

FINANCIAL MODELING THROUGH THE COSTS WITHIN THE COMPANY'S MANAGEMENT

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Abstract: Knowledge of production costs in all its theoretical and practical complexity arising from foreign literature research represents a basic tool within reach of an economic agent and is used for increasing the efficiency of the economic activity. Cost study aims at solving the complex cost production issues in different aspects, both microeconomic and macroeconomic level; at the microeconomic level it resolves the problems of costs from one economic unit, the object being a command, a stage production, an activity centre, a product for which it carries out theoretical and practical research of the phenomenon, the study of the causes that have generated growth and forecasting activity, and according to the characteristics of the production process are carried out calculation of cost of production.

Key words: financial modelling, cost, microeconomics, macroeconomics, enterprise

INTRODUCTION

Any activity aims at the achievement of a final rate of profit as higher. This profit rate is influenced by a number of factors which must be oriented so as to improve the efficiency of production or services. In order to achieve a rate of return as high as possible it is necessary to reduce the cost of production or services.

Ignoring production costs may cause erroneous decisions in the production process.

This implies the need to adopt an adequate system of calculation, forecasting, tracking and cost control.

All this can be achieved only by means of studying costs.

The cost of production, representing a basic indicator which characterizes the entire economic activity of a trader, constitutes the main element of economic efficiency at the level of the economic unit, and its study is of particular importance.

Knowing production costs in all its complexity in theory and in practice, as shown in the research literature, is a basic tool for management and is used to increase business efficiency.

New management practices need new types of information that are more flexible, comprehensive and in some cases completely different then the cost accounting information traditionally provides.

MATERIALS AND METHODS

Managing information about costs helps identify opportunities and eliminate costly processes and practices.

Competition and customers can be anywhere in the world. Thanks to the Internet and World Wide Web technologies, information about products and marketing opportunities are available to anyone virtually instantaneously.

The information that the cost managers provide must identify the sources of competitive advantage.

Cost managers are able to measure the costs of strategic alternatives because they understand what a cost generates and how a change in scale may change the expected profits.

Financial managers create financial scenarios. Financial scenarios allow top

managers to make informed decisions on what is considered to be the best strategy (Cokins Gary, 2001).

Cost estimation process pursues three major objectives:

- operational management costs to detect opportunities to reduce cost without reducing the level of consumer satisfaction;
- tactical decision-making to identify ways of changing the price policy with the aim of discouraging certain consumers and in attracting others;
- strategic planning in order to choose a mix of consumer and market niches.

Regression analysis is a statistical method used to find an equation which links the independent variables (usually denoted by X) with dependent variables (usually denoted by Y).

Computer programs like spreadsheets, Microsoft Excel includes regression calculations.

The most important step in estimating cost is to identify the main determinants of the cost.

A simple regression example might be the following:

$$CT = CF + CV * Y \quad (1)$$

where:

CT – total costs

CF – fixed costs

CV – variable costs

Y – independent variable (the determinant of the cost)

Multiple regressions is a method in which the regression equation has more than one independent variable. By using multiple regression analysts explain the behaviour of costs by a multitude of factors.

The first step in the implementation of multiple regressions is to identify activities which logically are decisive for cost. The more determinants of cost we use, the more data we need.

If we use too many determinants of cost we will reach the point where the additional information no longer justifies the effort of data collection.

Due to this phenomenon, known as information overload, decision-makers sometimes have problems in processing large amounts of data.

This is why a limited number of determinants of cost may present a benefit, by reducing the amount of information that must be processed.

The determinants of cost selected in practice may or may not align with the following hierarchy of costs, depending on the type of the organization. While every organization is different, a good way to begin to identify the main determinants of cost is to see what causes cost, over the five levels of cost hierarchy (Eldenburg Leslie, Wolcott Susan, 2004):

- at product unit level;
- at the lot level;
- at the level of product category;
- at customer level;
- at the company level.

Regression analysis depends heavily on the quality of the entire data and the model application process. We recommend for the users of regression method as follows:

- complete understanding of the methodology and limitations of the method;
- carefully define the hypothetical relationships between costs and their determinants;

- ensure accuracy of data used.

If users have in mind these three things then regression can be a very powerful tool in the hands of analysts.

Accounting analysis

Unlike regression method, the method of accounting analysis is based on historical cost, linked to each cost determinant.

Because total costs should be separated by categories related to determinants of cost, accounting analysis method requires more data than the regression method.

Using the method of accounting analysis together with regression method brings two advantages.

The first advantage is that it allows decision makers to make a comparison between the results obtained from the use of accounting analysis method with the results achieved by the regression method.

After the application of both methods of estimation, the results would have to indicate certain differences between the main determinants of the resulting coefficients.

If determinants of cost coefficients are very different, the analyst should find out the source and nature of the differences. The differences can be caused either by data entry with wrong values or by incorrect definition of the model.

The second advantage lies in the fact that a detailed cost-structure obtained from the application of the method of accounting analysis allows to detect trends in the evolution of cost and errors in their registration. It also provides useful information about the behaviour of cost.

In applying this method there may be some difficulties in collecting the necessary data for the following reasons:

- Missing data. The lack of registration of some transactions or incorrectly storage of primary documents can lead to lack of data.

- Exceptional data. For example due to disasters high indirect costs can occur at a certain time.

- Inflation. During inflationary periods, historical data may not accurately reflect the estimated future costs.

In choosing a particular cost equation, analysts must consider the following criteria:

- Economic plausibility. Independent variables have to be plausible. Determinants of costs must be the true causes of costs. It is the most important criterion.

- Relevance. It is important to know the extent to which variation of the independent variable explains variation of the dependent variables. In regression analysis the correlation coefficient may be regarded as a measure of relevance.

Estimating the costs of new products using the activity based cost analysis.

Information acquired as a result of cost analysis is useful in estimating the cost of new products, provided that the activities and processes involved are similar.

The great benefit of using cost analysis method in estimating the cost of new products is that this approach provides a model for identifying and measuring relevant resource costs at all levels of cost.

Profitability analysis can substantiate the management's decision whether or not to produce these new products.

Combining the cost-based analysis with target cost method may be superior to mere cost analysis.

Using an activity-based costing method provides values to product costs which correctly reflect the resource requirements and their consumption by the product. This is

achieved by the separate analysis of the different elements of the fixed costs of each link in the chain of production.

Determinants of cost are not perfect measures of resource consumption, but it highlights better than the simple criterion of direct labour hours.

The calculation method of cost-based activities must be based on detailed knowledge of the company.

A proper appreciation of what actually happens in the Organization should precede the selection of an optimal set of cost factors of the activities. Just such a detailed analysis can generate a real and useful model.

RESULTS AND DISCUSSION

Financial modelling and decision making

A **financial model** is a representation of reality that allows an organization to test the interaction of economic variables through a multitude of scenarios.

Such a model involves developing a series of equations designed to represent operational and financial relations of the company, such as for example relations between cost and sales.

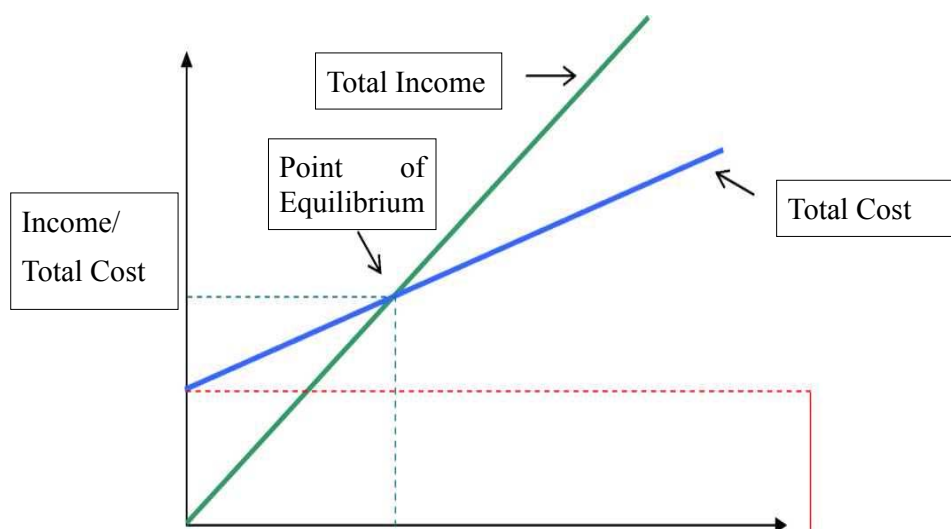


Fig.1. The model cost-volume-profit in graphic format

Source: processing authors

This model is then processed by software that allows the user to explore the effects of various business scenarios.

Financial models provide several advantages to users. After the model has been created users can take care of business analysis without being overwhelmed by numbers. In addition, like simulators, many of these models allow the organization to study the impact of various decisions on the results of the organization.

There are different types of financial models. The most commonly used the cost-volume-profit model (CVP), show the effect of the changes on production costs and revenue organization. This model can be extended in such a way as to cover the impact of prices of products, fees and product mix on profit.

The model CVP can be used to determine the balance point between revenues and costs within the organization. The point of balance is given by the volume of activity that

generates revenue and costs equal to the organization.

At this level of activity the business has no profit or loss.

Graphics CVP model enables the manager to see the effects of volume activity changes on profit.

Vertical distance between the lines on the graph represents profit or loss in a specific volume of sales.

The biggest drawback of the model CVP classic is the fact that the model uses a single determining factor of the costs.

In reality the revenues are not determined only by the volume of sales but also the sales price, the number of competitive products, their quality, general economic conditions, intended market products, promotional campaigns, and more.

In a similar manner the cost is affected by the number of employees, the number of managers, the number and size of buildings, operating conditions, technology, etc.

Of these enumerations it is important to note that multiple factors determine financial performance.

A system of cost-based activities can provide a more complete picture of the cost-volume-profit relationship.

Each of the activities listed in the activity-based cost model: unit level, batch, product, customer and the company will change the nature of the CVP model.

The base model variable costs depend on the volume of sales while other costs remain constant.

Using activity-based costs, costs vary depending on their determinants, these being other than sales volume.

An example of an expression for the determination of cost is as follows:

$$\text{Total cost} = (\text{Variable cost per unit} * \text{number of units}) + (\text{Cost per lot} * \text{number of lots}) + (\text{Cost per new product} * \text{number of products}) + (\text{Cost per client} * \text{the number of clients}) + \text{The cost at the firm level}$$

It can be seen that this calculation is not focused on sales. Instead the main determinants of the cost impact is major.

As a consequence many of the costs as fixed in the traditional analysis of costs are now considered variables corresponding to their approach to cost analysis method based on activities.

The CVP model and short-term decision making

Typical questions to which such a model may be answered are:

■ Does a company need to produce a specific good or service or can it purchase it from an external source?

■ A company must abandon an unprofitable product or activity?

■ If resources are limited what goods and services should a company produce to have a maximum profit?

■ What is the price that a company needs to collect for its goods and services?

These questions are related to production and marketing problems.

Many companies determine their selling prices based on costs. No matter how the costs are calculated (total or variable) to an amount is added so that the sale generates a profit. Organizations that are based mainly on the costs have good system tracking system costs.

Management systems based on cost analysis prove to be very valuable for such organizations.

CONCLUSIONS

The cost of production is a basic indicator which characterizes the entire economic activity of a business which constitutes the main element of economic efficiency at the level of the economic unit, and its study is of particular importance.

The information resulting from the analysis of costs is useful in estimating the cost of new products on the condition that the processes and activities involved are similar to those of existing products.

Information about the costs can be used to analyze the profitability of products as well as to measure the contribution to profit by the main customers.

In practice, a common case is when an organization plans products that differ only in the type of materials consumed.

Profitability analysis can substantiate the manager's decision whether or not to produce these new products.

The combination of cost-based analysis activities with target-cost method may represent the next step in the management of costs.

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