THE INTERPRETATION OF FINANCIAL STATEMENTS IN TERMS OF CONTEMPORARY FINANCIAL ANALYSIS

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Abstract: The evolution of financial analysis is accompanied by an extensive use of indicators whose calculation is based on data provided both by entities in their financial statements and by financial markets. The analysis of data and indicators generated by the capital market is considered to be of primary importance when studying the financial position of enterprises. This view is supported by a substantial number of analysts and, although not applicable to all enterprises, it raises a number of questions, two of them being whether the new analytical indicators are replacing the classic indicators of financial statement analysis and whether financial statements have retained their fundamental role as a primary source of data in studying the financial position of enterprises. The objective of this paper is to answer these questions by approaching the interpretation of financial statements within the context of some unorthodox views about the evolution of financial analysis.

Key words: capital market; analytical models; economic value added; interpretation of financial statements.

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Introduction

Financial analysis is an essential instrument for assessing the financial position of enterprises. The findings of financial analysis are primarily used by internal and external economic agents for making managerial, investing and other decisions. The key areas of financial analysis include revenue; business performance; inventory and capital

structure; liquidity; indebtedness; turnover; profitability; and cash flow from operating and financing activities and from investing operations.

To study these areas, the data provided in the financial statements is made subject to comparative, structural, and factor analysis[1]. We should note, though, that the data presented in the financial statements might be insufficient when an in-depth factor analysis is required. As C. Walsh points out, the ratio between earnings before interests and taxes and revenue from sales does not take into account the factor effects of such major variables as selling prices and the product mix[2]. The study of these values requires further inside information and the application of advanced dependencies to conduct a deterministic factor analysis[3].

Financial statements are a primary source of data for studying the financial position of enterprises. In addition to the interpretation of financial statements, financial analysis also involves an extensive factor analysis which requires wider data base. The full potential of contemporary financial analysis, however, could only be deployed provided that analysts have access to both inside and outside data resources, i.e. data obtained from financial statements and from capital markets.

When studying the evolution of financial analysis, it is possible to identify two models of assessing the financial position of enterprises – the accounting analytical model and the financial analytical model[4]. The major differences between them are in terms of the indicators and data sources they employ. The accounting analytical model employs absolute and relative indicators whose computation is based on the information provided in financial statements, whereas the financial analytical model employs indicators whose computation also requires data obtained from capital markets.

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[1] See: **Mihaylov,** M., Mitov, K., Koleva, R. Analiz na industrialniya biznes. V. Tarnovo, Faber, 2013. p. 180.
[2] See: **Walsh,** C. Klyuchovite koefitsienti v menidzhmanta (In English: Key Management Ratios). Sofia, InfoDAR, 2008, p. 96.
[3] See further: **Mihaylov,** M., Mitov, K., Koleva, R. Op. cit., p. 196-223.
[4] See: **Kasarova,** V. Nov prochit na finansoviya analiz ot pozitsiite na stoynostta (scientific manuscript deposited at the Central Research and Technical Library No.169/2008). p. 17. Accessible at: <http://www.eprints.nbu.bg/513/1/ANALIZ_DVA_MODELA.pdf> [Last access: 14th May 2016].

Thus, for example, in the accounting analytical model for studying business performance, earnings are employed in a number of indicators, while the financial analytical model more frequently relies on the economic value added (EVA). Another essential value is that of the weighted average cost of capital (WACC) which is computed based on the cost of owners' funds and long-term and short-term debt.[5] We should point out that while it is relatively easy to determine the cost of long-term and short-term debt, establishing the cost of owners' funds is a more difficult task. Two groups of reasons might be identified behind this difficulty:

– underdeveloped capital markets, i.e. a large number of enterprises which are not listed on the stock exchange and non-joint stock companies;

– the subjective nature of determining the cost of owners' funds– a variety of approaches might be employed and the choice of a specific approach is subject to the discretion of analysts[6].

Another shortcoming is the fact that in some cases data obtained from capital markets may significantly lag behind the current financial position of enterprises. Warren Buffett designed his investment strategy by employing the lag in the information provided from financial markets as a major source to maximize earnings. Buffet's investment decisions are primarily based on an in-depth analysis of financial statements. Buffett's investment decisions are primarily based on an in-depth analysis of financial statements. This analysis involves identifying enterprises with a durable competitive advantage in terms of growing earnings and a subsequent increase in the economic value of the business. Although there might be some delay in the acknowledgment of that growth by the stock exchange, when this happens, the objective of the investment strategy[7] is accomplished. The success of Buffett's strategy proves that it is possible to

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[5] See: **Kasarova,** V. Novite metriki na korporativniya finansov uspeh. Sofia, Evdemoneya Prodakshan EOOD, 2013, p. 24-33.

[6] See: **Todorov,** L. Savremenni modeli za otsenka na biznesa. Sofia, Nova zvezda, 2014, p. 84, 115 – 139.

[7] See: **Buffett,** M., Clark, D. Warren Buffet i analiza na finansovi otcheti (In English: Warren Buffett and the Interpretation of Financial Statements). Sofia, Iztok-Zapad, 2011, p. 173.

identify an existing durable competitive advantage through the interpretation of financial statements.

The accounting analytical model is primarily focused on past performance, whereas the financial analytical model deals with the future; it would therefore be appropriate to approach them as complementary models rather than as conflicting ones. We should emphasize that it is possible to predict the future performance of a particular enterprise by applying the accounting analytical model and Buffett is not the only investor who has based his strategy on the interpretation of financial statements. The proponents of this analytical model believe that 'fundamental accounting research is the most appropriate method of interpreting'[8] financial statements. The opposite view is supported by analysts who are primarily concerned with fluctuations in the prices of common shares, i.e. those who base their investment decisions on a single indicator – the market price per share.

Despite the possibility to make sound decisions based on the interpretation of financial statements (including the design of a successful investment strategy), this source of information has its shortcomings, too. A balance sheet is a snapshot of the financial position of an enterprise at a particular moment and the information presented in financial statements (including the data about earnings) may be manipulated. Certain approaches make it possible to mitigate or eliminate the impact of those shortcomings upon the findings and assessments made through the interpretation of financial statements. Depending on the objectives of the analysis conducted, it might be appropriate to interpret several consecutive financial statements to gain better awareness about the financial position of a specific enterprise. It would thus possible to deal with the issue of the 'snapshot' nature of the balance sheet, while the employment of integral indicators would help minimise the impact of misrepresentations in financial statements.

An integral indicator provides a summary of the data presented through several financial indicators. A specific integral indicator may be employed to make a complex assessment of the financial position of an

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[8] See: **Trifonov,** Tr., Trifonova, V., Trifonova, S. Korporativni finansi. Sofia, Trakia – M, 1999, p. 265.

enterprise, while each individual indicator may be approached as an independent one. One of the most popular integral indicators is computed through the Z-score model designed by Prof. Edward Altman in 1968 and revised by Prof. Steven Skiena's team in 2004. The model is employed when studying the financial position of enterprises to predict the risk of a bankruptcy within a three-year period. Although the Z-score model has not been designed for the economic environment in Bulgaria, it can reliably determine the odds of a bankruptcy with 80 % accuracy and gives sufficiently good awareness about the financial position of enterprises and the financial risk assumed[9].

The Z score model for assessing financial risk in public enterprises uses the formula:

$$Z = X_1 \times 1.2 + X_2 \times 1.4 + X_3 \times 3.33 + X_4 \times 0.6 + X_5 ,$$

Where:

X_1 is the ratio between the net working capital[10] and total assets (a liquidity indicator);

X_2 is the ratio between retained earnings and total assets (a self-financing indicator);

X_3 is the ratio between earnings before interest and taxes and total assets (a profitability indicator);

X_4 is the ratio between the market value[11] and debts (an indebtedness indicator);

X_5 is the ratio between revenue from sales and total assets (a turnover indicator).

When the value of the integral indicator is Z < 0.91, the enterprise is likely to go bankrupt within two or three years. A value of Z > 2.07 indicates good financial health. In terms of the 'Z model', there are several major aspects which we should focus on:

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[9] **Todorov,** L. Op. cit., p. 200 – 208.

[10] The net working capital is the difference between current assets and current liabilities.

[11] The market value (market capitalization) of an enterprise is the product of the number of issued shares and the market price per share.

– The fact that the model has been updated nearly forty years after it was first designed proves that it may be utilised in modern financial analysis;

– The model allows predicting the future financial position of a specific enterprise;

– Computing the value of the integral indicator Z requires mainly data provided in financial statements; data obtained from financial markets is solely used to compute the X_4 ratio which has the lowest weight.

Since each indicator has its advantages and shortcomings, we believe that it would be more appropriate for external analysts to apply an approach combining three groups of indicators when examining the financial position of a public enterprise:

- Ratios based on the data presented in financial statements, i.e. the liquidity, self-financing, profitability, indebtedness and turnover ratios;

- Straightforward ratios obtained from the capital market, i.e. market capitalization, market price per share, etc.;

- Ratios whose computation relies on data provided in financial statements and by capital markets, including the index of economic value added; the economic added rate of return on invested capital; the Z-score indicator; the market value added ratio; the standardized market value added ratio, etc.

The advantage of a similar combined approach lies in the opportunity it provides to study the financial position of enterprises from several different perspectives. In this case, each indicator complements or confirms the data provided through the other ratios and thus contributes to a more detailed insight as to market assessment and the performance of an enterprise over a particular period.

The application of the combined approach is illustrated with data about Monbat PLC, Table 1 presenting the input data[12] and Table 2 presenting output data.

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[12] The following sources have been accessed to collect input data:
– the financial statements of Monbat PLC: http://www.bse-sofia.bg/?page=DownloadExtriFiles&EXTRI_ID=70201&lang=bg&year=2012&period=Q5; http://www.bse-sofia.bg/?page=DownloadExtriFiles&EXTRI_ID=79672&lang=bg&year=2013&period=Q5;

Table1
Input data in establishing the financial position of Monbat PLC

No.	Indicators	2011	2012	2013	2014	2015
1.	Owners' funds (in BGN thousands)	120,086	120,321	141,184	145,994	158,598
2.	Long-term loans (in BGN thousands)	12 ,677	9,663	6,649	33,819	9,198
3.	Short-term loans (in BGN thousands)	28 ,207	26,652	20,138	8,680	25,214
4.	Current assets (in BGN thousands)	57,224	60,656	80,493	93,153	100,767
5.	Amounts payable which are due within 1 year (in BGN thousands)	44,811	49,185	37,221	20,493	46,599
6.	Total assets (in BGN thousands)	180,392	184,462	189,451	203,559	218,927
7.	Liabilities (in BGN thousands)	60,306	64,141	48,267	57,565	60,329
8.	Revenue from sales (in BGN thousands)	194,931	183,299	245,363	247,091	293,552
9.	Retained earnings (in BGN thousands)	120,286	120,321	21,754	13,780	26,384
10.	Earnings before interest and taxes (in BGN thousands)	7,227	7,463	23,609	14,171	19,870
11.	Net earnings (in BGN thousands)	6,250	9,051	21,754	13,780	18,454
12.	Unlevered β	1.2	1.29	1.01	1.07	0.95
13.	Market risk premium (%)	8.63	8.43	7.85	8.6	8.84
14.	Risk-free rate of return (%)	519	3.85	3.52	3.37	2.5
15.	Cost of long-term loans (%)	9.7	8.82	7.57	6.52	6.52
16.	Cost of short-term loans (%)	7.2	6.84	7.03	5.96	5.35
17.	Corporate tax rate (%)	10	10	10	10	10
18.	Market capitalisation (in BGN thousands)	**210,951**	**182,793**	**263,055**	**333,450**	**311,922**
19.	Market price per share (in BGN)	**5.409**	**4.687**	**6.745**	**8.55**	**7.998**

http://www.bse-sofia.bg/?page=DownloadExtriFiles&EXTRI_ID=97842&lang=bg&year=2015&period=Q5;
    – Unlevered β in the branch of the researched company in the USA (Electrical equipment) and market risk premium (including a premium for developed (American) capital market and a premium for country risk in Bulgaria):
http://www.pages.stern.nyu.edu/~adamodar/;
    – Risk-free rate of return (average annual value of ten-year government securities):
http://www.pls.bnb.bg/bnb/dd/Yield_on_GSecurities_NEW.nsf/fsWebIndexBG;
    – Cost of long-term loans (the average interest rate on loans due within 1 to 5 years for sector 'Non-financial corporations') and cost of short-term loans (the average interest rate on loans due within 1 year for sector 'Non-financial corporations'):
http://pls.bnb.bg/bnb/dd/IR_NBO_LOAN_NEW.nsf/fsWebIndexBG;
    – Market capitalization and market price per share:
http://www.bse-sofia.bg/?page=QuotesInfo&target=MarketInformation&code=5MB&compnum=116;
http://www.investor.bg/views/company/1212/2016-06-24/3/3/.

Table 2
Output data in establishing the financial position of Monbat PLC

No.	Indicators	2011	2012	2013	2014	2015
20.	Invested capital (in BGN thousands) **p.1+p.2+p.3**	160,970	156,636	167,971	188,493	193,010
21.	Share of own capital in invested capital (%) **p.1 / p.20 x 100**	74.60	76.81	84.05	77.46	82.17
22.	Share of long-term loans in invested capital (%) **p.2 / p.20 x 100**	7.88	6.17	3.96	17.94	4.77
23.	Share of short-term loans in invested capital (%) **p.3 / p.20 x100**	17.52	17.02	11.99	4.60	13.06
24.	Share of loans in own capital **(p.2+p.3) / p.1**	0.34	0.30	0.19	0.29	0.22
25.	Levered β **p.12 x (1+(1 − p.17 / 100) x p.24)**	1.57	1.64	1.18	1.35	1.14
26.	Cost of own capital (%) **p.14 + p.25 x p.1**	18.72	17.68	12.80	14.98	12.54
27.	Weighted average cost of capital (%) **p.21 x p.26 + p.22 x p.15 x (1 − p.17 / 100) + p.23 x p.16 x (1 − p.17 / 100)**	**15.79**	**15.12**	**11.79**	**12.90**	**11.21**
28.	Net operating profit after taxes (in BGN thousands) **p.10 x (1 − p.17 / 100)**	6,504.3	6,716.7	21,248.1	12,753.9	17,883
29.	Profitability of invested capital (%) **p.28 / p.20 x 100**	**4.04**	**4.29**	**12.65**	**6.77**	**9.27**
30.	Economic value added (in BGN thousands) **(p.29 − p.27) x p.20**	**-18,909.3**	**-16,962.2**	**1,446.096**	**-11,570.2**	**-3,755.73**
31.	Economic added rate of return on invested capital (%) **p.30 / p.20 x 100**	**-11.75**	**-10.83**	**0.86**	**-6.14**	**-1.95**
32.	X_1 net working capital/total assets **(p.4 − p.5) / p.6**	0.07	0.06	0.23	0.36	0.25
33.	X_2 retained earnings/total assets **p.9 / p.6**	0,67	0,65	0.11	0.07	0.12
34.	X_3 earnings before interest and taxes/total assets **p.10 / p.6**	0.04	0.04	0.12	0.07	0.09

35.	X_4 market capitalisation/total liabilities **p.18 / p.7**	3.50	2.85	5.45	5.79	5.17
36.	X_5 revenue from sales/ total assets **p.8 / p.6**	1.08	0.99	1.30	1.21	1.34
37.	Indicator **Z** **p.32 x 1,2 + p.33 x 1,4 + p.34 x 3,33+ p.35 x0,6 + p.36**	**4.33**	**3.83**	**5.41**	**5.44**	**5.21**
38.	Market value added *p.18. – p.1*	90, 865	62,472	121,871	187,456	153,324
39.	Standardised market value added **(p.38 t – p.38 t-1) / p.1 t-1 x 100**	**-**	**-23.64**	**49.37**	**46.45**	**-23.38**

After computing the analytical ratios, we could identify the following major aspects in the financial position of Monbat PLC:

– Over the analysed period, the financial position of the enterprise was good (Z > 2.07). The difference between the values of the Z score in 2013 and 2014 was minimum (0.03 points). The financial risk was the lowest in 2014 when the highest value of the integral Z score was reported;

– Monbat PLC has the highest market assessment in 2014 (the market capitalization of the enterprise reached BGN 333,450,000), the market price per share being BGN 8.55 at the end of the year. If the analysis had taken into consideration only the index market price per share (as proposed by the advocates of the financial analytical model), then the year 2014 would have been determined as the most successful one over the period, which would be wrong;

– Over the analysed period, Monbat PLC had negative economic value added, except for the year 2013 (BGN 1,446,000.096). The negative value added over four years of the researched period indicates that the company was not able to ensure the rate of return on capital which shareholders had expected (the weighted average cost of capital). The economic added rate of return on invested capital was a positive value only in 2013. In that year, the return on invested capital exceeded the weighted average cost of capital (12.65% > 11.79%) by 0.86%. Hence, 2013 was the most successful year over the researched period, whereas the highest price per share recorded in 2014 was a delayed positive assessment of a past reporting period;

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– The conclusion made above is not based on the ratios of economic value added or economic added rate of return on invested capital only. In 2013, the values of a number of absolute and relative ratios exceeded those reported in 2014, including the values of net earnings, the X_3 ratio, and the standardized market value added, all of them being computed based on data presented in the financial statements of the company.

Conclusion

Based on our analysis of the findings of the combined approach, we could draw the following conclusions:

First, financial statements interpretation is a major component of the system of contemporary financial analysis. It may be approached as a relatively independent component since the interpretation of financial statements makes it possible to obtain the data required for sound decision-making.

Second, the choice of an appropriate set of methods (a system of analytical indicators, factor systems and technology models) is crucial to the ultimate findings of the analysis.

Third, the evolution of financial analysis and the increasing awareness about new analytical indicators should not be given priority since these indicators still have their shortcomings, including the subjective nature of their computation.

Fourth, the data obtained from the capital market might prove to be a delayed consequence of a major economic situation observed earlier, and thus the most appropriate moment for making related decisions might be past, too (the reverse situation is also possible).

The summary of our research gives us grounds to claim that despite the evolution of financial analysis, no universal single or integral indicator has been designed so far to comprehensively describe the financial position of a particular enterprise. It would therefore be more appropriate to employ a balanced combination of the classic indicators when interpreting financial statements, whose computation also requires

data obtained from capital markets. A similar analytical approach, however, should not underestimate the importance of financial statements due to the other sources of data available. Hence, the major issue to be considered is what would be the *optimum combination of indicators* that would describe the financial position of enterprises both in terms of their economic situation and their market valuation.

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