EMPIRICAL ANALYSIS OF THE PROFITABILITY AND INDEBTEDNESS IN LISTED COMPANIES – EVIDENCE FROM THE FEDERATION OF BIH

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ABSTRACT

Research on relationship between profitability and indebtedness is an interesting scientific and professional question because it is the basic criterion of performance and security in business. The aim of this paper is to examine and determine the level of correlation between profitability and indebtedness, and to research the differences in the level of indebtedness regarding company's profitability. The secondary data for the purposes of the empirical research were collected through the analysis of publicly available financial statements on a sample of companies listed on the quotation and free primary market on the Sarajevo Stock Exchange in the period from 2010. to 2013. The results of the correlation analysis indicate that there is a negative correlation between profitability indicators and indebtedness indicators within the researched companies in the observed period, which was specially indicated through the Total debt in the number of years and Interest coverage ratio. The results of testing the difference in indicators of indebtedness regarding profitability indicate that there is a difference in the indebtedness indicators measured by the Total debt in the number of years and Interest coverage ratio, between the companies that achieved positive financial result and the companies that achieved negative financial result.

Key words: Financial indicators, profitability, indebtedness, financial statement

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1. INTRODUCTION

Regardless of how business objectives are classified and evaluated, it can be stated that the criteria of good business are safety and performance. Safety and performance can be observed and measured in various ways, but in the context of accounting information and financial analysis, one of the generally accepted ways of measuring safety and performance of business are the indicators of financial statement analysis. Within that framework, business safety is analyzed and measured by indicators of liquidity, indebtedness and activity, while business performance is measured through indicators of profitability, investment and economy.

Correlation between indicators of business safety and performance is often in the center of scientific and professional research. In the context of analysis and research of the correlation of profitability and indebtedness, the question is whether these indicators are related? Does achieving the lower indebtedness level in business imply the higher level of profitability? Is there a difference in indebtedness level between the companies with different level of profitability? These questions are interesting to the scientific and professional community.

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1.1. Review of relevant literature and defining the research problem

What follows is the critical review of a certain number of research papers which, to some extent, dealt with the analysis and observation of indebtedness and profitability. Previous studies usually observed indebtedness in the context of capital structure and working capital and their influence or correlation with the profitability of the company.

Enyi (2005) analyzed the level of debt on a sample of 25 companies. It was found that the companies with adequate levels of working capital, due to their specific characteristics and size, have better business performance compared to the companies that have insufficient levels of working capital.

Ching, Novazzi and Gerab (2011, pp. 74-86) conducted a study in order to examine the correlation between working capital and profitability for Brazilian companies listed on the stock exchange. By using multiple linear regression, among other things, they determined that there is a negative correlation between the level of indebtedness and profitability level.

Bagchi, Chakrabarti and Basu Roy (2012, p. 1) conducted the research focusing on the period from 2000 to 2010, on a sample of selected Indian companies, and they found a negative correlation between debt and profitability in the companies in the observed period.

Some studies analyzed the impact of capital structure on profitability. In these studies, analysis of capital structure and profitability of banks is a dominant issue. Osborne, Fuertes and Milne (2011, p. 26) in their study found that there is a strong negative correlation between indebtedness indicators and profitability indicators regardless of the size of financial institutions (banks).

Gropp and Heider (2009, p. 27) researched more than 200 banks in the United States and the European Union in the period from 1991to 2004. After the correlation analysis was conducted, it was found that profitability and indebtedness are negatively correlated.

In a domestic research, Ježovita and Žager (2014, pp. 1-22) discussed indebtedness and profitability of companies, but in the context of using profitability indicators in assessing indebtedness of a company. This research resulted in determining the correlation between profitability of assets, return on equity and cost rates of other capital (debt). If return on equity is higher than profitability of assets, then the rate of cost of other capital is lower than profitability of assets and the company appropriately uses others sources of funding.

The research problem is rising from the fact that there is a lack of research on direct correlation between indebtedness and profitability, and analyzing the difference in the level of indebtedness of companies regarding company's profitability. The existing researches on the correlation between indebtedness and profitability of companies discuss and observe indebtedness primarily within that framework of working capital and liquidity (Ching et al. 2011; Enyi 2005; Osborne et al. 2011) of companies, and are mostly conducted in the Anglo-Saxon area. Regarding the above and the fact that such researches are rare in domestic conditions, the aim of this study is to conduct a research on correlation between profitability indicators, on the one side, and indebtedness indicators, on the other side, on a sample of companies in the Federation of Bosnia and Herzegovina (BiH), in order to improve the knowledge on the level and correlation between indebtedness and profitability at the companies in the Federation of BiH.

1.2. The objectives and the hypothesis of the research

The objectives of the research point out the scientific and applicative value of the paper, and are arising from the defined problem of the research, that is the correlation between indebtedness level as an indicator of business safety and profitability level as the most important indicator of business performance, and analyzing the differences in the level of indebtedness between the companies that achieved positive financial results and the companies that achieved negative financial results.

The objectives of this research are:

- ✓ To identify the degree and direction of the correlation between profitability indicators and indebtedness indicators in the companies whose shares are listed on the quotation market and the primary free market on the Sarajevo Stock Exchange in the period from 2010to 2013.
- ✓ To research and analyze whether there are differences in the level of indebtedness between the companies that achieved positive financial results and the companies that achieved negative financial results in the observed period from 2010to 2013.
- ✓ To analyze profitability and indebtedness indicators of the observed companies listed on the quotation and the primary free market on the Sarajevo Stock Exchange in the period from 2010 to 2013.

Based on these research objectives, regarding the examination of correlation between profitability and indebtedness, the following working hypothesis can be formulated:

H₁: There is a negative correlation between profitability indicators

and indebtedness indicators in the companies listed on the quotation market and the free primary capital market in the Federation of BiH.

As specified in the reference literature and analyzed papers, it is assumed that there is a correlation between profitability and indebtedness in companies. It is also assumed that the correlation has a negative direction, that is, the higher level of profitability implies the lower level of indebtedness and vice versa. For the purposes of this research and analysis of the difference in indebtedness level regarding the profitability level, the second working hypothesis can be formulated:

H₂: There is a difference in indebtedness indicators between the companies that achieved positive financial result and the companies that achieved negative financial result, in the capital market in the Federation of BiH.

The working hypothesis point out that the subjects that achieved positive financial result have "better" indebtedness indicators and parameters, and that the subjects that have achieved negative financial results have "weaker" indebtedness indicators and parameters. In addition, the average difference of indebtedness indicators between the two groups of subjects is statistically significant.

2. DEFINITION OF PROFITABILITY AND INDEBTEDNESS

Profitability and indebtedness are categories that largely determine the quality of the overall business performance of individual company. Profitability is the term that best

represents the financial performance of the company, while indebtedness is the term and the economic category which represents the financial position of the company and company's ability to execute its outstanding short-term liabilities. Although there are different ways of presentation and measurement of the categories of profitability and indebtedness, for the purpose of this paper, these variables will be measured by indicators of financial analysis based on the data available through financial statements.

2.1. Indebtedness indicators

As already stated, indebtedness is one of the primary indicators of safety in the operations of a particular subject. It may be noted that subjects that have less or more acceptable indebtedness have greater safety in doing business and greater safety to achieve the business objectives, and vice versa.

A statement on the financial position or balance sheet[1] is the basic financial statement[2]

that represents the starting point for the assessment of company's indebtedness. This is a report that presents the assets a company uses to do its core activities and sources of these assets. When discussing the sources of assets, they can be classified into other (debt) sources and their own sources (capital). Passive balance sheet that presents the sources of assets is the basis for the assessment of company's indebtedness (Ježovita & Žager 2014, p. 2).

There are different approaches to defining indebtedness of a company. Some authors define indebtedness as a situation in which the assets of a company exceed liabilities on an accrual basis[3]. On the other hand, for the purpose of this analysis, indebtedness could be defined as "the ability of companies to settle all their financial obligations in due time with the available funds." (Economic lexicon 1995, p. 458). This type of indicators is especially important and interesting for the present and potential creditors, because it indicates the level of indebtedness and company's ability to settle debts or submit additional credit load.

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[1] In most countries the set of financial reporting is additionally strengthened by legal regulation in the field of accounting and auditing. Thus in the Federation of BiH Article 36 of the Law on Accounting and Auditing ("Official Gazette of the Federation of BiH", No. 83/09) stipulates that the annual financial statements are: Balance sheet - Statement of financial position at the end of the period; Income statement - Statement of the period; Statement of cash flows - Report cash flows; Statement of changes in equity and Notes to the financial statements. It also prescribes the mandatory application of IAS / IFRS for all registered legal entities that are obliged to do financial reporting, ensuring standardization and comparability of information from financial statements, as well as the analysis of financial statements between business entities that apply IAS / IFRS.

[2] Financial statements represent a structural review of the financial position and financial performance of the company, but also indicate the results achieved by the management in managing resources entrusted to it (point 7, IAS 1). In accordance with the revised IAS 1 - Presentation of financial statements, a complete set of financial statements include: statement of financial

position at the period end (balance sheet), statement of comprehensive income (income statement), statement of changes in equity during the period, cash flow statement during the period, notes, comprising a summary of significant accounting policies and other explanations, and statement of financial position at the beginning of the earliest comparative period when an entity applies an accounting policy retrospectively or a retrospective restatement of items in its financial statements, or if the items in the financial statements reclassifies.

[3] According to this principle, the effects of business changes and other events are recognized when they occur (and not when it is received or paid cash or its equivalent) and are recorded in the books and included in the financial statements in the periods to which they relate (IAS / IFRS, Framework for the Preparation and Presentation of Financial Statements, Union of Accountants, auditors and financial Workers of FBiH, Mostar, 2006, p.23)

Table 2.1. Classification and method of calculating the indebtedness ratio

Indicator	Indicator	Method of
Indebtedness ratio	QSol	Total debt
		Total asset
Capital financing ratio	QCap	Capital
		Total asset
Financing ratio	LibCap	Total debt
		Capital
Total debt in number of	FqSol	Total debt
		Retained earnings
Interest coverage ratio	CovInt	EBIT
		Interests costs

Source: Žager, et al. Analysis of the financial statements, Masmedia, Zagreb, 2008., pp. 243-296

The indebtedness ratio shows the level at which the total assets of the company are funded from other resources - liabilities. On the other hand, the capital financing ratio demonstrates the extent to which the total assets are financed from own resources - own capital. These two indicators are mutually complementary correlated since their sum must correspond to the value of one (1.00).

The financing ratio indicates how many units of assets of the company are financed by external sources to a single unit of self-financing.

The interest coverage ratio is a very useful indicator of the degree of indebtedness of the company, which is often used by creditors, and it demonstrates the ability of companies to settle their interest liabilities from the earnings before interest and taxes (EBIT[4]). The higher value of this indicator, the better for the company because it shows greater ability to return and pay credit liabilities and such companies will easily reach the optional external (other's) sources of finance. In calculating this indicator, in the numerator is profit before tax, Tax is paid after operating profit is reduced for the interest costs.

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[4] EBIT – Earnings Before Interests and Taxes

"Therefore, the option of paying interest is not conditional on the size and amount of the tax liability." (Žager et al. 2008, p. 264).

One of the most important indebtedness ratios is the indicator – total debt in number of years. This ratio shows what time period is needed by the company to cover all its liabilities from the retained profit plus depreciation. The control (reference) measure of this indicator is on the level of three (3) to five (5), and it is considered that the solvent company is able to settle all its liabilities from the retained profit and depreciation within three (3) to five (5) years (Belak, 1995). The higher the value of this indicator, the company is less safe for investment or lending funds.

2.2. Profitability indicators

Profitability ratios are the basic and most important indicators of corporate performance and return on investment of the owner. In theory and practice performance is often used as the synonym of the term profitability. Within the term of the "investment" it may be included equity, total capital employed or assets of the company. A significant indicator of the profitability of the company is the profit margin, and that is the part of the total revenue (or sales revenue), that remains to the company or business owners.

"The profitability ratios indicate the success of earnings companies. It indicates the size of the net yield (gain) realized by the company in relation to the size of assets involved and the size of the total revenues of the company "(Orsag 1997, pp. 210 - 211). "The indicators of profitability measure returns generated by the company during a period" (Robinson 2009, p. 291). First of all, it is important to emphasize that these are the indicators that enable the evaluation of company's ability to achieve an acceptable level of economic

benefits by using its assets. Thus the level of economic benefits can be observed in terms of achieving the required yield to the owners of the company and to the owners of other capital (lenders) (Ježovita & Žager 2014, p. 3). The profitability indicators that are used in the analysis of financial statements and that are based on the accrual basis, are given below.

Table 2.2. Classification and methods of calculating the profitability indicators

Indicator	Indicator	Method of
Net profit margin	NmProf	Net profit +
		Total revenues
Gross profit margin	BmProf	EBIT
		Total revenues
Net asset profitability	NmTA	Net profit +
		Total asset
Gross asset profitability	BmTA	EBIT
		Total asset
Capital profitability	NmCap	Net profit
		Capital

Source: Žager, et al. Analysis of the financial statements, Masmedia, Zagreb, 2008, pp. 243-296

The profit margin indicates what part of the total income remains to the company to settle other general costs, taxes and net profit - the gross profit margin, or to cover interest and net profit - net profit margin. The only difference between the net and gross profit margin is in the tax burden, which is included in the gross profit margin. When these indicators tend to maximize, it ensures greater business profitability. A unique control measure cannot be defined for these ratios, since the profit margin depends on a number of factors (characteristics of activity, market structure, type of goods that are sold, etc.).

In addition to the indicators of profit margins, profitability ratios are also indicators of the profitability of assets and equity, and return on equity and invested assets. Both of these indicators tend to be maximized in order to achieve higher levels of company's profitability. "The return on assets measures the ability of the company to use its assets to create profits." (Gibson 2011, p. 303). The traditional approach of calculating the profitability of assets is represented by the ratio of net profit and the total assets of the company. It is an approach that is quite imprecise in situations where the company, in addition to its own, also uses other, external sources of financing (debt). In order to use the indicators to demonstrate the capability of the company to achieve returns on its overall financial resources, the indicator of the profitability of assets has been modified so that the costs of using external sources of financing, that is interest costs (financial cost), are also included in calculation (Ježovita & Žager 2014, p. 4).

The individual indicator that measures the ability of the company to achieve return on its own invested capital is called return on equity (ROE). This indicator represents the ability of the company to achieve the fundamental company objective, and that is the creation of additional value for the owners (Ježovita & Žager 2014, p. 5). "Return on equity is a comprehensive indicator of performance because it provides an indication of how well managers use the invested funds for making returns" (Palepu et al. 2007, p. 199). "Return on equity incorporates the results of operating, investing and financing activities of the company." (Wahlen et al. 2011, p. 295).

When calculating profitability indicators, some authors further reduce net income by the amount of the priority dividend, which is understandable because it is a priority share and in most situations these dividends are paid off before payment to common shareholders. Therefore, these shares and potential payment of priority dividend have the character of fixed costs for the company.

3. RESEARCH METHODOLOGY

Defining research methodology involves defining the techniques and methods used in the theoretical and empirical research, and design of the research sample.

3.1. Design and evaluation of a sample survey

When discussing the design and definition of a sample for the purpose of the research, the conceptual, geographic and periodic aspect of the sample should be considered. The sample included the annual financial statements of the companies whose equity securities (shares) are listed on the stock exchange segments: quotations market[5] and the primary free market[6] within the organized capital market in the Federation of BiH (Sarajevo Stock Exchange/SASE.

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[5] Quotations is a market segment where the stocks are traded of the best domestic companies. In order to be listed on the quotation, in addition to general conditions, a company must meet, the following criteria: size of capital (total capital in the latest balance sheet, or core capital, paid-in surplus, reserves, retained net profit or loss in previous years, revaluation reserve, undivided clean gain or loss of the business year) must be a minimum of BAM 4,000,000; size class of shares shall be a minimum of BAM 2,000,000 (book value at the first listing; if market shares are already traded on the second segment); At least 25% of the class of shares in a public show, and share classes must have at least 150 owners.

[6] Primary free market comprises 30 most liquid issuers which are not included in the quotation, and also fulfil their reporting obligations. Shares listed on the primary free market are traded at the MFTS algorithm. Stock exchange (SASE) audits the symbols of the primary free market every six months, so that more liquid issuers with secondary free market have a chance to be on the primary free market. Price of shares which are listed on the primary free market cannot vary by more than + 15 / -10% of the official exchange rate of the previous day (Available form: www.sase.ba, accessed: 31 March 2015).

For the purpose of the research, the sample included the companies whose equity securities are listed on the quotation market and the primary free market. There are a total of 32 subjects, as can be seen from Table 3, which presents the steps in the formation of the final sample for the implementation of the empirical research.

Table 3.1. Overview of the formation of the sample for the purpose of the empirical research

Item	Number
The total number of companies in the segment of quotations issuers on the Sarajevo Stock Exchange	2
The total number of companies in the segment of free primary market on the Sarajevo Stock Exchange	30
TOTAL	**32**
Financial entities and institutions (banks, insurance companies, micro-credit organizations) that are excluded from the sample because of institutional differences	(5)
Companies that are not able to provide financial statements, i.e. data for the empirical treatment of a variety of reasons	(8)
TOTAL number of companies included in the sample	**19**
TOTAL NUMBER OF UNITS (OBSERVATIONS) INCLUDED IN THE SAMPLE IN THE PERIOD 2010 - 2013	**76**

Source: author's own creation

Table 3 indicates that certain groups of companies were excluded from the sample, due to their institutional specifics and specific national and international regulations, such as banks, insurance companies, other financial institutions (micro-credit organizations, savings and credit cooperatives, etc.), various funds (pension, investment) and management companies of investment funds. So, the main sample included only the issuers - companies registered in BiH / Federation of BiH. The

entities for which the data from the financial statements in the observed period were not available were also excluded from the sample. When discussing the timeline definition of the sample for purpose of the research, the sample included all the subjects (i.e. their financial statements) in the period from 2010 to 2013. In the context of the geographic definition of the sample, it included the companies from the Federation of BiH. Since the observed period is four (4) years and the sample includes 19companies from the SEE, the final sample for the implementation of the empirical research consists of 76 observational units (financial statements).

Table 3.2. Validity sample test

Description - financial statements item	The amount for the total number of companies included in the sample for research in 2013	The amount for the total number of companies in the Federation of BiH in 2013	% of the sample in the population
Total	3,015,067,	39,155,532,	7.70%
Total costs	2,760,901,	38,684,364,	7.14%
Net profit	253,989,02	1,655,982,7	15.34
Net loss	17,121,652	1,203,905,2	1.42%
Total asset	7,775,797,	55,393,515,	14.04
Total capital	6,290,033,	28,222,088,	22.29
Total	1,280,220,	26,355,819,	4.86%

Source: author's own creation based on the data from the Agency AFIP Inc. Sarajevo

Table 4 shows that the subjects included in the sample participate in the total reported revenues of all the companies with 7.70%, and in the total expenses with 7.14% in 2013.. The share of the companies included in the research sample in the total net profit of all the companies in 2013 amounted to 15.34%. The participation in the total population of all the companies in the Federation of BiH is even

greater when discussing the categories of financial position. The subjects included in the sample participate in the total assets of all the companies with 14.04% and with 4.86% in the total liabilities in 2013. The share of the companies included in the research sample in the total capital of all the companies in 2013 amounted to 22.29%. Although the sample does not include a large number of companies, it can be stated that their relative share and participation in the most significant categories of financial performance and financial position of the total number of companies in the Federation of BiH in 2013, is at an acceptable level, and it can be noted that the research sample is meritorious.

3.2. Research methods and techniques

The secondary data on the research variables (indicators of profitability and indebtedness) were collected by analyzing the content of the financial statements of the companies whose equity shares are listed on the quotation and the primary free market, from the database of the Securities Commission of the Federation of BiH and Sarajevo Stock Exchange (SASE) in the period from 2010to 2013.

For the purpose of the theoretical part of the research, general scientific methods in social sciences are used, with particular emphasis on the following methods: deduction, induction, analysis, synthesis, comparison, proof, description and classification, and others. For the purpose of the empirical part of the research, as a fundamental form of scientific cognitive processes, statistical methods are applied. The collected data were analyzed by statistical methods that include the use of descriptive and inferential statistics. The application of inferential statistics including the correlation tests and tests for the assessment of the significance of mean

differences and the results are presented using tabular and graphical views.

4. RESULTS OF THE EMPIRICAL RESEARCH

The empirical part of the research includes the presentation of the results regarding the analysis of profitability and indebtedness indicators within the observed companies, analysis of the results of correlation analysis of profitability and indebtedness, as well as the analysis of the differences in indebtedness in the observed companies regarding financial profitability.

4.1. Analysis of the profitability indicators in the observed companies

The profitability analysis in the observed companies included in the study sample is the analysis of the basic indicators of profitability (net profit margin, gross profit margin, net assets profitability, gross assets profitability and capital profitability) regarding the observed time period and type of activities.

The profitability analysis regarding the time period of the observed companies included in the sample is given in Table 5. The results point out that the gross and net profit margin has a negative average value for the entire observed period, which is a negative indicator. However, trend analysis shows that the average negative value of the indicator decreases observing from 2010 to 2013, which is a good indicator.

Table 4.1. Descriptive statistics of the profitability analysis per years

Year		Npmrg	Bpmrg	nROA	bROA	ROE
20 10	N	19.00	19.00	19.00	19.00	19.00
	Aver age	- 0.510 834	- 0.507 503	0.007 671	0.008 890	- 0.001 957

20 11	N	19.00	19.00	19.00	19.00	19.00
	Aver age	- 0.392 878	- 0.388 084	0.007 886	0.009 424	- 0.008 078
20 12	N	19.00	19.00	19.00	19.00	19.00
	Aver age	- 0.114 685	- 0.110 613	0.017 269	0.018 711	0.008 632
20 13	N	19.00	19.00	19.00	19.00	19.00
	Aver age	- 0.006 994	- 0.003 581	0.021 466	0.022 739	0.009 006

Source: author's own creation using SPSS 19

When discussing the indicators, gross and net assets profitability and capital profitability, generally have the same positive values and a positive trend in the observed period. The average value of the indicators of net and gross assets profitability is in the range up to 2.20%, which is reasonable concerning that in most situations the observed companies have high value amounted assets. Therefore, the estimated values of the indicators are acceptable.

When discussing the analysis of profitability of the observed companies regarding the type of the activities, then in the total number of the observed companies (N = 19), manufacturing companies (N = 13) dominate over service (N = 4) and trade (N = 2) companies.

Table 4.2. Descriptive statistics of the profitability analysis per activities

Activity		Npm rg	Bpmr g	nROA	bROA	ROE
Service	N	16.00	16.00	16.00	16.00	16.00
	Avera ge	- 0.966 275	- 0.955 279	0.012 532	0.017 028	0.004 749
	Mini mum	- 9.392 0	- 9.392 0	- 0.242 2	- 0.242 2	- 0.290 8

	Maxi mum	0.236 2	0.263 7	0.111 2	0.124 1	0.126 2
Trade	N	8.00	8.00	8.00	8.00	8.00
	Avera ge	0.054 767	0.058 619	0.007 214	0.007 371	0.006 995
	Mini mum	0.004 9	0.006 9	0.000 1	0.000 1	0.000 3
	Maxi mum	0.190 9	0.203 7	0.018 5	0.019 2	0.019 7
Manufac turing	N	52.00	52.00	52.00	52.00	52.00
	Avera ge	- 0.085 772	- 0.084 044	0.014 872	0.015 463	0.000 241
	Mini mum	- 3.072 1	- 3.072 1	- 0.112 6	- 0.112 6	- 0.319 3
	Maxi mum	0.286 3	0.288 3	0.148 7	0.148 7	0.191 6

Source: author's own creation using SPSS 19

In the context of the indicators of gross and net profit margins, the most profitable companies in the observed period are trade companies, while manufacturing and service companies have a negative average value of gross and net profit margins in the observed period. On the other hand, the average value of the indicators of net and gross asset profitability shows that the most profitable companies are those involved in service activities (nROA = 1.25%; bROA = 1.70%; ROE = 0.40%), compared to manufacturing companies (nROA = 1.48%; bROA = 1.54%; ROE = 0.02%) and trade companies (nROA = 0.72%; bROA = 0.73%; ROE = 0.69%). The reason lies in the fact that due to the specific characteristics and requirements of activities service companies have less value amounted assets and invested capital, so the profitability indicators of return on invested assets and capital are relatively better and higher compared to other types of activities.

4.2. Analysis of indebtedness indicators in the observed companies

The indebtedness analysis in the observed companies for the purposes of this study included the examination of the basic indicators of indebtedness (Indebtedness ratio, Capital financing ratio, Financing ratio, Total debt in number of years, Interest coverage ratio) regarding the observed time period and type of activities.

The indebtedness analysis in the period from 2010 to 2013 shows that the observed companies included in the sample are usually financed from its own resources (capital), compared to external sources (liabilities). The average value of the Indebtedness ratio was at the level of 0.26, showing that the observed companies finance assets, on average, 26% from external sources or through liability. The average value of the Capital financing ratio in the period is amounted to 0.74, showing that the observed companies finance their assets, on average, 76% of its own capital resources. The trend analysis in the observed period 2010-2013 shows that the Indebtedness ratio and the Capital financing ratio are at an almost identical and same level, and there are no significant fluctuations in indebtedness in the observed period, which is a relatively good indicator.

Table 4.3. Descriptive statistics of the indebtedness analysis per years

Year		QSol	QCap	QFin	FQSol	CovIn
20 10	N	19.00	19.00	19.00	19.00	18.00
	Aver age	0.262 666	0.737 334	0.488 116	6.410 820	908.1474 33
20 11	N	19.00	19.00	19.00	19.00	18.00
	Aver age	0.263 937	0.736 063	0.518 915	6.091 366	24231.13 6938
20 12	N	19.00	19.00	19.00	19.00	19.00

	Aver age	0.266 493	0.733 507	0.619 129	7.287 107	524.4890 88
20 13	N	19.00	19.00	19.00	19.00	17.00
	Aver age	0.261 262	0.738 738	0.659 985	8.005 472	195.1908 68

Source: author's own creation using SPSS 19

Over the observed period the Financing ratio is at an acceptable level (from 0.48 in 2010 to 0.65 in 2013). The Total debt in number of years demonstrates the ability of the entity to settle all its obligations from the retained earnings and depreciation, stated on the balance sheet date. When considering that the control measure of this indicator is five (5) years, it can be concluded that the average value of the observed indicators in the period is at an acceptable level. Indeed, the trend analysis shows a decrease of the indicator in the observed period from 6.40 in 2010 to 8.00 in 2013. Regarding the total economic situation and macroeconomic indicators and the fact that the observed companies can settle all their liabilities stated in the balance sheet from retained earnings and depreciation through eight (8) years, the average value of indicator the Total debt in number of years is at an acceptable level.

The Interest coverage ratio has a very high value because of the decisive influence of positive extremes (maximum value in 2013 is at 3,121.47) compared to negative extremes (minimum value in 2013 is at -34.26). These results are due to the fact that a certain number of companies have reported high values of positive financial results, with no financial costs (interest), and as a consequence there is a high value of this indicator.

The indebtedness analysis of the observed companies included in the sample shows that the best average level of indebtedness indicators measured by the Indebtedness ratio and the Capital financing ratio, can be

attributed to the companies that perform service activities (QSol = 0.23; QCap = 0.77), while manufacturing companies have a slightly weaker average value of these indicators (QSol = 0.25; QCap = 0.75), followed by trade companies (QSol = 0.42; QCap = 0.68). It is noticeable that for all the companies, regardless of the type of activity, the share of self-financing is over 50%, which is a relatively good indicator.

Table 4.4. Descriptive statistics of the indebtedness analysis per activities

Activity		QSol	QCap	QFin	FQSol	CovIn
Service	N	16.0 0	16.00	16.00	16.00	16.00
	Aver age	0.22 8472	0.77 1528	0.32 2428	2.337 057	20.695 984
	Mini mum	0.10 95	0.59 05	0.12 29	0.397 0	- 34.358 8
	Maxi mum	0.40 95	0.89 05	0.69 35	5.092 7	160.04 15
Trade	N	8.00	8.00	8.00	8.00	8.00
	Aver age	0.41 8365	0.58 1635	1.98 1540	31.21 2407	94.459 970
	Mini mum	0.04 91	0.15 63	0.05 16	1.059 8	1.0897
	Maxi mum	0.84 37	0.95 09	5.39 93	84.26 73	284.74 19
Manufac turing	N	52.0 0	52.00	52.00	52.00	52.00
	Aver age	0.25 0584	0.74 9416	0.43 1261	4.634 776	8,943.8 78471
	Mini mum	0.04 67	0.30 66	0.04 90	0.146 6	- 34.264 2
	Maxi mum	0.69 34	0.95 33	2.26 21	25.04 86	435,84 6.8000

Source: author's own creation using SPSS 19

Service companies have the best value of the indicator Total debt in the number of years. Thus, service companies have the ability to settle all their obligations stated to the balance sheet date, for 2.33 years on average, which is a very good indicator. Manufacturing companies have the ability to settle all their obligations stated to the balance sheet date

this ability for 4.63 years on average. The worst value of the indicator Total debt in the number of years is attributed to a trade company, which needs 31.21 years on average for the settlement of total liabilities. The reason lies in slightly weaker profitability, lower value of assets comparing to manufacturing companies and larger amount of liabilities. The Interest coverage ratio shows that manufacturing companies use obligations for financing assets less, compared to trade and service companies.

4.3. Correlation analysis of profitability and indebtedness in the observed companies

The first working hypothesis of this paper is that there is a negative correlation between profitability and indebtedness in the observed companies included in the sample, that is, the companies listed on the quotation market and primary free market of the SASE in the period from 2010 to 2013. In order to test the first working hypothesis, correlation statistical tests are applied.

Typically, in these and similar studies, where variables have quantitative characteristics, parametric tests are applied to conduct a statistical analysis of the collected data. One of the main preconditions for the application of parametric tests is the assumption of normal distribution of data and acceptable sample size (more than 35 units).

Table 4.5. Testing normality of the distribution of data for the observed variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
QSol	0.160	72.00	0.000	0.901	72.00	0.000
QCap	0.160	72.00	0.000	0.901	72.00	0.000
QFin	0.269	72.00	0.000	0.563	72.00	0.000
FQSol	0.309	72.00	0.000	0.455	72.00	0.000
CovIn	0.488	72.00	0.000	0.106	72.00	0.000

Npmrg	0.456	72.00	0.000	0.286	72.00	0.000
Bpmrg	0.454	72.00	0.000	0.288	72.00	0.000
nROA	0.129	72.00	0.005	0.892	72.00	0.000
bROA	0.128	72.00	0.005	0.897	72.00	0.000
ROE	0.184	72.00	0.000	0.861	72.00	0.000

a.   Lilliefors Significance Correction
Source: author's own creation using SPSS 19

The results of the conducted Kolmogorov-Smirnov and Shapiro-Wilk tests point that the variables in the observed sample do not have normal distribution. With a relatively small number of observed units in the sample, that is the limitation in the application of parametric tests when testing the correlation between two groups of the observed variables (indicators). Therefore, for the purpose of the correlation analysis of profitability and indebtedness in the observed companies, the nonparametric Spearman correlation test is applied.

The results of the correlation analysis presented in Table 10 point out that there is a negative correlation between profitability indicators and indebtedness indicators. There is a statistically significant correlation between indebtedness indicators: indebtedness ratio, capital financing ratio, financing ratio, and profitability indicators. However, the correlation coefficient (power) is relatively weak because the value of the Spearman coefficient for the observed indicators is relatively small, or at the level of 0.25 to 0.40.

			QSol	QCap	QFin	FQSol	CovIn	Npmrg	Bpmrg	nROA	bROA	ROE
Spearman's rho	QSol	Correlation Coefficient	1.000	-1.000**	1.000**	0.860**	-0.397**	-0.286*	-0.289*	-0.260*	-0.275*	-0.330**
		Sig. (2-tailed)	.	.	.	0.000	0.001	0.012	0.011	0.023	0.016	0.004
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	QCap	Correlation Coefficient	-1.000**	1.000	-1.000**	-0.860**	0.397**	0.286*	0.289*	0.260*	0.275*	0.330**
		Sig. (2-tailed)	.	.	.	0.000	0.001	0.012	0.011	0.023	0.016	0.004
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	QFin	Correlation Coefficient	1.000**	-1.000**	1.000	0.860**	-0.397**	-0.286*	-0.289*	-0.260*	-0.275*	-0.330**
		Sig. (2-tailed)	.	.	.	0.000	0.001	0.012	0.011	0.023	0.016	0.004
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	FQSol	Correlation Coefficient	.860**	-0.860**	0.860**	1.000	-0.648**	-0.551**	-0.557**	-0.549**	-0.571**	-0.591**
		Sig. (2-tailed)	0.000	0.000	0.000	.	0.000	0.000	0.000	0.000	0.000	0.000
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	CovIn	Correlation Coefficient	-0.397**	0.397**	-0.397**	-0.648**	1.000	0.877**	0.873**	0.863**	0.866**	0.899**
		Sig. (2-tailed)	0.001	0.001	0.001	0.000	.	0.000	0.000	0.000	0.000	0.000
		N	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00
	Npmrg	Correlation Coefficient	-0.286*	0.286*	-0.286*	-0.551**	0.877**	1.000	0.998**	0.924**	0.926**	0.924**
		Sig. (2-tailed)	0.012	0.012	0.012	0.000	0.000	.	0.000	0.000	0.000	0.000
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	Bpmrg	Correlation Coefficient	-0.289*	0.289*	-0.289*	-0.557**	0.873**	0.998**	1.000	0.915**	0.920**	0.915**
		Sig. (2-tailed)	0.011	0.011	0.011	0.000	0.000	0.000	.	0.000	0.000	0.000
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	nROA	Correlation Coefficient	-0.260*	0.260*	-0.260*	-0.549**	0.863**	0.924**	0.915**	1.000	0.998**	0.980**
		Sig. (2-tailed)	0.023	0.023	0.023	0.000	0.000	0.000	0.000	.	0.000	0.000
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	bROA	Correlation Coefficient	-0.275*	0.275*	-0.275*	-0.571**	0.866**	0.926**	0.920**	0.998**	1.000	0.979**
		Sig. (2-tailed)	0.016	0.016	0.016	0.000	0.000	0.000	0.000	0.000	.	0.000
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00
	ROE	Correlation Coefficient	-0.330**	0.330**	-0.330**	-0.591**	0.899**	0.924**	0.915**	0.980**	0.979**	1.000
		Sig. (2-tailed)	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	.
		N	76.00	76.00	76.00	76.00	72.00	76.00	76.00	76.00	76.00	76.00

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Source: author's own creation using SPSS 19

All indebtedness indicators have a negative value of the Spearman coefficient, indicating a negative correlation, except for the Capital financing ratio. This is understandable, because the theory of financial statement analysis suggests that it is better that the value of this ratio is as high as possible and that it is an indicator of the financial strength of a company.

indebtedness in the observed companies, because the value of the Spearman coefficient is at the level of 0.86 to 0.89 and it represents a strong correlation to a statistically significant level (p <0.01).

Based on the results of the correlation analysis, the first working hypothesis of this paper can be accepted – that there is a negative correlation between profitability indicators and indebtedness indicators in the

Table 4.6. Results of the differences test in the average values of indebtedness indicators using the Mann-Whitney U test

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of QSol is the same across categories of FR.	Independent-Samples Mann-Whitney U Test	,184	Retain the null hypothesis.
2	The distribution of QCap is the same across categories of FR.	Independent-Samples Mann-Whitney U Test	,184	Retain the null hypothesis.
3	The distribution of QFin is the same across categories of FR.	Independent-Samples Mann-Whitney U Test	,184	Retain the null hypothesis.
4	The distribution of FQSol is the same across categories of FR.	Independent-Samples Mann-Whitney U Test	,001	Reject the null hypothesis.
5	The distribution of CovIn is the same across categories of FR.	Independent-Samples Mann-Whitney U Test	,000	Reject the null hypothesis.

Source: author's own creation using SPSS 19

The correlation between profitability indicators and the indebtedness indicator – Total debt in number of years is statistically significant, and there is a moderately strong correlation between these indicators since the value of the Spearman coefficient for the observed indicator is at the level of 0.55 to 0.60.

When discussing the results of the correlation analysis between profitability indicators and the indebtedness indicator - Interest coverage ratio, it is evident that there is the strongest correlation between profitability and

companies listed on the quotation market and the free primary market of the SASE in the Federation of BiH. The obtained results of this analysis are expected and in accordance with other similar researches in this area (Ching et.al. 2011; Bagchi et.al. 2012; Gropp & Heider 2009).

4.4. Testing differences in indebtedness indicators regarding the profitability of the observed companies

When discussing the analysis of difference in indebtedness indicators between the

companies that achieved positive financial result and the companies that achieved negative financial result, it is assumed that there is difference in indebtedness indicators between these two groups of companies at the statistically significant level.

The results of the Mann-Whitney U test in the context of testing differences in the average values of indebtedness indicators regarding the achieved financial result in the observed companies point out a statistically significant difference (p<0.05) in the following indebtedness indicators: Total debt in number of the years and Interest coverage ratio, while the differences in other indebtedness indicators were not statistically significant. Based on the results the second working hypothesis of this study can be accepted - that there is a difference in indebtedness indicators between the companies that achieved positive financial result and the companies that achieved negative financial result, whose equity shares are listed on the capital market in the Federation of BiH, that is, on the quotation market and free primary market on the SASE.

5. CONCLUSION

The correlation analysis between profitability and indebtedness is an interesting scientifically question because it is the basic performance of business safety indicators, which are often set up as the main business objectives. For the purpose of this study profitability and indebtedness are measured by the traditional indicators (ratios) of financial statement analysis based on the accrual basis.

In the structure of the observed companies included in the sample, manufacturing companies dominate compared to trade and service companies. The results of the profitability analysis of the observed

companies show an acceptable level of profitability, with a positive trend. The results of the indebtedness analysis indicate that the observed companies are usually funded from their own capital resources rather than from external sources (liabilities). The trend analysis shows that the funding structure is stabile without significant fluctuations.

The results of the correlation analysis point out that there is a negative correlation between profitability indicators and indebtedness indicators in the observed companies, which is especially noticeable in the indebtedness indicators – Total debt in number of years and Interest coverage ratio.

The results of the analysis of differences in indebtedness indicators regarding profitability indicate that there is a difference in the indebtedness indicators - Total debt in number of years and Interest coverage ratio between the companies that achieved positive financial result and the companies that achieved negative financial result.

The results of the conducted research are consistent with the results of similar research and papers (Ching et.al. 2011; Bagchi et.al. 2012; Gropp & Heider 2009). A relatively small number of companies included in the sample is a certain limitation to the research, but this limitation is to some extent offset by observation through a relatively longer period of time. In subsequent studies, the emphasis can and should be on researching profitability and indebtedness measured by cash flow indicators, and on the comparative analysis of the obtained results with the results based on traditional indicators of financial statement analysis.

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