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THE MARKET RISK AND THE PRODUCTION SYSTEMS FLEXIBILITY EXPLOITATION

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Abstract: The work refers to the posibility of appearing risks in production as a result of the market changing tendences. Thus, the operating risk expresses the vulnerability of the project at the conjunctural market changes during the operational period. The risk causes losses or even bankruptcy. In conclusion we can say that the good movement of the production operation we must see all of the market risks.

1. THE PROBLEM.

It is important that the manager is aware that the misfitted change of the charge of production capacity may have the effect of passing from a profitable activity to an activity with losses. The natural question that appears is: „*From which capacity charge the exploiting activity becomes profitable*?". The answer is given by the analysis of the profitability threshold or of the critical point where the exploiation costs are equal to the collections. If it neglects the deteminant factor of „product market" and it appreciates only the operational activity based only on the technical and financial conditions existing in the enterprise, the analysis is incomplete. This is why the comercial analysis considers the connection between the possibilities of the market absorbability and the firm production possibilities. The production must be dimensioned according to the demand, otherwise the risk of stock appears. For this reason, the marketing department must permanently offer market information like:

- The market capacity of product absorbtion
- The volume of orders and contracts at the time the study was performed.

The profitability threshold is the minimum value of trede turnover from which the exploitation becomes profitable (the point where the project profit is zero). We observe that the critical point (qcrt) is the border between efficiency and inefficacy farther more we can say now that it is the inferior limit of the efficiency field, the superior limit beeing the regimen capacity when the usage parameter is maximum possible (iu=100%).

2. THE MARKET RISKS CHARACTERISTICS.

In the first graphic (fig. 1.a.) we observe the most comfortable situation. The market absorbtion capacity (P) is superior to the maximum production potential of the firm. Given that technicians have adequately established the production capacity suited to the period of time you may try minor production growth effcts measures. It is never recommended to take on obligations bigger than the real possibilities of the period, because the market image by not complying with these obligations.

The second graphic (fig.1.b.) shows that the known potential or certain demand is below the maximum production level of the period. The enterprisehas the obligation to respect its commitments with the partners. If the line (P) represents the volume of orders and certain contracts, the efficiency field of the firm is devided in two: the interval (qcrt, P) and the spacing (P, Cp). In the (q_{crt}, P) interval is a sure field and in the (P, Cp) interval we have a potential field which can be occupied only if new market zones are found. If the (P) line represents the market maximum absorbtion capacity ,the interval (P, Cp) is a fixed zone and the line (P) is the maximum limit of the efficiency field during the analyzed period. A production superior to the „P" level implies a sure stock production with all its inconveniences. Exceeding this threshold can be done only with the certainty of new internal or external markets.

The third graphic (fig.1.c.) gives us the worst situation. The market absorbtion capacity (or the orders portfolio) doesn't cover the production minimum mandatory which would allow only the recuperation of the production costs. Urgent and substantial measures must be imposed to avoid the bankruptcy because of the exploitation.

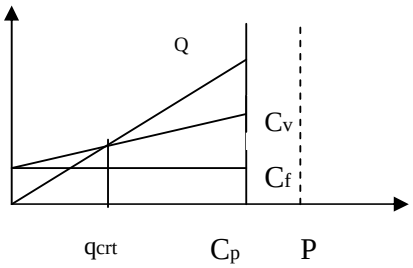

Fig. 1.a

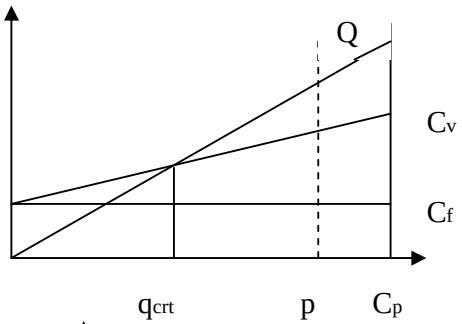

Fig. 1.b

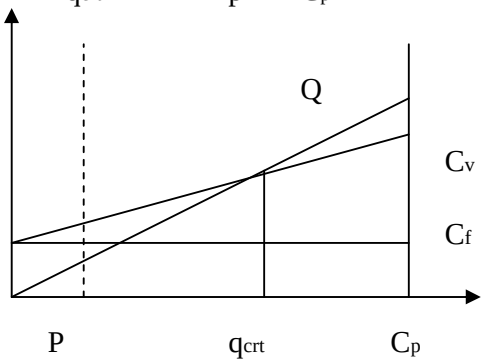

Fig. 1.c

The characteristics of the critical point

- It is a performance indicator; its decrease amplifies the projects gaining capacity
- It depends of the structure of the exploitation cost; the reduction of immovable costs reflects in the total net margin (the project profit) without influencing the margin of variable costs
- It is an economic risk evaluation indicator because it announces the decisional factor about the activity level below which losses wil be registered. It gives the volume of the zero profit activity which can easily turn into losses. At the same time, the decrease of the critical production point (of the critical point) improves the gaining capacity and the financial self-sufficiency of the project
- It is a benchmark for the exploitation activity from which the placement must be as farther as possible. For this, the manager must follow the evolution of the ratio of the immovable costs and the variable costs. The manager must also follow the digression between the profitability threshold and the trade turnover of the firm.

3. THE ELASTICITY AND FLEXIBILITY ANALYSIS

The flexibility expresses the firm's capacity of adapting the level of charges to the production volume, that is to say the possibility to obtain benefits even at a low activity volume.

The improvement of flexibility can be achieved through the increase of the rate of variable costs in the total costs which means a decrease of the critical point in a profitable enterprise. The elasticity completes the analysis of the profitability threshold and it represents a measurement of the response or of the sensibility to a change in some of the determinant factors of the demand of a required amount of a product. Mathematicaly, the elasticity can be expressed by the fraction between the percentual change of the required amount and the percentual change of price or another factor of influence in demand. Knowing the elasticity quotient gives the possibility of appreciating the effects of a variation of the activity.

For a linear evolution of costs the elasticity depends on the proportion between the immovable costs and the variable costs which approaches it more to flexibility. The bigger the rate of the immovable costs the elasticity has more power. When the demand is elastic a price reduction will always determin an increase of total income anda price rise will have the result a reduction of the total income.

The demand elasticity is present when the elasticity quotient is higher then 1 and the demand is elastic if at a certain percent of price change the percent of the change of the requested amount is bigger. The demand is not elastic when at a certain percent of price changing we have a smaller percent of change of the requested amount. The role of the elasticity as an exploitation risk evaluation indicator is disclosed through the combined analysis of the elasticity, the flexibility, the profit and the activity.

4. THE FLEXIBILITY OF THE PRODUCTION CAPACITY.

One of the bigger uncertainty that a company can encounter is the demand of its products. Because of the increasing need of reducing the level of charges, the companies are forced to coordinate the production rates closer to the demand rates. This implies the fact that a company will often exploit its services to less than 100% of capacity. The

volume flexibility is a measurement of the company ability to continue to operate economically at less than 100% of its capacity. Looking at the flexibility volume,the service status is described by the capacity level of its use. At the change of the producivity rate a company can maintain the stocktaking of finished goods in the effort of counteract the demand uncertainty. So the ability of economically maintaining an inventory must also be considered when estimating the volume flexibility. Our assumpiton is that the volume of flexibility represents the variance in the producon rate. The production rate is is already taken aut of the variance of the demand rate as a result of the intermediary inventory. As an alternative, Son and Park (1987) have established a measure in which they considered only the inventory costs. They consider this measure as a transmitted flexibility because it is an indicator of the delivering speed of a company.

In any production unit the total cost of the production is formed form a immovable cost and a variable component (fig .2).

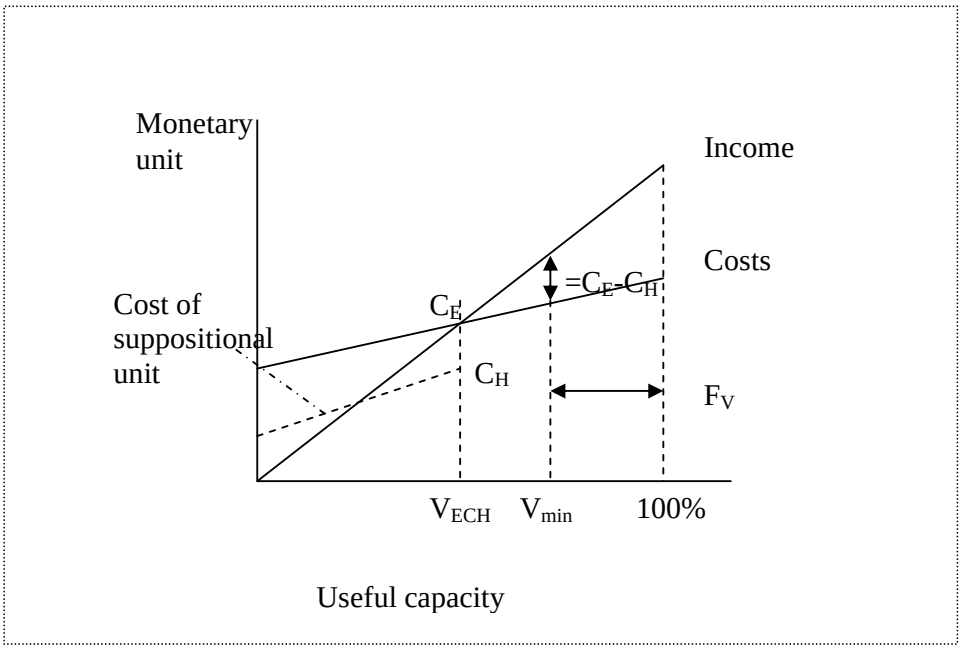

Fig. 2

Given that the income realized by each product (good) is constant then there is an equilibrium volume of prodction at which the unit is economic. By extending their logic, V_c will be defined by the interval [1-V_{ECH}] where V_{ECH} is the used capacity suited to the volume of equilibrium. But unit operating at the volume of equilibrium or close to that is not an atractive hypthesis. So we consider a smaller hypothetical unit which has the maximum production volume equal to the volume of equilibrium of the bigger unit. Then the function of the total cost of the hypothetical unit is represented in the graphic by the dotted line. We can anticipate that this unit will have profit at 100% form capacity. We consider that C_H is the cost of exploitation at 100% form the capacity of the hypothetical unit and that C_E is the exploitation cost at the volume of equilibrium of the original unit. We must remember that C_E is equal to the maximum income obtained by the hypothetical unit. Then, economically, the original unit must generate a minimum profit of C_E-C_H to justify its existence because the administration will prefer to close the original unit and continue the exploitation in the hypothetical unit. Standing on the previous argument a unit can economically exploit only

with the usage rate between Vmin and 100%. V_{min} is the exploitation rateat which the profit is equal to C_E-C_H. From here V_c is redefined as the interval [1;V_{min}].

Regarding the volume of flexibility, the difference between 2 states is the difference between their production ratesV_1 and V_2 to pass from the V_1 state to the V_2 in theory the unit will experiment every intermediary stage in the decimal infinite state intervals. The capability of measuring the flexibility of the volume is the number of possible phases meaning: $FV_{cap} = 1-V_{min}$.

If $V_{min} = 0$ then $FV_{cap} = 100\%$ where FV_{cap} is the flexibility of the maximum possible volume.

To calculate the present flexibility during every subperiod the highest and the lowest rate of the exploiting capacity are registered. We consider V_{HIt} as the largest exploiting capacity in t and V_{LOt} the smallest exploiting capacity.

In each moment only 1% phase change is possible so all the phases between V_{HIt} and V_{LOt} are reached.

5. CONCLUSIONS

We can say that the good movement of the production operation we must see all of the market risks. This way many situations can appear like the ones in the graphics 1.a, 1.b and 1.c. Because the production process must be congruent with the market and its tendencies the process has to be flexible. The improvement of the flexibility can be realized through increasing the amount of variable costs in the ratio of the total costs. This means a decrease of the critical point in the case of a profitable enterprise. We must see that operating the unit should not be at or close to the volume of equilibrium because this hipothesis is not very attractive and has to be avoided.

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