OECONOMIA COPERNICANA

VOLUME 9 ISSUE 1 MARCH 2018

p-ISSN 2083-1277, e-ISSN 2353-1827
www.oeconomia.pl

ORIGINAL PAPER

Citation: Zimon, G. (2018). Influence of group purchasing organizations on financial situation of Polish SMEs. *Oeconomia Copernicana*, *9*(1), 87–104. doi: 10.24136/oc.2018.005

Contact: gzimon@prz.edu.pl, Rzeszow University of Technology, Al. Powstancow Warszawy 10, 35-959 Rzeszow, Poland
Received: 13 May 2017; Revised: 24 November 2017; Accepted: 9 December 2017

Grzegorz Zimon
Rzeszow University of Technology, Poland

Influence of group purchasing organizations on financial situation of Polish SMEs

JEL Classification: *G32; G33*

Keywords: *group purchasing organization; finance; commercial enterprises*

Abstract
Research background: SMEs often operate in markets where they compete with large companies. A fight for a customer, payment backlogs, problems with debt collection and new branches cause that managers are looking for solutions that will influence positively on the situation of financial companies. Maintaining liquidity and generating income are the primary steps to build a competitive position and a progressive development of enterprises. One of the most popular methods that allows companies to do profitable business and increase their chances for safety is operation within group purchasing organizations. Currently in the Polish market there are many different types of GPOs (Group Purchasing Organizations). The choice of the right one is a chance to improve their financial situation.
Purpose of the article: The aim of the article is to present an impact of group purchasing organizations on the financial situation of enterprises. In the article the classification of groups is done and there are shown the benefits that commercial enterprises operating in them gain. The article presents some obstacles to join specific group purchasing organizations and difficulties faced by companies operating in them.
Methods: The studies were carried out on the basis of 60 SMEs. These companies operated in five Polish GPOs. The groups were divided into branch and multi-branch ones. The study period covered the years 2013–2015. In order to analyze the impact of purchasing groups on the financial situation of enterprises, some selected groups of financial ratios were used.

A preliminary analysis of financial balance sheets and profit and loss account was conducted.
Findings & Value added: The analysis showed that the choice of an appropriate group purchasing organization had a large impact on financial situation of companies. Different opportunities can be offered by a branch purchasing group than by the multi-branch one. Research has shown that better results relate to dynamics of revenues, costs, liquidity and profitability that are effects of operation within the branch purchasing groups. The analysis conducted has also showed that functioning within purchasing groups allows to maintain safe financial liquidity, apart from obtaining a low price of purchased goods and materials, and has a positive impact on the effectiveness of managing receivables and short-term liabilities.

Introduction

Small and medium-sized enterprises are forced every day to compete with big corporations about contracting parties. Competition about a customer is difficult as very often companies, when choosing a supplier, take into account only a price. SMEs acting alone in the market are not able to compete with the big players. They do not have too many options in terms of price reductions, and when buyers choose their supplier, they pay attention to three items: a price, a merchant credit and quality. In Poland price is still the key element in choosing a supplier. Next there are negotiations that deal with the merchant credit. Quality is often overlooked for the price, but lately it has been noticed that buyers are increasingly starting to take this element into consideration when deciding to choose a supplier.

However, more and more attention is paid to the fact that many tasks are performed better when working in groups. This is why the popularity of small and medium-sized enterprises is being won by an organization called a group purchasing organization. This form of organization is already available in every industry. The joint operation gives a great opportunity for companies operating in the group purchasing organizations, which positively influences their finances, the prices of offered goods and the opportunities for the merchant credit.

The aim of the article is to present how functioning within purchasing groups affects the overall financial situation of enterprises. The article presents how enterprises operating in a purchasing group can improve their competitive position, financial inflows and financial liquidity. The financial analysis was carried out on the largest and oldest Polish purchasing groups operating in the construction industry. On the basis of the results obtained, the areas where a company benefits and the areas where the specificity of functioning together in the group does not allow to improve the efficiency of enterprises have been identified.

Research methodology

In order to determine the impact of purchasing groups on the financial condition of enterprises, purchasing groups were divided into two types, i.e. branch and multi-branch ones. This division allowed to present, in great detail, the benefits and disadvantages that occur in individual purchasing groups. Then, using the methods of financial analysis, the financial condition of enterprises was assessed. The analysis was carried out in two stages, the first one concerned the initial analysis, and the second one — the index analysis. The initial analysis concerned the dynamics of revenues, costs and the structure of current assets. Then the index analysis was carried out in three areas: financial liquidity and profitability, inventory management efficiency, and receivables and liabilities. The selected indexes allowed to assess whether functioning within purchasing groups had a positive impact on financial results, financial liquidity and the general financial situation of enterprises, or whether there was no impact. In addition, in order to specify the advantages of particular types of purchasing groups, a comparison of the results obtained between the two types of purchasing groups was made.

The research covered 60 Polish small and medium-sized commercial enterprises operating in five Polish purchasing groups. The companies analyzed are construction wholesalers dealing with the trade of heating and sanitary equipment. Enterprises operating in multi-branch purchasing groups are entities conducting a broader activity which includes, apart from trade in heating and sanitary equipment, trade in building materials, furniture and coal. The selected branch purchasing groups are the first and oldest purchasing groups in Poland. In the period analyzed, there was no other industry in Poland where several purchasing groups would function. If they appeared, they functioned for a short time, consisted of several companies, and it was not possible to obtain financial data. The analyzed purchasing groups have been operating in the market for years, and the companies operating in those purchasing groups submit financial statements to the court from which the financial data was obtained.

The research period concerned the years 2013–2015. This is the period when the largest number of enterprises functioned within purchasing groups. Some enterprises were accepted into groups in 2012, that is why it was decided to conduct the analysis from 2013. The reports for later years were unavailable in the commercial court.

Group purchasing organizations

One of the methods that allows businesses to lower their operating costs, reduce revenue, and obtain low prices of the goods purchased is operating within the branch purchasing groups. First Group Purchasing Organizations (GPO) appeared in the US in 1950 (Weinstein, 2006, p. 790). Purchasing groups are most commonly established in the commercial sector, but they also appear in the medical branch. Hospital purchasing group alliances succeed in reducing healthcare costs by lowering product, prices, particularly for commodity and pharmaceutical items (Burns & Lee, 2008, pp. 203–215).

GPOs also have a positive impact on the quality of service or goods sold. Typical defects are organizational costs and loss of flexibility (Schontanus & Telgen, 2007, pp. 53–68). To be successful, a GPO needs to be able to foster and maintain the commitment of its members (Doucett, 1997, pp. 183–189). A groups purchasing organization is a unit composed of companies and a group holder called an integrator. The integrator is the central unit that manages the entire organization, most often it is a specially appointed company that makes up the GPO. The central unit may be an external company. Its main task is to organize strategic purchases of goods and materials. A consolidation of members of a given group is the basis for negotiations with producers (Blair & Durrance, 2014, pp. 433–443). Its degree has a big impact on the success of the group. The purpose of GPOs is to defend individual companies against strong competition and to increase negotiating power (Prakash, 2009, p. 22). This is possible, as joint operation and economies of scale give many opportunities to improve the financial situation of a company. Purchasing group is an entity that uses collective purchasing power to obtain a discount (Yang *et al.*, 2107, pp. 581–589). This is the effect of scale, which is characteristic for GPOs. A broader definition of a group purchasing organization is based on Martin Christopher's logistics and supply chain definitions, and it is as follows: the group purchasing organization is a group of cooperating companies that jointly control and streamline the flow of goods, information and money from suppliers to final recipients. Participants in such a system form a separate central unit, whose main task is to meet the goals set by the companies operating in the system (Zimon, 2017, pp. 675–682). There is a flow of information, money and goods between the central unit and the individual companies. The same possibilities of co-operation and organization of flows have businesses among themselves. Such actions should strengthen the competitive power of enterprises, operational safety, and affect positively the financial position of a company. Faced with increasing pressure to meet short-term financing needs, companies are looking for ways to unlock potential funds from within the supply chain (Lekkakos & Serrano, 2016, pp. 367–392). This way to do this is to create a purchasing group.

The organization scheme of the functioning of the purchasing group is shown in Figure 1.

It is an ideal situation when the central unit of a purchasing group is a company formed by all participants in a given group. This is a very good solution, because it is strictly controlled by all participants, and most importantly, it is not geared to profit. Its main task is to negotiate terms and conditions of the transaction with manufacturers.

When analyzing the functioning of purchasing groups, it is worth dividing them into branch and multi-branch ones. This is an important division due to the effect of scale that these groups can achieve. Similarity in the organizational structure, procedures is one of success factors (Schotanus *et al*., 2010, pp. 51–60). In the branch GPOs, the number of suppliers is limited, so the scale of the negotiations is strong. In multi-branch ones this effect is "blurred." Many suppliers divide businesses into smaller groups, which makes the purchasing power smaller. In the case of a purchase of certain services or materials, these divisions may not take place, but such a division exists in the multi-branch groups in the situation when a purchase of strategic goods or materials for the unit is made.

When analyzing the emergence of GPOs, it is also necessary to divide them taking into account the integration unit, i.e. the Internet and the traditional range of activities. The detailed division is shown in Figure 2.

It is not easy to join a purchasing group. There are some entry barriers to be followed if companies operate in this type of organization. The most important barriers for branch and multi-branch groups are:

- Territorial barriers; this restriction is related to the fact that there cannot be several companies operating in the same purchasing group in the same area. This limitation allows a company operating in a given area to compete effectively with other entities.
- Economic barriers; there are restrictions on a turnover which companies should implement.
- Environmental barriers; the environment of the enterprise is important.
- Positive recommendation by members of the group,
- Only those companies that operate in the same sector are allowed to operate in branch purchasing groups. There are no limits to this.

Another obstacle should be the concern of the company before changing its supplier to the supplier of the whole consortium (Mikelsen & Arlbjørn, 2015, pp. 326–343). The action in a purchasing group is a common vendor choice, which may indicate a loss in many cases.

Organization of supplies in the purchasing group

The organization of the goods supply is important for the costs management in a purchasing group. Enterprise integration within the supply chain is a cornerstone of competition, joint action rather than continuous rivalry avoids self-destruction (Christopher, 2011, p. 13). Supply logistics has a key impact on improving business performance and growth (Burns, 2016, p. 29). Well-developed GPOs create the central warehouse to increase the effect of scale. The central warehouse can serve as a dividing point. The supply chain is expanding and companies should pay attention to it (Nollet & Beaulieu, 2005, pp. 11–17). The task of the central warehouse is to store the goods that the central unit purchases for itself or for the companies that make up the purchasing group. Purchases for own needs are not sold outside, and are sold to companies that are a part of a purchasing group that wants to replenish stocks. Of course, the price is already higher than the original price at which the company was able to make the order. It is increased by the storage costs. The central warehouse increases the choice of delivery options. The choice of the right procurement method has an impact on costs. A rational strategy is to improve the profitability of a company (Rushton *et al*., 2010, p. 27). In GPOs with the central warehouse the delivery organizations can be divided into four options (Zimon, 2015, p. 7058–7059):

- Direct deliveries. This delivery system is only possible when ordering the right size of a range set by the central unit. The central unit is omitted, the delivery straight from the producer's warehouse goes to the company. The direct delivery system does not incur high transport and ordering costs. Another positive feature is the speed of delivery. The speed and practically no transport costs are the advantages of this solution. However, this type of delivery of goods is possible in the case of large supplies. This system skips the central unit,
- Deliveries using the central unit of the purchasing group. The central unit delivery system is a solution for companies that did not join a joint purchase at the time of submitting a product offer, or if they had ordered a small amount of goods or special items that were delivered to the central warehouse. From the central warehouse, individual companies download the assortment. The major disadvantage of this system are the costs to be borne, i.e. transport costs and maintenance costs of the inventory in the central office.
- Combined deliveries. This supply model appears when a given batch of goods goes to an area where several companies in a particular GPO exist. Combined deliveries are based on the Milk-Run concept and occur

when loads are too small to justify direct deliveries. This system (moderate supply management strategy) appears as it was in the early case when supplies were smaller. The manufacturer sent a delivery to several customers who were unloaded in successive locations (businesses). Storage, ordering, and transportation costs are low.
– Delivery without the manufacturer. The last system is the most expensive one that can be defined as aggressive supply management strategies. The central unit in the GPO purchases the goods for themselves. Companies buy goods from the central warehouse. If there is a demand for the item in the central unit, the company can order it. This action should be used when it is slowly becoming a shortage of inventory or in unexpected situations when there are unexpected shortcomings for various reasons. This supply system is the most expensive as the central unit raises the price of the product. For the central unit, the purchase of goods in their own warehouse, with the intention of reselling them, is an investment of surplus cash.

An analysis of the acquisition of selected assets and liabilities of enterprises

Companies should grow and expand their position in the market. Functioning of GPOs, just in terms of help, is the norm. There are a number of finance areas where purchasing groups' role is visible, especially in the financial management areas. See Figure 3 for details.

When analyzing Fig. 3, one can state that functioning within GPOs has a positive effect on profitability and liquidity. This is due to the scale effect that companies obtain. The central unit negotiating with the producer obtains an attractive price and trade credit, and very often an additional discount for an earlier payment.

The scale effect allows to get a low price of the purchased goods, which directly affects the company's costs. Low prices are a weapon in the fight for contractors, there is a chance to gain new customers which should increase sales revenues. In addition, the central unit has an option of negotiating long payment terms. The level of obligations will depend on the individually selected management strategy. The commitment management strategy also has a large impact on the profitability of enterprises (Madhou *et al.*, 2015, pp. 1–17).

Joint operation within purchasing groups significantly affects working capital and individual elements that create it, i.e. receivables, inventories or liabilities. Improvement of efficiency in these areas significantly affects the profitability of SMEs (Pais & Gama, 2015, pp. 341–358).

The cooperation of enterprises within a purchasing group is a possibility of mutual transactions which apply to financial liquidity, and often make it possible to replenish missing stocks. Mutual transactions in purchasing groups should be treated as a form of assistance to an enterprise that is close to losing financial liquidity. An enterprise that has high financial liquidity or a purchasing group's central unit may sell goods with a long-term payment to an enterprise with little financial liquidity. The buyer gains goods and a long deadline for payment. In the case of efficiency of managing receivables and liabilities, such transactions will worsen the performance of both companies.

While managing stocks, enterprises have many possibilities, however, group purchases require joint action and an implementation of purchase limits that will bring the right prices. Therefore, there may be purchases with high reserves, which is caused by the desire to get the lowest possible price. This can cause the inventory turnover ratio to disappear. The use of benchmarking is another advantage of actions in purchasing groups. In general, benchmarking is used in the sales and warehouse department. Learning from a shopping group leader, streamlining processes has a positive effect on the efficiency of inventory management and receivables or the organization of supply or distribution logistics.

While assessing the receivables turnover in days, we should not expect low results for this index. The purchasing group usually obtains a long period for payment of liabilities, which allows to extend payment periods to its recipients. Such a policy allows to maintain and sometimes gain contractors. In the case of stock management, there are many possibilities of supply organization, mutual traps, use of the central unit's storage. All this allows to optimize the level of stock rotation.

In the case of fixed assets, the only advantage that companies can get is the joint purchase of fixed assets, for example, means of transport. The managers of one of the analyzed groups tried to make such a purchase, it concerned the cars for the board. However, business owners did not agree on the choice of the car brand and the transaction did not materialize.

Empirical research

An analysis of the impact of GPO on the financial situation was presented in a group of 60 companies operating in 5 groups:

- Branch group A — 26 companies,

- Branch group B — 7 companies,
- Multi-branch group C — 5 companies,
- Multi-branch group D — 6 companies,
- Multi-branch group E — 16 companies.

The first element analyzed was the dynamics of sales revenue. Joint purchases and an opportunity to get a low price and a long merchant credit gives an opportunity to encourage new buyers. Table 1 provides information on the dynamics of sales revenue in the analyzed enterprises. Table 1 presents the number of enterprises in which an increase or decrease in revenues in the period 2013–2015 was divided into individual purchasing groups.

When evaluating the dynamics, it is clearly visible that in most companies approximately 75% of revenue were recorded in the years 2015–2013. In other units, the revenues declined.

Another measure compared the dynamics of revenues and costs in enterprises during the period considered. And as with revenue, there was a greater increase in revenue over costs or a higher decrease in costs over revenue.

In 75% of the surveyed companies, the dynamics of revenues and costs can be assessed positively. The details are shown in Table 2.

Then the financial liquidity was assessed. The ratio for coverage of current liabilities (Table 3). When assessing financial liquidity, it can be stated that all the purchasing groups have liquidity at a safe level. The analysis showed that the largest groups A, B, E generating the highest revenue achieved very high liquidity; it can be described as over liquidity. The smallest units scored at 1.4–1.6.

A detailed analysis has shown that only in the multidisciplinary groups did companies that have difficulty in maintaining liquidity emerge. However, they represent a small share — 5 companies. The detailed results concerning the current financial liquidity ratio for branch purchasing groups are presented in Table 4. Table 5 provides detailed results for financial liquidity in multi-branch groups. When analyzing the results from Table 5, one can notice that in branch GPOs about 25 companies get results within 2.0. It is high financial liquidity. Companies are safe, but bear unnecessary costs. Cash is frozen in assets. It is worth conducting a detailed analysis and determining where one can lower the level of current assets. In units operating in multi-sector purchasing groups, this result is obtained only by 9 companies.

Another concerned the profitability of sales. Table 6 provides detailed results for the profitability of sales. The profitability of sales in all groups was reported to have risen in comparison to 2013. The best result was recorded by the branch group A. In addition, each company operating in a professional group earned profit in the periods under consideration. In the case of 8 companies operating within multiple-branch groups, losses occurred.

Then, the inventory management, current receivables and current liabilities were assessed. The details are shown in Table 7. The high level of receivables should be assessed positively, as it is not due to difficulty in debt collection, but it results from the favorable merchant loans that are offered to customers. Such opportunities give companies an ability to operate in purchasing groups, as they receive an attractive merchant credit as a result of negotiations conducted by the central unit. They do not have to rush to pay, and therefore they can also offer their customers a favorable time to pay their debts. They can apply no aggressive debt collection policy. In the case of commitments, very often in the branch purchasing groups additional discounts for early repayment of liabilities appear. Companies have high liquidity, have an opportunity to use such opportunities that have a positive impact on liquidity. Therefore, in these purchasing groups, the turnover ratio of liabilities in days is clearly lower than that of the multi-sector groups. The choice of the right commitment management strategy has a big impact on the company finances (Banos-Caballer *et al.*, 2015, pp. 1189–1204).

Inventory management needs to be positive, results are average and group purchases are higher than the actual needs. Therefore, the stock is often beyond the actual demand. This is the cost a company bears because of the desire to get a low price for a product. However, after comparing the cost of maintaining of inventory excess and the price, we have established that the company policy of buying over the demand is favorable. Additionally, this action increases the level of liquidity or security of the enterprise. In the analyzed companies, the level of inventories and receivables in the structure of current assets is often similar. The details are given in Table 8.

The analysis conducted has shown that in branch GPOs receivables are predominant. This is visible in the purchasing group that has the central warehouse. Such an action allowed the company to optimize orders. They can be supported on the central stocks, which has a positive effect on turnover and stock levels. The costs of maintaining the central warehouse are distributed to all participants in the purchasing group so that they are not high. Inventory management costs directly in the company are falling, which positively affects the finances of the unit.

Discussion

In the world, the most common functioning of purchasing groups can be observed in the healthcare sector (Nollett *et al*., 2017, pp. 17–27). In recent years, purchasing groups have also dominated purchases of pharmaceuticals (pharmacies) and other medical supplies (Marvel & Yang, 2008, pp. 1090–1105). In America, there are over 600 GPOs operating in healthcare, and about 98 percent of hospitals are buying through GPOs (Hu *et al.*, 2012, pp. 7–23). In addition, GPOs are widespread in other industries, in the food industry and the aviation industry (Hu *et al.*, 2012, pp. 7–23). In Europe, in the aviation industry, it is possible to observe the joint purchasing action of Lufthansa and SAS (Dana, 2012, pp. 470–485). In their research, the authors mention a reduction in prices of purchased goods (Tella & Virolainen, 2005, pp. 61–168), reduction of administrative costs (Nollet & Bealulieu, 2005, pp. 1–17) and cost reduction (Burns & Lee, 2008, pp. 203–215) as the most important benefits offered by functioning in purchasing groups. In Quebec, in Canada, in the health care units, the savings concerned the purchase of medicines and food (Nollet *et al*., 2017, pp. 17–27). It should be agreed that the main benefits of companies operating in purchasing groups are the low price of purchased goods, materials and raw materials. In the case of reduction of administrative costs in the analyzed enterprises, it is possible to implement, but it would be a minor cost-saving and related to, for example, office supplies, fixed assets, fuels. These types of purchases most often appear in multi-industry purchasing groups. In shopping groups, savings on energy costs often occur (Piorunowska-Kokoszko & Romaniszyn, 2005, pp. 111–120). For production companies, energy costs are very important, for commercial ones less because they represent a minimum share of costs.

In the literature, however, there is no information on the benefits that enterprises bring to the effect of scale in the area of receivables and liabilities management. The authors do not mention the possibility of a deterioration in inventory turnover and receivables in days. First of all, there is no information on how the functioning in groups affects positively the financial liquidity of enterprises. In the presented article, the analysis of 60 trading enterprises clearly indicated how the economies of scale and joint action within the group had a positive effect on financial liquidity, rotation of receivables, liabilities, inventories, revenues, costs and financial results. On the other hand, when analyzing literature, one can find information about purchasing groups that allow members to make purchases from other suppliers, for example when they want to buy better quality products (Sandberg & Mena, 2014, pp. 276–297). Such functioning, however, has a negative effect on the economies of scale. Before joining the purchasing group each company had its own suppliers. Moving away from a common supplier would weaken the purchasing group. However, it may cause a competition effect between suppliers for a given purchasing group, which is a risky strategy, but it would benefit the participants of the purchasing group.

Conclusions

The analysis conducted has shown that joint action brings financial benefits to companies. This is evident primarily in the fields of liquidity, profitability and management efficiency. Functioning in multi-branch and branch GPOs increases the financial liquidity of businesses. This is due to the purchase of goods often over demand, extended payment deadlines, increased sales, the use of discounts for early payment. The profitability of sales is most affected by a decrease in cost items in the value of goods sold at the purchase price. Certain costs groups such as inventory management, maintenance costs of the central unit increase. However, the reduced price of purchased goods and materials compensate for those costs. An attractive price allows to attract new customers and keep the existing ones, which positively influences on an increase of sales revenue. An analysis of cost and revenue dynamics is beneficial for 75% of companies. When analyzing the results of all groups, it is important to note that the companies that are active in the branch purchasing groups are more successful. In this type of group there are no additional divisions, which positively influences the effect of scale and the negotiating power of the central purchasing organization. The central unit in such a purchasing group has a smaller group of suppliers, which makes it easier to work. Central warehousing allows to fill in the gaps that have a positive impact on the company's inventory management costs. In particular the costs of missed opportunities or loss of customer. If companies within a purchasing group cooperate with one another, then the situation of losing customers is impossible.

The creation of international purchasing groups is now a good solution. Benchmarking and exchange of experiences between groups from different countries are great benefits to improve the efficiency of enterprises. However, creating such groups is an extremely difficult task, as the operating costs of the purchasing group's central unit increase. This may be a problem for many enterprises that will not be interested in implementing new solutions and benchmarking. In addition, not every company will be able to apply new solutions. What is more, often the reluctance to cooperate with other enterprises is observed in the functioning of enterprises within purchasing groups. Such an action, and a lack of trust in others weaken the group's strength and limit its activity. The introduction of additional groups from other countries will not affect positively on the functioning of such enterprises.

It is important that in the purchasing groups the joint purchases of services are also introduced. Joint purchase of legal services, debt collection, fuel, energy, advertising, training, all this reduces costs and, above all, strengthens the relationship between enterprises without which the functioning of the purchasing group has no future.

To summarize, the action within the branch or multi-branch purchasing groups has a positive effect on liquidity, profitability and management efficiency. The benefits that individual companies receive depend on the type of group, the size of the sales and the amount of sales that the company makes and strategies for managing individual assets and liabilities.

References

Banos-Caballer, S., Garcia-Teruel, P. J., & Martinez-Solano, P. (2015). Financing of working capital requirement, financial flexibility and SME performance. *Journal of Business Economics and Management*, *17*(6). doi: 10.3846/16111699.2015.1081272.

Blair, R. D., & Durrance, C. P. (2014). Group purchasing organizations, monopsony, and antitrust Policy. *Managerial and Decision Economics*, *35*(7). doi: 10.1002/mde.2633.

Burns, M. (2016). *Logistics and transportation security. A strategic, tactical, and operational guide to resilience*. New York: CRS Press.

Burns, L. R., & Lee, J. A. (2008). Hospital purchasing alliances: utilization, services, and performance. *Health Care Management Review*, *33*(3). doi: 10.1097/01.HMR.0000324906.04025.33.

Christopher, M. (2011). *Logistics & supply chain management.* Harlow: Prentice Hall.

Dana, J. D. (2012). Buyer groups as strategic commitments. *Games and Economic Behavior*, *74*.

Doucett, W. (1997). Influences on member commitment to group purchasing organizations. *Journal of Business Research*, *40*(3). doi: 10.1016/S0148-2963(96)00234-2.

Hu, Q. , Schwarz, L. B., & Uhan, N. A. (2012). The impact of group purchasing organi-zations on healthcare-product supply chains. *Manufacturing & Service Operations Management*, *14*(1).

Lekkakos, S. D., & Serrano, A. (2016). Supply chain finance for small and medium sized enterprises: the case of reverse factoring. *International Journal of Physical Distributing & Logistics Management, 46*(4). doi: 10.1108/IJPDLM-07-2014-0165.

Madhou, A., Moosa, I., & Ramah, V. (2015). Working capital as a determinant of corporate profitability. *Review of Pacific Basin Financial Markets and Policies, 18*(4). doi: 10.1142/S0219091515500241.

Marvel, H., & Yang, H. (2008). Group purchasing, nonlinear tariffs, and oligopoly. *International Journal of Industrial Organization, 26*.

Mikelsen, O. S., & Arlbjørn, J. S. (2015). Purchasing consortia: when money does not make the whole talk. *International Journal of Procurement Management, 8*(3). doi: 10.1504/IJPM.2015.069156.

Nollet, J., Beaulieu, M., & Fabbe-Costes, N. (2017). The impact of performance measurement on purchasing group dynamics: the Canadian experience. *Journal of Purchasing & Supply Management, 23*.

Nollet, J., & Beaulieu, M. (2005). Should an organization join a purchasing group? *Supply Chain Management*, *10*(1).

Pais, M. A, & Gama, P. M. (2015). Working capital management and SMEs profitability: Portuguese evidence. *International Journal of Managerial Finance, 11*(3).

Piorunowska-Kokoszko, J., & Romaniszyn, B. (2015). The impact of purchasing groups on the operational efficiency of the company on the example of Komandor Łódź S.A.. *Studia Ekonomiczne Regionu Łódziego, 19*.

Praksath, S. (2009). *Group purchasing organization - undisclosed scandal in the U.S healthcare industry*. New York: Palgrave Macmillian.

Rushton, A., Croucher, P., & Bake, P. (2010). *The handbook of logistics and distribution management*. New Delhi: Kogan Page.

Schotanus, F., Telgen, J., & de Boer, L. (2010). Critical success factors for managing purchasing groups. *Journal of Purchasing & Supply Management, 16*.

Schotanus, F., & Telegen, J. (2007). Developing a typology of organizational forms of cooperative purchasing. *Journal of Purchasing & Supply Management, 13*.

Weinstein, B. L. (2006). The role of group purchasing organizations (GPO) in the U.S medical industry supply chain. *Estudios De Economia Aplicada*, *24*(3).

Yang, Y. C., Cheng, H. K., Ding, C., & Li S. (2017). To join or not to join group purchasing organization: a vendor's decision. *European Journal of Operational Research, 258*(2). doi: 10.1016/j.ejor.2016.08.069.

Zimon, G. (2017). Inventory management costs in enterprises working in purchasing group. In *Book 1 modern science – volume I political sciences, law, finance, international relations*: *Vienne, SGEM 2017: 4th international multidisciplinary scientific conference on social sciences & arts - conference proceedings*. doi: 10.5593/sgemsocial2017HB11.

Zimon, G. (2015). Organization of goods supply in the marketing and purchasing group. *Logistyka, 4*.

Annex

Table 1. Changes of sales dynamics in the years 2013–2015

GPO	Growth	Decrease
A branch	19	7
B branch	5	2
C multi-branch	4	1
D multi-branch	4	2
E multi-branch	13	3
Total	45	15

Table 2. Change of costs and revenues dynamics in the years 2013–2015

GPO	Revenues increase	Costs increase
A branch	19	7
B branch	7	0
C multi-branch	4	1
D multi-branch	4	2
E multi-branch	8	5
Total	45	15

Table 3. Average ratio of financial liquidity in the years 2013–2015

GPO	2015	2014	2013
A branch	3.6	3.8	2.2
B branch	3.2	2.7	2.6
C multi-branch	1.6	1.5	1.4
D multi-branch	1.6	1.4	1.4
E multi-branch	2.4	2.9	2.5

Table 4. Current financial liquidity ratios in companies belonging to GPOs

Company	2015	2014	2013
Company 1	1.2	1.3	1.2
Company 2	1.4	1.5	1.5
Company 3	1.2	1.2	1.2
Company 4	1.8	1.9	1.8
Company 5	11.0	8.1	2.1
Company 6	1.3	1.2	1.1
Company 7	3.4	3.1	2.7
Company 8	3.1	4.1	2.0
Company 9	7.0	5.9	1.1
Company 10	1.9	1.8	2.0
Company 11	1.7	2.0	2.1
Company 12	4.1	4.0	2.1
Company 13	15.0	12.1	8.2
Company 14	5.1	6.9	4.6

Table 4. Continued

Company	2015	2014	2013
Company 15	1.9	1.5	1.7
Company 16	1.3	1.1	1.3
Company 17	8.0	10.0	7.0
Company 18	1.6	1.3	1.2
Company 19	3.6	3.5	3.3
Company 20	2.5	2.7	2.1
Company 21	7.0	9.0	1.1
Company 22	1.2	1.6	1.8
Company 23	1.4	1.6	1.4
Company 24	1.2	1.2	1.3
Company 25	1.9	1.8	1.6
Company 26	5.0	9.0	1.1
Company 27	3.2	2.4	3.5
Company 28	1.3	1.3	1.4
Company 29	4.1	3.4	3.0
Company 30	4.2	3.4	4.2
Company 31	2.1	2.1	2.0
Company 32	3.4	3.2	1.8
Company 33	3.1	2.6	2.3

Table 5. Ratio of current financial liquidity in enterprises belonging to multi-branch GPOs

Company	2015	2014	2013
Company 1	1.8	1.4	1.2
Company 2	1.3	1.2	1.3
Company 3	1.1	0.9	1.2
Company 4	1.6	1.6	1.4
Company 5	2.3	2.1	2.1
Company 6	1.5	1.5	1.5
Company 7	0.8	0.8	0.9
Company 8	1.9	2.3	2.4
Company 9	1.4	1.3	1.0
Company 10	1.5	1.3	1.1
Company 11	2.4	1.6	1.2
Company 12	4.3	4.6	4.5
Company 13	1.3	1.4	1.2
Company 14	2.3	2.0	1.7
Company 15	1.3	1.2	1.3
Company 16	1.0	0.9	0.9
Company 17	1.3	1.2	1.3
Company 18	3.9	5.0	4.1
Company 19	0.8	1.0	1.3
Company 20	1.5	1.5	2.0
Company 21	1.5	1.7	2.0
Company 22	9.1	16.0	10.2
Company 23	2.5	2.5	2.1
Company 24	3.0	2.0	2.6
Company 25	2.4	2.2	2.3
Company 26	1.8	2.0	2.1
Company 27	0.9	1.1	1.0

Table 6. Average profitability sale ratio in the years 2013–2015

GPO	2015	2014	2013
A branch	0.043	0.041	0.039
B branch	0.024	0.022	0.020
C multi-branch	0.032	0.024	0.032
D multi-branch	0.032	0.024	0.026
E multi-branch	0.034	0.003	0.029

Table 7. Inventory turnover of receivables and liabilities, inventory in days. Average for the period 2013–2015

GPO	Receivables	Inventories	Liabilities
A branch	66	59	63
B branch	61	69	53
C multi-branch	74	49	80
D multi-branch	49	70	83
E multi-branch	56	67	76

Table 8 . Structure of current assets in the years 2013–2015

GPO	The advantage of receivables over inventories	The advantage of inventories over liabilities
A branch	20	6
B branch	2	5
C multi-branch	1	4
D multi-branch	1	5
E multi-branch	5	11

Figure 1. Organization scheme

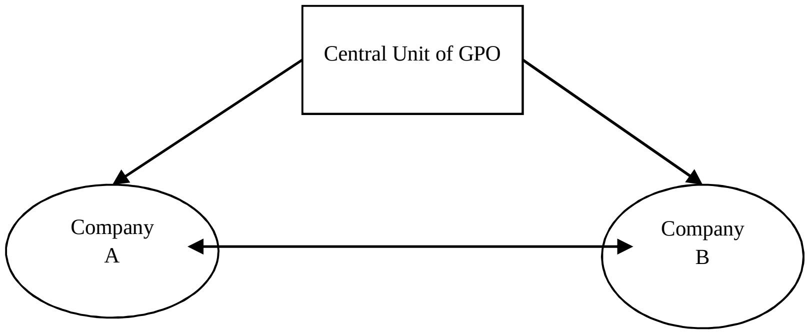

Figure 2. Classification of GPOs

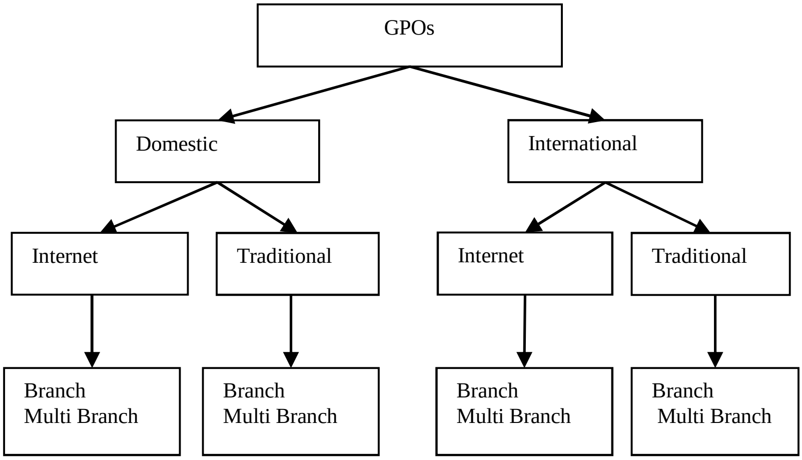

Figure 3. An impact of purchasing groups on a particular areas of corporate finance management