



THE PROBLEMS OF OPTIMAL CAPITAL STRUCTURE FORMATION IN COMPANIES OF THE MARITIME INDUSTRY SECTOR

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Annotation

The aim of this article is the analysis of the optimal capital structure. The issue of optimal capital structure is highly important when making decisions on new investments or restructuring of a company. If a company already has optimal structure, its new investments should be financed with the same proportion of funding sources. If a company does not have optimal structure, then new financing sources have to lead towards such structure. If the existing capital structure is unsatisfactory, re-capitalisation of a company can be required. It is assumed that an optimal capital structure exists, although usually this issue is deemed rather controversial. When choosing the capital structure, a company analyses risk-profitability ratio, and owners of the company decide what specific level of risk will be chosen. Capital structure reflects the corporate strategy and policy of formation of financing sources. One or another decisions that are made regarding capital structure in the process of formation of financing sources to large extent depend on business-specific features of a company, its level of competitiveness and business development strategy.

KEY WORDS: capital, capital structure, optimal capital structure.

Introduction

Capital structure, as defined by Obi P.C. (2004), is a mix of debt and equity capital in the process of business financing. Formed capital structure not only represents a debt-to-equity ratio, but at the same time serves as assessment of the corporate financing sources and reflects the financing policy of a company. Capital structure to very large extent determines long-term corporate financial success, a choice of risk and profitability alternative. Managers of companies have to continuously monitor the capital structure in order to ensure stability of performance. Benito A. (2003) maintains that decisions related to corporate capital structure have important consequences both at micro- and macro levels. Optimisation of capital structure should always require considering how a financial decision will affect a market price of a share. The issue of optimal capital structure is highly important when making decisions on new investments or restructuring of a company. If a company already has optimal structure, its new investments should be financed with the same proportion of funding sources. If a company does not have optimal structure, then new financing sources have to lead towards such structure. If the existing capital structure is unsatisfactory, re-capitalisation of a company can be required. It is assumed that an optimal capital structure exists, although usually this issue is deemed rather controversial. When choosing the capital structure, a company analyses risk-profitability ratio, and owners of the company decide what specific level of risk will be chosen (Kancerevyčius, 2006). Thereby, undoubtedly, optimal corporate capital structure affects interdependence between risk level and profitability of a company. This is proved by such foreign researchers that have been for a long time analysing this issue in their

research works, as: Baker M. D, Wurgler J. (2001), Ballweiser W. (2001), Bamberger I., Wrona Th. (2002), Banerjee S., Heshmati A., Willborg C. (2010), Frank M., Z., Goyal V., K. (2003), Leland H., Talf, K. (2009), Titman S., Wessels R. (2008), Titman S., Tsyplakov S. (2011). The authors referring to performed research maintain that capital structure reflects the corporate strategy and policy of formation of financing sources. One or another decisions that are made regarding capital structure in the process of formation of financing sources to large extent depend on business-specific features of a company, its level of competitiveness and business development strategy.

Stability of performance of the maritime sector companies is especially relevant issue for Lithuania, as a maritime state, during current period of intensive economic development. The Integrated Science, Studies and Business Centre (Valley) for the development of Lithuanian Maritime Sector, approved by the Government of the Republic of Lithuania (№ 786, dated 23 July 2008), „Lithuanian maritime sector – is an integrated system covering various maritime businesses (maritime transport, ports and their infrastructure, industry based on the coastal zone resources, recreational industry, etc.), fundamental and applied maritime studies, and the system of education and training of experts for the corresponding business and research sectors“. According to the above programme, favourable conditions for establishing the Valley for Lithuanian maritime sector and its attractiveness for foreign investors are determined by the specific cluster of industry and business that has evolved in the Lithuanian seaside region, where enterprises link their activities with ship industry or maritime economy. By Klaipėda city municipality data, the port of Klaipėda and companies associated with its activities create over

23 000 jobs and account for 4,5% of Lithuania's gross domestic product [9]. Therefore, it is particularly important to analyse capital structure of these companies and to provide an optimal model of the capital structure.

While the study on Klaipėda city economic, engineering, natural environment and territorial development (2006) indicates that economic and political environment in Lithuania and other countries have a very significant impact on the type of fluctuations in the port's cargo flows. It is confirmed by a report for the 1st quarter of 2014 on implementation of the Strategic action plan of SE Klaipėda State Seaport Authority for the years 2014-2016. Increasing tariffs of road and railroad cargo transportation negatively affect competitiveness of the port competing for cargo flows because of lower railroad tariffs declared by ports in Poland and Latvia – competitors of Klaipėda port. Financial hardship suffered by contractors as a result of economic crisis can have impact on the schedule of completion of contracting works performed under certain projects in construction objects, what, in turn, can result in suspension of delivery of infrastructure objects. Hardly predictable prices for the port extension works and materials prevent appropriate assessment and planning of investments for the period of the strategic action plan [43]. Results of research of Klaipėda city economic, engineering, natural environment and territorial development confirm that Klaipėda port makes significant and major social-economic contribution both at the city, regional level and national levels. Klaipėda port creates favourable preconditions for rapid economic development of Klaipėda region, increases attractiveness of the region for foreign investments. The estimates of the inductive impact of Klaipėda seaport on national economy suggest that Klaipėda seaport is directly or indirectly linked with 18 % of Lithuania's total gross domestic product [9]. Specific type of operations, increase of competitiveness level and planned development of the maritime sector require the companies of this sector to make ambitious and untested decisions on capital structure. Many businesses of this sector, such as AB „Klaipėdos Smeltė“, which is planning to handle 69 % of containerised cargo by the year 2016, AB „Krovinių terminalas“, UAB KJKK „Bega“, AB „Klasco“, re-focusing their activities, must increase the share of containerised cargo in order to improve stevedoring operations with a view of environmental protection requirements. The key factor of harmonisation of the port development requires the businesses within the marine sector to become competitive in the Baltic Region. This task will require huge financial investments – both from companies' own and borrowed funds, what will essentially change the capital structure of companies. This fundamental factor determines and defines the range of scientific research **problems** within the framework of optimal capital structure formation.

There is a theoretical concept of optimal capital structure. Optimal capital structure, as defined by such researchers as Casey K.M., Summer G., Packer J. (2006) and Eriotis N. (2007), is a mix of debts and equity that allows increasing the value of capital to the highest possible degree. The issue of optimal capital structure

has been a subject of scientific discussions – there is no clear notion on what exactly this mix should be and most often it is impossible to determine. Also, these theories do not answer a question what criteria are used by a company to choose one or another.

Determinants of capital structure

Analysis, systematisation and comparison of various theories of capital structure formation shows that there is no scientific consensus on which of the existing models is the most suitable to reflect current corporate behaviour in terms of the problems of capital formation and what specific factors determine financing decisions. According to Gusto R. (2006), differences in opinions often stem from individual approach to economic problems. Differences between these approaches even more emphasise problematic character of the issue of capital structure formation. Due to the above reasons there is no one single model for choosing of the most optimal capital structure. Also, no factor or factors – whether industry-specific or equally significant for business across several industry branches have been identified, that would have effect on capital structure formation decisions in a company. According to Sander P. (2003), various theories and models identify multitude of eventual determinants of capital structure formation decisions.

In depth analysis of the determinants of capital structure was made by Booth L., Aivazian V., Demirguc-Kunt A. and Maksimovic V. (2001), who analysed the effect of macroeconomic ratios on capital structure ratios in the developed countries.

Factors attributed to internal determinants of corporate capital structure formation include: goals of a company, availability of own funds, size of a company, structure of assets, tangibility of assets, profitability of equity and asset turnover (Paliulytė, 2009). Companies operate in the markets of different countries, thus they are affected by macro-environment of certain country, i.e. inflation rate, fluctuation in interest rates, changes in indicators of the gross domestic product. The process of capital structure formation in companies is largely affected by operation of the capital markets in the country, i.e. liquidity of securities, governance traditions of the country and peculiarities of financial systems. While, D. Cibulskienė, M. Butkus (2007) do not group the factors into external or internal ones and maintain that capital structure is determined by the following factors: instability of legislation and economic situation; uncertainty of political situation, social and political changes; price and demand-supply situation in the market, fluctuations in currency rates, uncertainty of natural environment and climate conditions, probability of natural disasters; industrial and technological factor (equipment failures and production accidents, production rejects, etc.); personal factors (age, education, system of beliefs). Aleknavičienė V. (2009) maintains that corporate decisions on formation of capital structure are determined by the following factors: costs of representation of a share company; probability and costs of bankruptcy; degree of business risk; size of a

company; attitude of managers, owners and creditors to risk; mismatch of interests between company owners and managers; borrowing capacity; tax benefits. Fan J. P. H., Titman S., Twite G. (2010) in their study analyse the impact of institutional environment on capital structure and debt maturity. A survey conducted in a large sample of companies in 39 developed or developing countries showed that the legislation and tax system of the country, corruption level and preferences of capital suppliers have significant impact on capital leverage and debt repayment.

Some researchers maintain that capital structure is also determined by geographical location of the country and country-specific factors. Sayılğan G., Karabacak H., Küçükkoçaoğlu G. (2005) explored the determinants of capital structure in Turkey. Empirical research showed that size of a company, profitability and growth opportunities in long-term assets, opportunities for growth of tangible assets, growth opportunities in total assets, tax shields and tangibility are determinants for the capital structure decisions of Turkish firms. Suhaila, M.K., Wan Mahmood W. M. (2008) made a research in companies in Malaysia. Based on the obtained results, size of a company, indicators of sales figures are negatively related to total debt, suggesting that larger companies are less dependent on leverage financing, as compared with smaller companies. Possibly, larger companies employ their equity for financing or use retained profit as the major source in the capital structure. Similarly, the results between liquidity of a company and its debt ratio show significant negative relationship. Saravanan, R. ir Gowri, K. (2014), who were analysing the capital structure in the Indian automobile industry, maintain that a proper capital structure helps to earn attractive profit, while absence of proper capital structure affects the debt rate and leverage which results in high financial risk. The authors claim that capital structure is one of the determinants of company's performance. Rafique, M. (2011) explored the effect of profitability and financial leverage on capital structure in Pakistan automotive industry, analysing whether or not profitability and financial leverage of companies have significant impact on capital structure. Koralun-Bereznicka, J. (2013) made empirical research in 9 countries of the European Union. The research aimed at understanding how industry-specific factors and size-specific factors determine capital structure of companies. The most general conclusion was that leverage size is more dependent on the industry sector where a company operates than on the size of a company. Bistrova, J., Lace, N., Peleckienė, V. (2011) made a research on the determinants of capital structure in the Baltic States. The obtained results showed that there was a positive relation between share performance and sufficiency of equity. Besides, an inverse relationship between debt and profitability of capital was identified, which confirms the pecking order theory postulating that a company should first use internally generated funds. Kancerevyčius G. (2006) defined the determinants of optimal capital structure and divided them into company-specific and economic factors. The

following factors are attributed to the company-specific determinants:

- tax rate: the higher rate, the higher level of optimal debt and vice versa;
- profitability of a company before taxes (operating profit/assets): the higher profitability, the higher level of optimal debt;
- variability of profits: the higher profit, the lower level of optimal debt.

Debt profitability gaps were attributed by the author to the economic factors: the bigger gaps, the lower optimal debt level.

Sander P. (2003) suggests that various theories and models identify a multitude of eventual factors, which determine the decision on capital structure formation. The author classifies these determinants into internal–endogenous and external–exogenous (macro-economic). If the internal-endogenous factors depend on company-specific ratios only, the external–exogenous factors are the same for all companies operating in a given market; however their significance can diverge to large extent (Fig. 1.)

Deeper analysis of the endogenous factors reveals a tendency that shows a relationship between financial leverage and investment volume at the company level. Fama E.F., French K.R. (2002); Obi P. C. (2004) suggest that financial leverage (debt-to-equity ratio) increases with growth of long-term tangible assets and investment opportunities, and decreases with increase in profitability, size of a company and uniqueness of product. Whereas, according to Douglas A.V.S. (2006), Faulkender M., Petersen M.A. (2006), Krause A. (2006), along with growth of long-term tangible assets, companies use bigger financial leverage not because of effect of interest on taxes, but because of effect of depreciation of long-term assets on taxes. However, analysis of previous research works shows lack of research that would evaluate the effect of exogenous factors not only on the choice of corporate financing decisions, but would also reflect the trends of capital structure formation in companies within certain industry branch.

Some researchers (Friend, Lang, 1988; Titman, Wessels, 1988; Chung, 1993; Walsch, Rajan, 1997 etc.) of capital structure maintain that size of financial leverage of a company differ across various industry branches and, in fact, depends on company-specific factors. According to the authors, financial leverage increases along with growth in fixed tangible assets and investment possibilities and decreases with increase in profitability, size of a company and uniqueness of product. In turn, supporters of the trade-off and signalling theories (Bradley, Jarell, Kim, 1984; Long, Malitz, 1985; Rajan, Zingales, 1995, etc.) found that following the growth in long-term tangible assets, companies use more financial leverage for non-debt tax shields, profitability and company size, and less – when business instability and investment opportunities increase (Kipišas, 2004).

One of the most often problems encountered in capital structure formation is variability of financial leverage, which arises upon increase of profitability of

equity and risk; while risk is incurred only by the companies that finance their need for capital by means of debt.

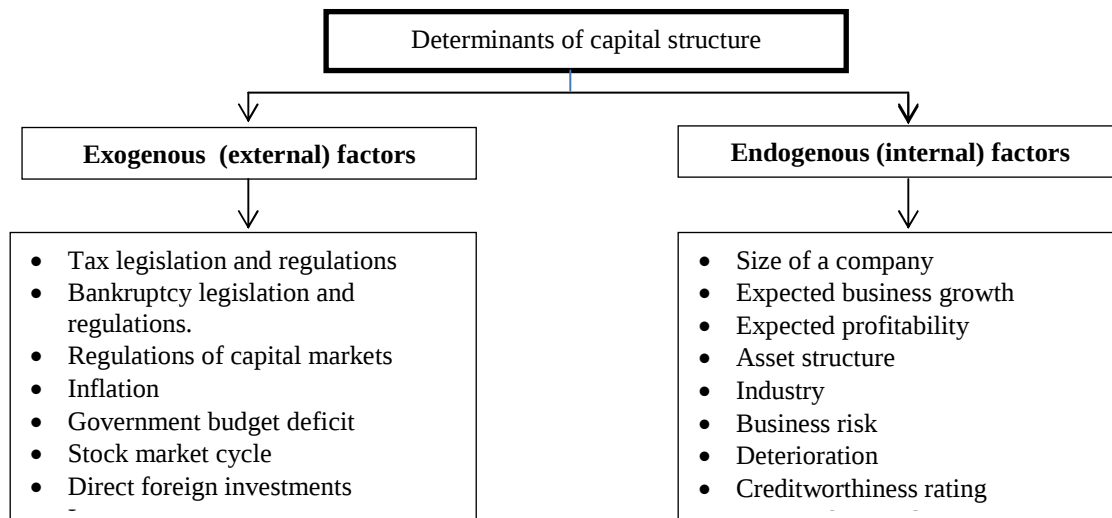


Fig. 1. Determinants of capital structure

Source: Sander P. (2003). *Capital structure choice in Estonian companies: a survey* // Management of organisations: systematic research.

Capital structure decisions determine a choice of target capital structure. Target capital structure is the most acceptable mix of borrowed capital and equity, by which a company is planning to finance its investment needs (Myers, 2001).

There are no significant contradictions regarding the determinants of capital structure between foreign and Lithuanian research scientists, they tend to complement each other.

Theoretical assumptions for evaluation of the effect of optimal capital structure on effectiveness of company's performance

There is broad diversity of opinion among scientists on the issue of capital structure and its effect on business performance. Some authors suggest that financial ratios of a company fairly well reflect the effect of capital structure on company's performance. According to Borodulinaitė A. (2005), who made a research on financial leverage as one of the indicators of financial standing analysis, companies often employ leverage capital to increase profitability of share capital. Increased leverage also leads to an increase in return on equity. According to Benito (2006), use of leverage capital entails additional exposure to risk invoked by shareholders. Effect of financial risk manifests itself by instability of profitability of a company. Extent of financial risk incurred by debts is measured by a degree of financial leverage. Analysing the capital structure, it is important to make analysis of relative financial ratios. They are particularly important in comparison with: 1) ratios of the same company from previous period, 2) certain ratios of established parameters, 3) ratios of other companies within the same industry branch, 4) ratios of

major competitors in the market, 5) aggregated ratios of national economy (Mackevičius, 2006).

J. Mackevičius (2006) conducted a comprehensive study analysing the grouping of financial relative ratios in the works of foreign and Lithuanian authors. The study showed differences in the names of groups of relative financial ratios, the order of arrangement of groups, the number of groups, the number of relative financial ratios in the group and the total number of relative financial ratios.

However, when applying the relative financial ratios to analyse performance of a company, it is very important to consider certain preconditions, i.e. what is the specific objective of the research, what aims it pursues what aspects are to be examined.

Choice of capital structure is also determined by differences of equity and borrowed capital. To assess liabilities and equity of companies, J. Mackevičius (2006) recommends calculating the following relative financial ratios, as shown in fig. 2.

Comprehensive analysis of calculation of financial leverage was made by J. Mackevičius (2005). According to this author, economic research papers offer a wide variety of methods for calculation of financial leverage. Some authors claim that it is sufficient to calculate only one financial leverage ratio, others – indicate several ones; neither there is any generally accepted name of this ratio in the research literature and this situation results in different methods for calculation of financial leverage. Although financial leverage is most often represented by a liability-to-capital ratio, however, scientists often disagree not only about the component of liabilities (total liabilities or long-term only), but also about capital (equity, share capital or capital employed) (Mackevičius, Poškaitė, 2003).

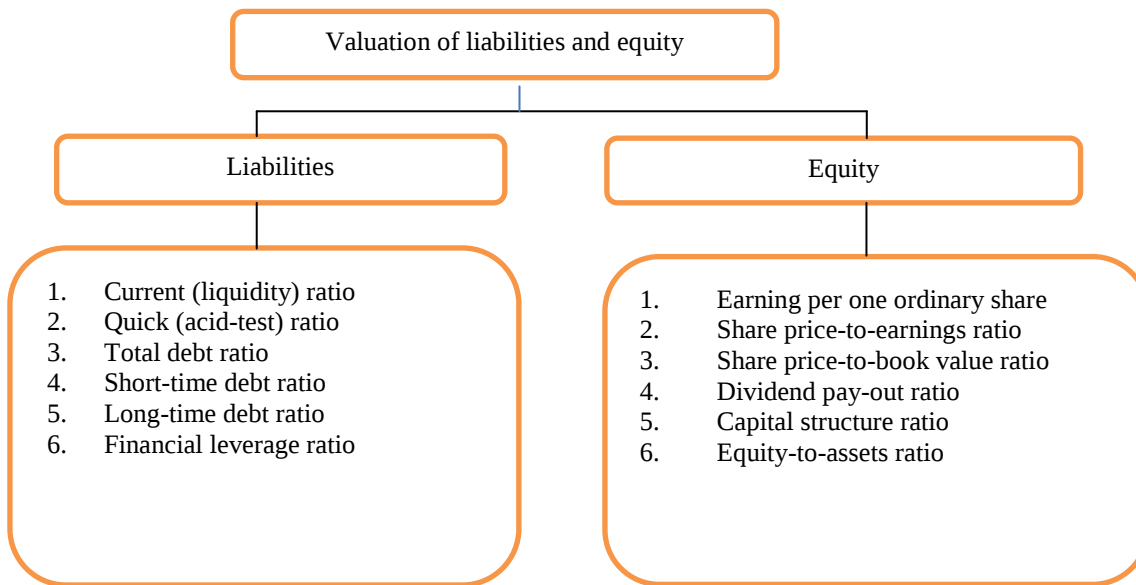


Fig. 2. Relative financial ratios for valuation of liabilities and equity

Source of reference: Mackevičius, J. (2006). Calculation and grouping of relative financial ratios. Scientific publications: Economics. ISSN 1392-1258, Nr.75; modified by the authors.

An important indicator of capital structure of a company are costs of capital that have been analysed separately, as costs of equity, costs of leverage capital and costs of total capital. Cibulskienė D., Lileikienė A., Marčišausienė J. (2008) indicate that costs of equity and leverage capital are understood as the key indicators of company performance.

$$WACC = \frac{E_b}{A_b} \cdot r_e + \frac{D_b}{A_b} \cdot r_D \cdot (1 - T)$$

WACC – weighted average costs of total capital;

r_e – costs of equity;

r_D – costs of borrowed capital;

A_b – balance value of total capital;

E_b – balance value of equity;

D_b – balance value of borrowed capital;

T – profit tax rate.

Costs of capital, as some authors maintain, have effect on enterprise value. Kancerevyčius J. (2006) supposes that valuation of a company (valuation of its shares, i.e. valuation of equity) is subjective process. The author indicates the following key methods of valuation of a company in terms of its assets: balance value, adjusted balance value, profit capitalisation, surplus profit, discounted profit, dividend capitalization, profit multiplier, discounted cash flows, price-to-earnings ratio, price and balance value, discounted dividends, sales ratio, liquidation value, replacement value or replacement costs, prediction method, establishment costs, return on invested capital. While, Mäkeläinen E. and Roztockis N. (1998) offer economic value added (EVA) as a basis for valuation of capital structure and its effect on effectiveness of company's performance. The author describes economic value added in the following aspects: it is a value-based financial performance measure; a measure reflecting the absolute amount of shareholder value created or destroyed during each year; a useful tool

to choose the most promising financial investments; an effective protection against shareholder value destruction; a tool suitable to control operation; a measure highly correlated with stock prices; a measure, which can be maximised.

T. E. Copeland (1994) points out that the economic costs comprise not only of the costs reflected in the profit (loss) account, but also of the costs of capital. Pursuant to this value approach, value is created only when revenue exceeds total costs, also including capital costs. Increase (generation) of business value ensures normal existence of a company and sufficiency of funds for business development, as shareholders buy shares and invest into the company expecting that value of the company will be increasing, i.e. revenue of the company will exceed costs and costs of capital. If capital suppliers do not receive sufficient economic profit to compensate their risk and time value of money, they withdraw their capital and look for higher profitability. A company that does not earn economic profit will hardly attract more capital for financing of its development, because the price of its shares will tend to decrease, such a company will also pay higher interest on bonds or bank loans.

To define economic value added, E. Mäkeläinen and N. Roztockis (1998) offer the following stages: 1) calculate Net Operating Profit After Tax (NOPAT), 2) identify company's Capital - C, 3) determine a reasonable Capital Cost Rate (CCR); 4) calculate Economic Value Added (EVA).

$$EVA = EBIT - A \cdot WACC$$

where:

A – total assets of a company at the end of period.

EBIT – profit before interest and taxes.

WACC – weighted average costs of capital.

Economists maintain that use of EVA has essential benefits for companies' performance. Cibulskienė (2007) offers an insight to significance of EVA indicator and identifies the causes of its significance: 1) clearly recognising the significance of capital and capital-related costs, EVA stimulates effective distribution and use of total capital – both equity and leverage capital, 2) EVA distinctly discloses profitability and costs of capital used to earn such profit, therefore it is suitable tool to value investments, 3) EVA is a ratio of period performance and as such it can be used to make assessment of company's performance and to motivate managers and employees, 4) calculation of EVA value can be easily derived from calculation of discounted cash flows.

The key indicator employed to evaluate the effect of capital structure on company's performance is a ratio which represents value of a company. Enterprise value (EV) - is a measure used to value a company as a single object. The following components are required to calculate enterprise value: company's capitalization, debts and money (money and their equivalents). EV is calculated on the basis of the following formula:

$$\text{Enterprise value (EV)} = (\text{number of ordinary shares} \times \text{price of a share}) + \text{debts} - \text{cash}$$

Review of empirical research on optimal capital structure and effect on enterprise value

Referring to the theoretical assumptions on the effect of optimal capital structure on effectiveness of company's performance, research of businesses of the Lithuanian maritime sector was made. Capital structure of AB „Smiltynės perkėla“ was chosen for the research with the aim to make assessment of optimal capital structure of the analysed business company and its impact on effectiveness of the company performance in terms of economic value added and enterprise value.

The Lithuanian maritime sector – is an integrated system covering various maritime businesses (maritime transport, ports and their services, shipbuilding and repair, industry based on the coastal zone resources, recreational industry, etc.) engaged into fundamental and applied maritime research for the corresponding business and research sectors. The structure of the Lithuanian maritime sector is shown in fig. 3.

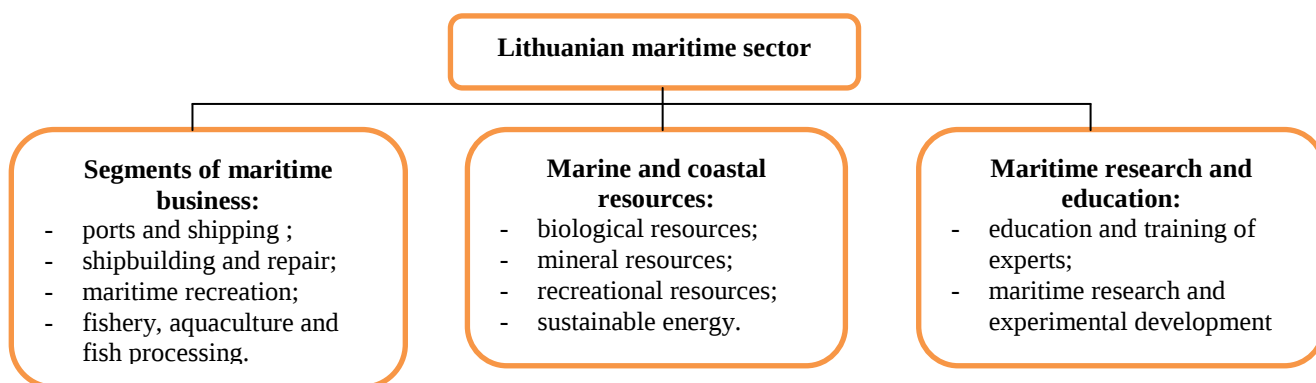


Fig. 3. Structure of the Lithuanian maritime sector

Source of reference: Feasibility study to substantiate the need for national complex programme „Education of the highest-competence experts, research and experimental development, science-intensive business development in the Lithuanian maritime sector“ (2007). Klaipėda

In this case, the research has been conducted on the basis of scientific concept that the optimal capital structure is a mix of debts and equity that allows maximising the value of capital to the highest degree. Optimum is a point, where the total cost of capital is minimal at the maximal enterprise value. To analyse whether the capital structure of AB „Smiltynės perkėla“ was optimal in the period of 2004 – 2012, enterprise value of AB „Smiltynės perkėla“ was defined. Two ratios were used to measure AB „Smiltynės perkėla“ enterprise value: economic value added (EVA) and enterprise value (EV). Economic value added is calculated by using the following formula:

$$\text{EVA} = \text{EBIT} - A * \text{WACC}$$

where:

A – total assets of a company at the end of period.

EBIT – profit before interest and taxes.

WACC – weighted average costs of capital

AB „Smiltynės perkėla“ economic value added is presented in table 1. As the conducted research showed, the values of EVA during the period of 2004 – 2012 were positive only in the years 2010 and 2012, and were equal to 120503.3 LTL and 871009.1 LTL, correspondingly. In other years, values of the ratio were negative. A negative value of the ratio shows that the company is not generating value.

Table 1. Calculation of AB „Smiltynės perkėla“ economic value added

	Economic value added (EVA)			
	Earnings before taxes (EBIT), Lt	WACC, %	Assets (A), Lt	EVA, Lt
2004	168938	2.44	24062489	-418187
2005	134921.2	2.26	30210215	-547830
2006	200228	1.45	42267874	-412656
2007	-410462	3.50	38925378	-1772850
2008	31190	3.59	36001885	-1261278
2009	678715	2.28	44934632	-345795
2010	1606870	1.68	43801246	871009.1
2011	1419457	4.13	40863944	-268224
2012	1737605	4.13	39155006	120503.3

Source of reference: prepared by the authors on the basis of performed calculations

Fig. 4 shows dependence between economic value added and weighted average cost of capital. Optimal capital structure was observed in the year 2010, as the maximal calculated economic value added of AB „Smiltynės perkėla“ over the entire analysed period was attained in 2010 and was equal to 871009.1 LTL, while weighted average cost of capital was equal to 1.68 %, and it was only by 1.45 % less than in the year 2006. Another positive calculated economic value added, which equals to 120503.3 LTL, was attained in the year

2012, while weighted average cost of capital was equal to 4.13% only. It means that values calculated for the year 2010 correspond to the assertion that an optimum point is attained at maximal enterprise value (871009.1 LTL) and minimal capital cost (1.68 %). Thus, in 2010 AB „Smiltynės perkėla“ had optimal capital structure, because it allowed attaining the highest value of the company over the analysed period at the least cost of capital within the range of positive results of EVA ratio.

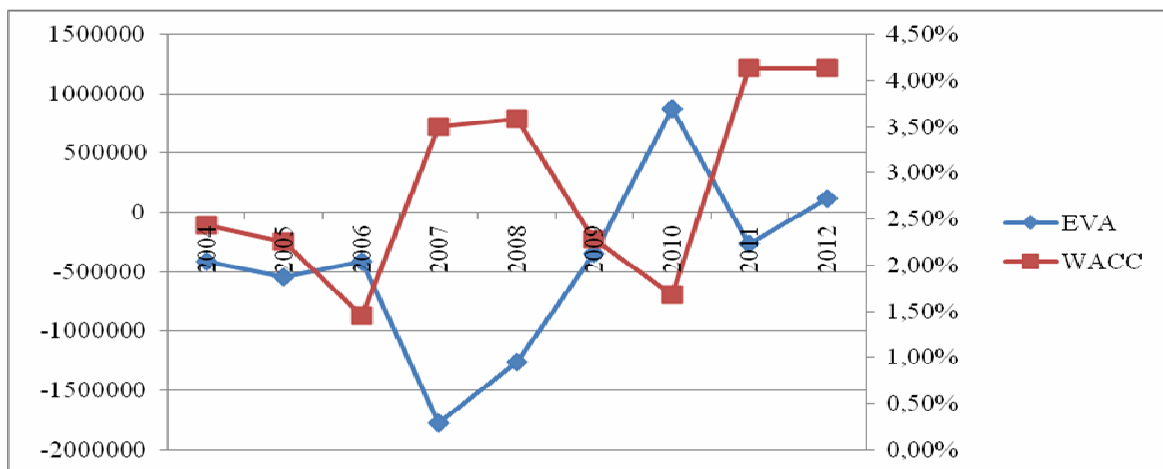


Fig. 4. Dynamics of AB „Smiltynės perkėla“ economic value added and weighted average cost of capital over the period 2004 – 2012

Source of reference: prepared by the authors on the basis of performed calculations

Enterprise value (EV) - is a measure used to value a company as a single object. To calculate enterprise value. The following components are required to calculate enterprise value: company's capitalization,

debts and money (money and their equivalents). EV is calculated on the basis of the following formula:

$$\text{Enterprise value (EV)} = (\text{number of ordinary shares} \times \text{price of a share}) + \text{debts} - \text{cash}$$

Table 2. Calculation of AB „Smiltynės perkėla“ enterprise value (EV) over the period 2004 – 2012

	Enterprise value (EV)			
	Capitalization, Lt	Debts, Lt	Cash, Lt	EV, Lt
2004	5881800	15835429	86001	21631228
2005	5881800	22250349	1021773	27110376
2006	5881800	33736915	911515	38707200
2007	5881800	32216712	464784	37633728
2008	11881800	23463510	122586	35222724
2009	17881800	26329941	410927	43800814
2010	17881800	24013583	68971	41826412
2011	17881800	20972560	932099	37922261
2012	17881800	18947704	410926	36418578

Source of reference: prepared by the authors on the basis of performed calculations

Calculated enterprise value (EV) of AB „Smiltynės perkėla“ shows that the highest enterprise value

expressed in litas was attained in 2009 – 2010 and ranged from 41.8 to 43.8 mln. LTL. (fig. 5)

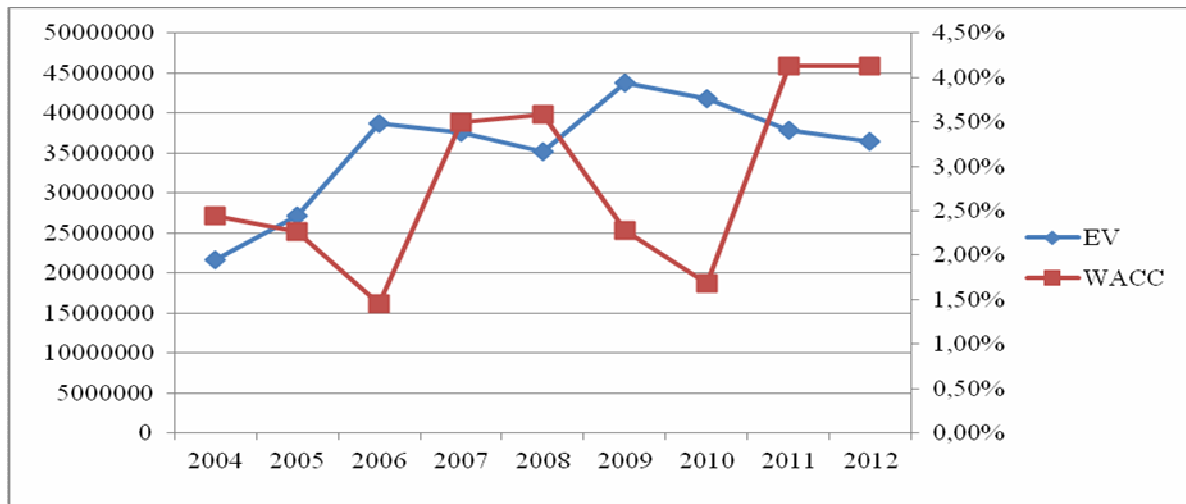


Fig. 5. Dynamics of enterprise value of AB „Smiltynės perkėla“ and weighted average cost of capital during the period of 2004 – 2012

Source of reference: prepared by the authors on the basis of performed calculations

Calculated ratio of enterprise value (EV) in comparison with weighted average cost of capital shows in principle different optimal capital structure, than the one calculated by the method of economic value added. Fig. 8 shows that the highest enterprise value of AB „Smiltynės perkėla“ was attained in the years 2009 and 2010, when weighted average costs of capital were equal to 2.28 and 1.68 %, correspondingly. The least weighted

average costs of capital were in 2006, they amounted to 1.45 % only, and enterprise value in the same year was 38707200 LTL. To identify in which year the optimal capital structure was chosen, a ratio between enterprise value and weighted average cost of capital has been calculated, which shows what amount of the company's enterprise value in litas is attributable to one per cent of weighted average cost of capital (Table 3).

Table 3. Ratio between AB „Smiltynės perkėla“ enterprise value and weighted average cost of capital

Year	Enterprise value (EV), Lt	WACC, %	Enterprise value / WACC
2006	38707200	1.45	26694621
2009	43800814	2.28	19210883
2010	41826412	1.68	24896674

Source of reference: prepared by the authors on the basis of performed calculations

Although in 2009 the highest enterprise value expressed in litas was calculated, but the obtained percentage of weighted average cost of capital was equal to 2.28 % only. The largest figure of the ratio between enterprise value and weighted average cost of capital allows for identifying optimal capital structure, which shows what amount of the company's enterprise value in litas is attributable to one per cent of weighted average cost of capital. The largest figure of the ratio between enterprise value and weighted average cost of capital was in 2006, which shows that optimal capital structure was attained in that year, calculating it by the second method; because the figure of enterprise value attributed to one percent of weighted average cost of capital amounted to 26694621 litas in that year, and in the year 2010 – 24896674 litas of enterprise value.

To define optimal capital structure of AB „Smiltynės perkėla“ over the period of 2004 – 2012, the enterprise value was calculated by two methods: using enterprise value (EV) ratio and economic value added ratio (EVA) ratio, because the concept of optimal capital structure defines it as such when maximal enterprise value is attained at minimal cost of capital. The calculated and compared dependence between economic value added and weighted average cost of capital shows that optimal capital structure of AB „Smiltynės perkėla“ was attained in 2010, the least weighted average cost of capital was calculated at the highest economic value added. Calculated ratio of company value (EV) in comparison with weighted average cost of capital shows different result than the one obtained by the method of calculation of economic value added.

AB „Smiltynės perkėla“ optimal capital structure, calculating it by the method of enterprise value (EV), was defined in 2006, as higher calculated enterprise value, which was equal to 26694621 litas, attributes to one per cent of weighted average cost of capital in that year. While in the year 2010, enterprise value per one per cent of weighted average cost of capital amounted to 24896674 litas.

Essential precondition for optimal capital structure is reducing of weighted average cost of capital in order to attain higher enterprise value.

Conclusions

Analysis of the theoretical aspects of capital structure formation allows concluding that in view of complexity of financial management decisions, the existing models and theories not always can explain particular decisions in this field. There has not been a scientific consensus on which of the existing models of capital structure formation is the most suitable to reflect current corporate behaviour and what specific factors determine financial decisions.

Making decisions on formation of financial resources in finance management is the process of particular complexity, which requires considering a variety of multifaceted factors. The performed analysis of determinants of financial decisions has raised a question which of these factors would have impact on

performance of business companies within the Lithuanian maritime sector. There is a number of empirical research on individual companies or their groups from various industry sectors, also some research has been conducted at national scale, however none – on the maritime business sector. In particular, there is lack of research on the effect of endogenous factors on corporate capital structure. It has to be particularly emphasised, that factors, which determine formation of capital structure in the countries with developed economy, not necessarily function in similar way in the countries of the emerging market economy. To ensure more detail coverage of the future research, the empirical research conducted in various countries and industry sectors should be grouped by certain attributes and their comparative analysis should be made.

Researchers involved into analysis of optimal capital structure have come to a common conclusion that optimal capital structure is a mix of debts and equity that increases the price of shares to the highest possible degree. When analysing the performance of business within the Lithuanian maritime sector a variety of relative ratios should be applied, which would provide valuable information required for economic decisions to various users. Analysis of capital structure should necessarily include analysis of financial leverage. Calculation of financial leverage will help managers of companies to answer the question: which capital – equity or leverage – should be used by a company for its business development, i.e. use of which capital at certain moment and under corresponding circumstances would generate the greatest benefit.

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OPTIMALIOS KAPITALO STRUKTŪROS FORMAVIMO PROBLEMOS LIETUVOS JŪRINIO SEKTORIAUS VERSLO ĮMONĖSE

S a n t r a u k a

Straipsnyje nagrinėjamos optimalios kapitalo struktūros formavimo problemos. Suformuota kapitalo struktūra apibūdina ne tik skolinto bei nuosavo kapitalo santykį, bet kartu įvertina įmonės finansavimo šaltinius bei parodo įmonės vedamą

finansavimo politiką. Nuo kapitalo struktūros labai daug priklauso ilgalaikė bendrovių finansinė sėkmė, rizikos ir pelningumo alternatyvos pasirinkimas. Įmonių vadovai turi nuolat stebėti kapitalo struktūrą, siekiant garantuoti veiklos stabilumą. Optimizuojant kapitalo struktūrą visada reikia atsižvelgti į tai, kaip finansinis sprendimas veiks akcijos rinkos kainą. Optimalios kapitalo struktūros klausimas labai svarbus darant sprendimus dėl naujų investicijų arba įmonės restruktūrizacijos. Jei įmonė jau turi optimalią struktūrą, naujas investicijas ji turi finansuoti su tokia pačia finansavimo šaltinių proporcija. Jei įmonė neturi optimalios struktūros, tai nauji finansavimo šaltiniai turi link jos vesti. Jei esama kapitalo struktūra yra nepatenkinama, gali tekti rekapitalizuoti įmonę. Daroma prielaida, kad optimali kapitalo struktūra egzistuoja, nors paprastai ši problema vertinama gana prieštaringai. Rinkdamasi kapitalo struktūrą, įmonė analizuoja rizikos-pelningumo proporciją, o kokią riziką rinksis, sprendžia įmonės savininkai.

Lietuvai, kaip jūrinei valstybei ir šiuo intensyvaus ūkio plėtros laikotarpiu, itin aktualu, kad jūrinio sektoriaus įmonių veikla būtų stabili. Todėl ypatingai svarbu analizuoti šių įmonių kapitalo struktūrą ir pateikti optimalios kapitalo struktūros modelį. Esminė uosto plėtros harmonizavimo aplinkybė reikalauja, kad jūrinio sektoriaus verslo įmonės taptų konkurencingomis Baltijos regione. Tai pareikalaus iš įmonių didelių finansinių investicijų, tiek nuosavų lėšų, tiek ir skolintų lėšų, kas iš esmės pakeis įmonių kapitalo struktūrą. Šis esminis veiksnys įtakoja ir apibrėžė mokslinio tyrimo svarbumą dėl optimalios kapitalo struktūros formavimo.

RAKTAŽODŽIAI: kapitalas, kapitalo struktūra, optimali kapitalo struktūra.

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