EVALUATING OF ECONOMIC VIABILITY OF LOGISTICS COMPANIES

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Abstract

In the global economic conditions, ensuring the viability of logistics companies depends on a variety of external and internal factors that determine the need to systematically assess changes in these factors. A systematic approach to the modern interpretation of economic viability not only identifies critical factors that influence the viability of organizations, but also allows to develop an appropriate system of indicators to measure them. In order to achieve a high level of economic viability of a company, it is particularly important to apply new tools and methods that take into account not only internal but also external performance parameters. Globalization, new rules of competition and the movement of capital are creating the conditions, the need and the increasing demands for evaluation of economic viability. The need for evaluation economic viability is based on the ability of the organization to innovate, to adjust its actions and to develop the strategy, ahead of its competitors, to maintain high productivity in a long run. In this article, we have distinguished the main indicators and methods of evaluation, which are intended to assess the viability of the subject and thus to reveal the determinants of economic vitality. Relating on the theoretical analysis of factors and indicators, the evaluation model of logistics companies on evaluation of their economic viability is presented.

Key words:

economic viability, economic viability assessment, logistics sector, logistics companies

JEL Classification*:* C40, C50, C52

Introduction

In today's economic climate, effective business development is crucial to ensure its viability. Enterprise development is a prerequisite for the emergency of new forms and innovations, which are closely linked to the formation of external and internal relationships. Although Lithuanian and foreign scientific works focus on the assessment of economic viability, it is not widely studied in the field of logistics companies. Many scientists and theorists define economic viability through the concepts of "efficiency", "sustainable development", "productivity" and "stability". The authors also present their interpretations of the terms "viability", "efficiency", "sustainable development", "productivity" and "stability".

Economic viability development issues have been analysed by Garbie (2016), Ionescu (2018), Rosha & Lace (2018), Savickiene (2016), Qerimi, Hajdar & Fejza (2017) and others. The economic viability of a company is usually understood as the balance between the growth and sustainability of the company. "Viability" is a universal phenomenon, an essential element of any existing system. It is therefore difficult to define it in a single sentence to make it generally acceptable. This is why the authors present different concepts of viability. An important feature of viability processes is time, because development takes place in real time, and only time determines the direction of development.

It is important to emphasize that besides the complexity of the concept of "viability", the development process of logistics companies is greatly influenced by many external and internal factors, including economic, social, ecological, legal, political, technological and others. Although different classifications of economic viability determinants are presented in the scientific literature, there is a general agreement that the economic viability of logistics companies is largely determined by internal (controlled) and external (non-controlled) factors.

Theoretical Background. Factors of economic viability of logistics companies

There are different classifications of factors determining economic viability in the scientific literature. When assessing economic viability, internal and external factors must be taken into account (Galinienė, 2015; Koleda & Lace, 2010; Savickienė, 2016). In some cases, contradictions can be discerned when it comes to material factors, but there are usually three groups of factors: economic factors, market factors and specific factors of the company.

Other scholars categorize factors as: competitive environment, globalization of industry, downward pressure on prices, consumer management, political position, technological environment, economic development, ecological environment (Minalga, 2008; Palšaitis, 2011); controlled factors, non-controlled factors (Palšaitis, 2010); physical, economic, social, political (Galinienė, 2015); economic-social and ecological environment (McKinnon et al., 2018) and so on.

Palšaitis (2010) divides factors into controlled and uncontrollable. According to Palšaitis, controlled factors include customer service, inventory, transportation and packaging. Non-controlled factors are divided into economic factors, competition, technology, geographical environment, socio-cultural environment, and political and legal environment.

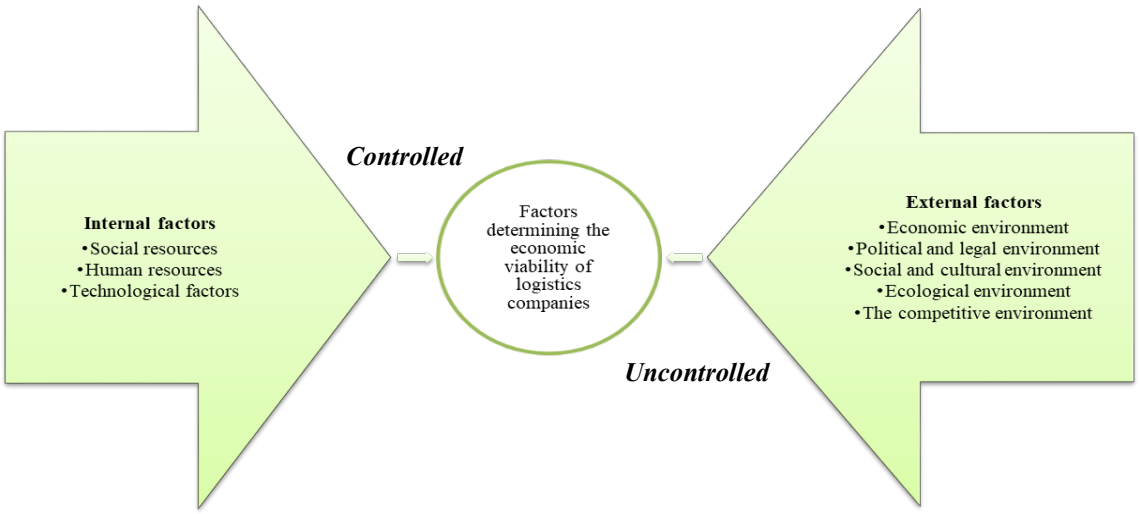
Savickienė (2016) attributes human resources, social, financial resources, natural and man-made resources to internal factors. The market and legal environment are attributed to external factors. Dzikevičius and Jonaitienė (2015), meanwhile, attribute the assessment of economic, political, legal, socio-cultural, technological, ecological and other factors that can have both positive and negative effects on a company's capabilities and state to external environmental factors. Internal environmental factors include the assessment of the company's organizational, managerial performance, personnel management policy, and financial analysis.

Sekliuckienė and Repečkienė (2014) classify the factors into microenvironmental (direct impact environmental) factors and attribute these factors to consumers, competitors, suppliers, laws, etc. Meanwhile, macro-environmental (indirect environmental) factors include economic, political, social and technological factors. The authors emphasize that the economic situation of the country is one of the most important components.

Galinienė (2015) distinguishes four groups of the following factors: 1) physical: natural and societal (non-natural) factors, 2) social: approach to development, development and ecology, 3) economic: main business directions, income from investments, the range goods and of services, (4) political: environmental policy, fiscal taxation and monetary policy.

The research conducted by the authors of the article shows that it is expedient to divide the factors of economic viability of enterprises into internal (or controlled) and external (or non-controlled) factors (see Figure 1).

Figure 1. Factors determining the economic viability of logistics companies



Internal factors (controlled). These are the factors that are caused by the company itself and depend on professional competence of the management, the organizational structure of the company, the ability and the efforts of the employees to work as a team and the internal control system. Avdeeva, Belyantseva, & Smorodina (2018) emphasize that the growth of sales revenue is accompanied by the efficient use of all resources and thus the best result is achieved.

The following internal factors affecting logistics companies are distinguished as social, human and technological factors.

Social resources. McKinnon et al. (2018) points out that in order to achieve the sustainability of the company the social aspect should not be ignored, that in order to achieve true sustainability, an organization should notice the value of its employees and encourage their capabilities. McKinnon also states that "human sustainability requires the integration of human resources policies and practices to ensure a long-term operation of the company and a positive response from the employees in the form of equitable behavior, development and well-being" (p. 95).

Tekin, Bitiktas & Kilic (2017) emphasize the importance of ethics in the logistics sector and point out that the ethics of supply chain management focuses on business relationship interactions through ethical strategies and programs. One of the most common ethical problems in the supply chain is customers complaints on delivering a faulty products. However, if the supplier providing the product service is legally and de facto independent, the defect is passed on to the seller. Thus, a company with a well-established culture and good business ethics tends to be more socially responsible for logistics activities.

Human Resources. According to Chang (2015), the success of logistics companies is highly dependent on the productivity of human labor. Human resource management is very important for a logistics company. Respect for employee performance is an important aspect of HRM (human resources management). Its aim is to evaluate each employee's contribution to the company's operations. It is also an ongoing

process that evaluates the performance of each employee in relation to certain criteria and organizational goals. Taking into account the organizational achievements, strengths and weaknesses of employees, their salaries are adjusted in the future. The author (Chang, 2015) also proposes an analytical hierarchical process (AHP) approach to state the employee performance by the amount of work, organization skills, commitment, teamwork, communication and externalities.

Vasić, Potkonjak, Stanojević & Dimitrijević (2015) agree with Chang (2015) that the success of a company depends on human resource management and add that management systems are one of the most successful tools for implementing the quality of continuous increase of customer needs. In other words, human capital is one of the key factors in a long-term development of a company.

Technological factors. Improvement in modern tracking technologies to anticipate / predict congestion offer new opportunities for improving vehicle routing and the ability to dynamically change established routes to meet specific traffic conditions (McKinnon et al., 2018). Sekliuckienė and Repečkienė (2014) report the following technological variables:

- ✓ technological advancement;
- ✓ technology penetration;
- ✓ innovative infrastructure.

External factors (uncontrolled). These are factors that operate independently of the company.

Economic factors. The key elements of vitality, as well as their interactions, are largely influenced by economic changes (Galinienė, 2015; Sekliuckienė, Repečkienė, 2014). Palšaitis (2010) also agrees that the economic environment is the most important of all external environments and separates out these impacts of the economic environment on logistics:

- ✓ companies may have problems with rising prices;
- ✓ in order to meet cash needs during the inflation period, more attention must be paid to improving the efficiency of individual logistics processes;
- ✓ long-term inflation and the downturn have a major impact on the company's sales revenue, which results in a drop in profits;
- ✓ due to the slowdown in market growth, logistics professionals need to carefully organize their operations to maximize productivity for each euro spent on logistics;
- ✓ the structure of the capital is significant because the excess of assets over the liabilities may cause the company to suffer considerable losses due to inflation. Conversely, companies benefit from inflation if their liabilities exceed their assets;
- ✓ foreign currency fluctuations may give rise to some uncertainty in decision making.

Political and legal environment. Galinienė (2015) distinguishes from the stream of political factors: environmental policy, fiscal policy and taxation, monetary policy and industrial regulation. The expression of these factors includes cross-border agreements, legal regulations, restrictions and other documents that promote or restrict the volume of cargo transit, rail-port interoperability. These include economic development, the state of the economy as GDP, trade growth rates, and so on. (Palsaite, 2005). Political-legal environment can affect a company financially, when political factors in a country negatively influence the expected movement of invested capital and eliminate the reasons for investing (Palšaitis, 2010). The author also emphasizes that if the company carefully analyzes the situation and takes certain protective measures, the political-legal aspects do not cause problems and do not increase the company's costs.

McKinnon et al. (2018) emphasize that the government has always intervened in the freight transport sector to correct market anomalies and intermodal competition. According to this modern scientist, "the need for freight movement is influenced by government policies related to the economics, industry, regional development, environment, energy, land use, waste recycling, for which various departments are responsible" (p. 316). The author also distinguishes the following seven categories of policy measures:

- ✓ taxes (fuel taxes, vehicle excise duty and road use tax);
- ✓ financial incentives (e. g. subsidizing the use of cleaner modes of transport);
- ✓ regulation (status of carriers, their tariffs, etc.);
- ✓ liberalization (for example, by allowing the owners of their own lorries to transport goods from other companies on the return journey);
- ✓ management governance of state-owned enterprises (in most countries freight companies are state-owned, so the government has a direct influence on them);
- ✓ infrastructure and land-use planning (planning of the land needed for logistics activities);
- ✓ advice and encouragement (e. g. promoting environmental practices in freight transport).

Social and cultural environment. Social factors are those habits and behaviors that are determined by the way and state of society (Galinienė, 2015). This is the attitude towards law enforcement, governmental support, attitude towards development, development and ecology. Palšaitis (2010) identifies the following components of the socio-cultural environment that influence logistic management: language, religion, education, technology, politics, infrastructure development and regulatory systems. The author states that a company must constantly monitor its business interactions with changes in the social environment in order to understand their impact on company's profitability, supply chain management strategies, outlets, market segmentation policy, and sales promotion.

Sekliuckienė and Repečkienė (2014) distinguish these social factors:

- ✓ availability of medical services;
- ✓ number and infrastructure of medical insurance companies;
- ✓ availability of accommodation services;
- ✓ cultural infrastructure.

Research and Discussion. A set of indicators to measure the economic viability of logistics companies

It is expedient to start evaluating the efficiency of the logistics company with the analysis of the composition of profit, its structure and dynamics. The further measuring of the performance includes sales, net profit, assets and return of capital.

- ➢ **Gross profitability of sales** is calculated using the formula (1):

$$\text{General profitability} = \frac{\text{Gross profit}}{\text{Sales revenue}} \quad ; \quad (1)$$

Indicates the gross margin for each euro of sales. This allows to compare the results of competitive activity. Low indicator can express the company's pricing problems.

- ➢ **Net profitability of sales**. This indicator is usually calculated in

corporate practice and is calculated using the formula (2):

$$\text{The net profitability} = \frac{\text{Net profit}}{\text{Sales revenue}} \quad ; \quad (2)$$

Displays the net profit of one euro of sales revenue. This shows the efficiency of the company. The higher the value of the indicator, the better control of all costs of the company.

- **Assets profitability** is calculated using the formula (3):

$$\text{Assets profitability} = \frac{\text{Net profit}}{\text{Property}} \quad (3)$$

Indicates pure profit fore ach euro of the company's all assets. Discloses whether the company is using its assets effectively.

- **Return on Equity (ROE)** is calculated using the formula (4):

$$\text{ROE} = \frac{\text{Net profit}}{\text{Personal capital}} \quad ; \quad (4)$$

Indicates how efficiently the equity of the company is used (invested money and assets of the owners of the company), i. e. one euro of equity represents a net profit.

Boundaries for the assessment of profitability ratios to assess the economic viability of firms (see Table 1).

Table 1. Boundaries for the assessment of profitability ratios

Indicators	**Profitability ratios, %**				
	Very good	**Good**	**Satisfactory**	**Unsatisfactory**	**Bad**
General profitability	x>35%	35%>x>15%	15%>x>7%	7%>x>0%	x<0
The net profitability	x>25%	25%>x>10%	10%>x>5%	5%>x>0%	x<0
Assets profitability	x>20%	20%>x>15%	15%>x>8%	8%>x>0%	x<0
ROE	x>30%	30%>x>20%	20%>x>10%	10%>x>0%	x<0

To assess the ability of a company to meet its liabilities, the following solvency ratios have to be calculated: leverage ratio, equity ratio and leverage.

- **Debt coefficient** or otherwise known as gross debt ratio is calculated using the formula (5):

$$\text{Debt coefficient} = \frac{\text{All obligations}}{\text{All assets}} \quad ; \quad (5)$$

Indicates how much of the company's profit is financed by credit funds. Very good if less than 0,3.

- **Property coefficient** is calculated using the formula (6):

$$\text{Property coefficient} = \frac{\text{Personal capital}}{\text{All assets}} \quad ; \quad (6)$$

Compares personal capital to the company's property. Allows to evaluate the company's ability to develop its performance without external sources of financing.

- **Financial leverage** is calculated using the formula (7):

$$\text{Financial leverage} = \frac{\text{Obligations}}{\text{Personal capital}} \quad ; \quad (7)$$

Indicates the amount of debt for each euro of personal capital, i. e. what part of funding is on credit. Big indicator indicates higher financial risks as the business will have to pay not only the interest but also pay back the debts.

Table 2. Boundaries for the assessment of solvency ratios

Indicators	**Solvency ratio values**
Indebtedness ratio	0,3< 0,7
Equity ratio	The higher the better
Financial leverage	~0,5

When evaluating the efficiency of the planned business it is expedient to calculate the following turnover ratios: total assets turnover, long-term and short-term assets turnover and equity turnover.

- **Turnover of total assets** is calculated using the formula (8):

$$\text{Total assets turnover} = \frac{\text{Sales revenue}}{\text{All assets}} \quad ; \quad (8)$$

Indicates the amount of income for each euro of the company's property. The higher the indicator the more efficient the use of assets.

- **Turnover of fixed assets** is calculated using the formula (9):

$$\text{Fixed assets turnover} = \frac{\text{Sales revenue}}{\text{Permanent assets}} \quad (9)$$

Indicates the amount of income for each euro of permanent assets, i. e. how efficiently the company's fixed assets are used.

- **Turnover of current assets** is calculated using the formula (10):

$$\text{Current assets turnover} = \frac{\text{Sales revenue}}{\text{Temporary assets}}; \quad (10)$$

Indicates how efficiently the company's short-term assets are used, i. e. the amount of income for each euro of short-term assets.

- **Equity turnover** is calculated using the formula (11):

$$\text{Personal capital turnover} = \frac{\text{Sales revenue}}{\text{Personal capital}}; \quad (11)$$

Compares the sales of a company with its working capital. A low coefficient value indicates poor performance of capital efficiency.

Recommended thresholds for assessing performance are given in Table 3.

Table 3. Boundaries of performance measurement

Indicators	**Sizes of performance indicators**				
	Very good	**Good**	**Satisfactory**	**Unsatisfactory**	**Bad**
Total assets turnover	x>2	2>x>1	1	1>x>0	x<0
Fixed assets turnover	x>1,5	1,5>x>1	1	1>x>0	x<0
Current assets turnover	the higher the better				
Personal capital turnover	the higher the better				

After analyzing these indicators described above, it is not difficult to compare the results of different companies' performance, to uncover the reserves and to present reasonable ways of company's management. This is one of the key tools for highlighting the economic viability of logistics companies.

Conclusions

1. Economic viability is the ability of a company to innovate, to adjust its actions and to develop strategy ahead of its competitors, that can maintain high productivity in a long run. Companies that are able to maintain high levels of business efficiency, sustainability, productivity and stability can at the same time ensure economic viability in a long run. Only a combination of these indicators can ensure good long-term results.
2. The main factors determining and changing the economic viability of logistics companies are divided into internal or controlled (social, human resources and technological factors) and external or non-controlled (economic, political-legal, socio-cultural, ecological and competitive environment).

3. The most widespread view is that economic viability can be objectively measured by logical and econometric methods of economic analysis and specific methods.

4. To assess economic viability, it is best to choose the following financial ratios commonly used in practice: profitability, operational efficiency (asset management), solvency (liquidity) and capital markets. In the analysis of these relative ratios, it is not difficult to compare the results of different companies, to uncover the reserves, and to present the results of the management of company. This is one of the key tools for highlighting the economic viability of logistics companies.

5. The methods and indicators most commonly used to assess economic viability are named and grouped in different ways. It causes the problem of the choice of indicators and methods for assessing the economic viability of a company. Different authors use different indicators to achieve the same goal. In addition, there is no integrated overall viability indicator consisting of the sum of the individual indicators described above, after evaluating the significance of each of them.

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