

COMPARISON OF THE STOCKS OPTIMIZATION IN THE COMPANY AND THE ARMED FORCES

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Abstract

The author responds to the current trends of inventory optimization in the armed forces using the selected cost optimization methods employed in the corporate sphere. Attention is paid to a comparison of the structure of the cost of stocks in a company and in the armed forces with an emphasis on the cost of maintaining the stocks. On the basis of differential purpose of the stocks in stated entities he defines the optimal stocks for economic operators and, in particular, for the armed forces. It identifies the risks associated with the lack of financial resources for stockpiling, which is reflected on trend concepts of their creation in the context of the armed forces. It draws attention to the possible effects of these approaches with regard to the fulfilment of the mission and strategic objectives of the Department of Defence.

Key words: armed forces, company, cost, optimization, stocks.

Introduction

The transformation process in the manufacturing business, is, due to the still deepening lack of resources exposed the growing requirements to optimize the stocks. Should we talk about the lack of resources, we mean not only non-renewable sources of raw materials used at the inlet to the transformation process. Manufacturing companies, established in the so-called economically developed countries in the northern hemisphere, are also currently confronted with a lack of qualified human resources. Unlike the business sphere companies, every management decision about investing in stocks is the result of sacrificed opportunity, i.e. analysis of opportunities that proved to be a more efficient use of the financial resources invested in stocks than in any other areas of the production process.

In addition to the stocks of raw materials or materials that are necessary for the completion and finalisation of the product, a company, depending on the technology used, the geographical diversification of production, and the development of the relationship between supply and demand as well as other factors entering into the transformation process, stocks in the production as well as its finished products. Creation of stocks throughout the spectrum or in selected categories of stocks, has its justification if they brought the company a higher effect, for example the investment in new technologies. Because such an eventuality in practice is the exception rather than the rule, almost all of the economic production-oriented entities focus their efforts on optimizing stocks.

1. Tools and effects of the stocks optimization in a company

It should be strongly noted that the optimization cannot be associated only with the effort to minimize the stocks. Minimization of stocks is a one-way process focused solely on quantitative indicators of their level. According to the opinion of the author in the economic practice **optimum actual stock presents a quantitative parameter that is guaranteeing continuity of the transformation process in the company while maintaining the quality of production and the availability of the product on the market of the current and projected demand.**

Achieving the target in the form of an optimal level of all kinds of stocks in the company expects to be familiar with, handle and effectively implement the selected cost optimization methods to streamline the material flows into the company, within the company and from the company to a customer. This is the inventory control systems, which may include methods: Just in time, Kanban, ABC analysis, the concept of TQM, forecasting, systems MRP I, MRP II, DRP I, DRP II and more (Biteau, Biteau 2003: 131-132).

Undertaking an appropriate combination of cost optimization methods the company can significantly reduce their costs and thus contribute to the acceleration of financial flows across the company. However, that does not mean that the stock will cease to be an object of strategic decisions of senior management which must be flexible to respond to stimuli from the internal and external environment of the company in order to correct specific types of stocks in a timely manner just as a result of the analysis of the evolution of the market. It is the market which is determining, in terms of the impact on the structure of the stocks in the light of the purpose for which they are destined to. The stocks management of the company allows following:

- To achieve the effects based on the scale of production

- Alignment of disproportionality between supply and demand
- Production specification
- Protection against fluctuations of demand and order cycle
- To minimize the bottlenecks in the operation of uneven elements of the distribution channel.

Despite the creation and maintenance of stocks in the company, it is alleged that one of the relevant indicators of economic performance and competitiveness is the stock turnover. This means that higher frequency of the stock turnover indicates a continuous financial and material flows in the company, what is a good signal to potential investors or purchasers. On the other hand, the accumulation of stocks of raw materials, stocks in production or stocks of finished goods inventory indicates the increase in costs, in particular for the maintenance of the stocks. These costs arise as a result of problems in specific business processes, what calls the company into question as a prospective partner (Mankiw 1999: 280-286).

All of the above reasons for creating, maintaining, using and optimizing their stocks have a specific meaning and mission in the armed forces.

2. Differentia of the purpose of the stocks and factors of their creation

The principled differentia between the function of the stocks in the company and the armed forces can be identified in two basic areas.

The first major difference is **the prospect of the use of stocks**. Whereas the company cumulates the stocks in order to obtain an economic profit in the form of their direct use in production under substantially more favourable terms than it would have been in continuous replenishment of stocks, or it uses the stocks within the scope of future business activities as the goods with a convenient margin, the intention of the armed forces is not to have the stocks economically valorised. The stocks in the armed forces are primarily created for their use in emergency situations (NR SR 2002b: §5). Considering the mission and the tasks of the armed forces, the stocks are made as the source base for possible armed conflicts (NR SR 2002c: čl.1). Therefore, it crucially relates to armament and material guaranteeing functionality and unlimited deployment. Yet, the prospect of the real deployment of sophisticated weapons and weapons systems such as e.g. nuclear warhead, air force bombers, missile systems, etc., is, from a human aspect, more in the dimension of force as actual interest declaration of combat use.

Antagonism of stocks from the perspective of their use in the military and corporate environment can be presented on a uniform basis of **extremity**. The last solution for the company is non-use (*non-valorisation*) of cre-

ated stocks. Extreme solution for the stock in the armed forces created for crisis war-related situations is their use of a very specific form of their valorisation – their use in combat operations.

The second difference is based on the **conditions of the investment decision-making**. When creating the stocks, the management of the company has its own financial resources and assigns them in accordance with the interests of the private owners of the economic entity.

The armed forces create the stocks in favour of the public interest represented by the defence service, while respecting following:

- the amount of funds available from public sources,
- the security strategy and the priorities set out by the Government and Parliament,
- generally valid legislation and internal strategic,
- allied commitments deriving from the principles of collective security.

As seen in previous points, in contrast to the corporate sector, the armed forces have only very limited options to adapt flexibly to the size and type of stocks changing conditions in the internal and external environment.

Thus, if the company responds to stimuli from the outside environment in a flexible manner, and that he actually manages to minimize the cost for creating and maintaining stocks with low risk of inefficient investments, the armed forces, by the long term, systematic, preferentially central way of creating the stocks, react to the development of the security situation, which has a negative impact on the costs associated with stocks.

One of the characteristic phenomena in the development of the stocks of the armed forces is the disharmony of the achievement of the short-term economic effects of reducing costs with the strategic objectives and the mission of the armed forces.

We can demonstrate it on the attempt to optimise the cost of the stocks in the armed forces with the use of tools commonly used in business practice. The lack of financial resources forces the headquarters of the armed forces to adopt measures for the creation of stocks in the form of contractual relations with potential suppliers – the bodies of the mobilization with a real implementation of the above mentioned in the event of a crisis situation. On the one hand, it allows to minimize costs for supplies and creates space for investment into, e.g. the modernization of weaponry, equipment and techniques).

On the other hand, it also initiates a risk that in the global security environment, there will not be sufficient time for the implementation of the supply (Školník, Morong 2013: 154-156).

Equally important is also a risk that the armed forces do not possess even minimal stocks of such contracted commodities due to the very likely destructive activities led by an opposer equally intense against the armed forces units as well as the economic infrastructure of the State.

Therefore, it is necessary to get, even with a limited source, the management of the army aware of a significant fact that the effort on the reduction of stocks in business leads to better economic results and thus a more stable position on the market, which in the military does not apply. On the other hand, reducing the stocks of the armed forces in crisis is automatically associated with less autonomy in the implementation of the materials necessary for conducting military operation, what in case of the failure of the weakest element in the supply system, which is clearly a civilian contractor, may have out of sight consequences for this specific enterprise and hence the security of the state and its citizens.

3. The breakdown of the cost of creating and maintaining stocks

The cost for the maintenance of stocks are those costs that are related to the amount of stocks. Various cost items appertain to this and they generally represent some of the highest costs of logistics. The significance of these costs and the fact that the level of stocks is directly affected by the configuration of the logistics system, confirms the need for accurate data on the cost of maintaining stocks. Unless these data are available, it is not possible to assess the different cost and compensation in the organization. In most enterprises, however, the costs of maintaining stocks are not enumerated, and if calculated, they only include normal interest rate, insurance costs and taxes. Most of the data referred to in the literature between 1951 and 1997, the percentage of costs for the maintenance of the stocks was around 25% (Lambert 2000: 152; Lambert 1976).

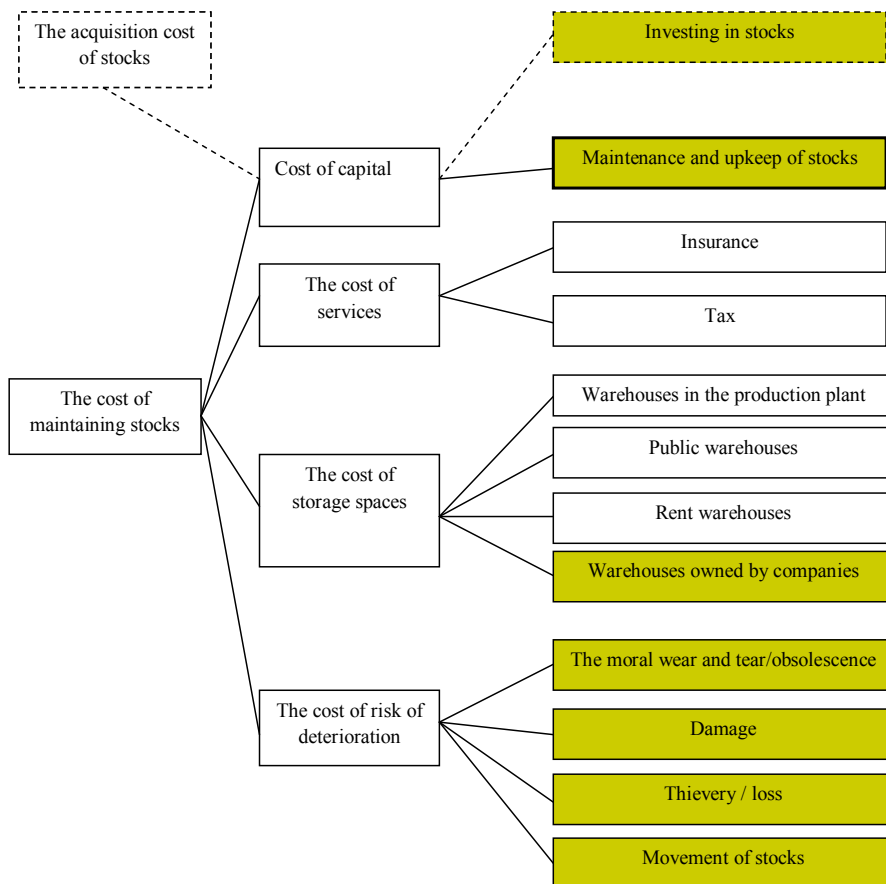
Calculation of costs for the maintenance of stocks

The cost for the maintenance of stocks should include only those costs that vary with the amount of stocks. In general, these costs can be divided into several groups (Figure 1).

Inasmuch as by the original author of the methodology for calculating the cost of maintenance of the stocks, only the elements marked by the full line and investing in stocks were part of the model in the picture, the model can be misunderstood and then consequently erroneously interpreted. This is due to the fact that investments in stocks are generally the cost of their acquisition. Should we talk exclusively about the cost for the maintenance

of stocks, it is necessary to speak about the investment in stocks in connection with an individual category of cost of stocks (completed by the author of the article with elements marked in dashed line). At the same time, it is necessary to add an additional category of costs for the maintenance of the stocks that means the capital costs associated with maintenance and their upkeep (**bold emphasis added**). Due to the nature of some of the stocks in the armed forces is that kind of cost, in comparison with the company, specific and from the perspective of allocated resources especially significant (Roux, Liu 2004: 171-179).

Figure 1. Prescriptive model of the methodology of the cost of acquisition and maintenance of stocks



Source: Lambert 2000: 154.

The cost of capital tied in stocks

The funds that are tied up in stocks, could be used for a different kind of investment by the company. While assessing the real costs of capital, the company should always come out from so called the opportunity cost of capital, i.e. from the profitability that would have been achieved by alternative use of these resources. The maintenance of excess stocks does not bring any added value to the company.

It is this category of costs of the stocks creation for crisis situations, taking the form, in the conditions of the armed forces of the Slovak Republic, of mobile or central stocks which are maintained for each of the units and facilities of the armed forces in the volume of daily doses of consumption (DOS), that appears to be the key element of the army of any country (MO SR 2014: 9).

Such created stocks, as opposed to the corporate economy, created the highest added value for the armed forces. Neither can the company succeed in the competitive environment of a market economy without profit and the creation of the funds available for further accumulation of existence and development, nor can the armed forces, without a direct and immediate impact on this type of the stocks control, carry out their primary mission - an effective defence of the country (NR SR 2002a: §2). Relying on the delivery of those stocks on the basis of the contracting supplies only when the security threat has been identified and activated, is as unfortunate as relying of the management of the company on the resources necessary for the operation and development from a purely external environment. In doing so, as opposed to the state of security, the ability to restock in the warfare from external sources is disputative and high risk – bearing, which is necessary to take into account when comparing.

The cost of services

The cost of the services consists of the tangible assets tax and insurance against risks that are paid as a result of the stocks holding.

This type of costs in European companies is only to a limited extent. Tax on tangible assets, including stocks are a specific feature of the economic and legislative practices in the United States of America. In the Slovak Republic, the tax of a similar nature does not apply to the stocks but only on the market of the goods in the form of value added tax. The effort to face the risks of losses as a result of theft or destruction of stocks means to spend a portion of the funds for insurance stocks for management of all serious companies.

Not only does the part of the stocks of the armed forces for crisis situations subject to taxation, but in addition, a portion of the cost is trans-

ferred by the state to entities outside the Defence Department. The cost of stocks, which are for the use of the armed forces stored in the State material reserves, reduce the total cost of the Ministry of Defence of maintaining stocks. It relates mainly to commodities (e.g., fuel, food, etc.), which after the end of the period set in the storage of the State material reserves can be implemented on the market with minimal or zero losses in comparison with other goods that are not to be subject to this special mode of economic processes.

The insurance of stocks, in respect of the mission of the armed forces and the risks of the opposers' destructive activities aimed at the destruction of stocks, is highly risky for insurance entities. Even in the case of acceptance of the risk of a highly probable performance by insurance companies, it is not, on the part of the armed forces, effective to insure stocks at a price several times higher than the offer for insurance of stocks in companies due to already mentioned risk.

The costs associated with the storage

The cost of storage space relates to the four general types of warehouses (see previous figure), however, from the perspective of OS SR, we are interested only in the cost of own warehouses. The cost of maintaining the stocks include only those costs that vary with the volume of stocks. In case of own warehouses, these costs are typically negligible. Operating costs related to own stock should be included in the cost of storage, not in the cost for the maintenance of stocks.

In the military conditions, the model in Figure 1 must be corrected by the fact that the costs of maintenance and upkeep of the stocks are at the same time the cost of capital (the purchase of preservation, packaging means, etc.), and also the cost of storage, because of the fact that with the volume of stocks the amount of the costs is changing, e.g. costs for the purchase of means for the maintenance of stocks.

The cost of the risk of depreciation of stocks

The cost of depreciation of the stocks differ from company to company, but they usually contain the cost of moral wear and tear, damage, theft, loss and the movement of stocks.

The cost of moral wear and tear are the costs of all units, which the company must get rid of at a loss, because they are no longer saleable at the normal price or no longer usable. This is a significant item in the cost for the maintenance of stocks, in particular under the condition, when reducing the deadline for the life cycle of the product.

In military conditions, it is certainly this category of costs which is an important item of expenditure on defence, when, for example, stored military technology is not used at all throughout its life cycle. Its specific mission to conduct combat operations means that there is no utility value, it is liquidated in stocks as new and never used for the residual price or the price of raw materials and waste.

The cost of thefts and losses are much more related to the company's security measures as to the level of inventory. Therefore, it is often associated with to the cost of storage, not to the cost of maintaining the stocks.

This also applies to the same extent for damage and loss in the state of security in the armed forces. In the case of combat activities there are capital costs, because the lost weapons, equipment and material must be added to the standard numbers.

The cost of the stocks movements arise when goods from one storage location are moved to another storage location. The cost of the inventory movements, however, are often included in the total transport costs.

We may agree with these generally valid propositions for the inclusion of the cost of the material flows arising from movements between warehouses, since within the armed forces, the central supply generates these costs as the cost of transport in the field of military logistics, of which there are examples of stocks to ensure foreign operations.

Of the model in Figure 1, it is evident that the implementation of the economic principles of the stocks management in the enterprise and in the conditions of the armed forces is not only the structure of the different costs (the cost of inventory in the armed forces are color-coded) but also its basic philosophy of the creation, mission and the importance for the existence and evaluation of the quality of producing entities.

One of the main criteria of the company turnover is an indicator of all kinds of stocks, and their long-term stagnation is a symptom of problems in the field of financial and material flows. In defining the appropriate stock levels in the armed forces, the **optimization of stocks** intended for crisis situations would be one of the primary indicators of effectiveness **which can be expressed in terms of the status of stocks, creating the premise of the implementation of the Mission's military service (company) in the form of a specific transformation process – management of combat activities and sustainability in operations at a level that even in the event of interruption of the supply and distribution chain guarantees the performance of the duties of defence within the time interval until the transition of the economy to the war economy.**

Conclusions

All intentions for the implementation of supply systems used in some economic sectors on the basis of the model “Just-in- time“, “Kanban“ etc. must be subjected to a thorough analysis of their impact on the operational capability of the armed forces with the identification of potential risks accordingly. In doing so, it is particularly necessary to take the factor of gradations of possible security threats into account at a time when, as can be seen from current developments in Eastern Europe may be a gradual evolution, but also quite a radical course of not sufficiently created space for supplies. This is confirmed by the armed conflicts in some countries in North Africa, or Anterior Asia.

Therefore, one of the crucial decisions that can affect the ability of an effective defence is not just on the shoulders of the politicians responsible for the financing of defence resort, but also on the responsibilities and the expertise of security analysts whose wrong assessment of safety risks may have fatal consequences.

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