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CHALLENGES OF INVENTORY MANAGEMENT IN CRISIS SITUATIONS FROM THE PERSPECTIVE OF FOOD RETAILERS

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Abstract

Our study focuses on food retailing and its inventory practices, which have been severely affected by the panic buying wave following the recent crisis situations which have occurred in Europe (e.g., military conflict near the boarders of the EU, energy crisis, or the epidemic). The aim of this paper is to present the management options for the inventory mechanisms of food products in a crisis situation - for retailers on the downstream side of the supply chain, who were the first to face the demand fluctuations caused by the crises of recent years - and to describe, through case studies, how to identify and manage inventory difficulties that arise. The objective of the study is to explore, through the examples of three food retailers under study, which of the management solutions available in the literature can be applied in practice. Our results show among other things that, although the literature suggests that the safety stock is one of the methods to reduce uncertainty, it has not been found to be an effective method in the current circumstances. Other findings reveal that the companies in the sample have a short-term approach to crisis management and they apply them to create specific scripts for the possible crisis. A key finding of the research is that it provides practitioners a summary of good practices to contribute to their crisis management interventions at a planning level.

Keywords: food retail, crisis management, challenges, inventory practices

1. INTRODUCTION

The recent years worldwide have been affected by several crises situations (Covid-19 epidemic, energy crisis, inflation crisis, Russian-Ukrainian war conflict) which have forced dozens of industries across Europe to change their operations (Aday & Aday, 2020; Lai & Wong, 2020; Ertugrul & Kozma, 2021; Sid et al, 2021; Jámbor & Nagy, 2022a; Nagy, 2023; Rudyk et al., 2023). Regardless of the industry, the trade sector is the first member of supply chains which encounters the consumer, so for both

positive and negative impacts, trade is at the forefront of facing difficulties both downstream (e.g., volatility of solvency) and upstream (e.g., difficulties in sourcing raw materials/goods, logistical difficulties...etc.) of the given supply chain. Our study focuses on food retailing, as recent crises have highlighted the vulnerability of food supply chains to global interlinkages, with minor disruptions leading to a shift towards self-reliance (Nagy & Jámbor, 2021; Jámbor & Nagy, 2022b). However, this does not seem a feasible option in a highly dependent system. The focus on food retailing is further supported by the fact that, among the Critical Infrastructures formulated by the European Union and also applied in Hungary, Food is ranked 5th among the ten priority sectors for the maintenance of social infrastructure (COUNCIL DIRECTIVE 2008/114/EC, 2008; Freund et al., 2023). The objective of our study is to conduct a downstream sideways analysis to gain insight into the steps following the identification of a crisis situation. Our research question focuses on what crisis management methods are used by food retailers in one of their most prominent areas of operation, inventory management. Building on key findings from the literature, our research is exploratory in nature and the primary data collection is based on semi-structured interviews with 3 dominant players in the food retail industry. In presenting the results of our research, it is detailed among other things, that although the literature suggests that safety stock is one of the tools to reduce uncertainty, it has not proven to be an effective method in the present situation. Other findings include the finding that the companies in our study tend to have a short-term approach to crisis management. After analysing the qualitative interviews, good practices are identified that can benefit practitioners, whether they are micro, small, medium, or large trading companies.

2. LITERATURE ANALYSIS

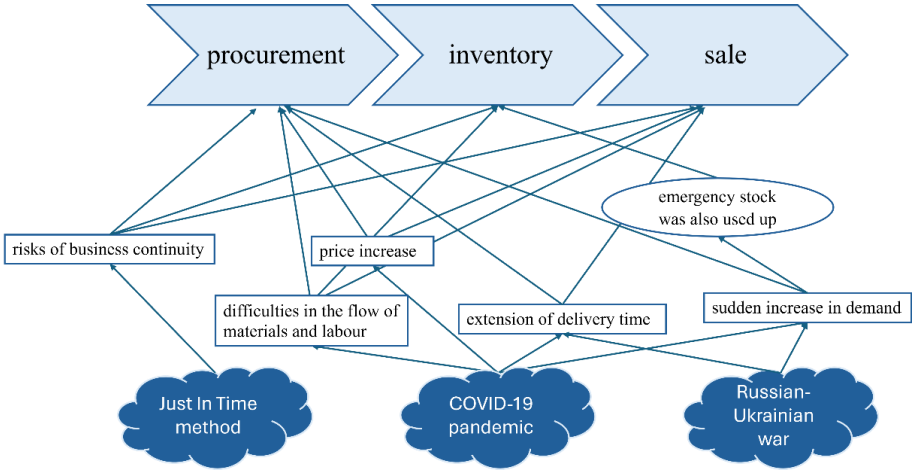
Over the past decade, there have been several global, regional, and national crises that have forced companies, including retailers, to make sudden decisions. In our literature analysis, the importance and characteristics of inventory management in retailing are reviewed. Then the paper presents crisis management solutions formulated in the literature that can help decision-makers in the FMCG industry. Finally, a brief outline of the inventory challenges that have hit the retail sector as a result of the most widespread crises of the last decade (pandemic COVID-19 and the Russian-Ukrainian war) is introduced.

2.1. Challenges of value creation - focusing on inventory in retail

A general definition of the value creation process is the procurement, management and use of resources to create value for customers (Sharma et al., 2007). In retailing, the characteristics of these processes differ somewhat from this understanding, as value creation in the industry is derived from the fact that customers pay for the products produced, even though it was not produced by the retailer, as they recognise the value of the product added by the commercial labour (Levy & Weitz, 2012). Retailers deliver goods to consumers more efficiently and economically

through their value creation process than producers (Dudás, 2012). That's why in our case the process is equivalent to the steps of inventory management (steps are illustrated in Figure 1).

Figure 1 Steps in the value creation process in retail



Source: own editing based on Dudás, 2012, Nemtajela and Mbohwa, 2017, Czakó and Reszegi, 2010; Hausmann, 2020, Olcott et al., 2022, Allam et al., 2022 and Schmidt, 2021.

In each case, the evolution of the product-level inventory level is influenced by two main factors: the pattern of demand for the item and the pattern of supply of the item (Gelei, 2016). The different inventory management mechanisms allow these factors to be understood and adapted to. There are traditional inventory mechanisms which influence the essential inventory processes of retailers as well. These mechanisms can be applied to different business circumstances because of their diversity. The situation in which each model can be applied effectively depends strongly on its advantages and disadvantages. Although the (t,q) model is nowadays considered to be an obsolete method, it does provide suppliers with predictable supply. This aspect plays a very important role in the procurement of FMCG products. The main advantage of the (t,S) model is the ease of scheduling of purchases, due to the predictability of ordering times under this mechanism, but unfortunately the company may lose its price advantage due to different order quantities. The (s,q) model, like the (s,S) model, requires continuous inventory monitoring, which can be both advantageous and disadvantageous (Hadley & Whitin, 1961; Goh, 1992; Paterson et al., 2011; Benkő, 2018; Péter, 2021).

The whole process, as well as the individual sub-processes, has been seriously challenged by recent global events. Inventory management is increasingly emphasized nowadays, as inadequate management of inventories can lead to a decrease in sales or even the closure of the business (Nemtajela & Mbohwa, 2017). One of the most important tasks of the activity system is to minimize the costs associated with inventory management (Dudás, 2012). The JIT system applied to FMCG products can be used to minimise inventory holding costs, but the two global

events have made it challenging to achieve this goal (Czakó & Reszegi, 2010; Hausmann, 2020). While the Covid-19 virus and the military conflict had a significant impact on the price of certain procurement and inventory services (e.g.: transport costs, warehouse heating costs), panic buying of certain products (e.g.: toilet paper (Banker, 2021), yeast (Deutscher Verband der Hefeindustrie e.V., 2022) forced companies to purchase more than planned, as empty store shelves suggest that emergency stock held to avoid inventory shortages was also used up, which can be partly explained by the low stockholding principle of JIT procurement (Hausmann, 2020). In general, increased energy prices have mostly affected the administrative costs of warehousing within the fixed costs of inventory, while in the case of purchasing, the transport costs have been affected (Dudás, 2012). As a consequence of the 'lock-in' that occurred during the coronavirus epidemic, some factories ceased production, leading to disruption of supply chains (Olcott et al., 2022). This resulted in higher costs of finished goods, longer delivery times, limited access to raw materials, and increased inequality in supply chains (Allam et al., 2022 Schmidt, 2021). One of the major drawbacks of the JIT system is that it increases the risks of business continuity (Czakó & Reszegi, 2010; Hausmann, 2020), which has been brought to light by the current crisis. Indeed, Hausmann has shown "a correlation between the exposure of industries to the economic crisis caused by the Covid-19 virus epidemic and the stockholding volumes and accumulation policies of individual industries. [...] Smaller inventories, which were mostly built up in the past in the spirit of just-in-time, lean management and optimisation, [...] are not sufficient to maintain production levels in a temporary period of liquidity and demand shortages, and therefore the factories in these industries are forced to shut down sooner" (Hausmann, 2020, p. 139). Figure 1 visualises the main challenges of inventory management.

2.3 Crisis management methods according to maturity

Firms tend to face various crises in their operational phase (Székely, 2009), which have increased in recent years due to turbulent crises (Aday & Aday, 2020; Sid et al., 2021; Jámbor & Nagy, 2022a; Nagy, 2023; Rudyk, et al., 2023), regardless of the maturity level of firms (Kocziszky, 1994; Szerb, 2000; Javaid & Raza, 2023) and their sectoral affiliation. The maturity curve of a firm is composed of stages of entry, growth, maturity and decline (Kocziszky, 1994; Phelps et al., 2007), and the remeasures of a firm experiencing a crisis may differ in relation to where it is positioned on the maturity curve. Székely (2009) points out in his research that, although firms are more likely to face crisis situations (not specifically as a consequence of external disturbances) in the decline stage, they can face crisis situations at any stage of maturity. The current crises affecting Europe (such as the Covid-19 epidemic, the energy crisis and the Ukrainian-Russian war) have also put the retail companies in focus on in a difficult situation.

The crisis management methods available to companies were first published in the military literature (Resperger, 2018), which at first sight seems difficult to adapt to the retail sector. Resperger's (2018) approach also identifies dominant phases for crises, which are usually the initial phase, followed by an unfolding phase, followed by the peak of the crisis and finally the period of termination. This analogy can also

be applied to recent crises. It can also be concluded from Resperger's (2018) study that the characteristics of crises are that they are periodic, with well-defined boundaries, which are not yet known at the initial stage. The so-called DIADAL (DDADAC in English) method (Komócsin, 2009), which builds its process elements through the analogy of the common method of process improvement (PDCA (Plan-Do-Check-Act) analysis) (ISO, 2015), as included in the ISO 9001:2015 standard, can be considered as a general (non-military) crisis management method. In his study, Giorgetto (2021) confirms the application of this logic in crisis management (Giorgetto, 2021). The mosaic consists of the following successive steps: diagnosis - direction - alternatives - decision - application - closure (Komócsin, 2009; Resperger, 2018). The cycle can serve as a structured method for companies. It can be seen that it is necessary to focus primarily on identifying the situation, and then, after defining the character, formulating the strategic objectives, thus drawing the guiding principles of crisis management (). The listing of alternatives is already the result of targeted research and appears on the palette on the basis of which a decision can be made. This is followed by the application of the chosen procedure based on the decision, which, if successful, is followed by the final step, the feedback (Resperger, 2018). However, this approach may be supported by the PDCA cycle approach for longer-lasting crises, which may be linked to a restart of the process, so that a return to the Alternatives position is possible in case of unsatisfactory results.

Flexibility and reliability are essential features of the process. Reliability plays a key role in establishing the credibility and comprehensibility of the information provided to key stakeholders. It can be shown that in crisis management methods it is important to pay attention to the people to be involved. The development and selection of the method is a matter for senior management, but it is worth involving experts from the relevant areas in the steps of the process (Khodarahmi, 2009). In the following, the challenges related to the inventory issues that are the focus of our research are described.

3. RESEARCH METHODOLOGY

After an analysis of our exploratory, semi-structured interviews, our findings are formulated. The interviewees were selected randomly and on the basis of opportunity, given that inventory strategies are a central activity and therefore a sensitive area in the life of retailers. Table 1 introduces the food retailers interviewed. They are all located in Hungary but have different coverage and ownership backgrounds.

Table 1 Introduction of companies that participated in the research

	Food retail chain (FRC)	**National retail chain (NRC)**	**Online supermarket**
Main activity	food retail	food retailing	online retailing
Company background	Hungarian subsidiary	only domestically owned	Hungarian subsidiary
Operating time in Hungary	20+ years	20+ years	5+ years
Way of operation	offline traditionally and online	offline traditionally	online traditionally and offline newly

Source: own editing based on Nemzeti Cégtár (2023), 2024

The research steps included a systematic literature review focusing on challenges for inventory management and their relations to the traditional inventory mechanisms and a qualitative analysis as an exploratory research which aims to extend the statements of the current literature. Prior to the empirical research, in addition to the literature analysis, secondary research was carried out in the form of analysis of websites, industry data, etc. Based on the information collected, a cross-case case study was conducted to understand the operation of the companies and provide multi-perspective support, which is presented in the next chapter (Miles & Huberman, 1994). Our aim is to gain a deeper understanding by applying this methodology, and therefore the analysis of the interviews seems to be suitable to answer the research question. The interview questions were derived from the highlights and gaps of the literature review and turned to be suitable for the observed retailers. The interviews were carried out online and took 50-60 minutes. The interviewees agreed to record the interviews so the interviews could be transcribed. The transcripts were analysed and coded. The four subchapters of the empirical analysis are built onto the codes which appeared during the analysis of the interviews. The results obtained cannot be used as a basis for generalization and thus cannot be called representative (Yin, 2012), but the diversity of interviewees (national, international, online/offline) contributes to a broad understanding of the functioning of the food retail sector in a crisis.

4. EMPIRICAL ANALYSIS

To apply the chosen qualitative methodology, four aspects emerging from the literature were chosen as the framework for analysis. These range from the general characteristics of the actions, through an analysis of the time span of their implementation, to an examination of the role of communication. Finally, an examination of the situation within the corporate function under study is shown.

4.1. Actions in crisis situations

As a first step in the analysis of our research results, the actions taken by the companies that participated in the research, which were specifically put in place to deal with the crisis situations of the last decade (pandemic COVID-19 and the Russian-Ukrainian war) are examined in detail. These actions are presented along the following lines: solutions concerning purchasing, solutions concerning inventory management and solutions concerning online activities.

In the case of procurement steps, all three companies are highly dependent on imports, as they are forced to import goods due to the characteristics and specificities of the Hungarian market and agriculture (OECD, 2017). It is therefore not surprising that the procurement difficulties were caused primarily by the fact that shipments were blocked by border barriers during the epidemic. In addition, the rise in fuel prices due to import dependency during the Russian-Ukrainian conflict also posed a huge challenge for the companies surveyed. However, the extent to which they were exposed to these challenges and the type of actions they decided to adopt in response to them depends to a large extent on their specific characteristics. In the case of FRC, as it is a Hungarian subsidiary, risk management at the parent company level is reflected. The standards are set by the parent company and the adaptation to the country is the responsibility of the subsidiary. For our research, this meant that the FRC had several scenarios, one of which had to be adapted to the specific situation. Another action that could be mentioned for the company was the search for new suppliers. Given the size of the chain, this was possible at short notice, as they have a high bargaining power with suppliers. In the case of online supermarket, it is worth highlighting the fact that they operate as supermarkets and not discounters, which means that they have a much larger range of products. This characteristic has been the main challenge for online retailers during the outbreak of the Covid-19virus and has led to a significant simplification of their offer. Today, they have returned to a more complex offering, so this intervention can be considered a crisis management solution. One of the features of the NRC's activities is the large number of domestic products distributed, which has led to better relations with domestic suppliers and producers and has made it less costly for it to switch to more domestic suppliers as imports ceased. However, this company is also import-dependent, with increased transport costs being the main challenge. It is important to underline that crisis management initiatives are also heavily influenced by the impact of the crisis. In the two crisis situations under review, Hungary did not experience product shortages, with the epidemic causing a problem of blocked shipments, while the armed conflict affected the production of only one product, *Balaton szelet* (which is an originally Hungarian chocolate bar), in Ukraine, which was in short supply.

An unforeseen consequence of the Covid-19 virus outbreak was the start of a panic stockpiling among consumers, which also posed difficulties for stockpiling. In general, our sample was not characterized by the accumulation of extra inventories. One of the reasons for this was goods in transit, e.g., inventory whose transport had to be stopped due to border closures. Products in inventory were already there but had not reached the companies. Another reason for not opting for restocking was that companies were more concerned about not being able to sell their inventory before

the expiry date than of having a few days of empty shelves for a given product. This mentality is typical of JIT operations. As it has been already established in the case of procurement solutions, one of FRC's major competitive advantages was its size, which meant that it was able to implement work organisation solutions at short notice, as night restocking was introduced during the outbreak of the Covid-19 virus, with large numbers of workers being taken on from other sectors (typically hospitality). For the online supermarket, the main challenge was inventory management due to the characteristics of the company (online sales and relatively young), which by its nature does not have an offline shop and therefore all products are stored in a warehouse. Due to the sudden increase in demand, they were finding it difficult to manage their inventory processes and decided to rethink these processes. One of the most important characteristics of the national retail chain for our research is that it has both company-owned and not company-owned stores. One of the most significant solutions, which also affected inventory management, was therefore the allocation of goods on a store-by-store basis. The proportion of goods delivered between stores was maintained, but the volume delivered was reduced.

Last but not least, the actions affecting online activities will be analysed in more detail, as the pandemic has shown that any form of digitalisation can provide a significant competitive advantage for companies (García-Salirrosas et al., 2022) FRC was also characterised by the operation of an online shop before the epidemic, but the crisis has led to a greater emphasis on this, although offline trade remains its main profile. This is also the result of a conscious decision, as the company is aware that the coverage of its stores in Hungary gives it a significant competitive advantage (differentiated competitive strategy). In the case of the online supermarket, it is not relevant to compare the extent of offline and online activity. Our research on the company found that its nature was characterised by the adoption of courier logistics solutions to deal with increased demand. Finally, the national retail chain does not operate an online shop before, during or after the epidemic, but its physical coverage is significant not only in larger cities but also in rural areas, small towns and poorer regions of the country, so it does not consider it justified to build a web shop.
It can therefore be concluded that, although companies are typically affected by the same impacts, the extent of the impacts and the actions taken to deal with them are significantly influenced by the specific characteristics of the company.

4.2 Time span

In examining the time horizon, the aim was to explore whether the actions described above will have short-, medium- and long-term actors. There was unanimous agreement among our interviewees that their initiatives would be determined by the crisis situation, and that they did not consider long-term actions. In the case of the FRC, the short term (maximum of a quarter of a year) until the next revision was typical. Those introduced under the Covid-19 pandemic, e.g., the operational group, were disbanded after its dissolution. FRC has a well-established base to fall back on. They prepare themselves mostly for turbulent changes, so they do not plan for the long term, but build foundations to accelerate the response. NRC has also seen the effects of the actions introduced in the short term. However, the Online supermarket

has incorporated some of the changes in the long term in view of the growth phase. Their delivery service was improved under Covid-19, a service level (Christopher, 2016) that has been maintained ever since, and their response to the inventory management challenge has been incorporated into their long-term operations, simplifying their palette, and narrowing their offer.

4.3 The role of communication

Communication plays a crucial role in all management transactions, especially in crisis situations. For the retailers studied, it can be said that the international group enjoyed an advantage due to its network of contacts. In the case of the retailers, internal communication in support of security of supply is digital, partly supported by software (originating from the parent company). Crisis management was supported by the parent company's network. There was intensive communication with other actors in the country. A recurrent method has been to communicate with the areas affected by the Covid-19 virus, as the applicable protocols have been established earlier, thus facilitating the preparedness in Hungary. Focusing mainly on internal supply (warehouse and store network), FRC started an IT development process which supported the reduction of the order backlog and the development of security of supply. For this one actor under review, there is a guide for internal operations, which was touched upon during theCovid-19 pandemic. It provided a good basis for how to communicate with customers and staff on security of supply. They are also consciously preparing to manage risks. They have a business continuity plan and a risk management description using different methods to describe how different contingencies could occur. There is less intensive communication with the outside (suppliers and customers), and it is difficult to talk about conscious supply chain management thinking on the part of the trader towards external actors. Basic communication has been established with consumers, but no closer communication with the supplier side has been established in the context of crisis management. In the logistics planning of FRC, the large number of items in the inventory is noticeable, the active planning relationship can only be established with the larger suppliers. A common feature with NRC is the intensification of communication with the authority (operational trunk) during the pandemic. This was typically a one-way relationship in the form of external intervention (quantity limitation) to avoid shortages. Nonetheless, both interviewees (FRC and NRC) also consider continuous communication with the decision-making bodies during crisis situations to be essential. FRC communicated with the relevant government bodies in cooperation with its partners in the trade association. NRC also highlighted that the increased communication with the government may have been triggered by the strategic importance of food inventory for all countries in an emergency (Freund et al., 2023), so that in their case, on the recommendation of the operational staff, a military agent arrived at the warehouse centre to seize the inventory if necessary. The representative of NRC believes that the flow of communication between top management and employees is much more flexible than in a multinational company. This is meant to indicate that communication in both directions was based on personal experience, in the absence of an international background. General information was provided to small shops,

details could be obtained from top management, which was routinely embedded in the corporate culture. External communication to customers was typically one-sided and indirect, e.g., queuing stickers, Plexiglas at checkouts during the Covid-19 pandemic. The Online supermarket under study does not have such a communication platform, but it does have an online platform with excellent data collection capabilities. This retail unit also did not communicate directly with its customers, but monitored consumption patterns of e.g., price-stopping products in order to be able to plan. It observed an upsurge of these products, despite the fact that the basket they were monitoring also included a range of traditional premium products that customers were used to. This showed that consumers were shifting towards products with a price stop. Despite this, no action was taken towards suppliers, no overstocking was targeted and based on well-documented consumption data, they weathered the Covid-19 period without more specific supplier crisis management coordination with their forecasts. In contrast, communication with couriers (as a service supplier) (for recruitment reasons) became a central issue for them. To balance the trade-offs (Hugos, 2024) towards the buyer, they resorted to raising the minimum order value and the free delivery threshold in relation to energy costs, which can be perceived as an example of one-sided communication. The Online supermarket under study is part of a group from a European country but was less able to take advantage of the common know-how held by the SCC in terms of shared experience. This may be due to the fact that they had developed together in the pre-Covid period (2015-2019) (Christopher, 2016), so there was no justification for turning to the parent company, they are characterized by similar maturity.

4.4. Inventory mechanisms

The final point of our analysis was to examine which of the inventory mechanisms described in the literature review is the most typical for which company, and whether crisis situations have changed their use.

In our opinion, it is difficult to determine which inventory mechanism dominates in the FMCG industry itself. According to the findings of the research, the (t,q) model is the primary mechanism within basic foods, perishables such as milk, bakery products and fruits. Although described in the literature as an obsolete method, the fast rotation speed and low seasonality of these products generate a steady demand, which is well predictable from the procurement side. In contrast, durables (flour, sugar, toilet paper) are purchased along the (s,q) mechanism. It is difficult to give a precise answer to the question of how this has been changed by the pandemic. While it is true that the companies did not accumulate excessively large inventories, the increased demand forced them to purchase more than they normally would have done. As a consequence, in the short run the (t,S) model took the lead, as purchasing was characterised by variable ordering times and quantities. This suggests that firms acted in a reactive way, trying to catch up with the market. At this point in our paper, it is considered important to highlight that the literature suggests that the (s,q) model is best suited to deal with uncertainty (Demeter et al., 2022) If companies and the inventory management mechanisms they use are compared, it can be seen that in the case of the online supermarket, two models are used due to the complexity of the offer.

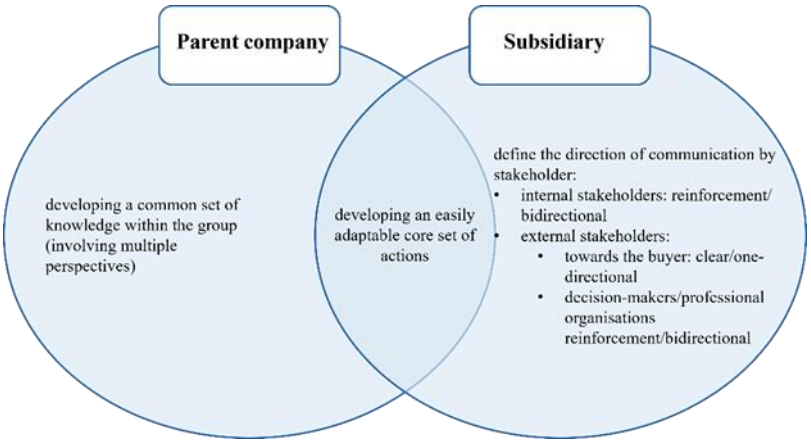
For typical FMCG products (higher rotation rate), the (s,q) model prevails, as it is characterised by automatic inventory monitoring, since the online shop only offers the products that are visible in their inventory management system. In contrast, for luxury, seasonal or limited products, maximum inventory replenishment is sought, so the (s,S) model can be considered relevant. At the same time, it is important to underline an important tool of online trading, which is the following: there is a restrictive intervention by the company during the ordering process, since the order can only be modified up to a given deadline. This does not make sense for an offline shop. FRC is not a supermarket, but a grocery retailer, so it does not have a very complex offer. Our study shows that the (s,q) inventory control mechanism was dominant during the outbreak of the Covid-19 virus, as the consumption of products was constantly monitored through the cash registers and used as a basis for deciding on interventions to limit the quantity of purchases. The NRC found a difference in demand between small and large shops. While small stores are characterised by lower demand, which is less predictable, the (t,S) model seems to be a dominant one. In contrast, larger stores are characterized by higher, more predictable demand, which supports the (s,q) model. Whether there is a difference in the frequency of deliveries between stores of different sizes was not answered in our research.

In conclusion, since there was no further large-scale stockpiling in the medium to long term for any of the companies, the stockpiling mechanism used did not change, except in the short term, on a temporary basis. It should be emphasized, however, that the action concerning the supply of the online supermarket remained in place in the medium term but has now reverted to a complex supply.

5. CONCLUSION

From the case studies, it became clear to us that when asked about crisis situations, the primary example cited by our respondents was the actions taken reacting to the Covid-19 virus caused pandemic. The Russian-Ukrainian war situation was less frequently raised to the level of the main cause of the challenges. What they all reported in terms of their supply portfolio was a temporary shortage of Balaton slices (chocolate bar), as this product is produced in Ukraine and the manufacturer has cut back capacity to protect its workers in the context of the war (Pénzcentrum, 2022). The solution to this was beyond the scope of the retailers. However, the online supermarket highlighted the energy crisis, which affects everyone but is less a temporary crisis, causing a fundamental reorganization of their operations. The analysis has resulted in the good practices shown in Figure 2. Figure 2 is based on a framework of criteria developed on the basis of an analysis of the literature to answer our research question. These can all be considered as areas of use in crisis management within the company.

Figure 2 Summary of good practices for communication

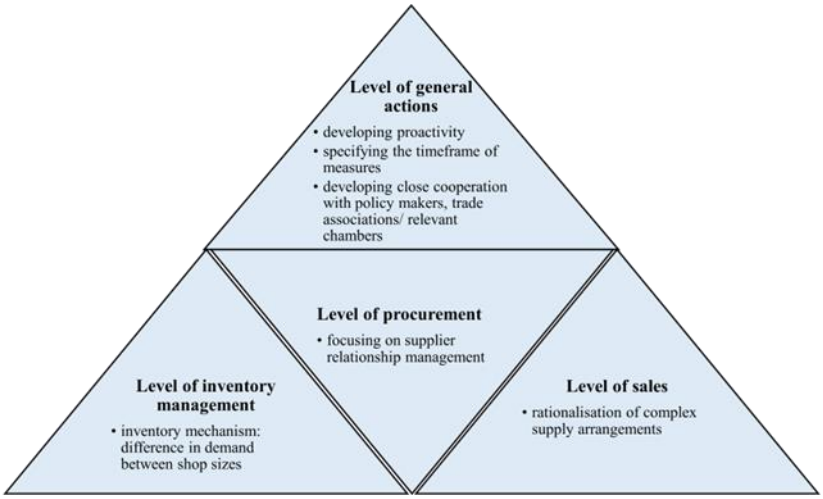


Source: own editing.

The collections in Figure 2 illustrate that firm characteristics, such as the degree of maturity and the firm's background, are seen as influencing factors from which commercial units from other backgrounds can also benefit, and therefore no attempt is made to break down the data into categories. Among the good practices, the role of communication towards both internal and external stakeholders stand out. This means to strengthen internal communication can be to develop appropriate methodologies (formally: e.g., developing crisis/risk management procedures that can be adapted to different potential crises; informally: implementing open, two-way, rapid communication between employees and management) and to develop channels for intensive information exchange within the group, so that sharing good practices can become a routine activity. Of course, this requires appropriate coordination, which also involves resources, but it can play a useful role in the long-term vision. Communication to external parties, such as customers, has tended to remain one-sided, with clarity being the example to follow. Increasing cooperation with decision-makers and professional organisations, and at the same time participation in the dialogue, can help to understand the crisis situation and provide a basis for preparing appropriate action. There was no major intensity of communication towards suppliers, which raises the issue of the existence of a supply chain management approach. However, this is in response to the wide range of goods on offer, which does not allow for closer communication with individual suppliers.

On the other hand, it could be seen that supplier relationships have become more valued, which is now a matter of supply function management. Figure 3 represents the interpretation of management actions found during the analysis.

Figure 3 Summary of good practices for management



Source: own editing.

That was clear from our interviews that in a crisis situation, the main focus was on high bargaining power with suppliers and building good relationships with domestic suppliers. These aspects can help to overcome difficulties such as border barriers. In order to secure supply, our respondents have also modified their sales methodology, namely by rationalising their complex offer. This practice has made it possible to support purchasing on the basis of consumer trends, which has also ultimately minimised the emergence of inventory shortages. Regarding inventory management, our interviewees pointed out that the sudden surge in demand did not affect the premises evenly, as they found differences in the intensity of demand depending on the size of the shop. This implies that larger stores will be hit by demand effects sooner, so that adjusting stockholding mechanisms to store size can lead to results. In general management tools, there has been an emergence of short-term thinking with a longer-term perspective. It is worth building into operational practice the periodic review of the established actions and the evaluation of their long-term serviceability, which resonates with the process approach in Giorgetto (2021) and Resperger (2018) (Giorgetto, 2021; Resperger, 2018). The time horizon of actions was limited to the short term for the interviewees more mature in terms of life cycle, mostly formulating formal/informal operational recommendations and good practices based on past experience. In contrast, the interviewee in the growth phase sought to exploit opportunities. They were aiming for long-term integration of procedures and methods imposed by the crisis. Building on these points, it is worthwhile to build a conscious attitude into the corporate culture, so that panic reactions can be avoided and a quick and effective response to crises can be developed.

6. SUMMARY

To conclude our article, the main findings of our study are briefly summarised. Our research question focused on the crisis management methods and actions used by food retailers in one of their most prominent areas of operation, inventory management. In order to answer our research question as accurately as possible, our literature review outlined the importance and role of inventory management in retailing. After that, the crisis management methods affecting this area of operation, aimed primarily at dealing with the effects of the Covid-19 epidemic and the Russian-Ukrainian war, were presented, as well as the challenges that caused them and related to inventory management. The results of our research were then presented in detail. Among our main findings, it is found that, although the literature suggests that safety stock is a tool to manage uncertainty and achieve greater resilience, it is not necessarily appropriate to deal with all situations in a comprehensive manner. In addition, the companies in our study were characterised by short-term thinking, as their crisis management actions were typically temporary, regardless of the operational area targeted. However, the conscious management of risks in crisis situations plays an increasingly important role today (Abdel-Basset & Mohamed, 2020). However, beyond conscious risk management, the maturity level of companies and their capabilities (e.g., international integration) also have a strong influence on their remeasures. Consequently, the development of crisis management methods (Resperger, 2018; Giorgetto, 2021) can make a major contribution to the management of turbulent crisis situations. As a result of this research, good practices for practitioners will cover both general management approaches and set-specific recommendations. In addition to this, the exploratory research has highlighted the issue of managing communication in a considered way, both internally and externally. The limitations of our research are, first of all, the small sample (hence the lack of representativeness), the exploratory nature of the analysis, which stems from the qualitative methodology, and therefore the lack of generalisability of our results. On the other hand, however, the methodology chosen for this research allows us to gain a deep understanding of the actions adopted by the companies involved in our research and the thought processes behind them. Further research is needed to overcome these limitations and to involve a wider range of FMCG retailers. It is therefore necessary to extend the subjects of our research, not only at national but also at global level. Moreover, a more detailed understanding and better comparability would be facilitated by analysing food retailers by category (e.g., discount, supermarket).

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