

A SYSTEM OF ANALYSIS OF THE TOTAL LIABILITIES TO TOTAL ASSETS RATIO

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Abstract. *The problem of solvency, which has been dealt with in many authors' works, is exceptionally topical nowadays when settlements among companies are performed not in a timely manner, disturbing business possibilities to remain active in the times of economic recession. Solvency represents a company's ability to cover current and non-current liabilities; also, it influences a company's financial state, results of activities and further development. Therefore, analysis of solvency provides the basis for evaluating a company's financial state.*

The means of assessing the total liabilities to total assets ratio by applying a system of pyramidal analysis, which reveals the actions that have a negative impact on this ratio, were investigated for the first time. The total liabilities to total assets ratio was selected as one of the long-term solvency ratios representing a company's total level of liabilities and its further capacity of borrowing.

The purpose of the article is to present a system of analysis of the total liabilities to total assets ratio. The methods used for this purpose were analysis of academic materials, filing of information, comparison and summarizing.

Key words: *solvency, total liabilities to total assets ratio, analysis of solvency*

Introduction

A company's insolvency can be described as a status when the company does not carry out its liabilities (e.g., no debts are paid, no pre-paid activities are implemented, and others) and the company's overdue liabilities (e.g., payables, unperformed works and others) exceed half of its balance total asset value, which has become a very topical problem during the economic recession. According to data of the Department of Statistics (Companies Bankruptcy 20090630), during the first six months of 2009 if compared to the first six months of 2008, the number of companies that had been declared bankrupt or were undergoing the bankruptcy stage increased in many areas of economic activities: 5.8 times in the transportation and security area, 5.6 times in real estate activities,

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3.4 times in building and construction. Also, during the first six months of 2009 compared to the first six months of 2008, the number of the companies which were declared bankrupt or were undergoing the bankruptcy stage and which from the registration of a company till the day of declaring their bankruptcy had been operating for up to 5 years increased by 11.8 percentage points and reached 43.6%. The number of companies which had been operating for 10 and more years decreased by 7.2 percentage points and reached 31.7%. Therefore, more attention was given to the aspect of assessing a company's solvency as one of the crucial areas in companies' financial state analysis.

While assessing a company's financial state, various means of analysis describing a certain area of a company's activities are applied. They are based on the results of the ratios from the area. In order to properly interpret the results, it is vital to assess the factors that had an impact on the ratios being dealt with.

Analysis of a company's activities is an important function of its management system, which is interconnected with other functions such as planning, accounting, control and regulations, and forecasting. Each of these functions provides certain economic information which can be used in order to carry out an analysis of a company's activities to deal with two main goals: 1) to assess historical decisions, and 2) to make future management decisions. Analysis of a company's activities means collection, comprehensive and objective analysis and assessment of various economic information (Mackevičius, 2008).

Financial comparative ratios as the key instrument in the analysis of a company's activity

Analysis of a company's activities is one of tools for a comprehensive assessment of a company's financial state, reserves and efficiency of activities, which describes a company through various aspects. Therefore, this area has received a wide coverage in works of many foreign and Lithuanian authors (Juozaitienė, 2007; Aleknevičienė 2009; Бригхэм, Эрхардт, 2005; Mackevičius 2009) who proposed various modifications of the application of certain company activity aspects' ratios, which differ in the peculiarities of ratio filing and application.

Professor Jonas Mackevičius has probably made the most exhaustive research on a company's financial analysis. He (Mackevičius, 2006) has dealt with the calculation and grouping of financial comparative ratios and concluded that many foreign authors use multiple titles for financial comparative ratio groups. The liquidity and profitability ratio group titles are used most frequently. Certain groups have different names, although it is highly likely that different authors describe the same phenomenon. The presentation order of various financial comparative ratio groups also varies. Some authors start their analysis of financial comparative ratios from liquidity, others from profitability or the risk group. The number of financial comparative ratio groups also depends on the author's

point of view. Some authors point out two, others five or six groups. Another difference is the number of financial comparative ratios in a group. Depending on the author it can vary from 8 to 42. The authors of the present paper came to similar conclusions while dealing with the grouping of financial comparative ratios in works of Lithuanian authors, i.e. Lithuanian authors note a different number of financial comparative ratio groups. In addition to this, certain authors describe different financial comparative ratio groups and ratios which make up these groups. However, it is important that every company applied its own system of financial comparative ratios, which could also be applicable not only for an objective assessment of the company's state, activity results and cash flow, but also for the future prospects.

Assessment of solvency

There are different concepts of solvency and liquidity. In his monograph, Professor Mackevičius (Mackevičius, 2005) sums up various authors' opinion and claims that most of them equal solvency to liquidity, although these are two essentially different notions. Liquidity is a possibility to transfer securities and tangible assets into cash. The level of assets' liquidity depends on the term during which such an opportunity could be implemented. The shorter the term of transferring assets into cash, the higher the assets' liquidity (Kalinina, 2007).

Solvency is described as a company's ability to cover its current and non-current liabilities with its current means, or as a capacity to cover all current liabilities in due time (Mackevičius, 2005). Therefore, if a company aims to be solvent, it should own a sufficient amount of cash, or it should have funds invested into liquid assets which, in case of a need, could be swiftly transferred (not necessarily as a sale) into a required amount of money; or if a company wants not to face any problems connected with liquidity, it must have a necessary amount of liquid assets (Jagminas, 2007). Thus, solvency and liquidity are not identical notions, although they are closely interconnected (Juozaitienė, 2007).

No what Lithuanian or foreign authors title a company's solvency / liquidity and how they group these ratios, the ratios are used in the assessment of an entity's capacity to cover its liabilities (Gowthorpe, 2005).

Although the peculiarities of various companies' activity analysis have received a wide coverage, it is usual that companies apply such a ratio system that represents its activities best; also, various modifications of ratio application signal of different aspects of the problem in question. The article will not go deep into total current solvency and non-current solvency assessment principles and ratios. It will present a system of analysis of the total liabilities to total assets ratio, i.e. a system of analysis which reveals the impact of solvency coefficients and absolute ratio, and their connection to the total solvency ratio is presented for the first time.

The ratio of total liabilities to total assets (often titled as the gross debt ratio) is considered the main long-term solvency ratio which denotes total liabilities to total assets.

This coefficient indicates the amount of a company's assets funded through borrowed means. Companies calculate this ratio in order to assess not only their own solvency, but also in order to predict how much of growth or development the company can fund in terms of borrowed means. The decreasing trend of this ratio is a positive process as it shows that the company's debt is decreasing and its stability is growing. Presumably, the ratio should be not higher than 0.7, or 70%. The ratio is considered best when it is below 0.3 (Mackevičius, 2009).

The proposed system of analyzing the total liabilities to total assets ratio

Each ratio discloses a certain aspect of a company's activity; however, the ratios are not entirely independent of one another; fluctuations in one ratio value can influence the value of another ratio. The Du Pont system of analysis (Buškevičūtė, Mačerniskienė 1999; Mackevičius, Poškaitė, 1998; Wilson, McHugh, 1993) is applied to assess the interconnection of ratios. The key principle of a system's pyramid analysis is that ratios are divided into multipliers which in their turn are divided into comparative ratios or absolute ratio elements. The only difference is in the chosen divided ratios.

In order to assess the factors influencing the total liabilities to total assets ratio, it is proposed to implement a system of analysis, which is based on the principle of pyramid analysis (see Exhibit 1). While using the system, detected are not the factors that influence the ratio in question, but the level of their precedence.

Professor Mackevičius (2009) in his monograph also suggests to assess the factors of fluctuation of the total liabilities to total assets ratio. However, in the diagram the author divides only the total liabilities and total assets of the ratio into components, i.e. absolute elements.

Based on the system of analysis of the total liabilities to total assets ratio, presented in Exhibit 1, there are five levels of not just absolute but also comparative elements – factors that influence the total liabilities to total assets ratio.

All the elements of the system of analysis are presented in Tables 1 and 2.

Exhibit 1 shows comparative elements of the system of analysis of total liabilities to total assets ratio, their formula and a description of the elements, which reveals the meaning of the information it carries along.

Exhibit 2 presents the structured absolute elements of the system of analysis of the total liabilities to total assets ratio and their short description.

As one can see from the diagram, the total liabilities to total assets ratio is influenced by the factor from the first level – the coefficient of the assets financed through borrowed capital, i.e. the total value of all liabilities to 1 Litas of the assets is inversely proportional to the coefficient of financing through borrowed capital, which denotes the amount of assets the company owns in order to cover all its current and non-current liabilities.

The second-level factors of the total liabilities to total assets ratio pyramid analysis system, which have a direct impact on the coefficient in question, would be the financial dependency coefficient and financial leverage, which have the opposite effect.

TABLE 1. Comparative elements of the pyramid analysis system

Element	Element formula	Element description
The total liabilities to total assets ratio	$\frac{\text{Total liabilities}}{\text{Total assets}}$	The smaller the ratio value, the better valuation the company is likely to get. The ratio shows the percentage of the borrowed funds used to raise the company's asset.
The ratio of assets financed through borrowed capital	$\frac{\text{Total assets}}{\text{Total liabilities}}$	The ratio is also called the total solvency ratio; it shows a company's ability to cover current and non-current liabilities. The higher the ratio, the better a company's solvency.
The financial dependency ratio	$\frac{\text{Total assets}}{\text{Equity}}$	The ratio shows the portion of assets to 1 Litas of total equity, i.e. the portion of assets formed from the total equity. The ratio is also called the capital structure ratio.
The financial leverage	$\frac{\text{Total liabilities}}{\text{Equity}}$	The ratio can also be called the financial risk ratio because the higher the result the greater the risk.
The golden rule of the balance sheet ratio	$\frac{\text{Non-current assets}}{\text{Fixed capital}}$	The ratio shows the portion of non-current assets financed through fixed capital. The fixed capital is calculated when the equity is summed to non-current liabilities. The sum should not be fluctuating from 1.
The working capital ratio	$\frac{\text{Fixed capital}}{\text{Non-current assets}}$	The ratio is calculated when the working capital is assessed in terms of capital, and is considered sufficient when its value is between 1.2 and 2.
The permanent solvency ratio	$\frac{\text{Equity}}{\text{Total liabilities}}$	The higher the ratio, the better a company's solvency level and, therefore, the lower financial risk.
The equity concentration ratio	$\frac{\text{Equity}}{\text{Total assets}}$	The ratio is also called the financial autonomy or independence ratio as it shows the portion of assets formed from a company's own sources of funding.

Source: the authors' work based on Aleknevičienė, 2009; Juozaitienė, 2007; Mackevičius, 2009; Mackevičius, 2005.

According to the diagram, the other third-level factors are the golden rule of the balance sheet ratio, the working capital ratio, the permanent solvency ratio and the equity concentration ratio.

The fourth-level factors are the following: capital, revaluation reserve, reserves, retained earnings (losses), current liabilities, non-current liabilities, non-current assets, current assets; the fifth level factors include different elements of assets and liabilities.

For an accurate analysis of the total liabilities to total assets ratio, it is appropriate to base the calculations on data of several years in order to crystallize the trend in factor fluctuation.

Such a system of analysis of the total liabilities to total assets ratio has a number of benefits. Firstly, it reveals a company's solvency problems and provides more information for dealing with the problem. Also, it is a way of an objective presentation of the segment in which the signs that show the problem of solvency or its plot appear; it also shows the reasons for them because the system of the analysis combines various ratios.

TABLE 2. Absolute elements of the pyramid analysis system

Element	Element description
Equity	A portion of entity's assets remaining after deducing all its liabilities from all its assets.
Capital	Capital item includes subscribed authorised capital specifying the outstanding part of authorised capital, share premium and own shares. Authorised (subscribed) capital is a sum of par values of subscribed shares. Paid up authorised capital is a paid up portion of subscribed par value of shares. Share premium is a difference between the par value and the emission price of shares. Own shares are shares acquired by the issuing limited liability company.
Revaluation reserve	There are changes in equity, resulting from revaluation of non-current tangible and financial assets.
Reserves	A temporary (specified) restriction of profit use intended for purposes set by owners. Legal reserve is a reserve formed in the manner established by laws and assigned for covering losses of an entity. Reserve for acquiring own shares is a reserve formed for acquisition of own shares equal to at least the acquisition cost of planned to acquire own shares of an entity.
Retained earnings (losses)	Retained earnings are accumulated but not yet distributed profit of an entity. Retained losses are accumulated but not yet covered losses of an entity.
Total liabilities	An obligation arising from performed economic transactions or other events, which will require a future settlement and the amount of which can be measured reliably.
Non-current liabilities	A liability expected to be settled by an entity later than within one year after the balance sheet date.
Current liabilities	A liability expected to be settled by an entity within one year after the balance sheet date or within one operating cycle of the entity.
Financial debts	An obligation to deliver cash or another financial asset. Financial debts consist of leases and similar liabilities, financial debts to credit institutions and other payables which the company will have to cover later than within one year of its balance settlement date.
Trade amounts payable	All the payables connected with the company's trading activities, which the company will have to cover later than within 12 months of its balance settlement date.
Received pre-payments	The pre-paid sums received from other persons, monetary deposits received for goods and services which will be delivered later than within 12 months of its balance settlement date.
Provisions	A liability of uncertain amount or timing that can be estimated reliably.

TABLE 2 (CONTINUED)

Element	Element description
Other non-current liabilities	Other non-current liabilities which have not been assigned to other items.
Fixed equity	A sum of equity and non-current liabilities.
Total assets	Tangible, intangible and financial resources managed, used and(or) disposed by an entity in order to obtain economic benefits from such use.
Non-current assets	Assets used by an entity for a period longer than one year in order to obtain economic benefits.
Current assets	Assets used by an entity within one year or within one operating cycle of the entity in order to obtain economic benefits.
Intangible assets	An identifiable non-monetary asset without physical substance, which is controlled by an entity expecting to obtain direct and(or) indirect economic benefits from the use of such asset and the cost of which is equal to at least the minimum cost of intangible assets set by the entity.
Tangible assets	A tangible asset that renders economic benefits to the entity for a period longer than one year and the acquisition (production) cost of which is equal to at least the minimum cost of non-current tangible assets set by the entity.
Financial assets	Any asset, i.e. cash, a contractual right to receive cash or another financial asset from another party, or an equity instrument issued by another entity.
Other non-current assets	Other non-current assets which have not been assigned to other items.
Inventories, pre-payments and contracts in progress	Inventories – current assets (raw materials and components, work in progress, finished goods and goods held for resale) used by an entity for generating revenues within one year or within one operating cycle. Pre-payments are advanced payments for suppliers for inventories or services which the company will receive later. Contracts in progress are the value of the company's building or other unfinished works and services.
Amounts receivable within one year	There are financial assets that originate from sale of goods or other assets or from rendering services.
Other current assets	Other current assets which have not been assigned to other items.
Cash and cash equivalents	Cash is cash on hand, cash in bank and their equivalents in various currency. Cash equivalents are short-term (up to three months) liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value. Investments in equity instruments are not attributed to cash equivalents.

Source: compiled by the authors. based on 2 VAS "Balansas", 8 VAS "Nuosavas kapitalas", 9 VAS "Atsargos", 12 VAS "Ilgalaikis materialusis turtas", 13 VAS "Nematerialusis turtas", 18 VAS "Finansinis turtas ir finansiniai įsipareigojimai".

The system of pyramid analysis of the total liabilities to total assets ratio is presented with regard to requirements to the national financial reporting set; however, the elements of the system represent typical key categories of a company's activities; the suggested diagram can be used in companies while assessing their total liabilities to total assets ra-

tio and the various capital companies that influence it. In addition, the suggested system of analysis can be applied in companies that are active in different fields; it can also be integrated into a general information generating and analyzing system.

Conclusions

Analysis of a company's activities is one of the areas that represent the company's results, its financial state and prospects of development; it has received a wide coverage by both Lithuanian and foreign authors in terms of various aspects of company activities.

Different authors have a different approach to grouping the financial comparative ratios; therefore, it is up to the company to choose a ratio system best suitable for its activities to be accurately represented, and the company has to assess the solvency ratios as an instrument which reveals the company's ability to cover its current and non-current liabilities.

The proposed system of analysis of the total liabilities to total assets ratio points to other solvency coefficients as well as the influence of the absolute ratio and its connection to the total solvency ratio. The total-liabilities-to-total-assets-ratio way of analysis provides more information on five-level factors which influence the company's solvency; being based on data of several years, they provide a more objective view of the company's borrowing trend; also, it can help the managers of the company to optimize its capital structure in order to avoid financial turmoil and bankruptcy.

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