

Review paper

UDC: 005.35:001.895:502
doi:10.5937/ekonhor1901075R

LONG-TERM PROVISIONS AS A SECURITY MECHANISM DUE TO A LACK OF QUALITY

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Modern business conditions have decisively been indicating that quality is the basis of the competitiveness of a company. A lack of quality creates dissatisfaction and affects customer loyalty. Lately, there has been a tendency of the growth of non-quality costs, which is a consequence of a lack of the quality of the products delivered. Although numerous studies suggest models for calculating non-qualitative costs, no relevant mechanism has been found yet to manage these costs. In this study, the authors attempted to find a link between long-term provisions and the external failure cost since this relation has not received other researchers' attention so far, as it deserves. The aim of the research is to point out the importance of long-term provisions as relevant instruments to control external failure costs. Different surveys have confirmed the initial assumption and showed that long-term provisions are effective instruments for managing the costs of external failure. A positive, statistically significant correlation between long-term provisions and the net profit of a company was also identified among the first 100 enterprises from the list of the most successful enterprises in the Republic of Serbia in 2017.

Keywords: quality, quality costs, external failure costs, long-term provisions

JEL Classification: L52, M21, M41

INTRODUCTION

The competition that operates on the market with a propulsive force imposes a requirement for all participants, even small businesses included, that they cannot survive without effective financial and economic management. It is companies' ambition to

operate in accordance with market demands, survive on the market, increase their financial and economic effectiveness, and develop (Eben-Chaime, 2013).

Business philosophy in contemporary conditions emphasizes the importance of quality as one of the important factors of business success. "Although it has been more intensely mentioned and written about since the last few decades of the 20th century, quality is immanent in human nature and can be said to be 'older' than the company" (Bošković and

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Andelković Pešić, 2011, 2). However, we should bear in mind the fact that quality, or a set of the product attributes necessary to meet customer needs, is of a changing nature. Therefore, in order to control the quality of products/services, it is necessary for a company to act reactively or proactively (Vučićević and Andelković Pešić, 2012). The reactive activity of a company includes the activities directed towards dissatisfied customers. A proactive action includes the activities undertaken by a company in order to prevent the occurrence of defects and the occurrence of dissatisfied customers. A set of all the activities of a company's reactive and proactive procedures is being paid special attention in academic circles. Companies are increasingly starting dealing with quality control issues, looking at quality as a factor of competitive advantage. Analogously, managing quality costs is becoming an imperative of the new economy.

Although numerous classifications of the cost of quality can be found in the literature, the majority of authors have accepted the cost structure of quality provided by A. V. Feigenbaum (1994). According to that author, the cost of quality can be divided into prevention costs, detection costs, internal failure costs and external failure costs. Prevention costs arise as a result of the activities aimed at preventing a potential lack of quality and the possibility that non-compliant products might reach customers. Detection costs arise from a company's efforts to detect the degree of the compliance of its products with quality requirements in order to satisfy consumer demands. Quality control is precisely paid attention to due to the costs involved in determining whether a proper quality is maintained. However, globalization and increasing consumer demands have made it impossible for companies to manage only these quality costs. There is an increase in internal and external failure costs. Therefore, these costs are referred to as non-return/failure costs. Non-quality costs arise when a product of an inadequate quality is created. As such, they predispose "the difference between the actual operating costs and the operating costs that would have resulted if there had not been a failure in the company's systems incurred by its employees" (Krishnan, Agus & Husaain, 2000, 844). Internal failure costs arise when the manufacturer discovers

an error while assembling a product, whereas external failure costs arise when a product error is detected by a customer. Internal failure costs include: the costs of the defect analysis, replacement costs, treatment costs and repairs, re-inspection and testing costs, elimination costs for defective products, opportunity costs, and waste costs. External failure costs include the costs of withdrawing products from the market, the costs resulting from lost sales, the costs of returned products with a warranty period, the shipping costs arising from returned products, the costs of product servicing (Vučićević and Andelković Pešić, 2012, 498). External failure costs are a result of the dissatisfied consumers who lodge a complaint about the product of an unsatisfactory quality and seek interventions within the warranty period or a refund. These costs can have consequences for the company's business, if the company does not have enough resources to provide new products within the warranty period.

The subject matter of this study are the costs of quality, or more precisely the costs of external failure that occur due to a lack of the quality expected by consumers. This research study is aimed at pointing out the importance and role of long-term provisions for the management of quality costs, starting from the assumption that long-term provisions can be particularly efficient tools for managing the costs of external failure. Identifying the costs of external failure and security in the event of their reporting are very important because quality is one of customer demands, together with the time of delivery, the price and the flexibility of products, which are the key competitive priorities in contemporary conditions" (Krstić, Andelković Pešić and Andelković, 2010, 346). Bearing in mind the nature of long-term provisions, the above-stated assumption is expected to be confirmed through the study.

For the purpose of examining long-term provisions, a wide range of research methods were applied. The induction method was used to analyze all the costs of quality and make general conclusions. The methods of analysis and synthesis were used to examine long-term provisions. The historical method and the method of compilation were applied to analyze similar studies in this field. Correlation analysis and variance

analysis were used as the appropriate methods of statistical analysis. The hypothesis was tested out by applying the desk method, which involves the use of professional and scientific literature.

The study assumed that long-term provisions were effective instruments for managing external failure costs and that there was a positive quantitative concurrence between long-term provisions and the net profit of a company.

In the first part of the paper, a review of the literature on quality costs and long-term provisions is given. The second part analyzes the role of long-term provisions in cost management. In the third section, whether long-term provisions can be an effective tool for reducing the consequences of an inadequate quality or not is examined. The fourth part contains the conclusions. Based on the results obtained, a guideline for further research is expected to be drafted. The paper seeks to promote a good assessment of long-term provisions in order to protect against modern business risks.

COST OF QUALITY MANAGEMENT

The concept of quality can be attributed to the 1950s and a group of researchers including Edwards Deming, Joseph Juran, and Armand Feigenbaum. Back then, the measurement and reporting of quality costs was the first step towards quality management. Over time, the cost of quality has become a "golden mine" of companies and the current topic in academic circles. The greatest attention was paid to prevention costs, according to which quality was well-managed by managing this type of costs. According to Juran "quality implies the convenience of use", and this author pointed to the great importance of prevention costs. His model of optimum quality costs created the basics for further research in the field of quality costs (Bošković and Anđelković Pešić, 2011, 2).

The philosophy of quality costs expanded in academic circles in the post-1990s. D. Bamford and N. Land (2006) emphasizes that a quality cost analysis can be done best if all quality costs are taken into

account. A comprehensive analysis of quality costs that contributes to product and service costs was also provided by A. Sailaja, P. Basak and K. Viswanadhan (2015). Their research results indicate that there are hidden quality costs which can be up to three times as high as the known quality costs. However, according to the authors all quality costs can be reduced or even eliminated by the proper monitoring and understanding of the underlying causes.

Without quality products, companies cannot achieve the expected profit. Not only do errors create unnecessary costs in a company, but they also hinder the production process, leaving the consequences that can lead to a production stoppage (Campanella, 1999). A. Schiffauer and V. Thomason (2006) provided an overview of the published literature on different approaches to quality and the successful implementation of these approaches, pointing out that access to quality costs must match the situation, goals, and needs of the company and the environment. S. Bisgaard (2007) points out that, based on the existing studies on the subject matter, no "perfect" approach to the management of quality costs can be given although Juran managed to synthesize the topic and provide a coherent framework and terminology. Juran predicted many principles that were later incorporated under the "Six Sigma Umbrella" (Bisgaard, 2007, 665). Also, other advocates of the quality theory provide the significant methods, techniques and instruments that not only facilitate cost-benefit management, but also enable efficient corporate governance. "However, not one of the approaches offers concrete solutions and not a single such solution could be considered as a concrete solution for a particular company" (Bošković and Anđelković Pešić, 2011b, 56).

Internal and external failure costs have increasingly participated in total costs. According to A. V. Feigenbaum (1994), non-quality costs represent 65-70% of the total quality costs. The emphasizing of the importance of non-value costs results from their detection by customers, which can significantly affect a company's business. The buyer, the most important link in a company's business, dissatisfied with the quality of a product, can influence the company to start operating at a loss. Namely, the number of

returned products is inversely correlated with a gain. If there is an increase in the number of complaints, the issue of the company's survival opens. Finally, "prevention costs will achieve the ideal value when cancellation costs are brought to a tolerant level" (Raupp, Gaebler, 2016, 284).

T. Malmi, P. Järvinen and P. Lillrank (2004) emphasized the fact that it was impossible to use traditional methodologies when the management of non-quality costs was concerned. In their research study, the authors presented an approach to managing these costs. In line with modern business conditions, internal failure costs are gaining an increasing role in planning. However, the problem is the fact that "many external failure costs are not included in the quality costs". Therefore, there is a problem of managing external failure costs, with respect to which whether they will arise at all or not is unknown. According to the results of the research project, costs can be managed by introducing the use of the perspective value and the probability of occurrence. External failure costs, or a lack of quality costs, are "all those costs that would disappear if the production process were perfect" (Teli, Majali, Bhushi, & Surange, 2012, 330). External failure costs arise when the quality that is missing has direct implications for the consumer. This results in certain business risks. The consumer demands the reclamation of the product, an intervention in the warranty period, returns the product and expands the information about the quality.

The model designed by J. Chi-Tsou (2007) confirms that defective products and non-quality costs are one of the factors lying behind a decline in corporate profits. The changes caused by defective products affect a reduction in annual profits. In their study, H. Ali, W. Arif, D. Pirzada, A. Khan and J. Hussain (2012), focused on the non-performance costs of a production unit in Pakistan, analyzing the costs of the internal and external deficiencies. The authors provided a model aimed at minimizing and eliminating failure costs, including costs arising from warranties. Essentially, the most important thing in reducing non-quality costs is to set priorities for an effective use of resources, which is possible to accomplish by

identifying the factors contributing to the emergence of the same (Ali *et al*, 2012). F. M. Raupp and D. M. Gaebler (2016) identify non-quality costs, and provide a classification of quality costs according to the authors in the period from 1990 to 2003. The authors point to the importance of their research study from the academic point of view due to scarce studies in this field. The results of the research indicate that the non-quality cost exceeds quality costs.

"Where there is a need for control of something, the first thing to do is measure. If something is not quantitatively expressed, we cannot manage and control it" (Krishnan, Agus & Husain, 2000, 844). It is very difficult to predict external failure costs because they depend on the type of industry, the level of the implementation of quality management, and many other factors. Therefore, the study of the mechanisms that enable a realistic estimate of the non-quality cost is of great importance.

The importance of the management of external failure costs can be seen in the negative correlation between quality management costs and the costs of internal and external failures (Figure 1). Unlike the other types of quality costs, these costs grow when the cost of quality decreases. In the zone of decreasing quality costs per product, the costs of internal and external failures go beyond 70% of the total quality costs, prevention costs, detection costs, internal failure costs, and external failure costs.

In order to achieve a satisfactory quality, it is necessary to reduce the non-quality cost (Fu & Zhang, 2016). There is another argument in favor of the importance of external failure costs. Quality costs can also be differentiated by activity. From this aspect, the most important costs are exactly those in the product-use phase, i.e. the costs that accompany the post-production process. These costs involve the warranty period, quality costs, product servicing costs, and product maintenance costs.

S. Baiman, P. Fischer and M. Rajan (2000) analyzed the relationship between product quality and quality costs. The authors examined the successfulness of incorporating a special information system, which would reduce inefficiency and external failure costs.

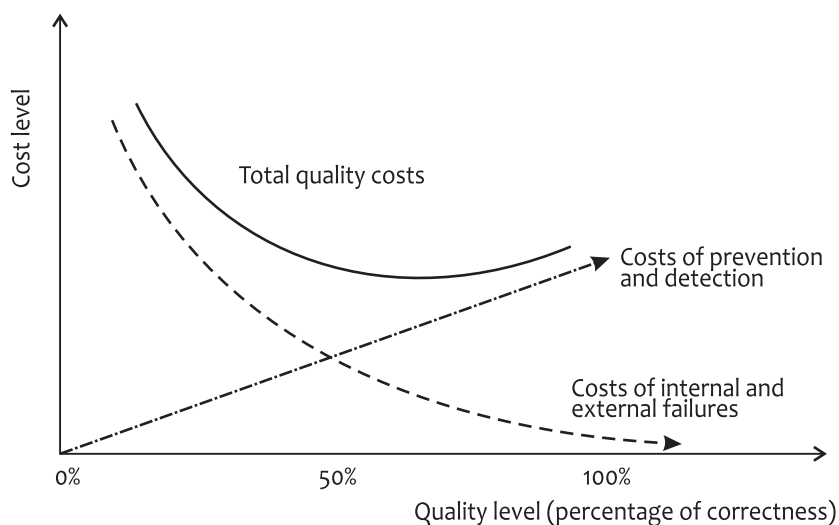


Figure 1 The movement of quality costs

Source: Bošković and Anđelković Pešić, 2011, 171.

S. N. Teli *et al* (2014) conducted an experimental research study in the field of the automotive industry. In order to test profitable business management, the authors assessed the market-oriented aspects of quality costs. "Tracking non-qualitative costs would help analyze operating costs" (Teli *et al*, 2014, 1757). Based on the collected data, the authors performed a graphic analysis of the impact of the quality costs on the company's operations. One of the methods for reducing the non-qualitative costs is analysed by C. Barbará, C. Eutrópio E. de Souza i R. Catunda (2008). They analyzed non-production costs, problems of nonconformity, failure of service activities and loss of revenue due to lack of quality. It is considered that quality control should begin at the design stage of the product (Bošković & Anđelković Pešić, 2011). However, despite the positive effects of such a control, it seems to be insufficient in modern business conditions. Taking this into account, V. Vučićević and M. Anđelković Pešić (2012) examined a lack of quality consequences and pointed to the importance of control. As an important determinant of business operations, controlling was also examined by A. Satanova and M. Sedlicikova (2015). Focusing on non-quality costs control, the authors emphasized the fact that control and cost management were linked to the

principles of the TQM philosophy. Finally, the author's opinion that "controlling provides a framework for the application of statistical quality control, designing experiments, improving quality, and applying the reliability method" (Bisgaard, 2007) points to the need for analyzing the correlation between the management of the cost of quality and controlling, or testing the role of controlling and the corresponding instruments in the process of managing the costs of quality.

LONG-TERM PROVISIONS AS A CONTROLLING INSTRUMENT

Controlling is a good way of managing from the aspect of accounting, which is necessary to preserve the basics of control (Wojtaszek, 2016). It is necessary to estimate the governance process in particular in the assessment of financial results with a particular focus on cost analysis. Long-term provisions are identified as one of the controlling instruments used in risk protection business.

A wide range of allocations for a variety of risks could be seen in France and Germany even back in the

1960s. Provisions included provisions for disputes, guarantees given to customers, fines and penalties, losses at exchange rates, employee participation in development effects, rebates, differences in taxes, even for pensions, annual leaves. All this points to the importance of provisions for the functioning of a company.

Long-term provisions belong to borrowed capital. However, as a category of borrowed capital, they represent a specific obligation of an exact character, and accordingly differ from the other categories of borrowed capital. The obligation implies the present obligation arising from the previous event (by the act of sale, the company undertakes to implement certain activities for which it gave a guarantee to the buyer, these activities occurring in several years). The settlement of the resulting obligation will naturally lead to an outflow of precisely defined company resources. In the case of provisions, the exact amount and the exact maturity of the obligation (reclamation) are unknown on the balance sheet date, and therefore provisions differ from other obligations. Long-term provisions are the liabilities that are not valued on the basis of a document, but their valuation is based on an estimate. Long-term provisions are different from potential liabilities. A provision is an obligation that exists on the balance sheet date, and a contingent liability is not current and does not exist on the balance sheet date. A potential obligation is a possible obligation. According to the International Accounting Standard IAS 37 (paragraph 10), "the provision of liabilities with an uncertain maturity or amount" (IAS 37, 2009, 16). An obligation is the present obligation of the company that came from the past event that would result in the outflow of economic benefits from the company. If there is no past event, there is no obligation relationship that creates an obligation, so there is no provision.

Thus, in order to make a provision, it is necessary to fulfill the two conditions:

- liabilities exist on the balance sheet date, i.e. there is an obligatory relationship based on the law or custom,
- the amount and the deadline of the obligation are not known, there is a great uncertainty (provisions

are more uncertain even from a passive time delimitation), but again there is a need for a certain expectation of an actual creation.

A past event can create two types of obligations: a legal obligation and a constructive obligation. A legal obligation arises from a contract, either legally, or under the force of the law, for example a court decision. A constructive obligation arises from some of the activities carried out by an entity, with respect to which it is known that the same will arise from practice or a statement of responsibility acceptance¹. There is essentially no difference between the provisions created on the basis of legal or constructive obligations - in both cases they are followed by the same accounting treatment. Recognizing whether it is a legal or constructive obligation indicates the time when provision is recognized.

The "basis" of a provision is given by the principle of income and expenditure causation and the principle of prudence. It means that, if income is realized in the current period, for example based on the sale of some goods, it is logical that expenditures will arise from the issuance of those goods, which will arise in a future period as a result of the revenues for the current period. These expenditures will be recognized as current-year expenditures. Including such expenditures in the Balance Sheet Long-term Provisions is always accompanied by an increase in expenses in the Income Statement and a decrease in the periodic result. Also, if revenues are higher than expenditures, the provision will be covered by revenues and will appear in the form of liquid assets in the assets of the Balance Sheet. Until the moment of the payment of the expenses based on which provisions are made, the funds derived from the revenues of the covered provisions can be used to finance other needs. The characteristics of borrowed capital are seen here because provisions in this case appear as the sources of funds.

In the literature and legislation, no general risk list, i.e. the basis for forming provisions against third parties, is provided. In France, provisions represent a special position of the existing capital. Therefore, these are the obligations of the current and the previous accounting periods according to future

accounting periods. The financial reporting rules require that the costs that arise in the future are recognized in the financial statements in the form of provisions in the current period. Expenses should be recognized in the period in which they are caused, and their recognition should not be postponed until the moment they actually occur.

In order to place provisions in the role of managing non-qualitative costs, it is necessary to evaluate and "recognize" them. The recognition of provisions under IAS 37 implies that the three conditions are met:

- the present obligation;
- the probability of the outflow of resources to settle the obligation;
- a reliable assessment of the obligation.

It is very important that a past event, a sale of products, which created the present obligation towards the buyer, does not leave the company another alternative but to settle the recognized obligation. The probability of the outflow of resources is an assumption justifying the opening of the account - Long-term provisions.

The best estimate of the obligation would be equal to the expenditure needed to settle the present obligation at the balance sheet date. This means that the risks and events that will follow must also be taken into consideration. An assessment is performed by the company's management based on the company's act. If the company has not recognized reserves so far, the best estimate is that based on the competition in the branch. Each company should be obliged to elaborate the issue of provisions since their assessment and the possibility of recognition depend on the situation.

In accordance with the complexity of this account, a wrong or unnecessary recognition often occurs in practice. Business losses are frequently regarded as an obligation although they do not have a past event and it is logical that there will be no long-term provisions. Future business losses can be avoided by using some prevention measures or by selling a part of the business. In order to avoid the overestimation or underestimation of the financial statement positions, a valuation of property objects at purchase prices or

at cost prices is carried out. More precisely, financial statements are made in accordance with the prudence principle. Analogously to the prudence principle, the basis for the assessment of long-term provisions should be the principle of reliability, so that there is certainty that the assessment is reliable. The accounting standard IAS 37 insists on a reasonable assessment and if a provision meets the conditions of recognition, it will not be recognized if the estimate of the economic benefits outflow in this case is unreliable.

The engagement of an expert in assessing the provision for the costs in the warranty period plays a very important role. In accordance with the fact that only a professional accountant can provide the quality of financial reporting, specialists for the assessment of long-term provisions can also provide a quality and competent assessment. There is also a need for establishing a link between the accounting policy, the quality policy, and the policy of the engineers who will make an assessment. Therefore, it is necessary to have a perspective not only from the accountant's aspect, but also from the aspect of finance, marketing and engineering. After long-term provisions have been estimated, the amount of the assessment is reviewed each year and, if necessary, certain adjustments are made. Changes may occur on each day of the balance sheet and if it is no longer probable that the settlement of the obligation will require the outflow of economic benefits, the provision should be canceled for the benefit of the revenue.

"Creative financial reporting can seriously undermine the usability of financial statements" (Malinić, 2009, 156; Brandt, Biesebroeck & Zhang, 2012; Đukić & Pavlović, 2014). The provision policy requires constant checking and corrections as a provision must continuously be monitored so as to reflect the best current estimate. Due to uncertainty, the amount of the reservation can be changed. Each correction implies an expense or income, and affects the result. In empirical researches on long-term provisions the companies that improve their performance by increasing long-term reserves are described. An incorrectly displayed end result can create an incorrect image with the investors and redirect them towards investing in another company. It can also

discourage creditors in terms of lending or reduce the value of the shares and dividends if the profit is drastically reduced. Therefore, particular attention should be paid to the assessment of this account in order to minimize the consequences.

When estimating long-term provisions, the effect of money is very significant in some cases, especially if the time limit is longer than a year. The provisions related to the cash outflows that arise immediately after the balance sheet date are of course more valuable than the cash outflows of the same amount that arise later. In such cases, provisions should be discounted.

If the amount of a provision is unrealistically estimated and provisions are overestimated, latent reserves are generated; otherwise, hidden losses are generated. Latent reserves reduce the periodic performance of the business, as it has overestimated the position of liabilities. Due to the impact on the business result, latent reserves are often defined as part of the realized gain which is not reported. The opposite balance category of latent reserves are the hidden losses that are due to the underestimation of liabilities. Underestimated liabilities affect the formation of a lower amount of expenditures in the Income Statement and an increase in the calculated short-term financial result. Any hidden loss in the Balance Sheet is disclosed in the Income Statement in subsequent accounting periods. The disclosure of hidden losses in this case will depend on the rate of maturity. Latent reserves and hidden losses spoil the picture of the financial position of a particular company. Therefore, they should strive to minimize them, i.e. reduce their long-term resilience to their real value.

LONG-TERM PROVISIONS AS A TOOL FOR REDUCING THE CONSEQUENCES OF INADEQUATE QUALITY

New quality requirements increase business risk and make it more and more likely to rely on the resources it has reserved. Customers will be increasingly demanding in terms of reclamation and

if the company does not allocate funds in a separate account, it will have to face high costs of inefficiency. In the Republic of Serbia, according to the Rulebook on the Chart of Accounts and the Content of the Account in the Chart of Accounts for Companies, Cooperatives, Legal Entities and Entrepreneurs, there are the following types of provisions within Group 40 - Long-Term Provisions: provisions for expenses in the guarantee term; provisions for the costs of natural resources renewing; provisions for retained bonds and deposits; provisions for restructuring costs; provisions for reimbursements and other employee benefits; provisions for costs of litigation; other long-term provisions².

For the purpose of the research study, the most important type of provision is that for expenses in the warranty period, which can protect a company from risky products. The main reason for the formation of a provision for this purpose is to strengthen the position of customers in relation to the manufacturer, as well as the increasing demands and the constant expansion of the product range, the sale of which is followed by giving guarantees.

The fact that it is necessary, not only implicitly, but also explicitly, to manage non-quality costs justifies the subject matter of our research. Figure 2 shows the place of long-term provisions in modern business conditions.

Namely, the possibility of a certain number of requests for the fulfillment of obligations under the given guarantees can create great costs for the company. Due to the risk and uncertainty of the emergence of this obligation, there is a need to allocate certain funds. Namely, the obligation to form a provision for costs in the warranty period arises because the time period of the warranty period exceeds the accounting period in which the sale was made. The past event that is binding on the recognition of this account is the sale of goods, based on which the present obligation, i.e. a promise to cover repair costs within the warranty period, was created. Therefore, it is certain that there will be an outflow of cash, while the amount and the maturity period are uncertain. Determining the amount of a provision is most often based on the

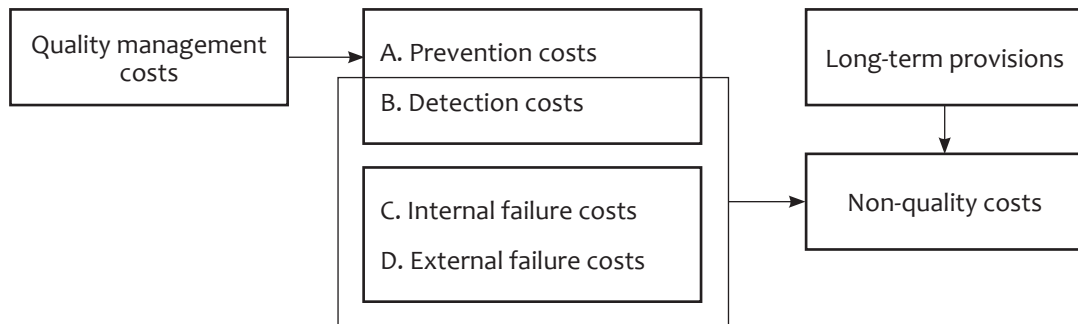


Figure 2 The location of long-term provisions in the cost matrix

Source: Authors

previous experience for the same or similar goods. Bearing in mind the problems that can arise during the inclusion of these business transactions, which are due to an unstable calculation basis and the impossibility of an absolutely accurate allocation of revenues and expenditures, a comparison of accounting practice plays an important role (Malinić, 2009). If there were no previous costs on this basis, the estimate of the provision is made by observing the competition in the same branch. Of course, the amount of the provision depends on the volume of sales, so it is most often expressed in the percentage of the sales realized. Provisions are carried out in groups, i.e. for a product group. However, if a company has a large number of products in its assortment with different probabilities and risks for reclamation, then certain groups of products for which provisions will be recognized should be made. Provided that a company continuously sells the products for which a guarantee is offered, the provision for expenses in the warranty period has the character of a continuous provision.

“By definition, long-term provisions represent liabilities for covering the costs of and risks from previous activities that will emerge in the coming years” (Lukić, 2017, 455). In this sense, the assumption is that long-term provisions are a mechanism by which it is possible to manage the costs of external cancellations efficiently in order to ensure risks from their occurrence. Visibility, or an insight into the flows and processes that continue outside an enterprise, is becoming a very important basis for good business

operations. Exposing to a risk of providing product warranties in modern business conditions creates the costs that are very difficult to estimate. “For commercial products, the price and the guarantee are the two key marketing strategies used to increase market share” (Xie, 2017).

The significance of a warranty came to light even decades ago. Namely, J. Mamer (1987) exposed his model of costs and benefits arising from guarantees. The author considered three types of product warranty, as well as the potential damages that result from a lack of quality. His model was the basis for a further analysis of the compromise between the guarantee and quality control.

The study conducted in Greece also highlights the importance of long-term provisions as effective tools for the reduction of non-value costs. According to this study, 89% of long-term provisions play a role in reducing non-quality costs (Chatzipetrou & Moschidis, 2016). According to S. Amberkur and M. M. Jagdtap (2014), long-term provisions depend on the type of guarantee, the reliability of the product, the warranty period and the type of the product. A large number of customers purchase products with an extended warranty, which companies could only provide if they relied on a relevant controlling instrument (Maronick, 2007).

Only a few studies dealing with the impact of long-term provisions on the management of quality costs

have involved companies in the Republic of Serbia. According to R. Lukic (2014), the rate of the return of goods from sales is becoming an increasingly important indicator of the level of consumer satisfaction and the performance of retail chains. By a comparative analysis of the return of goods in the United States and Canada, the author explores the impact of long-term profit reserves and suggests that adequate control should minimize the effect of return. The author conducted a theoretical and empirical analysis of the impact of long-term provisions on the costs of external failure. According to the author, the costs of external provisions need to be managed efficiently in order to obtain as much profit as possible. The author analyzes the cost of the guarantee according to the type of goods and emphasizes the fact that the return or replacement of a product due to its inadequate quality has created high costs in numerous industries. The results of his research show that long-term provisions are an increasingly important factor in retail business performance.

In order to investigate the correlation between long-term provisions and the net profit, the data from the website of the Business Registers Agency of the Republic of Serbia were used to illustrate the companies' business operations. The analysis included the first 100 companies from the list of the most successful enterprises by the net profit in 2017. Not taking into account the other factors, such an analysis should indicate whether the presence of long-term provisions can be connected to business performance. The results of the correlation analysis are given in Table 1.

According to the significance level of 0.000, it can be noted that there is a positive correlation between the observed variables. The value of the Pearson correlation coefficient of 0.472 shows that this relationship is moderate (Cohen, 1988), but certainly statistically significant, which confirms the assumption that long-term provisions can be a useful controlling mechanism when the costs of external failure are concerned in terms of the protection of a company's net profit.

Table 1 The Pearson correlation coefficient

		Long term provisions	Net profit
Long term provisions	Pearson Correlation	1.000	.472**
	Sig	.	.000
	N	100	100
Net profit	Pearson Correlation	.472**	1.000
	Sig	.000	.
	N	100	100

** Correlation is significant at the 0.01 level (2-tailed).

Source: Authors

Bearing in mind the fact that in the group of the top 100 most successful enterprises large companies dominate, the difference in the trend is analyzed by the categories: large, medium-sized and small enterprises on the basis of the data from the published financial statements of the Business Registers Agency in the period from 2006 to 2017 (Table 2) in order to obtain the picture of the trend in the enterprises' allocation for long-term provisions (among other things, to cover the costs within the guarantee period).

The small and medium-sized enterprises had approximately the same dynamics of the long-term provisions in the observed period. The biggest relative change compared to the first year occurs in the small enterprises, which also had the highest average annual change in long-term resilience. Namely, in these enterprises, the long-term provisions increased at an average rate of 24.18% per annum. The medium-sized enterprises recorded a slightly lower average annual change (21.27%), whereas the smallest relative change was recorded in the large enterprises, where the average annual rate was 10.75%.

Table 2 Relative changes in long-term provisions (in %), 2006-2017.

Year	Small	Medium	Large
2006.	-	-	-
2007.	41.98%	30.99%	28.68%
2008.	3.10%	36.41%	35.26%
2009.	112.41%	-0.91%	26.92%
2010.	46.18%	11.38%	7.38%
2011.	39.40%	1.73%	2.06%
2012.	-25.08%	35.35%	23.83%
2013.	38.13%	3.00%	12.37%
2014.	-16.49%	88.31%	-23.31%
2015.	-3.77%	17.49%	3.09%
2016.	24.24%	8.36%	18.33%
2017.	5.86%	1.90%	-16.42%
Change 2017/2006	593.05%	583.25%	163.43%
Average annual change	24.18%	21.27%	10.75%

Source: Authors

However, the variance analysis showed that there is no statistically significant difference between the rate of change in the long-term provisions (the significance level being 0.524) in the observed enterprises in terms of the size (Table 3).

CONCLUSION

The importance of the costs of non-quality, and among them especially the costs of external failure, is not only in the period of their occurrence and regarding their size, but also in the consequences that can be caused by their emergence. From customers' points of view, a lack of quality can lead to a failure in a company's business. The costs of external failure arise from the return of products, servicing, reclamations and other interventions aimed at dissatisfied consumers. When non-availability costs are incurred, long-term provisions are activated, the function of which is to reduce the consequences. Therefore, long-term provisions appear as an instrument for the protection from the risks of returned products. As an efficient instrument, they can cover all, or part of the costs arising from returned products. The company is able to respond to complaints, which stops a further reaction of dissatisfied consumers, which would arise if such products were not replaced within the warranty period. When a company is able to replace such products within the warranty period and respond to customer interventions, it can continue its business without any delay. With the help of long-term loans, an enterprise covers the costs incurred and does not incur losses. In this way, a company also influences a reduction in the costs of external failure. Based on earlier guarantees, an enterprise has the right to reserve advanced assets and to secure itself from risks. By managing long-term recessions, a company reduces the consequences caused by the discernment of consumers' inefficiencies, quickens the problem and does not do business at a loss. On the other hand, the consumer is satisfied because there was a timely intervention that met his/her demands.

Table 3 ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1099.123	2	549.561	.660	.524
Within Groups	24989.945	30	832.998		
Total	26089.068	32			

Source: Authors

An effective tool for managing non-quality costs is still being sought. However, based on the research and the authors' conclusions, it can be said that long-term reservations can be a relevant mechanism for managing the costs of external failure as part of the total cost of quality.

In modern business conditions, there is a need to monitor the costs of quality management, especially the costs of external failure, bearing in mind the fact that these costs show a tendency to grow (Anđelković Pešić, 2009). Based on the abovesaid, it is clear that the consequences of a lack of quality are negative. The best argument is that claims do not reflect the true picture of a particular company and create a "halo" effect. This creates a suspicion of the company's business. As the controlling instruments treated as the most sensitive balance sheet, long-term provisions cause a change in costs and affect the financial result. If an entity does not reserve assets, it assumes too much risk to absorb big unnecessary costs, which makes it difficult for it to survive on the market today. The paper emphasizes the fact that the higher amounts of long-term provisions can enable a company to reduce the consequences and manage the costs of external failure, and that long-term provisions can improve a company's business. By highlighting the role of long-term provisions, the awareness of the importance of controlling in the functioning of the company grows.

The introduction of long-term provisions in the field of quality management is aimed at examining the significance of reservation as a mechanism for monitoring and covering the costs of external failure, but also to lay the foundations for further research. Namely, the elimination of non-quality costs before products start being used by consumers is not feasible for every company. For this reason, it is necessary to reduce any potential consequences that may arise from a lack of quality. The paper answers the following questions: does the long-term provision provide security against the risk of external failure costs? Does the management of long-term provisions reduce the consequences resulting from a lack of the quality of a product?

The results of the work done show that long-term provisions are a significant tool for managing the costs of external failure. The initial assumption is that long-term provisions can be an effective tool for managing the cost of quality. The paper analyzes the long-term provisions and the net profit of the first 100 companies on the list of the most successful ones regarding the net profit in the Republic of Serbia in 2017. The results of the correlation analysis show a positive, statistically significant correlation between the long-term provisions and the net profit of the companies. The average annual change in the long-term provisions is the greatest in the small enterprises. The smallest relative change in the long-term provisions in the observed time period (2006-2017) was recorded in the large enterprises, where the average annual rate was 10.75%, which shows that large enterprises give more importance to long-term provisions compared to medium-sized and small ones.

Having in mind the foregoing, it is necessary to affirm the estimation of long-term provisions which will not depend on the length of the business of the company, but will be related to the risk of doing business in an industry. The analysis presented in the paper is also of a public interest because it contributes to an increase in caution and the significance of a real estimate of long-term provisions. To tell the truth, there is no perfect financial reporting, not only in developing countries, but in the countries of developed economies, either. Simply, the business life of each entity is complex and implies a set of the variables that must be considered. Therefore, it is most important that we should be aware of the negative side of the costs of external failure, which will increase prudence in assessing the amount of long-term provisions.

One of the constraints in the implementation of the research study is a relatively small number of studies on long-term provisions in the context of their impact on external failure management. The limitation of the conducted research is also the insufficient transparency of the balance of a sufficient number of enterprises necessary for the implementation of the appropriate empirical analysis. Also, the lack of the data on long-term provisions for costs in

the warranty period makes the link between this category of long-term provisions and the net profit impossible to examine, which would provide a clearer picture of the link between these variables and the impact of long-term provisions in terms of providing protection against the external financial result of a company. An analysis of the observed enterprises' balance, based on which the general conclusions on long-term provisions have been made in the study, is not sufficient to declare the sample representative, and the results of the empirical research study are statistically significant, but the sample can certainly be considered as informative, and the analysis is the basis for further research. Finally, the authors believe that a more complete empirical research study could provide a clearer picture of this mechanism, which would certainly contribute to its importance for managing the costs of external failure.

ENDNOTES

- 1 Commercial law until IV Directive of the European Economic Community provides a possibility of recognizing provisions for costs incurred in the past year. For example, provisions for the capacity maintenance were made for major repairs, etc.
- 2 In earlier accounting laws in Serbia, the following provisions could be made: a provision for investment maintenance costs, a flat-rate provision for covering dubious claims, the risk provisions based on the growth of retail prices and foreign exchange rates, the provisions based on revaluation gains, provisions for deferred negative goodwill, etc.

REFERENCES

- Agencija za privredne registre Republike Srbije, Makroekonomska saopštenja 2006-2017. godine. Retrieved Oktober 21, 2018, from www.apr.gov.rs/Регистри/Финансијскиизвештаји/Макроекономскасаопштења.aspx
- Ali, H., Arif, W., Pirzada, D., Khan, A., & Hussain, J. (2012). Classical model based analysis of cost of poor quality in a manufacturing organization. *Journal of Business Management*, 6(2), 670-680.
- Amberkar, S., & Jagtap, M. M. (2014). Warranty cost modelling and analysis. *International Journal of Scientific & Engineering Research*, 5(12), 40-44.
- Anđelković Pešić, M. (2009). Modeli upravljanja troškovima kvaliteta. *Računovodstvo*, Jul-Avgust, 64-75.
- Baiman, S., Fischer, P., & Rajan, M. (2000). Information, contracting, and quality costs. *Management Science*, 46(6), 776-789. doi:10.1287/mnsc.46.6.776.11939
- Bamford, D., & Land, N. (2006). The application and use of the paf quality costing model within a footwear company. *International Journal of Quality & Reliability Management*, 23(3), 265-278. doi.org/10.1108/02656710610648224
- Barbará, C., Eutrópio, C., de Souza, E., & Catunda, R. (2008). Modeling the cost of poor quality. WSC 08. *Proceedings of the 40th Conference on Winter Simulation*, 1437-1441.
- Bisgaard, S. (2007). Quality management and jurans legacy. *Quality and Reliability Engineering International*, 23(6), 665-677. doi:10.1002/qre.860
- Bošković, G. i Anđelković Pešić, M. (2011). *Upravljanje kvalitetom - osnova konkurentnosti preduzeća i privrede*. Niš, Republika Srbija: Ekonomski fakultet Univerziteta u Nišu.
- Brandt, L., Biesebroeck, J. V., & Zhang, Y. (2012). Creative accounting or creative destruction? Firm-level productivity growth in Chinese manufacturing. The National Bureau of Economic Research, *NBER Working Paper No. 15152*.
- Campanella, J. (1999). Principles of quality costs: Principles, implementation, and use. *Annual Quality Congress Proceedings*, 53(0), 507-508.
- Chatzipetrou, E., & Moschidis, O. (2016). Quality costing: A survey in Greek supermarkets using multiple correspondence analysis. *International Journal of Quality & Reliability Management* 33(5), 615-632. doi.org/10.1108/IJQRM-01-2014-0004
- Chi Tsou, J. (2007). Economic order quantity model and Taguchi's cost of poor quality. *Applied Mathematical Modeling*, 31(2), 283-291. doi.org/10.1016/j.apm.2005.11.007
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Đukić, T., & Pavlović, M. (2014). Creative accounting and cash flows reporting. *Facta Universitatis-Economics and Organization*, 11(3), 227-235.

- Eben-Chaime, M. (2013). A note on: The economic effects of quality improvements. *Total Quality Management & Business Excellence*, 24(3-4), 374-377.
- Feigenbaum, A. V. (1994). *Controle da qualidade total: Gestão e sistemas*. São Paulo, Brazil: Makron Books.
- Fu, F., & Zhang, T. (2016). A new model for solving time-cost-quality trade-off problems in construction. *PLoS ONE* 11(12), e0167142, doi.org/10.1371/journal.pone.0167142
- IAS 37 - Резервисања, потенцијалне обавезе и потенцијална имовина. IFRS, Retrieved Oktober 13, 2018, from <https://www.ifrs.org/>.
- Krishnan, S., Agus, A., & Husain, N. (2000). Costs of quality: The hidden costs. *Total Quality Management*, 11(4-6), 844-848. doi:10.1080/09544120050008309
- Krstić, B., Anđelković Pešić, M., & Anđelković, A. (2010). Managing the variations in time, quality of realization and outputs of activities with the aim of encreasing efficiency of business process. *Economic Themes*, 48(3), 345-354.
- Lukić, R. (2014). Utjecaj povrata roba na performanse u maloprodaji. *Ekonomski pregled* 65(1), 89-104.
- Lukić, R. (2017). The impact of long-term provision costs on performance of trade in Serbia. *Economic and Environmental Studies*, 17(3), 455-474. doi: 10.25167/ees.201743.1
- Malinić, D. (2009). Savremeni izazovi integralnog istraživanja kvaliteta finansijskih izveštaja. *Ekonomika preduzeća*, 57(3-4), 138-155.
- Malmi, T., Järvinen, P., & Lillrank, P. (2004). A collaborative approach for managing project cost of poor quality. *European Accounting Review*, 13(2), 293-317. doi:10.1080/0963818042000204733
- Mamer, J. (1987). Discounted and per unit costs of product warranty. *Management Science*, 33(7), 916-930.
- Maronick, T. (2007). Consumer perceptions of extend warranties. *Jornal of Retailing and Consumer Services*, 14(3), 224-231. doi:10.1016/j.jretconser.2006.09.003
- Raup, F. M., & Gaebler, D. M. (2016). Identification and measurement of quality costs and non quality in a textile and apparel industry. *Systems & Management*, 11, 282-289. doi:10.20985/1980-5160.2016.v11n3.1104
- Sailaja, A., Basak, P., & Viswanadhan, K. (2015). Hidden costs of quality: Measurement & analysis. *International Journal of Managing Value and Supply Chains (IJMVSC)*, 6(2), 13-25. doi:10.5121/ijmvsc.2015.6202.
- Satanova, A., & Sedliacikova, M. (2015). Model for controlling the total costs of quality. *Procedia-Economics and Finance*. 26, 2-6.
- Schiffauerova, A., & Thomason, V. (2006). A review of research on cost of quality models and best practices. *International Journal of Quality and Reliability Management*, 23(4), 1-23. doi:10.1108/02656710610672470
- Teli, S. N., Majali, V., Bhushi, U., & Surange, V. (2012). Assessment of cost of poor quality for automobile industry. *International Journal of Engineering Research and Applications*, 2(6), 330-336.
- Teli, S. N., Majali, V. S., Bhushi, U., & Surange, V. G. (2014). Impact of poor quality cost in automobile industry. *International Journal of Quality Engineering and Technology*, 4(1), 1757-2185. doi:10.1504/IJQET.2014.059842.
- Vučičević, V., & Anđelković Pešić, M. (2012). Quantification of quality: The indicators of justification of the improvement of processes and product quality. *Facta Universitates - Economics and Organization*, 9(4), 495-506.
- Wojtaszek, H. (2015). Role of managerial accounting in the innovative enterprise. *World Scientific News (WSN)*, 57(2016), 652-658.
- Xie, W. (2017). Optimal pricing and two-dimensional warranty policies for a new product. *International Journal of Production Research*, 55(22), 6857-6870. doi.org/10.1080/00207543.2017.1355578

Received on 12th November 2018,
after revision,
accepted for publication on 17th April 2019

Published online on 25th April 2019

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