen.

So, this is the most ideal condition where the output is maximum and the costs are minimum. That is why it is a ideal scenario and such standards are called as ideal standards. Now the next is normal standards. As you all know it becomes really very

difficult to achieve ideal standards. That is why we come we sort of bring them down to normal standards.

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Normal Standards: These are the standards that may be achieved under operating normal conditions. The normal activity has been defined as number standard which hours will produce normal efficiency goods to sufficient meet the average sales demand over а term of vears. Dr. Varadraj Bapat NPTE

Now, these may be achieved under normal operating conditions. So, instead of assuming the highest possible production here we assume that there will be some normal idle time and activity will proceed with a normal efficiency and there are good equipments, but they are not necessarily the best equipment that demand is good, but is not necessarily the maximum. So, these are the normal standards which are set for normal conditions. Now this is basic or bogey standards. (Refer Slide Time: 08:14)



These standards are used when they are likely to remain constant or unaltered for a fairly long time. So, a base year is chosen and there may not be any time or expertise to set standards in a systematic way. So, whatever is achieved in the base year if the base year is normal suitable base year is chosen and whatever is achieved in the base year is considered as a standard. That is why it is called as a basic standards. Now the variance is calculated as a percentage of the basic cost. Now the next one is known as current standards.

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actual cost. Instead, the actual cost is expressed as a percentage of basic cost.

Current Standard: These standards reflect the management's anticipation of what actual cost will be for the current period. These are the costs which the business will incur if the anticipated prices are

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Now, these standards reflect the managements anticipation of the actual cost for the current period. Now in a dynamic scenario it may not be appropriate to go for basic standards because the prices are going to change markets are going to be changed input costs are going to be changed incorporating those aspects.

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Current standards are set and for the planned output what is likely to be the cost with efficient operation that gives us the current standard. Now next one is variance. As we know the difference between the standard and actual is known as variance, it is a deviation from the set benchmark; obviously, it can be either favorable or unfavorable.

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Let us assume that you set up for yourself a standard of getting 95 marks or let us say O grade. If actually you get only 85 marks it will means a variance of 10 marks. Is this a favorable or unfavorable variance; obviously, it is unfavorable because we are talking about performance or achievement. So, more the better, but what we are discussing here is standard cost. In case of cost the lesser the better. So, suppose for a given output the standard cost is 1,000 rupees and if actual is 1,300.

What is a variance? The standard was 1,000 actually is 1,300. So, variance is 300. It is an unfavorable variance because we have incurred more costs than what was budgeted. Same wave actual cost is lesser we will consider it as a favorable variance. Now just by knowing this difference of 300 may not be enough because we would like to know the costs we would like to know the origin as to why this variance has happened.

So, we may break it down for its reasons and then take necessary remedial steps. So, that at least in the next month or the next period that excessive expenditure is awarded ok. So, that is what is a variance. Now, the variances can be broken into controllable and uncontrollable. (Refer Slide Time: 12:07)

<u>Controllable and uncontrollable</u> <u>Variance</u>
The purpose of standard costing reports is to investigate the reasons for significant variances so as to identify the problems and take corrective action. Variances are broadly of two types, namely, controllable and uncontrollable.

Now, the purpose of standard costing is to improve efficiency. To improve efficiency we want to avoid variances. So, we investigate the for the reasons of major variances and we wish to take corrective action for that it is suitable to break down the variances into controllable and uncontrollable.

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As the name suggests controllable means those variances which can be controlled at a departmental level. So, we can take suitable corrective action and avoid this variances whereas, uncontrollable variances are those which are beyond our control. It is not

possible to avoid them. So, standard themselves may be revised. So, that in future the variances can be avoided can you give me an example of controllable and uncontrollable variance.

Let us assume that we are taken an example that the standard cost was 1,000. Let us say it is a raw material cost and we are consuming 50 units of raw material at rupees 20 per unit. So, 50 into 20 gives us 1,000 rupees as material cost fine. Now in reality instead of 50 units if we consume 60 units and instead of 20 rupees our input costs becomes 30 rupees then what will be the actuals. 60 into 30 means actual cost will be as high as 1,800 versus a standard 1,000. So, there is a variance of 800 unfavorable.

Now which part of is controllable and which is not controllable. Now we need more information. Suppose it is told that extra consumption of units is because of carelessness of workers, but the increasing in the prices is because the market prices themselves have gone up. So, now, can you break down into controllable and uncontrollable.

I think it will be possible now for you to do it because instead of 50 units we have consumed 60 units. So, 10 units more is because of carelessness. So, we can mark it as a controllable variance, but the prices are not our in our control. So, it was budgeted that we will obtain each unit of raw material at 20 rupees, but now the price has become 30. So, 10 rupees per unit what is extra that is because of uncontrollable reasons.

So, we can mark it as a uncontrollable variances. Of course, do not be under the impression that always quantity variances are controllable and prices are uncontrollable. It can be other way around also, but in our given example just for us to understand you would have got as to controllable means something which can be controlled by the department by improving the efficiency whereas, something which is because of external forces which are not within our domain then we will call it as an uncontrollable variance got it. Now, let us look into what is variance analysis.

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So, just by knowing total variance it is not enough for us. We would like to know it is causes. To know it is causes we need to break it down into reasons then only we can take corrective action. So, now, one important reason for variance is variances due to efficiency.

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As the name suggests if company or the concerned department is not using the resources effectively, it will be the variance due to efficiency. It can be material quantity that excessive material is wasted, it can be labor hour. I think we are all used to wasting our

time due to variety of reasons that is an inefficient use of time that is also an inefficiency variance. So, it can be for material, it can be labor, it can be for power. So, when unwanted use of resource happens it gives us a loss that is an inefficiency variance.

There are also variances because of price factors. Now there might be changes in the market prices. If the material prices increase or decrease it will lead to price variances. Same way wage rates or labor rates increase or decrease it leads to price variance. If the indirect costs increase like say electricity bill increases, cost of petrol increases they are called as price variances.

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So, the major 2 causes are efficiency and price, but there is one more there are more causes also. One important causes because of volume that is because of change in the level of activity because we have made a budget at a particular level of activity. If our level of activity increases that also leads to change in the costs that those changes are called as a volume variances.

Now, we have all learned variable costs and fixed costs. Suppose the level of activity changes the volume variance will be generated in which of the costs variable or fixed. Can you just think and try to answer. If you remember variable cost by design is intended to change with the level of activity. So, with every extra unit variable cost is set to change. So, the standard variable cost will also change with the number of units, but when it comes to fixed costs it is a budgeted fixed cost. It does not change with number

of units, but when number of units change for us it impacts its impact will change. Are you getting me. Suppose rent is 1,00,000 that is as per budget as per our estimate the number of unit where 5,000.

So, 1,00,000 upon 5,000 means 20 rupees per unit is a rent cost which it charge on the production cost. In reality if number of units increase from 5,000 to 10,000, the cost per unit will come down the total cost will remain same 1,00,000, but cost per unit will come down that will lead to volume variance because we had estimated 20 per unit actually it is good that actual cost is just 10 per unit. This difference is volume variance. Other way around if the actual output false it will lead to adverse volume variance. Are you getting me. We are going to take the cases, but this was just understanding of that concept. So, there are 3 major reasons efficiency related, price related and volume related.

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Now, the variances can also be broken as per elements of costs. So, here we can break down the variance into material labor overheads and sales variances. These overhead variances in turn can be broken into variable overheads and fixed overheads, but these are the major causes leading to variance. Now the reasons for material variance. (Refer Slide Time: 21:48)



As we know the material costs is units of consumption into the price input prices. So, the causes also are derived from that if there is a change in the basic price that can be one important costs. Other is changes in the quantity more consumption or less consumption. Sometimes the material which we get is of substandard quality leading to losses in the production process.

Sometimes while using the material there is an inefficient use maybe because the machine is faulty or workers are careless. There can also be causes like pilferage that the material which is stored is being misused or mishandled. Now let us concentrate on how to calculate material variances. Please understand it carefully because these formulas are the base. If you understand material differences carefully you can use the similar formulas for labor overhead sales and so on.

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Now, the total variance the main variance is a material cost variance. Now this is a comparison of standard and actual. So, it is standard cost minus actual cost. The standard cost is arrived by standard quantity into standard price minus actual quantity into actual price. This will give us the total variance. Getting me? This is the material costs for us now we want to break them down into causes it can be because of price related reasons or it can be because of usage related reasons.

So, material price variance is a difference between the prices that is in bracket we have got standard price minus actual price and we multiply it by actual quantity ok. So, this is the difference between the price the other one is usage variance or also known as quantity variance. So, it is a difference between standard quantity and actual quantity and we multiply it by standard price. Now the total of usage plus price should match the cost. Now do you realize as why here we multiplied it by actual quantity, but when we compare quantities we multiplied by standard price. Can you think of the costs.

Why not take actual quantity and actual price or standard quantity and standard price. It would not work we have to take actual quantity and standard prices. One ofcourse, for mathematical reasons if at both the places we take actual it will be duplication of sub variance. The second and more important cause is theoretically those which are in charge of prices this is a purchase department. They have purchased at a wrong price more or less price or it could be because of market reasons, but it is something to do with

purchase or the market and they are handling actual quantity. That is why the comparison of prices that is the first formula we multiply it by actual quantity, but when it comes to comparison of usage it is something happening in the factory.

So, instead of consuming standard quantity we have consumed either more or less quantity, but the workers or supervisors in the factory do not know anything about actual market prices. They only know the standard market price. That is why when we are holding them responsible it is logical to take standard prices, but for the purchase department that is price variance we take actual quantity. If you mathematically calculate you will realize that with this the total will match with the standard the material cost variance otherwise the total will not match.

In the next session we will take the actual case and try to calculate material costs variance. Till that time will stop here, but try to understand that concept of standard costing and variances and learn these formulas carefully because we will need them in our next session [FL].