An Assessment of the Influence of Nominalized Quality Management Systems on the Level of Receivables in Enterprises Operating in Branch Group Purchasing Organizations

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Abstract

Receivables management is one of the most important elements of business management. Short-term receivables are the basic source of cash in an enterprise. Mistakes made in this area of management block the functioning of the enterprise. The lack of cash leads to the suspension of sales in commercial enterprises and in the case of production units to stop production. Therefore, it is extremely important to introduce an appropriate receivables management strategy that will allow controlling customers and avoid the occurrence of overdue receivables. The main purpose of the paper was to determine an impact of the implementation of the requirements of standardized quality management systems on the improvement of processes related to the management of receivables from recipients. The research process was carried out on a sample of 38 organizations associated under two group purchasing organizations. The enterprises were divided into those which implemented quality management systems and those that did not use such solutions, then analyzes were made and the results obtained by enterprises associated in particular groups were compared. The research process allowed accomplishing the main goal of the paper and to answer the research questions posed.

Keywords: *receivables; quality; management systems; Group Purchasing Organizations (GPOs).*

1. Introduction

One of the most important factors affecting the company's financial results and financial security is the amount of revenues earned and their impact on the company's bank accounts. Their height and time which passes from the moment of sale to the moment when they appear in the enterprise are influenced by external and internal factors. The first group includes the market situation, whereas competitors' policy for the second group includes the price and quality of offered products, goods and sales policy (Dębski, 2013). Therefore, the second group of factors depends on the receivables management policy. The process of managing receivables starts already at the moment when the seller decides to sell the goods, the service with deferred payment date. The company offers the recipient commercial credit (trade credit) which is the basic tool for building a receivables management policy. The task of the commercial loan is also to ensure the quality of the products offered by the supplier. The loan is perceived as an effective measure limiting customer uncertainty and enabling it to assess the quality of purchased products (Rytko, 2009). The loan period is also the period of verification of the quality of the purchased product (Smith, 1987). According to Long and co-authors (Long et al. 1993), trade credit can be used to distinguish between high and low quality products. The literature states that commercial credit is provided by reliable and reliable companies whose customers can verify the quality of products before making payments. So according to this theory, cash payment appears when the product is sold for cash. One can agree with the claim presented by the authors that the trade credit is offered by reliable companies. But today, companies that do not offer sales with deferred payments cannot survive in the market. Trade credit is a fundamental tool affecting the construction of liquidity management policy, receivables from customers, liabilities to suppliers. It is also a great tool to fight against competition. Competition appears in every industry and companies generally compete with each other in terms of price. For this purpose, some are trying to use strategies to fight against rivals whose weapons are low costs. Such a policy in the short term, when introducing new products, can bring the intended benefits. In the long run it will push the company towards a loss of financial liquidity, which is the first step towards the bankruptcy of the company. The fight against competition can also be achieved by offering high-quality products. However, basing the entire range on such products can be risky (Al-Ammouri et al., 2018; Woźniak and Fill, 2018). The recommended solution seems to offer products that meet the established standards and comprehensively take into account customer requirements. In pursuit of this goal, companies often implement standardized quality management systems (Fonseca and Domingues, 2017, Zaramdini, 2007). Compliance with their guidelines leads, among others to organize the basic processes in the enterprise, reduce costs and minimize discrepancies (Zimon and Malindžák, 2017, Sampaio et al., 2012). In addition, they can be supplemented with any management instrument to achieve synergy effects (Dellana, and Kros, 2018, Kumar et al., 2009). According to the authors, an effective tool in this aspect is the use of trade credit. The contractor negotiating the terms of purchase is most often interested in the price of the purchased goods and the length of the trade credit. The longer the deadline for payment of the obligation, the greater the chance that the contractor will take advantage of such an offer. Therefore, one cannot agree with the statement that goods, services of low quality are sold for cash. Likewise, one cannot suggest that a long trade credit means high quality goods. Nowadays, when the reputation of the company depends on customer satisfaction, enterprises must offer products and services that are fully tailored to the requirements of consumers and, on this basis, implement the adopted strategies (Madzík and Chocholáková, 2016; Gajewska and Grigoroudis, 2017). The sales management policy, especially the one on receivables, depends to a large extent on the possibilities that the company has at the moment. If an enterprise manager wants to acquire a new contractor, he should offer attractive trade credits. On the other hand, when there is a sudden demand for cash, financial liquidity is threatened, the manager also offers a reduced price and an additional discount for cash or an accelerated payment. Large opportunities in the creation of receivables management strategies appear in the branch group purchasing organizations. In addition, due to their specificity and functioning on similar principles, one can try to determine whether an implementation of standardized management systems affects selected financial results of organizations associated in purchasing groups.

2. Receivables in group purchasing oranizations

Purchasing groups should be defined as a group of companies from the same or different industry that combine to make joint purchases (Zimon, 2014). In the case of the functioning of purchasing groups, trust and cooperation are very important. Lack of cooperation within the purchasing group is the first step towards leaving the purchasing group. Consolidation and cooperation of members of a given group is the basis for negotiations with producers (Blair and Durrance, 2014). The authors in their research mention a reduction in prices of purchased goods (Tella and Virolainen, 2005) a reduction of administrative costs (Nollet and Bealulieu, 2005) and a cost reduction (Burns and Lee, 2008; Cowan et al. 2016) as the most important benefits obtained by units operating within purchasing groups (Doucett, 1997). These benefits also arise when managing receivables from customers, (Zimon, 2018). This is due to the receipt of an attractive trade credit from the producer, which gives an opportunity to extend the repayment date to the recipients. The purchasing group can be described as powerful buyers. They meet important criteria characteristic for powerful buyers, they buy large quantities (Porter, 2001). And such purchases strengthen the economies of scale which allows the central unit negotiating with the producer in addition to the low price of the purchased goods, materials, plus an attractive merchant credit. In purchasing groups managers have an option of using two methods of managing receivables. The choice of them depends on the chosen strategy for managing liabilities to suppliers. See figure 1 for details.

In general, enterprises operating in purchasing groups choose strategies for managing liabilities based on earlier settlement of liabilities, which forces the managers to introduce appropriate systems to control the level and structure of receivables from recipients. Debt management strategies can be divided into three classic ones:

- Conservative, seeking to completely eliminate the risk of contractors' insolvency.
- Aggressive, based on excessive trust towards recipients. Sales with deferred, often long-term payments, are carried out for trusted and new contractors. This is risky strategy.
- Moderate, intermediate.

Moderate strategies are worth separating into moderate-conservative and moderate aggressive. In the case of a moderate-conservative strategy, the basic rules of conduct should be those that apply to the conservative strategy with one exception. Managers should introduce cautious debt collection not to discourage contractors. They should offer some discounts for an early payment. A moderate-aggressive strategy based on an aggressive strategy should eliminate the sale of cash to new contractors. Managers should more effectively analyze the financial situation of recipients, use the information of other entities operating in the purchasing group on the subject of contractors.

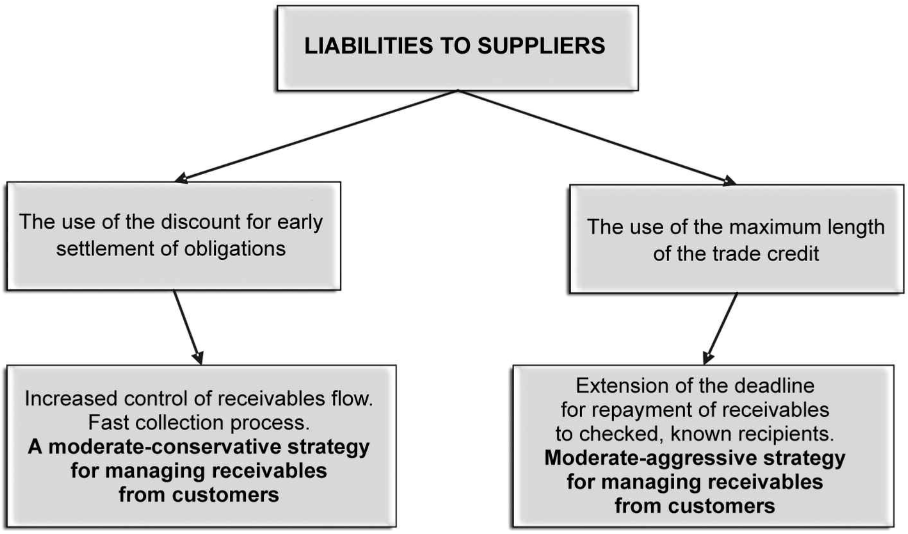

Figure 1.
Policy of managing receivables

Source:
author's own study

3. Methodology and subject of research

The main objective of the research was to determine an impact of implementation of the requirements of standardized quality management systems on the improvement of processes related to the management of receivables from recipients. The explanation of the generally outlined research problem and the more detailed research issues prompted the authors to formulate the following research questions:

- Do companies that have implemented quality management systems evidently achieve better results than organizations that do not have standardized quality management systems?
- Is the ISO 9001 standard considered as an appropriate tool to improve financial performance?

The main reasons for interest in this research problem are:

- A relatively small number of studies related to the studied

subject,
- Different opinions and views that appear in the subject literature on the influence of standardized management systems on the financial results of enterprises (Zimon, 2015, Kafel and Simon, 2017, Djekic et al., 2011).

The research covered 38 Polish small trading enterprises operating in two GPOs. The enterprises operating in purchasing groups generate turnover in the range from PLN 10 million (USD 2 million) to PLN 120 million. (USD 30 million). The research period concerned the years 2014-2016. The analysis was carried out to assess an impact of standardized quality management systems on the process of managing receivables from customers. The surveyed enterprises were divided into those which implemented quality management systems (10 organizations) and those that do not use such solutions (28 organizations), then analyzes were made and the results obtained by enterprises associated in particular groups were compared. The analyses of financial indicators and statistical methods were used as the basic research tools.

4. An analysis of the influence of quality management systems on the liabilities management

Table 1 presents the results of the receivables turnover ratio in enterprises that did not introduce quality management systems. The analyzed companies operate in the branch purchasing group.

Enterprise	2016	2015	2014
1	70	59	57
2	55	31	41
3	72	73	75
4	80	76	81
5	78	83	69
6	132	113	122
7	76	83	77
8	84	74	89
9	51	60	58
10	58	38	31
11	80	77	77
12	11	14	18
13	61	74	61
14	68	55	66
15	70	77	77
16	81	76	60
17	55	65	65
18	92	83	83
19	91	99	90
20	25	29	30
21	90	79	88
22	64	66	62
23	73	57	52
24	61	58	65
25	98	88	89
26	94	92	104
27	97	90	77
28	84	88	78

Table 1. Receivables rotation rates in days in the analyzed enterprises in 2014-2016
Source: author's own study based on the financial statements of enterprises

Table 2 presents the detailed results of receivables turnover rates in days for units using quality management systems.

Enterprise	2016	2015	2014
1	56	57	59
2	82	66	67
3	27	25	47
4	68	65	66
5	83	88	71
6	30	31	32
7	72	75	83
8	36	42	44
9	65	60	62
10	86	73	66

Table 2. Receivables rotation rates in days in the analyzed enterprises applying quality management systems in the years 2014-2016
Source: author's own study based on the financial statements of enterprises

When comparing the results of receivables turnover rates in days in both groups, it can be observed that the results of receivables turnover in units that introduced quality management systems are lower. This suggests that companies using quality management systems are more efficient in collecting receivables from customers. Cash has a faster impact in this group of enterprises which positively affects the financial security of the unit. According to the authors, the discussed state of affairs may result both from the development and an implementation of appropriate system procedures but also from a well-thought-out cooperation strategy with suppliers and customers, whose improvement is recommended by standardized management systems quality (Sroufe and Curkovic, 2008).

Enterprise	2016	2015	2014
1	0.52	0.50	0.45
2	0.16	0.13	0.14
3	0.56	0.55	0.56
4	0.56	0.54	0.57
5	0.46	0.47	0.48
6	0.70	0.71	0.74
7	0.50	0.48	0.50
8	0.63	0.64	0.58
9	0.38	0.50	0.49
10	0.44	0.32	0.29
11	0.39	0.45	0.42
12	0.09	0.13	0.17
13	0.36	0.48	0.43
14	0.50	0.48	0.53
15	0.30	0.34	0.35
16	0.56	0.53	0.57
17	0.35	0.47	0.51
18	0.55	0.57	0.58
19	0.55	0,56	0.53
20	0.16	0.20	0.20
21	0.62	0.48	0.59
22	0.47	0.43	0.40
23	0.51	0.51	0.50
24	0.48	0.49	0.52
25	0.60	0.66	0.57
26	0.57	0.59	0.62
27	0.46	0.48	0.42
28	0.56	0.62	0.56

Table 3. Ratios of the share of receivables in current assets (%) in enterprises not using quality management systems in the period 2014-2016
Source: author's own study based on the financial statements of enterprises

Enterprise	2016	2015	2014
1	0.47	0.50	0.51
2	0.44	0.41	0.43
3	0.24	0.24	0.38
4	0.50	0.47	0.48
5	0.36	0.40	0.43
6	0.30	0.29	0.35
7	0.45	0.46	0.54
8	0.24	0.28	0.34
9	0.36	0.32	0.33
10	0.60	0.50	0.57

Table 4 .Ratios of the share of receivables in current assets in enterprises applying the quality management system in the period 2014-2016
Source: author's own study

In Tables 3-4 the results regarding the structure of current assets are presented, informing about the share of receivables from recipients in current assets in both studied groups.

When analyzing the obtained data it can be concluded that statistically significant (test probability value $p < 0.05$) or at least similar to those ($p < 0.10$) differences between the group of companies applying quality management systems and non-performing enterprises concern the following ratios:

- the receivables turnover ratio in days was higher in the group of enterprises not using quality management systems, the difference between the two groups was close to the level of statistical significance;
- the ratio of the share of receivables reaches higher values in the group of enterprises without quality management systems, these differences are statistically significant in the years 2015-2016.

The detailed results of the statistical analysis are presented in table 5.

Receivables rotation in days	Group										p
	Enterprises without quality management systems (*N* = 28)					**Enterprises using quality management systems (*N* = 10)**					
	$\bar{x}$	Me	s	min	max	$\bar{x}$	Me	s	min	max	
2014	69.4	72	22.3	18	122	59.7	64	14.8	32	83	0.2054
2015	69.9	75	22.1	14	113	57.4	6.,5	19.5	25	88	0.0879
2016	73.3	74.5	23.1	11	132	57.9	62.5	20.5	27	83	0.0759

Table 5. Results of receivables turnover in days for both groups of enterprises
Source: author's own study based on the financial statements of enterprises

Below, in figure 2, the distribution of receivables turnover in days is presented in a graphic form. (Group A – 28 enterprises without quality management systems, Group B – 10 enterprises using quality management systems).

Table 6 presents the average results for the ratio of the share of receivables in current assets in particular years.

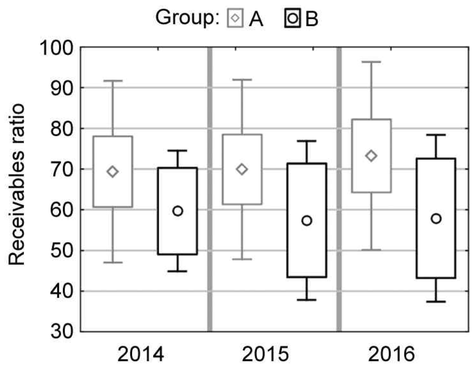

Figure 2. Comparison of the ratio of the receivables ratio in both groups in particular years (mean, 95% confidence interval and typical variability interval are marked on the chart

Share of receivables in current assets	Group										p
	Enterprises without quality management systems (*N* = 28)					**Enterprises using quality management systems (*N* = 10)**					
	$\bar{x}$	Me	s	min	max	$\bar{x}$	Me	s	min	max	
2014	0.47	0.50	0.14	0.14	0.74	0.43	0.43	0.08	0.33	0.54	0.1014
2015	0.48	0.49	0.14	0.13	0.71	0.38	0.40	0.09	0.24	0.50	0.0086**
2016	0.46	0.50	0.15	0.09	0.70	0.38	0.40	0.10	0.24	0.50	0.0258*

Table 6. Results of the share of receivables in current assets for both groups of enterprises
Source: author's own study based on the financial statements of enterprises

When assessing both ratios, it is clearly visible that they effectively manage the receivables of enterprises that have implemented standardized quality management systems. Differences in the area of both ratios are statistically significant. In spite of the aggressive policy of collecting receivables, the surveyed enterprises obtained high financial liquidity ratios. Thus, it proves a safe policy of managing receivables. It is supported by appropriate system procedures, which may affect its effectiveness and efficiency. This is confirmed by the financial liquidity results for entities using quality management systems. The details are presented in tables 7 and 8.

Rok	$\bar{x}$	Me	s	min	max
2014	2.65	2.40	0.93	1.30	4.1
2015	2.94	3.20	0.99	1.20	4.2
2016	2.86	2.0	1.65	1.20	7.0

Table 7. An average result of the financial liquidity ratio
Source: author's own study based on the financial statements of enterprises

Rok	$\bar{x}$	Me	s	min	max
2014	1.09	1.00	0.49	0.15	1.70
2015	1.34	1.40	0.54	0.40	2.10
2016	1.17	1.10	0.52	0.40	2.00

Table 8. The average result of the fast financial liquidity ratio
Source: author's own study based on the financial statements of enterprises

These results even show over-liquidity, but it is worth looking at the methods of inventory management whose level is probably too high, which adversely affects the company costs. In the area of inventories, it would be worth improving the process of managing them by introducing new control methods and improving the quality management policy, which apparently does not work in this area.

5. Conclusions

When analyzing the results of selected ratios regarding short-term receivables, differences in both groups of enterprises are visible. Enterprises using quality management systems manage receivables more efficiently. This is the result of the introduction of appropriate quality management systems that improve the process of managing receivables. The staff dealing with this area of management must have strictly defined operating procedures to manage receivables effectively. The basic elements of the receivables management policy require the resolution of the main issues such as:

- Determining the length of the credit period,
- Credit rating assessments,
- Debt collection policy,
- Determining the amount of discounts granted to buyers paying in cash.

Therefore, employees of this department must strictly follow the rules outlined in the receivables management policy, this policy is undoubtedly supported by the guidelines of quality management standards. Because the sales process is extremely dynamic, the sales department must function efficiently and responsibly. The quality management system introduced in the analyzed enterprises is to serve this purpose.

The conducted analysis showed that enterprises that have implemented quality management systems manage their receivables more efficiently than companies that did not implement standardized quality management systems. This is confirmed by better results of the receivables turnover ratio in days. In individual years, this result is a few days shorter compared to enterprises that do not use quality management systems. Cash from contractors has a faster impact on bank accounts, which definitely has a positive effect on the financial security of enterprises. Faster rotation is also confirmed by the ratio of receivables in current assets. In enterprises applying quality management systems, the share of receivables in current assets is lower than enterprises not using quality management systems. Faster rotation of receivables in days resulted in lowering the share of receivables from recipients in current assets. A decrease of the level of customer lending will certainly reduce the cost of trade credit granted to contractors. This will have a positive impact on the company financial results.

On the basis of the obtained data, it can be concluded that enterprises that have implemented and improved standardized quality management systems manage their receivables more efficiently, which positively affects their liquidity and financial results. However, it should be noted that due to the small research sample, the results cannot be generalized and they are only a certain introduction to the wider research that the authors plan to carry out in the future. It does not change the fact that this paper can be considered as an important starting point for further research and reflections.

References

[1] Al-Ammouri, A., Al-Ammori, H., Klochan, A., & Degtiarova, A. (2018). Probabilistic models reliability of information and control systems. *Journal of Sustainable Development of Transport and Logistics*, 3(1), 60-69.

[2] Blair, R.D., & Durrance, C.P. (2014). Group purchasing organizations, monopsony, and antitrust Policy. *Managerial and Decision Economics*, 35(7). 443-444.

[3] Burns, L.R., & Lee, J.A. (2008). Hospital purchasing alliances: Utilization, services, and performance. *Health Care Management Review*: July/September, 33(3). 203-215.

[4] Cowan, A.E., Clark, S.J., Gordon, J.L., Bok , K., Shen, A.K. (2016). Vaccine purchasing groups in the United States: An overview of their policies and practices, *Vaccine* 34 (2016), pp. 5060-5065.

[5] Dellana, S., & Kros, J. (2018). ISO 9001 and supply chain quality in the USA. *International Journal of Productivity and Performance Management*, 67(2), 297-317.

[6] Dębski, W. (2013). *Teoretyczne i praktyczne aspekty zarządzania finansami przedsiębiorstwa*. Wydawnictwo Naukowe PWN, 251-252.

[7] Djekic, I., Tomasevic, I., & Radovanovic, R. (2011). Quality and food safety issues revealed in certified food companies in three Western Balkans countries. *Food Control*, 22(11), 1736-1741.

[8] Doucett, W. (1997). Influences on member commitment to group purchasing organizations. *Journal of Business Research*, 40(3), pp.183-189

[9] Fonseca, L., & Domingues, J.P. (2017). ISO 9001:2015 edition-management, quality and value. *International Journal for Quality Research*, 1(11), 149-158.

[10] Gajewska, T., & Grigoroudis, E. (2017). Estimating the performance of the logistics services attributes influencing customer satisfaction in the field of refrigerated transport. *International Journal of Shipping and Transport Logistics*, 9(5), 540-561.

[11] Kafel, P., & Simon, A. (2017). The Reasons for Decertification of ISO 9001: Financial Aspects. *Quality Innovation Prosperity*, 21(3), 173-184.

[12] Kumar, M., Antony, J., & Douglas, A. (2009). Does size matter for Six Sigma implementation? Findings from the survey in UK SMEs. *The TQM journal*, 21(6), 623-635.

[13] Long, M. S., Malitz, I. B., & Ravid, S. A. (1993). Trade credit, quality guarantees, and product marketability. *Financial management*, 117-127.

[14] Madzík, P., Chocholáková, A. (2016). Structured Transfer of Customer's Requirements into Product Quality Attributes – A University Case Study. *Quality-Access to Success*, 17(154), 38-44.

[15] Nollet, J., Beaulieu, M. (2005). Should an organization join a purchasing group? *Supply Chain Management*. 10(1). 1-17.

[16] Porter, M. (2001). *Porter o konkurencji*, Warszawa: PWE. 29-31

[17] Rytko, P. (2009). *Zarządzanie kredytem handlowym w małych i średnich przedsiębiorstwach*. Diffin, Warszawa, 25-26.

[18] Sampaio, P., Saraiva, P., & Domingues, P. (2012). Management systems: integration or addition? *International Journal of Quality & Reliability Management*, 29(4), 402-424.

[19] Smith, J.K. (1987). Trade credit and informational asymmetry. *The Journal of Finance*, 42(4), 863-872.

[20] Sroufe, R., & Curkovic, S. (2008). An examination of ISO 9000: 2000 and supply chain quality assurance. *Journal of Operations Management*, 26(4), 503-520.

[21] Tella, E. Virolainen V.M., (2005). Motives behind purchasing consortia, *International Journal of Production Economics*, pp.161-168.

[22] Woźniak, J., & Fill, K. (2018). Logistic Organization of Mass Events in the Light of SWOT Analysis-Case Study. *TEM Journal*, 7(1), pp. 105-111.

[23] Zaramdini, W. (2007). An empirical study of the motives and benefits of ISO 9000 certification: the UAE experience. *International Journal of Quality & Reliability Management*, 24(5), 472-491.

[24] Zimon, D. (2015). Impact of the implementation of quality management system on operating cost for small and medium-sized business organizations affiliated to a purchasing group. *International Journal for Quality Research*, 9(4), 551-564.

[25] Zimon, D., & Malindžák, D. (2017). Impact of Implementation of Standardized Quality Management Systems on the Functioning of Organizations in the Textile Industry. *Fibres & Textiles in Eastern Europe*, 25(6), 19-24.

[26] Zimon, G. (2018), Influence of group purchasing organizations on financial situation of Polish SMEs, *Oeconomia Copernicana*, Vol. 9, Issue 1, March 2018. 87-104.

[27] Zimon, G., (2014)., Kapitał obrotowy brutto w przedsiębiorstwach handlowych tworzących grupy zakupowe, W: I.D. Czechowskiej, R.Pastusiaka (red.). Acta Universitatis Lodziensis, *Folia Oconomica* 2(300) s. 319-327, Łódź: Wydawnictwo Uniwersytetu Łódzkiego, Łódź.