

Financial Accounting
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Lecture – 119
9.3 ABC Analysis

In this video, I am going to talk about another technique of inventory analysis, inventory control which is called ABC Analysis. The method is as simple as the words A, B, C,: the expression ABC. Here is how this technique is used.



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9.3.1 What is ABC Analysis?

- Control over inventory by classifying it into three
 - A: highly important
 - B: moderately important
 - C: least important

	A	B	C
% Value	70%-80%	15%	5-10%
% Volume	5-15%	30%	50-60%

Regular monitoring, budgeting, control Need based monitoring from time to time Little monitoring required



Now, in manufacturing businesses, a large number of items, different types of raw materials are stored. You have to source various types of material which go into finished goods. Some of the materials are more costly than the others, and some of the items like spares or smaller nuts and bolts, things like that are going to be cheaper. So, the management wants to focus its energy on things which are more valuable, whose total value is much higher than the rest, even if the quantity of these things are going to be less. It is important to classify the stock items into different categories, so that we can exercise varied levels of control on different types of stock items, and that is where A, B, C technique comes in.

In this technique we classify the stock items into three categories: category A, category B, and category C, in the order of importance. So, stock items in category A are highly important

because large sums of money are blocked in these types of stock items, and B is moderately important, C is the least important.

Now, how do you give importance? How do you provide a weightage to these three types of stocks? And what kind of stock items are going to fit into these three categories? That is the next question. So, category A, B and C are going to have varied levels of value and volume. Value means monetary value in currency, in rupees, and the volume is going to be in terms of the number of units in the stock.

If during the year you are carrying x number of units in the stock, category A stock items are those items which carry 70 to 80 percent of the total stock value. In other words, the stock items which contain, which carry about 80 percent, 70 to 80 percent, of the total money blocked in the stock, they should be categorized as category A. Also, another characteristic is that in terms of volume, number of units, these types of stock items constitute only 5 to 15 percent of the total number of units in the stock. So, these are high value items, per unit price of these stock items is typically very high compared to the rest of the stock items.

Likewise, category C is going to have the opposite combination of value and volume. So, the category constitutes only 5 to 10 percent of the total monetary value of the stock. However, they are going to constitute about 50 to 60 percent of the volume of the stock. So, their per unit price is going to be typically lower compared to category A stock items.

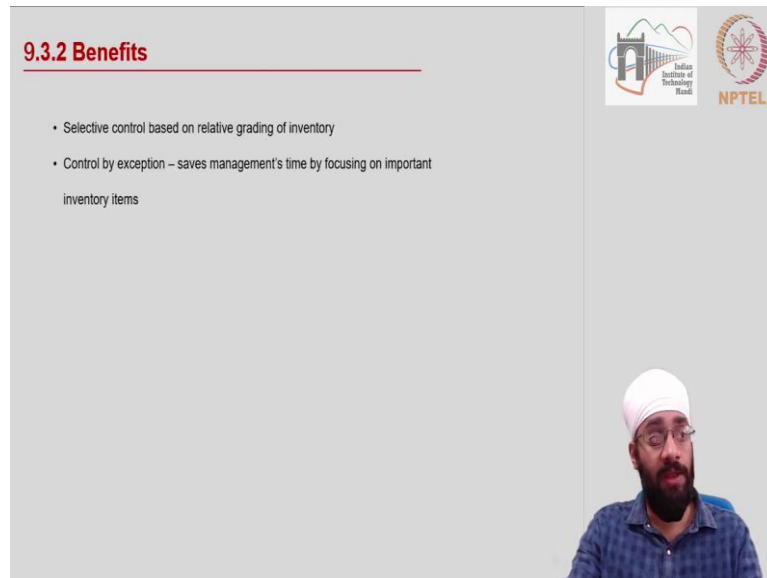
Category B is in the middle, moderate value, moderate volume. So, these are estimated numbers: if you look at different texts, they will give you a certain number, say 80 percent or 75 percent, others give ranges. It is always safer, better, to play with the ranges than specific numbers. So, I have these ranges here after consulting some books.

So, category A items where you block a lot of money, you should be more careful in monitoring the stock items, you have to make sure that you are budgeting for these, you are exercising controls, checks, audits, on these stock items more regularly compared to B and C because more money is stuck here.

And B if you need any monitoring, so need based intervention is what you are going to exercise on type 2, type B stock items. Type C since they constitute a very low value of the total stock, you exercise little control over these items.

Once you have created these bands for the different items in the stock, you can choose where you want to exercise what type of control and that is what makes management of the stock more efficient. So, operating efficiency improves in business. Ultimately, the overall goal of the organization is to use its resources in the most efficient possible way so that it can maximize its profits.

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The slide is titled "9.3.2 Benefits" and features two bullet points: "• Selective control based on relative grading of inventory" and "• Control by exception – saves management's time by focusing on important inventory items". The slide also includes the logos for the Indian Institute of Technology (IIT) and NPTEL (National Programme on Technology Enhanced Learning) in the top right corner. A video feed of a man with a beard and glasses, wearing a white turban and a blue shirt, is visible in the bottom right corner of the slide.

So, that is what the technique is for. It contributes in that direction for the business. So, the benefits of the technique, selective control, you could choose where you want to pay attention and where not, and also you can control by exception, you can choose from time to time to change your, shift your focus if need be.

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9.3.3 Example (1 of 2)

Item	Unit Cost	Annual Usage	Value	% of Value	% of quantity
1	75	100	7500	6%	10%
2	450	50	22500	17%	5%
3	45	130	5850	4%	13%
4	95	70	6650	5%	7%
5	40	105	4200	3%	10%
6	35	150	5250	4%	15%
7	20	160	3200	2%	16%
8	350	55	19250	14%	5%
9	800	70	56000	42%	7%
10	30	130	3900	3%	13%



Let us now take an example to see how ABC analysis would be used in practice. On this slide, I have 10 different stock items; they have per unit cost price and the annual usage of a particular item of stock. If you notice, you have a unit price ranging between a minimum of 20 to maximum of 800. So, there is a wide range within which the per unit cost of the stock items lies.

Likewise, the annual usage is also different. For some of the stock items we have annual usage equal to 50, and for others there are 150, 160 units being bought in a given year. So, the management needs to figure out on which stock items they should pay more attention and to which stock items they need not pay that much attention, in an effort to optimize, to be more efficient in the operations of the business.

So, we are going to figure out the total amount blocked in each of the stock items using the annual usage numbers. So, per unit cost for stock item number 1 is 75 multiplied by 100, is going to give me 7500 which is the money, which is put into this stock item number 1.

So, using that as the guide, we have this new column here which gives me the value of these 10 stock items. This is the amount blocked in these. Now, this value is what is going to create the relative importance for each of the stock items, wherever we have put in more money that stock item is more valuable to us.

And also, I have two new columns here, which give me the percent of total value. Now, how do we calculate this, is as follows. We have the value of item 1, divide this by value of all the items taken together, which means total money invested in the stock in a given time period which is one year here because this is annual usage, so 7500 divided by total of this column here multiplied by 100. So, that is how this column comes about.

Percent of quantity is using the same formula; we are just using data from the annual usage column. So, 100 divided by sum of all the units of the 10 different stock items which is 1000 gives me 10 percent, and hence this column. The reason we have these columns is because we have this guide, if you remember this earlier, we have this guide which says percentage of value and percentage of volume and that is exactly what we have figured out in this table.

Now, that we have a percentage value contributed by each stock item and percentage quantity, we can because the value is the most important thing. We are going to arrange this table in the descending order according to this column. So, whichever item contributes the most, for example, item number 10 contributes 42 percent of the value.

Contributes, or in other words it has blocked 42 percent of the total money, blocked in the stock. So, about 42 percent of the money blocked in the stock is actually blocked only in item 9 of the stock items. So, that is how you could understand this better. So, what I am going to do is arrange this table in the descending order according to this column and then you know create a couple of new columns which I am going to talk about by showing you a new table now.

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9.3.3 Example (2 of 2)

Item	Unit Cost	Annual Usage	Value	% of Value	% of quantity	Cumulative Value	Cumulative Volume
9	800	70	56000	42%	7%	42%	7%
8	350	55	19250	14%	5%	56%	12%
2	450	50	22500	17%	5%	73%	17%
1	75	100	7500	6%	10%	78%	27%
4	95	70	6650	5%	7%	83%	34%
6	35	150	5250	4%	15%	87%	49%
3	45	130	5850	4%	13%	92%	61%
5	40	105	4200	3%	10%	95%	72%
10	30	130	3900	3%	13%	98%	84%
7	20	160	3200	2%	16%	100%	100%

A

B

C



So, ignore these two columns for now. All I have done is I have arranged in descending order. So, here you have item 9 at the top which has 42 percent of the value and which is 7 of the quantity. I go back here, item 9, 42 percent and 7 percent. Let us do another check. Let us say item 6, 4 percent of value and 15 percent of value item 6. So, all I have done in the excel sheet is organize this better, so that the stock items which contribute most to the total money total amount blocked in the stock come at the top. And, the percentage of quantity is you know being shown as it is we are not doing any sorting using this column.

Now, I have created two new columns. What I am doing in these columns is I am calculating cumulative value. Cumulative value means with each new item how much total money is blocked in the stock. With item number 9 we have blocked 42 percent here, with item number 8 also, we have added another 14 percent, so totaling to 56 percent and so on for both the columns.

So, the purpose of having this column here is to figure out which all items lead to or which all items contribute to about 70 percent, roughly 70 percent of the stock value because that is our formula here, 70 to 80 percent of the value. So, if we yeah here; so, you see here you have 42 percent, 56, 73, 78. So, about the first 3 or 4 units which is item number 9, 8, 2, and 4, these are contributing to about 70 to 80 percent of the value.

Also, we have to look at about 5 to 15 percent of the volume, which is also a cut-off. So, 5 to 15 percent of the volume would guide you to restrict two items, the third item on this list which

is item number 2. So, accordingly the first 3 items which are blocking 73 percent of the money, they are also blocking about little more than 15 percent, but roughly so, if you have to apply that grid on this practice problem.

Then, the first 3 items should be classified as category A stock items and the management should be more careful about these items. And then you could of course, further go on to categorizing stock items into B and C categories. I have done that as follows. So, the next 3 stock items which are stock items 1, 4, and 6, they are contributing to up to 87 percent.

So, they are giving you an additional about 30, 32 percent. 32 percent of the value and in terms of volume you have about 11, 15 percent of the volume. So, 32 and 15 and you look at this guide, 32 and 15. So, volume and 15 percent of the value that is right. So, this is the B category of item, and then you have remaining in the C category of items.

So, the rubric does not always fit on to the data, but the broad guidelines can be drawn onto any stock list that you may have. And of course, depending upon the objectives of the company do you want to give more focus, more priority to value or to quantity, that is on the company which specific items they want to control and so on. Specific questions can be answered on a case to case basis with a given context.

So, this is how a technique called ABC Analysis is used in analyzing the stock items, using their contribution, their monetary value and their quantity as the guides to categorize them.

I will see you in the next video.