



USE OF BENEISH MODEL ON SERBIAN SUPER LEAGUE FOOTBALL CLUBS

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Abstract:

The objective of financial reporting is primarily to protect the interests of investors and creditors by disclosing objective and fair information. The importance of financial reporting quality has increased significantly as a result of various accounting manipulations and numerous corporate scandals. Financial scandals stressed the limitation of the audit in the process of fraud detection, and hence the necessity of forensic accounting. The financial statements are the source of information used in the analysis of companies' business performance. Research sample consists of 13 Super League sport clubs in the Republic of Serbia, and the aim is to check if they manipulate with their earnings. The results show that significant number of clubs disclose some misstatements in the financial reports.

Keywords:

financial analysis, financial statements, sport clubs, Beneish M-score model

INTRODUCTION

Beneish (1999) pointed out that earnings manipulations have taken considerable attention of analysts, regulators and researchers. According to this author, manipulation of earnings is the most commonly used method of creative accounting or misuse in application of accounting standards (IFRS/GAAP). The goal of manipulation of profit is a false presentation of the company's financial statements, which misleads the users of financial statements, since they do not reflect the real situation of the business. In addition to the items of revenues and expenses that are most often subject of manipulation in financial statements, Beneish also observed certain items of property, as well as, sales growth as possible areas that are subject to manipulation (Bhavani & Amponsah, 2017). Using the COMPUSTAT database, on a sample of 74 companies, Beneish found that the most common manipulations in the financial statements are the result of incorrect capitalization of purchase costs, as well as, the disclosure of fictitious revenues. Moreover, it was proven that new and developing companies are more exposed to manipulations than companies operating for many years (Rajković, 2016). Based on the research, Beneish created the mathematical formula and defined several indicators that can be calculated using the data from the financial statements, in order to identify possible financial fraud or the tendency reflect the better earning capacity of the company (Repousis, 2016). Beneish model has found its wide application in detection of earnings manipulations in various industries, and we found it suitable to be applied in specific area of sports industry, such as football clubs.

The research has been divided into three sections. First, literature review regarding Beneish model and its implementation. This is followed by research methodology and presentation and discussion of results.

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LITERATURE REVIEW

In this section the most contemporary research regarding Beneish model is presented. Since 2014 there are many different applications of this model. One of its applications refers to banking industry and stock exchange. One research found that there are many earnings management techniques applied at Iraqi banks listed at stock exchange and they consider that audit can increase quality of financial statements (Talab, Hammood, & Ali, 2017).

Herawati (2015) found that Beneish model was able to detect financial fraud and the sample was taken from the Database of Sanctions of Issuer Cases Public Companies that was released by the Financial Services Authority in the period of 2001-2014. This researcher found that Gross margin index, depreciation index, index of sales and general administrative index were quite inadequate, and their behavior raised suspicions in this research.

Beneish model has also been used to predict cross sectional returns (Beneish, Lee, & Nichols, 2012). According to this group of authors, the predictive power of M-score is related to its ability to forecast the persistence of current-year accruals, and is most pronounced among low-accrual (ostensibly high earnings-quality) stocks.

Spyridon Repousis (2016) has analyzed 25,468 Greece companies over two years' period (2011-2012). According to the results, 33% of the whole sample (8,486 companies) has a greater than - 2.2 Beneish M-score, which can be a signal that those companies have positions in the financial statements that may indicate manipulation.

Özcan (2018) applied Beneish model on 174 Turkish companies, and found that Beneish model aids effectively in falsified financial statements analysis.

Ganga and Amoinsah (2017) applied both models, M-score and Z-score, for detection of accounting fraud in published financial statements of Toshiba company. According to the results, Beneish model was not able to detect any manipulations in statements, unlike Altman Z-score model that provided some indication that financial statements had misstatements.

METHODOLOGY

The Beneish model consists of eight variables that may indicate inadequate accounting treatment and manipulation of earnings (DSR, AKI, DEPI, and TATA) or may indicate potential manipulation of earnings (GMI, SGI, SGAI, LEVI) (Lotfi & Chadegani, 2017).

The paper presents the methodology of this model through 5 variables on the sample of the sports clubs of the Super League, including the following indicators (Kokić, 2018):

1. **Days' Sales in Receivables Index**- shows how many days it takes to collect the receivables, or how much the share of average receivables arising from sales in net sales revenues is. If the value of customer receivables is significantly higher in the current year compared to the previous year, Beneish believes that this value can serve as a red flag that revenues and profits are overestimated or that their manipulations have occurred (Mirković, 2014), (Özcan, 2018).
2. **Gross Margin Index** - this index is obtained as the difference between the sales revenue and the variable costs (costs of goods sold) from current year in relation to the previous year. If the current gross profit index is more than one in relation to the previous year, in that case the index value has deteriorated. Consequently, with companies with lower profitability, there is a greater likelihood of manipulation of earnings.
3. **Asset Quality Index** - represents the ratio of fixed assets and total assets in two consecutive years. If AQI is greater than one, this means that the company has increased the share of deferred costs, which leads to an increase in the risk of realizing assets and indicates an increased tendency to capitalize costs (Shabnam, Zakiah, & Mohd, 2016).
4. **Sales Growth Index** - represents a change in sales revenue in observing a series of time periods. The limitation of this index is that the increase in sales revenue does not represent an adequate indicator of manipulation, but it can indicate that the growing companies have a higher tendency to manipulate in order to maintain the market share (Grove, Clouse, & Greiner, 2017).
5. **Depreciation Index** - represents a change in the depreciation rate in two consecutive years. If the amount of this indicator is greater than one, the stated value may indicate that the company consciously reduced the write-off rate of the property, plant and equipment, increased the useful life of the use of the said assets, thereby contributing to the increase in profit (MacCarthy, 2017).

Each of these indicators can individually indicate the manipulations in the financial statements. The following formula was used for application of the model:

$$M - score = -6,065 + 0,823 DSRI + 0,906 GMI + 0,593 AQI + 0,717 SGI + 0,107 DEPI \quad (1)$$

If the M-score value is greater than -2.22, there is a high likelihood that the financial statements were manipulated (Petrik, 2016).



Furthermore, the application of the Beneish model on the sample of the sport clubs of the Super League will be illustrated. The survey included 16 clubs of the Super League, of which 3 clubs were excluded due to the lack of data. Football clubs excluded from the sample are: Mladost, OFK Bačka and Javor (Fudbalski savez Srbije, 2017). Financial statements for the sample clubs have been obtained from the official web site of Serbian Business Registry Agency for the following reporting periods: 2009 – 2016.

RESEARCH RESULTS

In the following table the results of calculated M-score are presented.

If we analyze the results for the period from 2009 to 2016, we can notice that 4 out of 13 sport clubs have median higher than the standard M-score value of -2.22.

Based on the applied Beneish model, we can assume that 31% of football clubs of the Super League manipulate with their earnings disclosed in the financial statements.

Table 1. Beneish M-score model for the sampled sport clubs for the period from 2009 to 2016

Football clubs	Median of Beneish M-score	2009	2010	2011	2012	2013	2014	2015	2016
RAD	-3,154161485	-	-1,045173	-3,400645	-3,227732	10,923839	-3,0805909	-3,4438916	-
Crvena Zvezda	-4,034943507	-	0	0	0	-4,034944	-	0	0
Partizan	-2,159250917	-	-1,555283	-1,329963	-2,763219	-3,897365	0	-	-
Vojvodina	-2,417346722	-	-2,168798	-2,417347	-3,151321	-3,43694	-1,5427439	-	-
Čukarički	-3,218780814	-	-3,218781	-	-	-	0	0	-
Zemun	32,89382246	-	32,893822	0	0	0	-	-	-
Spartak - Ždrepcева krv	-2,091919625	-	-1,412138	-2,771701	4,0036768	-4,113498	-	0	0
Borac	-3,080267502	-	-3,965048	0	-	-3,080268	367,203515	-	0
Radnički N.	-	-	0	0	0	-	-	-	-
Radnik	-2,866466427	-	-2,445841	0	-3,287092	-	-	-	-
Mladost	-	-	-	-	-	-	-	-	-
Javor	-3,532350854	-	-	-	0	0	0	-3,5323509	-
Mačva	-3,768284054	-	-3,858635	-	-	-3,677933	-	-	-
Napredak	-2,7521628	-	-1,971975	-	-	-	-	-3,5323509	-
Voždovac	0,226646747	-	1,1940892	-	-	-	-	-	-0,740796
OFK Bačka	-	-	-	-	-	-	-	-	-

Source: (Kokić, 2018)

DISCUSSION

In the following text, we will analyze each variable used in the calculation of M-score model.

Those values may point to the problematic areas in the business of the company or misstatements in the financial reports (Ines, 2017). We will first address the results for football club RAD. The club does not register significant oscillations in the Days' Sales in Receivables Index (DSRI). The exception is 2013, in which customer receivables were

significantly increased in comparison to 2012 by almost 18 times. The problematic years of the Asset Quality Index (AQI) are: 2011, 2013, 2014. In these years the index is higher than 1, which may indicate an increased share of deferred costs. The Sales Growth Index (SGI) had the growth in 2010 and 2012.

For the football club Crvena Zvezda, the most problematic indicator is the ratio of Days' Sales in Receivables Index given that in four periods that indicator has increased. Then, the gross profit index, in which the current account



differential over the previous year is greater than 1, indicates a deterioration in the value of gross profit (Kokić, 2018).

Partizan football club has a problematic value of the Days' Sales in Receivables Index. There is a noticeable growth from year to year, which can indicate an overestimated amount of income and profit of the sport club. Regarding the gross profit index, a significant growth compared to the observed periods occurred in 2014 by more than 13 times. In the period from 2010 to 2013, the asset quality index was higher than 1. The indicated value may indicate a potential red flag that the football club did not perform adequate valuation of assets. The value of the income marked slight growth from year to year. The depreciation index is problematic given that in all observed years the stated value is greater than 1, which can indicate an increase in profit through manipulation with the amount of the depreciation rate and the useful life of the asset.

Sport club Vojvodina, from the observed 5 variables of the Beneish M-score model, does not show problematic values in the following indicators: DSRI, GPI, GMI. However, the asset quality index and the depreciation index exceed the prescribed standard values. The football club Čukarički with GMI, DI, AQI and SGI recorded a significant increase in the value of current indicators in relation to the previous year. Spartak – Ždrepcjeva krv football club has a problem with decreased gross profit, overstated income, inadequate depreciation rate, write off value of fixed assets, and a useful life of the asset. Borac football club's DSRI records significant oscillations in 2014, where the value of this indicator is on average 20 times higher than the value in other years. SGI reflects growth in 2010 and 2013. In other years, this amount is within the limits of standard values. DEPI in 2014 recorded an increase by more than 3 times for the observed periods, which can indicate an increase in profit through manipulation with fixed assets. Mačva football club recorded a significant increase in the ratio of trade receivables from customers in 2012, as the stated value is 39 times higher than the values from other years. Football club Napredak with the indices ratio of DSRI recorded a significant increase in 2010 and 2011, where the value of the indicator is 2 times higher than the value in other years. The depreciation index in 2012 recorded up to 5 times higher growth compared to the other observed years, which can indicate an increase in gain through constant asset manipulation.

From the above presented results we can conclude that there are significant differences between football clubs in terms of DSRI, GMI, DEPI. Their behaviors during this period show great oscillations.

CONCLUSION

The goal of the conducted research is to identify the areas of possible manipulation in the financial statements. Beneish M-score model has been used for the estimation of probability that sampled sport clubs manipulated with their earnings. The model pointed out to the deviations in the disclosure of liquidity, profitability, turnover of business assets, income, write-off of assets and value of net earnings. The consequences of such actions are due to poor quality of financial reporting and application of IFRS and other accounting related legislation in the Republic of Serbia. In order to reduce the number of manipulations, it is necessary to improve the quality of financial reporting, to implement a consistent application of legislation and to improve the quality of audit procedures.

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