Silvije Orsag, PhD[1]
Ante Džidić, PhD[2]

Value Added as a Measure of Economic Profit

Додана вриједност као мјера економског профита

Abstract

Economic profit is the concept immanent for the value added. It is an attempt to analyze properly the business success in terms of contribution of profit to the increase in the company value and the stockholders' wealth. Fundamentally, value added is a measure of the business success where all standard costs and the costs of invested capital are excluded from the realized revenues. Profit as a traditional measure of business success ignores the cost of equity, although equity is the most expensive form of capital. To illustrate better this concept, we made an analysis of the most profitable corporations in Bosnia and Herzegovina listed on Banja Luka and Sarajevo stock exchanges. The analysis showed that the majority of these corporations operate poorly because they do not meet the implicit cost of capital, essentially losing the value of capital entrusted to them by their stockholders. Also, this analysis questioned the importance of the industries which are usually considered to be the most important in BiH economy.

[1] University of Zagreb, Faculty of Economics and Business – Zagreb, sorsag@efzg.hr, ORCID 0000-0002-8151-0656
[2] Faculty of Economics University of Mostar, dzidicante@hotmail.com. ORCID https://orcid.org/0000-0002-0869-7864

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Introduction

The term profit is in everyday use although it can be used with different meanings. Most often, profit means something that is earned, and therefore it is identified with earnings, profit, income and, less often, gain. By contrast, it is not difficult to see how these most common synonyms of profit are differently perceived. The term profit is also used in a wider context where it means achieving a certain benefit, or achieving some success.

In economic terms, profit is most often discussed in the context of income. Therefore, profit is just one type of the income together with wages, rent and interest. Most people will agree that wages are income from labor, rents are income from land lease and interest is income from capital. The question where profit comes from, will probably cause conflict between different opinions and attitudes (see Samuelson, 1980). Namely, profits can be discussed as income from entrepreneurial activity and innovation although, originally, the entrepreneur is also the capital investor. Therefore, profits could also be discussed in the context of earning money in conditions of uncertainty and risk, thus becoming a reward for taking the risk. Finally, profits can be researched through issues of exploitation and social relations, that is, relations between people.

In economic terms, the size of the profit is important. Therefore, in terms of measuring the profit is most often defined as the difference between revenues and expenditures, ie costs. In that sense profit can be observed on the gross and net principle, ie different kinds of profits may be developed depending on the types and forms of revenues and expenditures taken into account in calculations, as well as on the coverage of expenditures. Since profit, together with the expenditures, is a part of the total income it can be discussed as (Lipsi 1975, Santini, 1999):
   – explicit or
   – implicit profit.

Explicit profits primarily depend on the sales made, ie, sales revenues and expenses for manufacture and sales of products and services. Therefore, it is about incurred, visible and directly measurable costs and other expenditures as well as profits directly derived from differences in revenues and expenditures.

Implicit profit as well as implicit costs refer to the size of fair prices of products and services sold. These are the costs and profits whose assessment is fair because

it matches the fair prices of the factors involved in producing and selling products and services and a fair business reward. These are not predicted sizes because they are also determined by the direct size, but assumed sizes. Opportunity costs and profits are the closest to the implicit cost and profit. While opportunity ratios are derived from comparable transactions that are considered to be fair, implicit sizes are derived from fairly established values, hence, not really measurable sizes

Economic profits can also be reasoned differently. In general, it should indicate an economically viable income, the one that can be used for different purposes. Cash flow is the closest to such meaning (Orsag, 2011/a). Yet, the term economic income is more frequently used in this sense of meaning. The term economic profit today is most often reserved for the designation of profits as a business outcome from which all capital expenses, ie interests, as the cost of someone else's capital used by a company, but also the cost of capital provided by its stockholders, are excluded. Of course, one's own capital, as opposed to someone else's, has no explicit expenses. Therefore, it is necessary to use the implicit or opportunistic cost of one's own capital to calculate the economic profit.

In this context, the subject of the paper is to compare the characteristics of accounting and economic profit and to analyze the creation of value added on a sample of companies listed on the Banja Luka and Sarajevo stock exchange. The main goal of the paper is to illustrate how the accounting profit can be misleading indicator of the business success in terms of creating value for company shareholders.

1 Accounting vs. economic profit

If the debate about profits is directed at economics, it is important to measure its profitability. In economic terms, it is measured by the difference in revenue and expenditure. However, it is only in theory that revenue and expenditure can be considered economically usable sizes. In practice, the quantified profit is the accounting category, that is, the difference in revenue and expenditure of the company, which are only corrected for the net effects of cash flows.

Regardless of the efforts to standardize financial reporting, profit as an accounting category is necessarily a way of thinking, not reality (Hartley, 1976). Profit is the result of *a convention of measurement* by combining revenue and expenditure. The realized sales revenues are recognized only by those expenditures contained in the sold products and services. Thus, the profit is the method of business reasoning adapted to monitoring internal and external business processes (Gulin, Orsag, 1988). When assessing profits, there are issues of time recognition of revenues and expenditures and estimation of expenditures or costs. This is particularly reflected in the calculation of depreciation.

Accounting profit can be expressed by different modalities (Orsag, 1989). If unusual items are currently neglected, such as extraordinary revenue and expenditure, the widest coverage of profit as a result of a business would be a *contribution*, gross or marginal, depending on the expenditures if they are contained in sold products and services and others (management and sales costs) or expressed as variable and fixed. However, it is more common that profit includes earnings, ie accounting or reporting profits. These earnings, the reporting profit, can also be expressed on a gross or net basis.

Gross earnings are usually measured by earnings before interest and taxes, **EBIT**. The profit presented in this way is primarily the interest of all investors of the company, bondholders and stockholders (creditors and owners), and in a wider sense the interest of the state, which is why earnings before interest rates, but after taxes are sometimes presented. Net earnings are usually expressed as earnings of a company for stockholders. These are earnings after interest and taxes, **EAT**. The profit expressed in this way is the interest of stockholders, that is, the owners of the company. However, in companies with a complex structure of equity, companies where there are privileged stockholders, these earnings can also be expressed as net earnings after preferential dividends. These are earnings for ordinary stockholders that are expressed in terms of (one) ordinary share, as earnings per share, **EPS**.

Gross and net earnings can be shown before or after unusual items, ie earnings from operations and total net earnings. The expression of unusual items is particularly problematic, especially of those which can not be repeated in other reporting periods. Although their reporting obligation has long been standard practice, often manipulations in financial statements are carried out by classifying unusual items into common or otherwise. There are other manipulations, and even frauds that seek to beautify or, less often, demolish the reporting earnings in the sense of the wicked names of that practice: window dressing, the management of earnings or creative accounting.

Economic profit differs from accounting, though, in a broader sense, accounting profit can also be considered economic. Accounting profit primarily seeks to show the interests of the investors or only of the stockholders in the accomplished business results. Economic profit wants to show whether these results contribute to achieving the basic financial goal, increasing the wealth of the stockholders, ie the long-term increase in the value of the company's shares. Therefore, it is not enough to deduct only the interest of the lenders (creditors) from total earnings, but also the standard interest of the stockholders. Thus, the cost of company's capital should also be deducted from total earnings, with the interest as the cost of using someone else's capital. Of course, in the case of accounting and economic profit, tax reduction is presumed.

Such economic profit is smaller than accounting, if there is one at all. Namely, the operation of a company will increase the value of the company and the wealth of stockholders only if there is economic profit, if the accounting profit is sufficient to cover the standard cost of using its own capital. Although economic profit explicitly expresses the achievement of a company's business success by increasing the wealth of stockholders, it can also be seen as a kind of modality of accounting profit in which an increase in stockholders' wealth is implicitly assumed through their interest. As a kind of accounting profit modality, economic profit includes all previously mentioned open issues of measurement and presentation of profits.

Before making a more precise definition of economic profit and, in particular, value added, frequently used term *normal profit* should be clarified. It is also an economic profit. However, that profit corresponds to the fairly valued costs of all production factors and the total capital employed in the company's business. In other words, normal profit is a fair stockholders' reward for using their capital. If the business of a company realises a normal profit, the economic profit is zero. That means that in conditions where the economic profit exceeds the normal profit, the shareholders of the company receive an extra reward for the capital they have provided to the company. That is why this surplus is also called *extra profit*, that is, *abnormal profit*. This is precisely the part of the economic profit which increases the value of a company and can be considered the **value added** realized in the accounting period of measuring the accounting profit.

2 Cost of capital

Economic profit introduces the cost of its own capital in measuring business success, and in the wider context and the overall cost of capital. The cost of capital refers to a complex term that essentially does not express the meaning of the word cost, according to something that is real, explicitly spent or consumed. This is an implicit cost, as well as a kind of opportunity cost that is primarily related to the rate of return on capital invested in a company's business. These demanded yields, in terms of the invested capital, are parts of the normal profit.

The cost of capital, understood as an implicit cost, a part of a normal profit, is undoubtedly determined by the interdependence of risk and rewards. Thus, the cost of capital can also be seen as the price of capital, a reward for the "suppliers" of the company's capital for their deferred spending and taking the risk contained in the purchased instruments of company financing. Starting from the basic functions of the financial markets (Orsag, 2015), the price of capital appears as the time price and risk price under which, starting from Nobel laureate Harry Markowitz (1952), a systematic or market risk is implied.

Profit expressed as earnings after interest, partly talks about the opportunity of financial leverage in the traditional sense (Orsag, 1982). If the existence of free spontaneous financing is neglected, the answer to the question of the opportunity of used financial leverage could be provided by calculating hypothetical interest rates on its own capital with the weighted average interest rate. If these hypothetical interest rates were deducted from earnings after interest, the existence of surplus earnings would indicate the use of the leverage and the fact that the stockholders earn more on their capital than their interest, ie they make a yield higher than the interest rate. Of course, such a measure of profit ignores the impact of the tax burden which according to the MM revolution is the fundamental benefit of borrowing (Modigliani and Miller, 1958, 1963, 1969).

The variant of profit, earning after explicit and hypothetical interests, is also not a measure of economic profit. It is not a measure or a component of normal profit. The reason for this is that it does not say anything about whether such earnings are large enough to create value added for the stockholders of the company, ie the owners of the company. In that sense, economic profit must be stated in a way that earnings after interest (and tax) are reduced by the total cost of their own used capital, and therefore the reward for taking the risk above the risk assumed by the creditors. This total cost of own capital is denoted as the cost of equity.

2.1 Cost of equity

When earnings after interest are deducted for the cost of equity, a positive result indicates the existence of an economic profit. The generated profit is sufficient to contribute to the creation of value added that will increase the wealth of stockholders. Only then we can talk about successful business because the company has earned enough to cover all standard costs, contracted interest and income tax burden, as well as the stockholders' reward for deferring spending and taking the risk of doing business as well as for additional financial risk due to the borrowing of the company. Only when earnings are sufficient to compensate for the cost of equity can one speak of the existence of the economic profit that contributes to the increase in the value of the company, ie economic profit is greater than the normal.

The cost of equity as the cost of using its own capital to start and run a business is a theoretical cost. It is connected with investors in the capital of the company. It refers to the minimum required return on equity that is invested by its holders in the capital of the company (Orsag, 2011/a, Brealy at all, 2004, Higgins, 2004, Brigham at all, 2004). The cost of equity is also related to its use in the decision-making process, most often as a component of the total cost of capital. Here it represents the discount rate for discounting the expected economic in-

come (Orsag, 2002, Brigham at all, 2004). By linking these two determinants, the cost of equity can also be determined as the rate of return that should be earned for the stockholders of the company in order to maintain the value of the company's shares in the market (Orsag, 2002, Hampton, 1979). In this sense, the cost of equity appears as an opportunity cost.

The cost of equity is the most difficult to justify among all costs of individual components of the capital of the company. In principle, three approaches to substantiation of the cost of equity can be distinguished, among which the first two are dominant, while the third is an approximation determined by (Orsag, 2015a):

1. Models of the present value of dividends,
2. Theories of the capital market and
3. Debt cost increased by risk premium.

The first approach starts from the cost of equity as an implicit expense. In this context, it should be the discount rate that justifies the fair market share price. Therefore, in order to justify the cost of equity, it is necessary to establish this fair share price and justify the cost of capital using the method of the internal rate of return (Orsag, 2015) from a given model of the present value of dividends. Most often the cost of equity is determined by starting from the fair market value of the share using Gordon's model (Gordon, 1962) as the expected dividend yield increased by the expected growth rate.

Capital market theories are models of behavior of financial prices. Out of the multiplicity of the models, most commonly used is Sharpe's (1964) model of evaluation of capital assets known as CAPM (capital asset pricing model) based on Markowitz's Modern Portfolio Theory (1952), Tobin's Separation Theorem (1958) and Lintner's Model Confirmation (1965). According to CAPM, the cost of equity (k_S) is determined at the risk-free interest rate (k_F) as the price of time increased by the price of the risk determined by the systematic risk premium as the multiplication of the systematic risk of the share (beta - ß) and the risk premium on the selected market index (k_M) as a supstitute for the total capital investment market (Orsag, 2015), or:

$$k_S = k_F + \beta(k_M - k_F) \tag{1}$$

Although often in practical use, the model of capital asset evaluation has a number of controversies due to its rigid theoretical assumptions. Research has shown that the model can not fully explain the movement of stock return. Analysing thousands of well-diversified portfolios, Fama and French (1992) found that CAPM can account for only about 70% of the yield. In order to improve the estimate of the required yield Fama and French (1993) proposed two more risk factors. They named them the size and the value represented by the ratio of mar-

ket and book value of share. Thus, they formed a three-factor model, which is one of the most frequently used complements of the model of capital valuation assets.

As CAPM is often used in practice, a number of adjustments have been made due to the observed deviations of the real world from the ideal of a fully efficient market. Some of these adjustments relate to beta (see in: Damodaran, 2002, Hamada, 1969, Levy, 1971, Scholes and Williams, 1977, Tofallis, 2008, Vasicek, 1973 and Wallace, 1980). Thus, the procedures are developed for adjusting beta for the expected mitigation of the systematic risk of a growing company, for the use of the financial lever (Hamada formula) and other fundamental risk factors, as well as the bottom-up approach to calculation of the number of multi-industrial companies (Orsag, Mikerević, 2016).

Taking into account international investment Damodaran (2002) developed a series of possible adjustments to CAPM related to the determination of the country's risk-free interest rate and risk. According to these adjustments, the risk-free rate of interest must not include the risk of failing to repay. Similarly, the risk of a country to be included in a systematic risk premium must correspond to the risk of stock, not the risk of leakage. Finally, companies usually operate abroad. The structure of their placement in the markets of countries with different risks is usually different from the structure of the country's exports where they operate, so the systematic risk of stock of a particular company should be adjusted for these differences.

Since both approaches to the calculation of the cost of principal have weaknesses, it is recommended to combine them. The problem arises if the results differ significantly. Then it is necessary to check the assumptions under which the results are calculated and make additional judgments. Approximation is also possible. In developed markets, approach to the cost of debt increased by the risk premium is most commonly used. It is easier to calculate the cost of debt than the principal's cost. As investors investing in principal take greater risk than investors investing in debt of the same company, the cost of equity is necessarily higher and the risk premium should be added to the cost of debt. The risk premium can be determined by comparison of various indexes of share market and bond market. The second approach to establishing a premium is linked to a sophisticated financial analysis, where it is possible to conduct a survey of a number of authorised analysts on the issue.

2.2 Total cost of capital

The total cost of capital consists of the cost of equity and the cost of debt. Explicit interest rates, as the cost of debt, are not consistent with the cost of equity. It is historical, not expected cost which is the only important thing for investors. Therefore, the implicit cost of debt, ie the expected interest rate, should be

included in the calculation of the total cost of capital. Similar to the calculation of the cost of equity, starting from the market value, the implicit cost of debt is calculated as the yield to the maturity of bonds whose debts are formed (Orsag, 2011a). Due to the fact that the interest rates are deducted from the taxable profit, they create tax cover. Tax savings incurred from tax cover reduce the real interest burden. Therefore, in calculating the total cost of capital the cost of debt is used as an after-tax expense, ie the yield to maturity as the cost of debt before tax is reduced for unit tax savings (Orsag, 2011).

It is better to use implicit rather than explicit costs of capital to properly determine the economic profit. These are future-perceived costs, ie the costs that are the result of investors' expectations of equity and corporate debts. This also means that these costs are based on the expected capital structure, ie the expected level of debts, and not the current capital structure, ie the current level of indebtedness. Therefore, the process of determining the cost of debt and equity in calculating economic profit is not correct in a stepwise procedure where interests are first deducted from earnings before interest and then taxes, and costs of equity are deducted from post-tax earnings. Such a procedure misguides the investors on tax cover because it relies on the current, rather than the expected, tax burden.

The correct procedure for calculating the economic profit is that earnings before interest and tax are reduced for the total cost of capital (k_A). The total cost of capital consists of the cost of debt after tax (k_D) and the cost of equity, and their significance in the total cost is determined by the target rather than the existing capital structure. This means that it is necessary to determine the target capital structure (debts [D] and capital [G] in the total capital structure [A]), therefore the capital structure expected to dominate in the future and thus determine the total cost of capital as the average weighted capital cost, that is (Orsag, 2011a):

$$k_A = k_D \frac{D}{A} + k_S \frac{G}{A} \tag{2}$$

Economic profit (E_E) will be earned to reduce net earnings from operating before interest and tax (Π) for the mass of total cost of capital. Net earnings are revenues from operations minus profit tax, and the mass of total cost of capital depends on the size of the total assets (A) and the total cost of capital. Thus, the form of economic profit is:

$$E_E = \Pi - A\, k_S \tag{3}$$

The foregoing economic profit is closer to the expression of the value added than the one determined by the stepwise process. Capital costs are exempt from it according to the expectations of the investors and the expected tax cover is included in the cost of debt after tax, and thus in the total cost of capital. The

problem of economic profit as an expression of value added is that it starts from the accounting profit and from the accounting value of the asset. The accounting profit may differ from the actual economic income earned by the company, just as the book value of the total assets can be different from its fair market value both for the time being primarily affecting the fair value of fixed assets and for the value of the intangible assets.

The cost of capital is shown as the cost of debt after taxes and the cost of equity. For companies with a more complex capital structure, other components of capital may appear, both on the side of debts and quasi-debts, such as financial leasing, and on the equity side, such as different series of preferential capital. The particular issue is the use of short-term capital with costs, not spontaneously, which would assume traditional understanding of the capital structure. This is why some adjustments to the traditional concept of capital cost can be discussed with a more realistic presentation of economic profit.

3 Conceptualization of value added

The aim of the joint stock company is to increase the wealth of shareholders. Increase in wealth is reflected in the long-term increase in the value of ordinary shares of the company in the market. The aim is logically derived from the behaviour of a man and his investment decision (Copeland at all, 2005), and the involvement of the problem of agents among shareholders of the company with many stockholders (Jensen, 1972). The problem of agents is also found in other mediated relations between different interest groups within the public company. One of the fundamental areas in which the problem of agents arises relates to the relationship between the management of the company and the shareholders, where the management of the company appears as an agent of shareholders (Jensen and Mackling). Due to the ability to force the interests of management, it is possible to trigger the costs of agents and various stimulations of management to increase the value which would minimize this cost (Orsag, 2015a).

Measuring efficiency of shareholders with respect to raising the share price of the company is difficult to do by relying on traditional accounting data, primarily targeted at creditors. For this reason, efforts are being made to improve the business performance and use incentive measures to direct the company's management toward the creation of value added for shareholders. There are two possible measures: market value added, ie **MVA** and economic value added, ie **EVA**. Both of these measures were developed by Joel Stern and Bennett Stewart, co-founders of consulting firm Stern Stewart & Company (Stern, Stewart, 1992 and Stern, Stewart III and Chew, 1995). Stern Stewart & Company has protected

names and abbreviations, so other authors often use different names to designate similar measures.

The concept of **market value added** logically corresponds to the basic purpose of public company operations - increasing the wealth of shareholders. This goal is useful to all the shareholders of the company, and at the same time, with the existence of the capital market, it enables an efficient capital allocation at the level of the entire company. The market value added is represented by the difference between the market value of the main ordinary shares of the company and its own capital which the shareholders of the company have secured (paid capital increased by retained earnings and different reserves reduced by losses and purchase of their own shares). In other words, the market value added is the difference between the market and book value of the equity. Although it is very clear, the concept of market value added has significant weaknesses in practice, particularly for the motivation of the company's management with rewards. The reason for this is that the market price of ordinary shares depends only on a fair value or fundamental value, while the other part is the result of supply and demand and the capital market situation.

Economic value added does not directly rely on the market price of ordinary shares. This value added concept is calculated from customized accounting data. Therefore, it presents a management performance indicator for creating value for shareholders over a period of time. Thus, economic added value is also imposed as a system of rewarding different levels of management according to their contribution to creating value added.

The economic value added ($_\Delta W_E$) could be defined as the value that management added to shareholders over the year. It is represented by a surplus of business profit (Π) above the minimum requirements of investors in the market in terms of earning by investing in that enterprise (C_A), that is:

$$_\Delta W_E = \Pi - C_A \qquad (4)$$

Economic value added represents a surplus of pure business profit adjusted for corporate income tax expense (C_A) after tax. The cost of corporate capital after tax reflects the minimum requirements of an investor for making a profit. When a company earns profits in the amount of those minimum requirements, its value, as well as the value of its ordinary equity, should remain unchanged. The excess of profits earned by the business operations creates a new value of the company which, due to the fixed interest of the investor, ie creditor towards that profit, belongs to the shareholders. The cost of capital after tax is calculated according to the following formula:

$$C_A = A \circ k_A \qquad (5)$$

The cost of business capital after tax is the multiplication of net operating assets and the cost of capital of the company. Net operating assets relate to business capital, which is, by the definition, net operating working capital increased by net operating fixed assets. It is the capital invested by the company's investors: ordinary and preferred shareholders, bondholders, and long-term and short-term creditors. Therefore, net operating assets could be calculated by reducing total operating assets for spontaneous financing, that is for the amount of trade credit and incremental items.

The model of economic value added is more suitable for rewarding all levels of management than the concept of market value added. Namely, the concept of economic value added allows its determination for each year, or even for shorter time periods, while the concept of market value added includes the effects created over a long period of years. Likewise, economic value added can also be applied to the organizational parts of the company, and used to evaluate and reward all levels of management, while the concept of market value added can only be applied to the highest level of management.

Economic profit is the term used to determine economic value added (EVA), which is the protected name of Stern Stewart & Company. Therefore, the use of term is often avoided and replaced by others. One of the frequent such substitutions is residual income. The term is often associated with approach to the valuation of the company (Edwards & Bell, 1961). Valuation by value added starts from the book value of the assets of the company which is not the best indicator of the fair value of the company's assets. For a more accurate valuation, a customized book value can be used. It is possible to evaluate in more details the fair market value of assets and combine it with the value of the profit strength (Orsag, 1997). One of these approaches is the goodwill capitalization, although it does not directly deal with the opportunity costs of the equity (Peterson, 1990).

4 Value added of some BiH companies

Traditional measurement of company performance using accounting profit has some weaknesses. It uses only an explicit debt expense as a measure of the required profit in calculating earnings for shareholders. Therefore, it can not give an answer to the question if the undertaken efforts were sufficient to meet the expectations of stockholders. As a better measure of efficiency, a value added is proposed here. Its application will be tested in the empirical part of the work on selected BiH companies.

The value added can be simplified by indicating stepwise approach. Here, explicit interests are taken for the debt expense, and the value added is determined based on the net profit from which the cost of equity should be deducted. In this

way, the extra profit approximation is obtained, if there is any. This approach has a disadvantage related to the use of explicit debt, accrued and paid interest. However, this shortcoming is largely acceptable for private companies, whose potential bonds are not traded in the organized public market.

When determining the total cost of capital is transferred to the area of small, insufficiently developed, transitional capital markets, there are a number of additional problems and controversy. Some of them will be specifically discussed later. At this point, these problems will be considered in relation to the selection of a stepwise determination of the total cost of capital. Namely, even large public companies in transition countries, and especially in Bosnia and Herzegovina, do not have a sufficiently developed, transparent and liquid stock market, nor are they more intensively financed by bond issue. Thus, it can be noted that in BiH debt market for determining implicit debt costs is not transparent enough. Possible comparisons with similar companies in close countries with a somewhat more developed market environment are causing the need for further adjustment to the specificities of the domestic market, which is why stepwise determination of the mass of capital costs can be taken as the second best solution for the calculation of the value added of BiH enterprises.

4.1 Selection of the sample and necessary data for the analysis

In the analysis, joint stock companies from BiH, which recorded the best business results in 2016, measured by the annual net profit, were selected. The sample consists of 30 companies whose shares are quoted on the Sarajevo or Banja Luka Stock Exchange. Non-financial enterprises are analysed, which is why the sample does not include companies which deal with financial services such as insurance companies, banks and the like, and whose nature of work differs significantly from non-financial enterprises. Table 1 shows the most profitable joint stock companies in BiH, measured by the net profit achieved in 2016.

Table 1

Joint stock companies listed according to net profit in 2016

No.	Company	Sector	Net profit 2016	ROE
1	BH Telecom d.d. Sarajevo	Telecom. Services	92.799.266,00	9
2	Telekom Srpske a.d. Banja Luka	Telecom. Services	70.170.354,00	10
3	Igman d.d. Konjic	Aerospace/Defense	17.720.836,00	24
4	Tvornica cementa Kakanj d.d. Kakanj	Building Materials	17.683.307,00	12
5	JP Elektroprivreda BiH d.d. Sarajevo	Power	12.858.086,00	0
6	Fabrika cementa d.d. Lukavac	Building Materials	12.744.199,00	9
7	Unis Ginex d.d. Goražde	Aerospace/Defense	9.818.053,00	21
8	Bosnalijek d.d. Sarajevo	Drugs (Pharmaceutical)	9.475.585,00	6

No.	Company	Sector	Net profit 2016	ROE
9	JP HT d.d. Mostar	Telecom. Services	7.593.857,00	2
10	Banjalučka pivara a.d. Banja Luka	Beverage (Alcoholic)	6.139.116,00	18
11	Magros Veletrgovina d.d. Sarajevo	Retail (General)	5.734.306,00	5
12	Klas d.d. Sarajevo	Food processing	4.608.359,00	14
13	Mann + Hummel d.d. Tešanj	Auto parts	4.387.597,00	10
14	Fad d.d. Jelah	Auto parts	4.163.675,00	14
15	RiTE Ugljevik a.d. Ugljevik	Metals & Mining	2.815.404,00	1
16	Krajina GP a.d. Banja Luka	Engineering/Construction	2.529.894,00	5
17	Vitinka a.d. Kozluk	Beverage (Soft)	2.435.641,00	33
18	JP Elektroprivreda HZHB d.d. Mostar	Power	2.389.210,00	0
19	Boksit a.d. Milići	Metals & Mining	2.101.873,00	4
20	ZTC Banja Vrućica a.d. Teslić	Healthcare Support Services	1.910.517,00	5
21	Pobjeda Rudet d.d. Goražde	Aerospace/Defense	1.361.427,00	8
22	Standard a.d. Prnjavor	Furn./Home Furnishings	1.221.412,00	20
23	Čistoća a.d. Banja Luka	Utility (General)	1.211.465,00	7
24	Hidroelektrane na Trebišnjici a.d. Trebinje	Power	1.196.938,00	0
25	Mira a.d. Prijedor	Food Processing	1.170.552,00	5
26	RMU Banovići d.d. Banovići	Metals & Mining	1.153.449,00	1
27	Tehnogas - Trn a.d. Laktaši	Oil/Gas (Integrated)	1.144.911,00	12
28	Zvornikputevi a.d. Zvornik	Engineering/Construction	1.097.925,00	18
29	Bosnamontaža a.d. Prijedor	Metals & Mining	981.194,00	9
30	Napredak a.d. Bijeljina	Real Estate	800.182,00	17

Source: Authors' calculation based on the data from the financial reports published on the Sarajevo and Banja Luka Stock Exchange and based on the data by Aswatha Damodaran (http://pages.stern.nyu.edu/~adamodar/).

According to Table 1, it is clear that the key "winners" in BiH are telecommunication companies in Sarajevo and Banja Luka with 93 and 71 million BAM respectively. They are followed by Igman Konjic and Kakanj Cement Factory, which made a profit of 18 million BAM, and only one more company that made a profit of more than 10 million BAM. This would, according to the criteria of accounting profit, mean that these companies created the highest value for their shareholders. Of course, it is about the absolute measurement. In relative terms, according to the engagement of the equity, the picture significantly changes. Measured with ROE, return on equity, Vitinka a.d. Kozluk has the highest percentage of net earnings on the book value of equity, that is 33%. Next are Igman d.d. Horse with 24%, Unis Ginex d.d. Gorazde with 21% and Standard a.d. Prnjavor with 20%, while all other companies have ROE less than 20%. The leader on the table, both

telecoms achieved 9, ie 10% of ROE. The pride of the BiH economy, the electric power industry has statistically zero ROE because the yield can be measured only in base points: Sarajevo, 4.3, Mostar 2.8, and Trebinje 1.2

4.2 Return on total market

Return on total capital market is determined based on the approximation of the stock market by a market index. Stock markets in Banja Luka and Sarajevo are very narrow and shallow markets with very poor liquidity. Therefore, stock indexes on these stock exchanges are not sufficiently representative. Moreover, since the beginning of the publication of index values, the average return on both stock exchanges, measured by arithmetic and geometric mean, was negative. This is an additional reason not to use these two indexes because the return on total market should reflect the average risk-free interest rate and the average systemic risk premium on total stock market (Orsag, 2015). Negative returns can certainly not represent the required returns, and because of the insufficient liquidity of the market, in general, and individual shares, it would be difficult to consider calculated average returns as good approximation of the required return in case they are compared with the returns of large and developed markets which Damodaran (2002) calls mature stock markets.

The return on the total stock market in BiH will be determined indirectly starting from its content in CAPM. The total market return (k_M) is determined by the risk-free interest rate (k_F) and the systematic risk premium (k_R):

$$k_M = k_F + k_R \tag{6}$$

The total market risk premium is determined by starting from the US market as a representative of a mature stock market that needs to be increased for the country risk premium. The country risk premium can be counted in several ways, among which a credit rating or a CDS country are often used (Orsag, 2015). According to Damodaran (http://pages.stern.nyu.edu/~adamodar/) the country risk premium is 9.25%, and it is determined according to the credit rating. Thus, the total risk premium on equity of the total stock market of BH is 14.94%.

In order to obtain return on the total stock market of BH, it is necessary to increase the calculated risk premium for a risk-free interest rate. Typically, yield to maturity of the standard coupon bonds of the state is taken as an approximation of the risk-free interest rate (Bodie at all, 2008). The specificity of BiH bonds is that they are not issued at the state level, but rather at the level of the entities. Therefore, entity bonds are taken as a substitute for real treasury bonds. The average yield on five-year coupon bonds of the Government of the Federation of Bosnia and Herzegovina was 3.4%, and those of the Government of Re-

public of Srpska were 3.5%. If any of these yields augment the premium risk, the yield on the market will be rounded to 18%, which means that investors in stocks throughout the BiH market require an average yield risk of 18%.

Table 1 gives the net profit and equity for the selected companies that in the course of 2016 achieved the largest earnings for shareholders. These 30 most profitable companies are taken as a substitute for the market index in the entire BiH market, which we call BH 30. Although the simple average is used in the index, the sample is sufficient enough for initial analysis of the ability to create value for the stockholders of companies in BiH. The companies from the index earned a total of 301,418,590.00 BAM of net profit in 2016 for their shareholders. The total share capital in 2016 was 8,492,386,142.00 BAM. Looking at the relatively average ROE (return on equity) of the companies from the index, it was 3.55%. By comparing the ROE with the required yield of 18% it is easy to conclude that the chosen companies operate poorly. Namely, in Table 1 it is clear that only 4 out of 30 companies have return on equity higher than 18%, and only 2 are at the level of that average required yield. In order to determine the value added of BH 30, first the cost of equity must be calculated, ie:

Cost of equity = 18% x 8.492.386.142,00 = 1.528.629.505,56 BAM

The cost of equity of BH 30 is much higher than the net profit and the value added is negative and amounts to:

Value added = 301.418.590,00 – 1.528.629.505,56 = –1.227.210.915,56 BAM

In order for the BH 30 companies to retain the value of their shares, they should earn their net profit on the capital cost of 1,528,629,505.56 BAM for their shareholders. As they achieved significantly less, the value added is negative, which means they lost 1.227.210.915,56 BAM of the equity value because the net profit, at 18% of the cost of equity, meets the equity value of the BH 30 index:

Opportunity equity value = 301.418.590,00 / 18% = 1.674.547.722,22

Although the analysis of the achieved earning power shows the best BiH companies listed on both BiH stocks markets, they still do not earn enough for their shareholders. Moreover, the analysed companies lose the equity value because they do not realize net profit to the equity value at the level of the cost of equity. In other words, although profitable, these companies do not perform well.

4.3 Value added

The previous value added analysis was related to the overall sample. It pointed out the poor business performance of the best BiH companies. However, its results

can not be fully applied to each company, as indicated by the previous analysis of the return on equity of some companies. Very few companies earn higher return on equity than the one which requires an investment in the equity of an average company whose characteristics correspond to BH 30. Moreover, the individual performance of these companies is exposed to different risks and the required return on equity of individual companies is different, depending on risk of holding shares of a particular company.

In order to estimate the capital cost of individual companies, CAPM is still the starting point. According to Markowitz's portfolio risk analysis (1952) embedded in CAPM, the market recognizes solely systemic risk, that part of the overall risk of a share that can not be avoided by diversification. The measure of that risk is beta (Sharpe, 1964). In practice, beta is calculated from the historical pattern of the impact of the market index return on the individual stock return as the coefficient of the regression direction of the stock return toward the market return with possible corrections (Orsag, Mikerević, 2016). The limitations of BiH capital markets that have caused the impossibility of establishing the market return are present in the case of calculating beta coefficients. Therefore, we will use a comparison procedure with mature stock markets.

To approximate the principal cost using the CAPM model, the companies were first classified into sectors in accordance with the sectoral categorization published by Damodaran. For each company, beta was determined according to the sector average (http://pages.stern.nyu.edu/~adamodar/). These betas are then used to calculate the cost of the ordinary equity of individual companies from the BH 30 index according to formula 1 $k_S = k_F + \beta(k_M - k_F)$. Since the total risk premium for the BiH market $k_R = (k_M - k_F)$, calculated according to Damodoran's statistics, is 14.94%, the standard CAPM formula will be modified into:

$$k_S = k_F + \beta \, k_R \qquad\qquad (7)$$

In order to obtain the required stock returns of individual companies from BH 30, a supstitute for the risk-free rate should be determined. In accordance with the determination of the total market return, the five-year coupon bonds of the entities are taken. The average yield on five-year coupon bonds of the Government of FBiH for companies listed on SASE amounts to 3.4%, while the five-year government coupon bonds for companies listed on the Banja Luka Stock Exchange are 3.5%. Since the differences in rates are not significant and because of possible friction due to moving the capital from one entity to the other, the average rate was not determined. Table 2 shows capital cost approximations for the top 30 most profitable companies in Bosnia and Herzegovina.

Table 2

Calculation of capital/equity cost (CAPM)

Company	Beta	Total risk premium	Risk-free rate	Capital cost %
Igman d.d. Konjic	1,2	0,149	0,034	0,21
Vitinka a.d. Kozluk	0,89	0,149	0,035	0,17
Unis Ginex d.d. Goražde	1,2	0,149	0,034	0,21
Banjalučka pivara a.d. Banja Luka	0,75	0,149	0,035	0,15
Standard a.d. Prnjavor	0,90	0,149	0,035	0,17
Napredak a.d. Bijeljina	0,80	0,149	0,035	0,15
Zvornikputevi a.d. Zvornik	1,09	0,149	0,035	0,20
Tehnogas - Trn a.d. Laktaši	1,84	0,149	0,035	0,31
Klas d.d. Sarajevo	0,76	0,149	0,034	0,15
Bosnamontaža a.d. Prijedor	1,38	0,149	0,035	0,24
Čistoća a.d. Banja Luka	1,08	0,149	0,035	0,20
Pobjeda Rudet d.d. Goražde	1,2	0,149	0,034	0,21
Fad d.d. Jelah	1,5	0,149	0,034	0,26
Mira a.d. Prijedor	0,76	0,149	0,035	0,15
Mann + Hummel d.d. Tešanj	1,5	0,149	0,034	0,26
ZTC Banja Vrućica a.d. Teslić	0,83	0,149	0,035	0,16
Krajina GP a.d. Banja Luka	1,09	0,149	0,035	0,20
Boksit a.d. Milići	1,38	0,149	0,035	0,24
Tvornica cementa Kakanj d.d. Kakanj	0,94	0,149	0,034	0,17
Fabrika cementa d.d. Lukavac	0,94	0,149	0,034	0,17
Magros Veletrgovina d.d. Sarajevo	1,23	0,149	0,034	0,22
Bosnalijek d.d. Sarajevo	1,1	0,149	0,034	0,20
RMU Banovići d.d. Banovići	1,38	0,149	0,034	0,24
JP HT d.d. Mostar	0,99	0,149	0,034	0,18
Telekom Srpske a.d. Banja Luka	0,99	0,149	0,035	0,18
RiTE Ugljevik a.d. Ugljevik	1,38	0,149	0,035	0,24
BH Telecom d.d. Sarajevo	0,99	0,149	0,034	0,18
JP Elektroprivreda HZHB d.d. Mostar	1,08	0,149	0,034	0,20
Hidroelektrane na Trebišnjici a.d. Trebinje	1,08	0,149	0,035	0,20
JP Elektroprivreda BiH d.d. Sarajevo	1,08	0,149	0,034	0,20

Source: Authors' calculation based on the data from the financial reports published on the Sarajevo and Banja Luka Stock Exchange and based on the data by Aswatha Damodaran (http://pages.stern.nyu.edu/~adamodar/).

Table 2 shows that the required yields are significantly different between those 30 companies from the sample. So Tehnogas - Trn a.d. Laktasi has the highest required yield of 31%, since its systematic risk is measured by beta, which is twice

the average in the Neum index 30. In contrast, Banjalučka Pivara a.d. Banja Luka has the lowest beta in the sample, and thus the lowest required return, ie the capital cost of 15%. Therefore, the amount of their value added will change in relation to the amounts that would be calculated using the average principal cost of the total market of Bosnia and Herzegovina.

By applying the calculated capital cost for each company from the BH 30 index, the absolute amount of capital cost is first calculated by multiplying the equity with the capital cost ratio. After that, the value added (or the loss of the equity if the value added is negative) is calculated simply by deducting the absolute amount of the capital cost from the realized net profit or gain for the shareholders. The realized values added are shown in Table 3. In order to make these sizes comparable to other relevant sizes for assessing the earning power of the analysed companies, the table gives for each company the size of the net profit, equity and the absolute amount of capital cost.

From Table 3 it is easy to see that only 6 out of 30 companies gained value added and increased value for shareholders. All other companies, 24 of them, have a negative value added, which means that they have lost a part of the value for shareholders. Among these six successful companies, the greatest value added was achieved by the company Igman d.d. Konjic, the only from the group of the biggest winners with a net profit of more than 10 million BAM. However, this company achieved only 3% of the value added on the book value of equity, similar to Napredak a.d. In relative terms, the best of these six companies is Banjalučka Pivara a.d. with 29% of the value added to the value of equity. It is followed by Vitinka a.d. with 16% of the value added to the value of equity, while Napredak a.d. and Unis Ginex d.d. have a modest 1.2% and 0.8% respectively of value added to the book value of equity.

Table 3

Comparison of classic profitability measures and value added

Company	Net profit 16	Equity	Capital cost	Value added
Igman d.d. Konjic	17.720.836,00	73.041.538,00	15.591.601,19	2.129.234,81
Vitinka a.d. Kozluk	2.435.641,00	7.421.078,00	1.244.741,02	1.190.899,98
Unis Ginex d.d. Goražde	9.818.053,00	45.832.422,00	9.783.485,74	34.567,26
Banjalučka pivara a.d. Banja Luka	6.139.116,00	34.882.399,00	5.121.436,33	1.017.679,67
Standard a.d. Prnjavor	1.221.412,00	6.028.119,00	1.020.102,93	201.309,07
Napredak a.d. Bijeljina	800.182,00	4.800.318,00	740.631,83	59.550,17
Zvornikputevi a.d. Zvornik	1.097.925,00	5.966.120,00	1.178.920,25	-80.995,25
Tehnogas - Trn a.d. Laktaši	1.144.911,00	9.187.559,00	2.844.675,69	-1.699.764,69
Klas d.d. Sarajevo	4.608.359,00	33.252.217,00	4.912.804,67	-304.445,67
Bosnamontaža a.d. Prijedor	981.194,00	10.780.751,00	2.597.265,46	-1.616.071,46

Company	Net profit 16	Equity	Capital cost	Value added
Čistoća a.d. Banja Luka	1.211.465,00	16.616.935,00	3.258.728,90	-2.047.263,90
Pobjeda Rudet d.d. Goražde	1.361.427,00	17.818.101,00	3.803.489,53	-2.442.062,53
Fad d.d. Jelah	4.163.675,00	32.571.111,00	8.412.145,53	-4.248.470,53
Mira a.d. Prijedor	1.170.552,00	24.535.078,00	3.638.887,53	-2.468.335,53
Mann + Hummel d.d. Tešanj	4.387.597,00	44.760.183,00	11.560.218,91	-7.172.621,91
ZTC Banja Vrućica a.d. Teslić	1.910.517,00	40.416.556,00	6.416.891,32	-4.506.374,32
Krajina GP a.d. Banja Luka	2.529.894,00	55.072.532,00	10.882.470,26	-8.352.576,26
Boksit a.d. Milići	2.101.873,00	51.070.430,00	12.303.731,33	-10.201.858,33
Tvornica cementa Kakanj d.d. Kakanj	17.683.307,00	148.987.171,00	26.017.404,73	-8.334.097,73
Fabrika cementa d.d. Lukavac	12.744.199,00	137.167.632,00	23.953.376,48	-11.209.177,48
Magros Veletrgovina d.d. Sarajevo	5.734.306,00	126.373.990,00	27.542.316,14	-21.808.010,14
Bosnalijek d.d. Sarajevo	9.475.585,00	152.858.050,00	30.346.313,37	-20.870.728,37
RMU Banovići d.d. Banovići	1.153.449,00	105.926.637,00	25.459.142,26	-24.305.693,26
JP HT d.d. Mostar	7.593.857,00	321.546.845,00	58.552.553,45	-50.958.696,45
Telekom Srpske a.d. Banja Luka	70.170.354,00	677.266.347,00	123.713.869,78	-53.543.515,78
RiTE Ugljevik a.d. Ugljevik	2.815.404,00	439.363.581,00	105.850.126,15	-103.034.722,15
BH Telecom d.d. Sarajevo	92.799.266,00	1.067.344.376,00	194.359.669,82	-101.560.403,82
JP Elektroprivreda HZHB d.d. Mostar	2.389.210,00	853.878.198,00	166.966.406,67	-164.577.196,67
Hidroelektrane na Trebišnjici a.d. Trebinje	1.196.938,00	953.336.075,00	186.957.692,46	-185.760.754,46
JP Elektroprivreda BiH d.d. Sarajevo	12.858.086,00	2.994.283.793,00	585.498.970,03	-572.640.884,03

Source: Authors' calculation based on the data from the financial reports published on the Sarajevo and Banja Luka Stock Exchange and based on the data by Aswatha Damodaran (http://pages.stern.nyu.edu/~adamodar/).

Table 3 shows how the picture of the ability to earn of 30 best companies listed on two stock exchanges in BiH in terms of realized profits for shareholders significantly changed when the required earning power was introduced in the amount of ordinary capital cost. Among the companies that achieved the highest net profit, only the company Igman d.d. Konjic earned enough to cover the implicit demands of its shareholders and further increase their wealth. Even the most profitable telecom companies did not achieve value added. Moreover, these societies are listed on the top of the scale of those which, absolutely speaking, most strongly decrease the value for shareholders, just behind the three largest companies of electric power industry in BiH. Electrical power industry is often emphasized as a strategic key to the success of BiH economy. However, the pride of the economy of BiH, the electric power industry statistically has zero return on equity, because the return can be measured only in base points: Sarajevo, 4.3,

Mostar 2.8, and Trebinje 1.2. Even if the opinion on the importance of the electrical power industry for BiH economy is right and based on the possibilities, it is obvious that it is necessary to raise the level of management with these resource.

5 Value added one year later

As for 2016, we made the same analysis of the value added of 15 most profitable joint stock companies by the size of the profits listed on the Sarajevo and Banja Luka Stock Exchange for 2017. The composition of the BH 30 index changed in that year compared to the previous one. Because of different composition, the index from the previous year will be BH 30 (16) and the new will be BH 30 (17). Table 4 shows the most profitable joint stock companies in 2017.

Table 4

Joint stock companies listed according to net profit for 2017

No.	Company	Sector	Net profit 2017	ROE
1	Fabrika duhana d.d. Sarajevo	Tobacco	65.250.213,00	23
2	BH Telecom d.d. Sarajevo	Telecom. Services	63.112.212,00	6
3	Telekom Srpske a.d. Banja Luka	Telecom. Services	60.054.624,00	9
4	Tvornica cementa Kakanj d.d. Kakanj	Building Materials	15.871.641,00	11
5	Igman d.d. Konjic	Aerospace/Defense	14.866.329,00	17
6	Fabrika cementa d.d. Lukavac	Building Materials	12.351.040,00	9
7	Unis Ginex d.d. Goražde	Aerospace/Defense	10.299.292,00	19
8	Bosnalijek d.d. Sarajevo	Drugs (Pharmaceutical)	9.746.744,00	6
9	Mann + Hummel d.d. Tešanj	Auto parts	9.146.238,00	17
10	BIMAL d.d. Brčko	Food Processing	7.623.305,00	9
11	Magros Veletrgovina d.d. Sarajevo	Retail (General)	7.441.313,00	6
12	Banjalučka pivara a.d. Banja Luka	Beverage (Alcoholic)	6.278.533,00	15
13	Rudnik mrkog uglja d.d. Banovići	Metals & Mining	6.190.712,00	5
14	Pivara Tuzla d.d. Tuzla	Beverage (Alcoholic)	3.672.906,00	28
15	Nestro Petrol d.d. Banja Luka	Oil / Gas distribution	3.618.702,00	15
16	Boksit a.d. Milići	Metals & Mining	3.324.824,00	6
17	Pretis d.d. Vogošća	Aerospace/Defense	3.238.877,00	7
18	Rafinerija ulja d.d. Modriča	Oil/Gas (Product. and Explora.)	3.231.064,00	2
19	Vitinka a.d. Kozluk	Beverage (Soft)	2.963.774,00	38
20	Pobjeda Rudet d.d. Goražde	Aerospace/Defense	2.673.530,00	13
21	ZTC Banja Vrućica a.d. Teslić	Healthcare Support Services	2.655.355,00	6
22	Prijedorputevi a.d. Prijedor	Engineering/ Construction	2.340.849,00	10
23	Standard a.d. Prnjavor	Furn/Home Furnishings	2.291.855,00	28

No.	Company	Sector	Net profit 2017	ROE
24	Guber a.d. Srebrenica	Healthcare Support Services	2.113.524,00	25
25	Rudnik soli Tuzla d.d. Tuzla	Metals & Mining	2.026.820,00	1
26	Krajina GP a.d. Banja Luka	Engineering/ Construction	2.015.468,00	3
27	RiTE Gacko a.d. Gacko	Metals & Mining	1.731.934,00	0
28	Bosnamontaža a.d. Prijedor	Metals & Mining	1.456.868,00	12
29	SHP CELEX a.d. Banja Luka	Paper/Forest Products	1.386.993,00	19
30	BOSKA RK a.d. Banja Luka	Retail (General)	1.256.909,00	3

Source: Authors' calculation based on the data from the financial reports published on the Sarajevo and Banja Luka Stock Exchange and based on the data by Aswatha Damodaran (http://pages.stern.nyu.edu/~adamodar/).

Compared to the previous year's sample, 12 companies are not on the list (JP Elektroprivreda BiH d.d. Sarajevo, JP HT d.d. Mostar, Klas d.d. Sarajevo, Fad d.d. Jelah, RiTE Ugljevik a.d. Ugljevik, JP Elektroprivreda HZHB d.d. Mostar, Čistoća a.d. Banja Luka, Hidroelektrane na Trebišnjici a.d. Trebinje, Mira a.d. Prijedor, Tehnogas - Trn a.d. Laktaši, Zvornikputevi a.d. Zvornik, Napredak a.d. Bijeljina). It is interesting that among these companies there are three electric power companies which significantly decreased profit last year compared to the year before. Two newly listed companies in Table 2 are indicated in italics.

Table 4 shows that telecoms lost their leading position due to the significant decrease in profit, especially in Sarajevo. The leading role was taken over by FDS, which is also a newly listed company. Igman, Tvornica cementa Kakanj and Fabrika cementa Lukavac remained at the top. The highest profitability measured with ROE was achieved again by Vitinka with 38% of return on equity. The following is Standard and Pivovara Tuzla with 28%, and newly listed Fabrika duhana with 23%. Unlike Fabrika duhana, the other two key winners, telecoms, achieved, as in the previous analysis, a modest return on equity.

5.1 Total market return

The methodology for calculating return and value added applied to BH 30 (17) is the same as the one used for the year before. The risk premium on the total market is determined by starting from the US market that needs to be increased by the country's premium risk. According to the Damodaran calculations, the country's risk premium was 9.25% in the previous analysis, and it was determined according to the credit rating, while according to the updated data from January this year it was 7.5% (http://pages.stern.nyu.edu / ~ adamodar /). In the previous analysis, the risk premium of the mature market amounted to 5.44%, so the total

risk premium on equity of the total stock market of BH was 14.94%. According to the updated data, the risk premiums on the mature market amounted to 5.08%, so the total risk premium today is 12.58%.

In order to obtain return on the total stock market of BH, it is necessary to increase the calculated risk premium for a risk-free interest rate. This analysis also starts from entity bonds as a substitute for real treasury bonds. The average yield on five-year coupon bonds of the Government of the Federation of BiH amounted to 3.4% last year and 3.5% on bonds of the Government of Republic of Srpska. If any of these yields is added to the risk premium, the market return is rounded to 18%. The current situation is more complicated. Namely, this year the Republic of Srpska is borrowing more than the Federation because the average of the last three issues is 3.04 compared to 2.16%. For the entire BiH the average is 2.61%, which together with 12.58% gives the total market return of 15.20% (more precisely, 15.19).

Table 4 gives net profit and equity for fifteen companies listed on the stock exchanges in Banja Luka and Sarajevo, which in 2017 achieved the largest earnings for shareholders. These 30 most profitable companies are taken as a substitute for the market index in the entire BiH market. Although in BH 30 (17) simple averages are used, the index is sufficiently representative for the initial analysis of the ability to create value for stockholders in BiH. Thus, the companies from the index BH 30 (17) earned for their shareholders a total of 330,232,448.00 BAM of net profit in 2017, as opposed to 301,418,590.00 BAM in 2016. The total capital of these companies in 2017 was 4,141,488,500 BAM, as opposed to 8,492,386,142.00 BAM in 2016. The average ROE of the companies from the index was 7.97% in 2017, as opposed to 3.55% in 2016. By comparing the return on equity of the companies with the required return of 15.2%, it is not difficult to conclude that the presented companies operate poorly, just like they did last year. This year's better results are not actually good, the improvements are primarily the result of change in the structure of the index where there are no more companies from the electric power industry that have the largest value of equity.

The cost of equity of the index BH 30 (17) in the absolute amount for 2017 is:

The cost of equity = 15,2% x 4.141.488.500,00 = 629.506.252,00 BAM

The cost of equity is almost double the net profit so the value added is negative:

Value added = 330.232.448,00 − 629.506.252,00 = −299.273.804,00 BAM

In order for companies from BH 30 (17) to retain the value of their shares, they had to earn net profit for shareholders in the amount of capital cost:

629.506.252,00 BAM. As they achieved substantially lower net profit, the value added is negative, which means that they lost 299,273,804.00 BAM of the value of equity because the realized net profit, according to the cost of equity of 15.2%, satisfies the value of equity of the Neum 30 index:

Opportunity value of equity = 330.232.448,00/ 15,2% = 2.172.581.894,74 BAM

Although the analysis covers the realised earnings power of the best BiH companies listed on both BiH stock exchanges they do not earned enough for their shareholders. Moreover, the analysed companies lose the value of equity because they do not realize net profit on the value of equity in the amount of the cost of equity. In other words, although profitable, these companies do not operate satisfactorily. This analysis is not comparable to the last year's analysis because the total equity of the Neum 30 index (17) is half the equity of Neum 30 (16). The reason for this is primarily the drop out of all three power companies from the sample, which together have over 4.7 billion of equity. As these companies operated much worse than the year before, the Neum 30 index (16) would probably be even worse in 2017.

5.2 Value added for companies from Neum 30(17)

As for the previous year, the analysis of value added was made for 2017 based on the individual companies from the sample. For these purposes, the same methodology of beta evaluation and systematic risk calculation was used. The difference is that in the previous analysis, yields on entity bonds for two pairs of companies were taken, while in this analysis the average rate of entity bonds is taken. The results of this analysis are shown in the Table 5.

Table 5
Joint stock companies listed according to the value added for 2017

No.	Company	ß of sector	Capital cost	Equity	Net profit 2017	Value added	%G
1	Fabrika duhana	0,563	10,09	278.462.813	65.250.213	38.280.779,40	13,7
2	BH Telecom	1,115	17,03	1.055.755.848	63.112.212	-112.432.314,43	
3	Telekom Srpske	1,115	17,03	672.946.780	60.054.624	-51.838.787,75	
4	Tvor. cementa Kakanj	0,992	15,48	147.232.447	15.871.641	-6.333.415,24	
5	Igman d.d. Konjic	1,237	18,56	86.692.165	14.866.329	-879.103,25	
6	Fabrika cementa	0,992	15,48	136.805.777	12.351.040	-8.281.504,22	
7	Unis Ginex	1,237	18,56	54.831.414	10.299.292	340.556,81	0,6
8	Bosnalijek	1,237	18,56	170.189.800	9.746.744	-21.156.200,72	

No.	Company	ß of sector	Capital cost	Equity	Net profit 2017	Value added	%G
9	Mann + Hummel	1,585	22,93	53.877.978	9.146.238	-2.994.814,84	
10	BIMAL	0,827	13,4	81.197.395	7.623.305	-2.935.235,00	
11	Magros Veletrgovina	0,814	13,24	133.815.303	7.441.313	-9.735.303,59	
12	Banjalučka pivara	0,659	11,29	41.115.188	6.278.533	1.800.131,74	4,3
13	Rudnik mrkog uglja	1,412	20,77	112.117.349	6.190.712	-16.646.150,86	
14	Pivara Tuzla	0,659	11,29	13.125.860	3.672.906	2.243.194,24	17
15	Nestro Petrol	2,145	29,98	24.503.335	3.618.702	-3.628.974,58	
16	Boksit	1,412	20,77	54.195.254	3.324.824	-7.714.052,63	
17	Pretis	1,237	18,56	47.526.649	3.238.877	-5.393.132,96	
18	Rafinerija ulja	1,651	23,77	190.196.563	3.231.064	-41.210.538,70	
19	Vitinka	0,688	11,65	7.698.451	2.963.774	2.097.678,60	27,2
20	Pobjeda Rudet	1,237	0,1856	20.226.056	2.673.530	-1.000.019,90	
21	ZTC Banja Vrućica	0,828	13,41	42.119.447	2.655.355	-2.826.462,23	
22	Prijedorputevi	1,174	17,77	22.995.269	2.340.849	-1.652.801,26	
23	Standard	0,962	0,151	8.313.854	2.291.855	1.069.505,45	12,8
24	Guber a.d.	0,828	13,41	8.546.385	2.113.524	1.001.217,84	11,7
25	Rudnik soli Tuzla	1,412	20,77	135.150.272	2.026.820	-25.501.553,22	
26	Krajina GP	1,174	17,77	57.089.197	2.015.468	-7.899.366,49	
27	RiTE Gacko	1,412	20,77	428.330.639	1.731.934	-66.894.682,35	
28	Bosnamontaža	1,242	18,63	12.237.619	1.456.868	-773.695,90	
29	SHP CELEX	0,997	15,54	7.409.196	1.386.993	265.346,08	3,5
30	BOSKA RK	0,901	14,33	36.784.197	1.256.909	-3.867.949,99	

Source: Authors' calculation based on the data from the financial reports published on the Sarajevo and Banja Luka Stock Exchange and based on the data by Aswatha Damodaran (http://pages.stern.nyu.edu/~adamodar/).

By looking at Table 3 it is easy to see that only eight out of a total of 30 companies from the sample achieved value added and thus increased value for their shareholders. These companies are marked in italics. All other companies in the sample, twenty two of them, have a negative value added, which means they have lost some of their value for their shareholders. Among these eight successful companies, Fabrika duhana d.d. Sarajevo achieved the biggest value added, which by the size of the profit, did not qualify in the previous analysis for Index BH 30 (16). Among the companies that achieved the value added in the Index BH 30 (17) in 2016, the company Napredak a.d. Bijeljina did not qualify. Other five

companies, Banjalučka pivara a.d. Banja Luka, Vitinka a.d. Kozluk, Unis Ginex d.d. Goražde, Standard a.d. Prnjavor, Igman d.d. Konjic, qualified for the BH 30 (17) Index. In addition, all companies except for the company Igman, which in the past analysis realised the highest value added and in the current analysis lost the value for shareholders, realised the value added.

Relatively speaking, the best of these eight companies is Vitinka, which generated 27.2% of the value added on its equity. Pivara Tuzla (17%), Fabrika duhana (13.7%), Standard (12.8%) and Guber (11.7%) made significant value added on equity, while all other companies realised a single-digit value added on equity, among which is the last year's winner Banjalučka pivara with the poor 4.3% in comparison to the last year's 29%.

Conclusion

Accounting profit, as much as it can be considered one of the forms of economic profit, is not a sufficient measure of business success because it does not correlate directly with the basic business goal: increase in the wealth of stockholders. Economic profit or residual income, that is abnormal income or extra earnings, is an attempt to express more accurately the business success of a company in terms of contribution of the profit to the increase in the value of the company and therefore the increase in the wealth of stockholders. The idea of such business success representations is to exclude from the realised revenues all capital costs, apart from interest, as well as the cost of equity, because capital has its price. Moreover, it is precisely the company's own capital that is the most expensive.

To illustrate how the concept of value added is qualitatively significantly different from the traditional profit, a simple analysis was made on thirty companies from Bosnia and Herzegovina listed on the Banja Luka and Sarajevo stock exchanges which in each of the two analysed years achieved the largest earnings for their shareholders (after interest and taxes) - the highest net profit. The samples of companies collected for 2016 and 2017 were called BH 30 (16) and BH 30 (17). We ranked the companies from the samples by the size of the realized net profit, considering them relative to the used capital, measured by its book value. A relative view on performance has significantly changed the ranks of success. This is particularly true for those enterprises that had the largest share of their own capital, which was especially evident in the first year of the analysis on the example of companies from the electric power industry. However, even such an approach to the profitability analysis can not provide an answer to the question whether the level of earnings gain has been reached in terms of increasing the wealth of the company's stockholders.

After the traditional analysis of profitability of the companies from the samples, we calculated the value added in absolute terms and relative to the used

capital. Because of insolvency, the stock market has been used with a stepwise approach to determining value added. For that purose, we have determined the necessary parameters for calculating the cost of equity as a component of the total cost of the company's capital which derives from the interest of shareholders and represents the minimum profitability that the company should earn for shareholders in order to obtain a fair reward for deferred spending and a fair reward for taking over the systematic risk. This is the minimum required return which retains the existing value of the company's shares in the market. This means that only higher profitability of the company creates value added, that is, increases the wealth of the company's stockholders.

The metrics of value added showed changes in the picture of the earning power of companies from the BH 30 (16) and BH 30 (17) indexes, absolutely and relatively. Most of the analysed companies did not realise value added, but lost value for stockholders because they did not earn enough to cover the cost of principal. In other words, regardless of the fact that the companies in the indexes earned money according to the profit concept creating net profit, they earned a very modest amount, which could not satisfy the interests of the stockholders of these companies, and thus the interests of the wider community. In this sense, the analysis of earning power based on the value added has proven to be of a higher quality than the traditional analysis of accounting profits.

List of References

Bodie, Z., Kane, A. & Marcus, J. A. (2008). *Investments.* New York: McGraw Hill, Inc.

Brealey, R. A., Myers, S. C. & Marcos, A. (2004). *Principles of Corporate Finance.* Boston: Irwin, McGraw-Hill.

Brigham, E. F. & Houston, J. F. (2004). *Fundamentals of Financial Management.* Austin: Thomson.

Copeland, T., E., Weston, J. F. & Shastri, K. (2005). *Financial Theory and Corporate Policy.* Boston: Pearson, Addison Wesley.

Damodaran, A. (2002). *Investment Valuation, Tools and Techniques for Determining the Value of Any Asset.* New York: John Wiley & Sons, Inc.

Edwards, E. O. & Bell, P. W. (1961). *The Theory and Measurement of Business Income.* Berkeley: University of California Press.

Fama, E. F. & French, K. (1992). The Cross-Section of Expected Stock Returns. *The Journal of Finance*, *47* (2), 427-465.

Fama, E. F. & French, K. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33* (1), 3-56.

Gordon, M. J. (1962). *The Investment, Financing, and Valuation of the Corporation.* Illinois: Richard D. Irwin, Inc., Homewood.

Graham, B. (2006). *Inteligentni investitor.* Zagreb: Masmedia.

Gulin, D. & Orsag, S. (1988). Provociranje realnosti kategorije financijski rezultat. *Računovodstvo i financije*, *12*(88).

Hamada, R. S. (1969). Portfolio Analysis, Market Equilibrium, and Corporation Finance. *Journal of Finance*, *24* (1), 13-31.

Hampton, J. J. (1979). *Financial Decision Making, Concepts, Problems, & Cases*. Reston: Reston Publishing Company.

Hartley, W. C. F. (1976). *Cash: planning, forecasting and control*. London: Business Books Limited.

Higgins, R. C. (2004). *Analysis for Financial Management*. New York: McGraw–Hill.

Jensen, M. C. (1972). Capital Market Theory and Evidence. *Bell Journal of Economics and Management Science*, *3* (2), 357-398.

Jensen M. C. & Mackling, W. H. (1976). Theory of the Firm, Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics, 3*(4), 305-360.

Levy, R. A. (1971). On Short-Term Stationarity of Beta Coefficient. *Financial Analysts Journal*, *27* (6), 48-53.

Lintner, J. (1965). The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets. *Review of Economics and Statistic*, *47* (1), 13-37.

Lipsey, R. G. (1975). *An introduction to positive economics*. London: Weidenfeld & Nicolson.

Markowitz, H. (1952). Portfolio selection. *Journal of Finance, 7* (3), 77-91.

Modigliani F. & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review*, *48* (3), 261-297.

Modigliani F. & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *American Economic Review*, *53* (3), 433-443.

Modigliani F. & Miller, M. H. (1969). Reply to Heins and Sprenkle. *American Economic Review*, *59* (Sep), 592-595.

Orsag, S. (2015). *Investicijska analiza*. Zagreb: HUFA, Avantis.

Orsag, S. (2015a). *Poslovne financije*. Zagreb: Masmedia.

Orsag, S. (2011). *Mala škola investiranja ili razumni ulagač*. Zagreb: Hrvatska zajednica računovođa i financijskih djelatnika.

Orsag, S. (2011a). *Vrijednosni papiri, Investicije i instrumenti financiranja*. Sarajevo: Revicon.

Orsag, S. (2002). *Budžetiranje kapitala*. Zagreb: Masmedia.

Orsag, S. (1989). *Modaliteti financijskog rezultata privredne organizacije*. Zagreb: Ekonomski fakultet.

Orsag, S. (1982). Poslovna i financijska poluga u poslovanju kapitalističkog poduzeća. *Računovodstvo i financije*, 5, 7 i 8-9.

Orsag, S. (1997). Vrednovanje poduzeća. Zagreb: Infoinvest

Orsag, S. & Mikerević, D. (2016). Kontroverze bete. *Acta Economica, 14* (24), 9-29.

Peasnell, K. V. (1982). Some Formal Connections Between Economic Values and Yields and Accounting Numbers. *Journal of Business Finance and Accounting*, *9* (3), 361-381.

Peterson, C. D. (1990). How to Sell Your Business. New York: McGraw-Hill Publishing Company.

Samuelson, P. A. & Samuelson, W. (1980). *Economics*. New York: McGraw-Hill Book Company.

Santini, I. (1999). Troškovi u poslovnom odlučivanju. Zagreb: HIBIS.

Scholes, M. & Williams, J. (1977). Estimating betas from nonsynchronous data. *Journal of Financial Economics*, 5(3), 309-327.

Sharpe, W. F. (1964). Capital Asset Prices: A Theory of Market Equilibrium. *Journal of Finance*, *19* (3), 425-442.

Stern, J. M., Stewart, G. B. & Chew, D. H. (1995). The EVA© Financial Management System. *Journal of Applied Corporate Finance*, *8* (2), 32-46.

Stern, J. M. & Stewart, G. B. (1992). Roundtable on Management Incentive Compensation and Shareholder Value. *Journal of Applied Corporate Finance*, *5* (2), 110-130.

Tobin, J. (1958). Liquidity Preference as Behavior Towards Risk. *Review of Economic Studies, 25* (2), 65–86.

Tofallis, C. (2008). Investment Volatility: A Critique of Standard Beta Estimation and a Simple Way Forward. *European Journal of Operational Research 187* (3), 1358-1367.

Vasicek, O. A. (1973). A Note on Using Cross-Sectional Information on Bayesian Estimation of Security Betas. *Journal of Finance* 28 (5), 1233-1239.

Wallace, A. (1980). Is Beta Dead. *Institutional Investor*, *July,* 23-30.

Резиме

Концепт економског профита, садржан у анализи додане вриједности, покушај је правилније анализе пословног успјеха предузећа у смислу контрибуције профита повећању вриједности предузећа и тиме повећању богатства власника. У основи додане вриједности је да се од остварених прихода изузму сви трошкови ангажовања капитала, дакле и трошак главнице, јер и властити капитал има своју цијену. Шта више, ријеч је о најскупљем капиталу повезаном с највећим ризиком остваривања приноса. За бољу илустрацију овог концепта сачињена је анализа најпрофитабилнијих друштава у БиХ која се котирају на бањалучкој и сарајевској берзи. Анализа је показала како већина тих друштава послује превише сиромашно јер не задовољава имплицитни трошак капитала, тако да суштински губи вриједност коју су им повјерили њихови власници, сопственици њихових акција. Исто тако, ова анализа је проблематизовала значај оних ђелатности које се уобичајено сматрају најважнијима за босанскохерцеговачку привреду.

Кључне ријечи: рачуноводствени профит, нормални профит, економски профит, трошак капитал, додана вриједност.