

CONSIGNMENT STOCK CONCEPT AND ITS INFORMATION RESOURCES IN THE CZECH REPUBLIC

Petra Vrbová – Jiří Alina – Václav Cempírek

Abstract

The growing interest of use of Consignment Stock Concept brought many companies into a dilemma, where to find enough pieces of information about risks, advantages and disadvantages of this model. There are plethora theoretical guides how to implement the Consignment stock concept, calculations of its costs etc. However, based on these kinds of issues, we conducted a survey to study where do companies based in the Czech Republic collect such kind of required information. Findings from our survey helped us to understand what kind of literature or advices do companies look for and if these resources are found as sufficient. This paper is based mainly on the research of Czech and foreign literature and a survey filled by companies of particular areas of business located in the Czech Republic. Main goal of this paper is to find out what resources do companies use as a main source of information about the Consignment stock concept.

Key words: Consignment Stock Concept, Literature Research, Literature Resources

JEL Code: E21, E23, R41

Introduction

Supply chain management has recently received a great attention in economics. In general, a supply chain is composed of independent partners with individual costs. One of the major task of management is to coordinate the processes of the supply chain in such a way that the lowest system-wide cost is gained. The idea of joint optimization for vendor and buyer was initiated by Goyal (1976), Banerjee (1986) and Lu (1995). Several authors incorporated policies in which the sizes of successive shipments (from the vendor to the buyer within a production cycle) either are equal in size or increases by a factor equal to the ratio of production rate to the demand rate. In the case of CS-policies there are three decisions to take: about the delivered amount, about the number of deliveries making up the production batch, and how many deliveries should be delayed once this amount is available for shipment.

The consignment stock (CS) policy, also known as vendor/supplier owned inventory (VOI/SOI), is an innovative approach of inventory management under which the vendor also places and maintains a certain amount of goods at a buyer location but does not receive the payment from the buyer immediately. The buyer only pays and owns the products s/he withdrew from his/her stock after the withdrawal. Since the payment from the buyer to the vendor is delayed for a certain period, the CS policy is therefore more beneficial to the buyer for an increased cash flow (Battini, Grassi, Persona, & Sgarbossa, 2010).

1 Consignment Stock Concept Literature Resources

The following part contains comparison of literature resources in Czech language and particular papers in scientific databases in English language.

1.1. Czech language resources

An important aspect that businesses must deal with is the amount of stocks or goods in store. Stocks bind the financial resources but, at the same time, they are necessary for the smooth running of the production. Therefore, it is necessary for companies to resolve the size of supplies or goods and their timing, i.e. how often stock or commodities are added (Zuzák & Königová, 2011). Inventory is created at the expense of the supplier. This means that the item is made at the expense of supplier. The purchaser must document the report on the taken goods and its value to the supplier at a certain agreed interval. The supplier then submits tax documents on the basis of these reports.

The possibilities of using these warehouses bring benefits such as the smoothness of the production process, reducing the cost of corporate capital, or reducing transport and administration costs (Šiman & Petera, 2010). This process is carried out on the basis of an agreement of the establishment of a consignment store where the basic rules of cooperation are agreed. The contract stipulates the price of the goods, the invoicing terms and the addition of goods to the warehouse. There are also agreed terms and conditions for the re-invoicing of the price change. If this change occurs, the balance that is in stock at the last day of the period must be transferred to the next period with the new price already (Lošťáková et al., 2009). This agreement may be a mediation contract in which an intermediary undertakes to develop an activity so that the bidder has the opportunity to conclude a contract with a third party and to pay a commission to the intermediary.

Another contract may be a commission agreement whereby a commissioner arranges for a principal a certain matter under his own name, for which he or she is again entitled to a

payment, or it may also be a contract for a commercial agency. In all cases, however, remuneration is payable for the services provided (Louša, 2012). Depositor of goods and products (the supplier) will therefore take care of his goods, which is stored by another person, that is, the warehouse operator. Remuneration is agreed for the reason that the contract cannot be considered as a free-of-charge contract. The storage of goods or products in the warehouse is not the subject of the operator's business (Louša, 2012). Consignment stores are also important in international trade. Through these warehouses it is possible to store goods directly in the country of sale. But storage of goods in foreign countries also has a number of disadvantages. The exporter is not aware of the market situation, he must store the products or goods up to the point of sale, pay duties and taxes. Another disadvantage for importers is the risk of sales losses, inflation or the situation when the goods become unsaleable (Nykryn, 1983).

Two most commonly used indicators for assessing the effectiveness of inventory management are stock turnover rate and inventory turnover time. The use of these indicators should help firms evaluate whether they have chosen an appropriate form of inventory management, whether it is a consignment store or other inventory management method. (Kislingerová et al., 2010)

1.2. English language resources

Bylka (2013) explains consignment stock (CS) as an innovative approach to supply and stock management, based on a strong and continuous collaboration between vendor and buyer to create a 'win-win' situation, where both partners have equal gains, under such a system, a central planner uses the demand and inventory information of both the vendor and buyer to make the production and replenishment decisions so that the entire system cost is minimized or the entire system profit is maximized. The system enjoys a better overall decision but both trading parties take care of their own inventory. As compensation, the vendor gains full and real-time access to the demand and inventory information of the buyer. Using this information, the vendor manages the buyer's inventory and makes replenishment decisions (Battini, Grassi, Persona, & Sgarbossa, 2010).

Other common benefits of the VMI and the CS policy to the buyer include lower inventory cost, reduced order emitting cost, reduced procurement lead time, reduced stock-out risks, and increased service level. The benefits of VMI and CS policy for the vendor include increased production lot size flexibility and warehouse space, improved demand visibility, and long-term relationship (Yi & Sarker, 2013). The vendor will guarantee that the quantity stored

in the buyer's warehouse will be kept between a maximum level and a minimum one, also supporting the additional costs eventually induced by stock-out conditions. The buyer will pick up from its store the quantity of material needed to meet its production plans and the material itself will be paid to the buyer according to the agreement signed. A well-integrated supply chain involves coordination of the flows of materials and information between distinct entities (as supplier, manufacturer, transporter, buyer, etc.). Over the years various integrated inventory models have been developed to determine feasible (conditional) optimal control policies (Zavanella & Zanoni, 2009).

Under CS policy, a vendor places goods at a buyer's location without receiving any pre-payment. The buyer only pays and owns the products that he used or sold from his stock and may return the unsold/unused products to the vendor at any point of time. This policy is more preferable to the buyer and the reason is obvious: the buyer no longer has to worry about the marketing risk since he is waived the responsibility of paying for any unsold or unused items. Moreover, the delay on the payment for the sold or used items further helps the buyer reducing the capital tied up in the inventory (Bylka & Górný, 2015).

The CS policy is also beneficial to the vendor, mainly in that it helps the vendor attract more buyers who may not be willing to hold a large amount of products at hand or may even not be willing to enter into the business without a CS policy (Yi & Sarker, 2013). In such a way, the continuous replenishment from the supplier protects the company against demand fluctuations and costs determined by eventual stock out may also be debited to the supplier, by means of contract penalties. On the other hand, the supplier has a better perception of his customer's requirements (Valentini & Zavanella, 2003).

CS is advantageous to the vendor and the buyer. To the vendor, when it is more expensive to hold the inventory at its end than at the buyer's. To the buyer where it does not have to worry about managing its inventory and tying capital in it, and benefiting from trade credit where applicable. Optimal replenishment policy at the sales floor with stock-dependent demand is actually early replenishment, in which the amount of displayed product on the shelves should not drop below a minimum inventory level. Secondly, we found that when the unit inventory holding cost decreases as stock moves down the supply chain, the optimal solution is to adopt the forward stocking policy. If the vendor were not aware of the chances of stocking forward ore inventories to the buyer's backroom, the decisions made would be sub-optimal (Hariga, As'ad, & Khan, 2017). Examples include second-hand goods industry, vending machine services and soft drink industry, parts supply in assembly systems of automobile or personal computer industry, aircraft industries, supermarkets and convenience

stores, retailing, on-line commerce and seafood, and hospital operation, etc. (Lee, Wang, & Chen, 2017).

2 Methods and Materials

There were several papers, studies and various analysis already dealing with Consignment Stock concept. However, there hasn't been considered in such studies, if companies as CS concept adopters find available information resources sufficient. Therefore, the main purpose of this paper is to specify and find out how much literature resources there are in the Czech language. During our research we found out, there is a lack of information about this topic for Czech companies. On that account we focused on English literature resources too.

The research took place in the Czech Republic in the period between March and May 2016. The main purpose of this survey was to find out share of particular logistics' model distribution on the Czech Republic. However, another part was focused strictly on the main reasons, why respondents decided to implement Consignment stock and according to what pieces of information they determined about implementing concept. For this purpose, a structure questionnaire was utilized as the main data collection. Respondents were contacted from both – our respondents participating our previous surveys and also added further companies (adopting Consignment Stock concept). Respondents were sampled from different industries not depending on company size, number of employees or annual sales. We were able to compile 85 valid replies out of 118 contacted companies (CS adopters), where 33 companies refused to participate. There were 15 small, 24 medium and 46 large size companies in the sample participating the survey. Table 1 below demonstrates overview of respondents' industries they implemented Consignment stock concept in.

Tab. 1: Respondents Overview

Industry	Total
Auto parts industry	6
Building industry	3
Ceramic industry	3
Chemical products	4
Drug manufacturing	5
Electronic industry	9
Food manufacturing	5

Metal manufacturing.	8
Paper industry	4
Plastic industry	7
Retail industry	8
Service industry	3
Steel manufacturing	8
Textile manufacturing	6
Transportation industry	3
Wood processing industry	3
Total	85

Source: Vrbová, Cempírek (2016)

3 Key Results and Discussion

Main aim of the first question was to identify based on what initiative was the CS implemented. Table 2 demonstrates, that it was mostly respondents' supplier insisting on CS implementation (28 replies). Furthermore, 27 respondents suggested CS implementation on behalf of their companies. In addition, mainly large size companies suggested to implement CS as of their own initiative. Third most frequent reason for CS implementation is customer's initiative with 23 replies also mainly with large size companies.

Tab. 2: Main reasons for CS concept implementation

Why did you implement CS concept?	Small	Medium	Large	Sum
Supplier insisted	5	7	16	28
Our own initiative	4	8	15	27
Customer insisted	5	6	12	23
Other (third party interest,..)	1	3	3	7
Total	15	24	46	85

Source: Results of survey; Authors

Based on results stated in Table 2 above, we took a deeper, where our respondents collected most of required information, on which their decision to implement CS concept relied

on. On that account, our survey concerned with the main source of their pieces of information collected before determining to CS implementation.

Tab. 3: Main source of information

What is/was your main source of information about CS? (Multiple choice)	Count	% of total
Czech literature resources	2	2%
Foreign literature resources	29	34%
Internal information (or for example headquarters in a different location)	54	64%
Information and instructions from vendor	43	51%
Information and instructions from customer	14	16%
CRM provider support	57	67%
Other	3	4%

Source: Results of survey; Authors

Table 3 above demonstrates the main source of information, which our respondents utilized to find out more about CS concept, its risks, advantages, usage etc. This questions included a multiple choice. The most frequent source was **CRM provider support** (in terms of technical support). This means that 67% of all the respondents contacted their CRM providers to collect more information about CS stock itself and adjustment of CRM set up for CS implementation.

Second most frequent reply was - **Internal Information**. Respondents' company representatives either already knew, the basic backgrounds of Consignment Stock Concept or were able to collect information internally for example from its headquarters or a sister company etc.

In addition, third most frequent source of information was – **Information and instructions from vendor**. This applies to both groups of answers from the Table 2. – Supplier Insisted, Our own initiative and Other. In this case, respondents relied on information provided by vendor, who might have more experience with CS set up, instructions and information. It is alarming, respondents didn't use almost any Czech literature resources. As already stated in Chapter 1, we were able to identify only 9 authors and publications/books briefly dealing with the Consignment Stock Concept (apart from authors' Vrbová, P., Cempírek, V., Alina, J., previous publications).

Conclusion

Main focus of our past researches has always been related mainly to Consignment Stock Concept. Therefore, for the purpose of this paper we used a survey as main information collection for further look into this area. During this survey we focused on answering questions, what was the main incentive for Consignment Stock concept adoption and what source of information respondents used with regard to decision making if to implement CS. The most frequent reasons for CS implementation is Suppliers' initiative, Companies'/Respondents' own initiative and Customers' initiative.

Furthermore, we went deeper into finding, what information resources our respondents used as decision if to implement CS concept. The most frequent resources of information were identified as following: CRM provider support, Internal Information, Information and instructions from Vendor. In addition, we were able to identify just 9 authors publishing in the Czech language briefly dealing with the Consignment Stock Concept as following: Dušek (2016), Kislíngrová (2010), Lošťáková (2009), Louša (2012), Nykryn (1983), Šiman & Petera (2010) and Zuzák & Königová (2011).

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Contact

Ing. Petra Vrbová

Fakulta ekonomicko-správní

Univerzita Pardubice, Studentská 95, 532 10, Pardubice 2

Email: pe.vrbova@gmail.com

Phone number: +420 607 686 367

Ing. Jiří Alina, Ph.D

Ekonomická fakulta

Jihočeská Univerzita v Českých Budějovicích, Studentská 13, České Budějovice, 370 05

Email: jalina@ef.jcu.cz

Phone number: +420 387 772 503

Prof. Ing. Václav Cempírek, Ph.D.

Vysoká škola logistiky, o.p.s.

Palackého 1381/25, Město Přerov, 750 02

Email: Vaclav.Cempirek@upce.cz

Phone number: +420 466 036 176