

ASSOCIATION BETWEEN VALUES OF THE INDEX IN 99 AND THE EVA INDICATOR

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Abstract

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The modern indicators of the performance of business entity are based on an economic conception of profit. It means that alternative costs and risks are taken into account in construction of these indicators. Moreover, the modern indicators would also enable to clearly and digestedly identify the links on each level of management, and therefore to support the value-based management. The one of these modern indicators is Economic Value Added. This indicator has been introduced by Stewart Stern & Co. in the early nineties. As some Czech authors state (e.g. Synek, 2007), domestic alternative of the EVA indicator are the IN indexes which has been developing since the middle of the nineties as overall indexes of company's financial health especially because the indexes coming from abroad had not a good differentiation ability with regard to specifics of the Czech economic environment.

The objective of this article is to define the relations between the values of EVA indicator and the values of the index IN 99 while the analysis is focused on agricultural companies of mixed farming. The authors base their work on differences in constructions of these two indicators and on differences in interpretations of their results. Primarily, basic correlation of values of these indicators has been observed. The calculation of Pearson correlation coefficient has been applied on the set of fifty business entities, and the calculated result of 0.669 shows relatively stronger linear dependence. Consequent test has verified a statistical significance of this dependence. Then in this article, the authors are focused on causations of this dependence which is rather strong in spite of a different logic of these two indicators. Other consequences of overall view on company's economic performance are discussed in the article as well.

economic value added, financial position and performance, index IN, modern measures of company's performance

According to Synek (2007) indexes IN are a domestic variant of the economic value added measure. But fundamentals of these indexes and of economic value added are different even if to find the similarities in results interpretations is possible. Such similarities are connected especially with the findings about creation of shareholders value.

IN indexes which authors are Neumaier have been created as an alternative to Altman Z-score. The purpose of the Z-score is to predict financial pressure of a company that operates on relatively effective American market where it is possible to find quite a lot adjudged bankruptcies of companies. In the opposite, the situation in the Czech environ-

ment is substantially different in this sense. Different is not only a basement of the bankrupt law but also a willingness of courts to adjudged indebted company bankrupt. In total, the Czech environment is quite "softer", and this way the environment enables to operate the companies which would become bankrupt in effective economic environment. Moreover, the problem of the Z-score application in the Czech environment consists also in substantial differences between the Anglo-Saxon accounting system where the US GAAP belong to, and the Czech accounting standards (Kotěšovcová, 2004). It comes out from the reasons above that application of the Z-score is not proper for evaluation of fi-

financial pressure of Czech companies. In this consequence, indexes IN have been originated while the modification IN 99 is probably the most known. Nevertheless, Neumaier (2010), one of the IN's authors, evaluates the informative efficiency of the index IN 99 rather sceptically. Also other authors (e.g. Sedláček, 2009; Synek, 2007) argue about results of the index; Sedláček (2009) evaluates the informative efficiency of IN 99 for 85 percent, in the opposite, Synek (2007) considers this index as the most historical and at using concurrent data, he predicates that informative efficiency of the index is less than 50 percent. In independent studies, this index has been evaluated mostly as an average as well.

Economic value added (EVA) belongs to the group of so called modern indicators of a company's performance. These modern indicators are not based on the concept of accounting profit but they rely on the concept of economic profit. By one of its authors (Stewart, 1991), economic value added is defined as operating profits less the cost of all capital employed to produce those earnings. As well as the above mentioned Altman Z-score, also the EVA indicator has been introduced in the economic environment of the United States¹. It means that its calculations demands a range of adjustments of incoming variables if the economic value added is calculated based on the data reported in financial statement prepared under the Czech accounting law².

METHODS AND RESOURCES

Index IN 99 belongs to the group of credibility models. Then, interpretation of its results is aimed at a statement whether a company creates value for shareholders or not. Interpretation of economic value added results leads to the same conclusions. Even if those two economic indicators are based on different concepts and calculate with different input variables, there exists a relatively strong and statistically significant correlation between their values. This dependence has been proved at investigating the sample of fifty agricultural companies operating in the Region of Zlín.

The objective of this article is to define the relations between values of the index IN 99 and values of the EVA measure. In the article, the authors analyze not only consequences between IN 99 and EVA values but they analyze the interrelations of partial input variables as well. Basic logic methods employed are then especially analysis and synthesis while relevant statistic methods are employed at the same time. These are mostly the methods of analysis of dependence, especially the correlation analysis. The investigated measures are decomposed into their partial components while interrelations of these partials are determined. The results are based on the statistic sample of fifty agricultural compa-

nies where 23 characteristics have been observed, economic value added and index IN 99 included.

RESULTS AND DISCUSSION

At searching for the resources of correlation between the values of index IN 99 and economic value added it is necessary to decompose these measures into the fundamentals. Then influences of these fundamentals within the single value of the measure have to be determined.

Components of the Index IN 99

IN indexes have been assumed quite well in the theory as well as in practice. These indexes have been constructed on the same principle as the other bankrupt and credibility models (Neumaierová & Neumaier, 2008). Then, the index IN 99 belongs to the group of credibility models, i.e. it evaluates whether a company creates the value for shareholder or not, like the economic value added does.

Index IN 99 has been constructed as one of the complex methodologies, based on twenty four statistic models of rating and experience from practice of financial health of company evaluation. This index is used at evaluating company's performance from the viewpoint of shareholders (Pavelková & Knápková, 2009).

The weights of single element of index IN 99 has been determined as the results of the Discriminant analysis. The formula of IN 99 calculation is as follows:

$$IN99 = -0,017 \times \frac{Assets}{Debts} + 4,573 \times \frac{EBIT}{Assets} + \\ + 0,481 \times \frac{Revenues}{Assets} + 0,015 \times CR,$$

where:

EBIT.....represents earnings before interest and tax,
CR.....represents current ratio (current assets to short-term liabilities).

The most authors (e.g. Růčková, 2010; Sedláček, 2009; Pavelková & Knápková, 2009; Kislingerová, 2007) agree the interval of values of this index. One of the key values here is 0.684; if the value of index is lower than a company realizes economic loss. The second key value is 2.07 and if the value of IN 99 is higher than a company creates economic profit. In case the index takes value between 0.684 and 2.07, it is not possible to decide clearly because this interval is "a grey zone" which can indicate some financial problems. It means that values of the index IN 99 are divided into three intervals here. But some authors (e.g. Sedláček, 2009) use five intervals as they are shown at the Tab. I.

1 Stewart Stern & Co, beginning of the nineties of the 20th century.

2 See Beranová, Basovníčková & Martinovičová, 2010.

I: *Classification of Companies according to Index IN 99*

Value of IN 99	Classification
$2.070 < \text{IN}$	Company creates economic profit
$1.420 \leq \text{IN} \leq 2.070$	Company probably creates economic profit but situation is not quite clear
$1.089 \leq \text{IN} \leq 1.420$	Indecisive situation
$0.684 \leq \text{IN} \leq 1.089$	Company probably does not create economic profit
$\text{IN} < 0.684$	Company realizes economic loss

Source: Sedláček, 2009; p. 112

Index IN 99 is then composed of four partial components while two of these components characterize company's ability to create profit, one make a characteristic of company's indebtedness and creditors' risk, and the last component represents the liquidity of a company.

The indicator of EBIT to assets, i.e. return on assets (ROA) expresses so called production power of a company that is the company's ability to create profit before taxation and interest costs (Neumaierová & Neumaier, 2008). On the ROA measure, the pyramid system of financial indicators INFA (see Neumaier & Neumaierová, 2002) is based. This system of financial indicators decomposes the measure of production power into three directions, respectively it evaluates the production power of a company in three areas which are:

- Creation of the production power.
- Division of the production power among shareholders, creditors and government.
- Liquidity.

The same three areas are included in the IN 99 index.

An idea that the production power measure is the major factor of a total value of IN 99 index is supported and proved by the result of correlation analysis of the IN 99 and ROA values. Calculated correlation coefficient has the value of 0.8834 which represents stronger linear dependence that has been tested for statistical significance. At using the F-test at the 0.05 level of significance, this correlation has been proved as statistically significant.

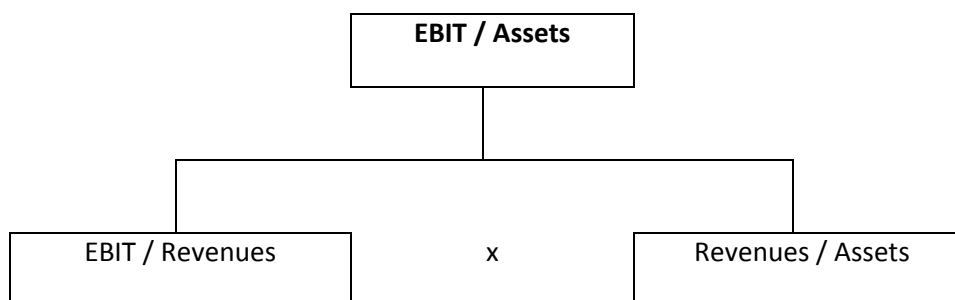
Other part of the index IN 99 represented by revenues to assets is also connected with the production power of company, respectively with the creation of production power because this measure may be,

and within the system of financial indicators INFA it is the sub-component of the above mentioned return on assets (see Fig. 1). This way, it is possible to hypothesize that values of these two measures would be positively correlated.

As well as for the production power measure, the correlation between values of the index IN 99 and revenues to assets indicator has been measured. Here, the correlation coefficient has the value of 0.6422 that is a middle level of linear dependence which has been proved as statistically significant at application of the F-test at the 0.05 level of significance.

Whereas the measures of EBIT to assets and Revenues to assets have the highest weights at the index IN 99 calculation, it would be subsequently logic that these two indicators have probably the highest influence on total value of the IN 99 index. The hypothesis about the dependence of value of these two variables has not been proved positively. Correlation coefficient here has only the value of 0.1935. In spite of existing dependence, the association between the values is very weak, and at application of the F-test, it has not been proved as statistically significant at the 0.05 level of significance. On the other hand, in some of the companies observed, these two components represent even more than 90 percent of the total value of IN 99 index. In average, in the investigated statistic sample of fifty agricultural companies, these two components take 76.6 percent of the total value of IN 99 index.

The measure of Assets to debts represents the division of the production power of a company (Neumaierová & Neumaier, 2008). In principal, this variable shows a level of debts coverage with the assets of a company. As the weight of this indicator is negative

1: *Decomposition of the production power (ROA)*

(-0.017), it means that this component is deducted at calculating the IN 99. Basically, from the mathematical logic, the higher debts, the higher result value of the index is, respectively, lower indebtedness of the company makes the value of IN 99 index lower. Then it is possible to state that the “minus” here would have logical higher relevance in case of use of reciprocal, i.e. Debts to Assets measure that is the indicator of creditors’ risk. Nevertheless, the subject of this paper is not a construction of the index IN 99, but the paper is focused on the determination of resources of dependence between values of the index IN 99 and values of the EVA measure. With regard to this objective, the Assets to Debts measure is a representative of the capital structure.

The last component of the index IN 99 is the current ratio (current assets to current liabilities) that has the weight of 0.015 resulted from the Discriminant analysis applied at the index construction.

Decomposition of the Economic Value Added

Currently, several approaches to economic value added calculation exist also in the Czech Republic; e.g. Landa (2008) cites two methods. The first one is the indicator introduced as EVA Equity which is calculated based on the formula as follows (Neumaierová & Neumaier, 2002):

$$EVA = NOPAT - C \times WACC,$$

or also

$$EVA = NOPAT - NOA \times WACC,$$

where:

NOPAT represents net operating profit after taxation,

C..... represents the capital bound in assets used for operating activities of a company,

NOA represents net operating assets which are an equivalent of the capital it means that these are the assets employed in operating activities,

WACC .are the weighted average cost of capital that covers the total capital employed, i.e. the equity and creditors’ capital.

At the same time it is also the original of historical methodology of the EVA calculation. Other variant is called as EVA Equity while it is an alternative calculation in accordance with the methodology of the Ministry of Industry and Trade of Czech Republic. This methodology is based on a prerequisite that in circumstances of the Czech Republic it is not necessary to transform the financial statements prepared under the Czech accounting law into the economic statements. This approach might be seen as more favourable but this “advantage” is compensated with a quite more difficult calculation of a range of input variables. Then Mařík & Maříková (2005) supply the third method of EVA APV which calculates with the value of a company as with a sum of two items; with the value of a company at zero indebtedness and the present value of future tax savings. From this sum

the value of interest-bearing capital and the value of non-operating assets are deducted.

One of the possible decomposition of economic value added is its mapping in three basic areas, illustrated at Fig. 2, which are:

- Operating activities represented with the net operating profit after taxation (NOPAT), i.e. the difference between operational revenues and operational cost, income tax included;
- Financial activities represented with the weighted average cost of capital (WACC) that reflects the capital structure of a company and also the risk of a company;
- Investment activities represented with the value of invested capital, i.e. not only fixed assets but also the working capital (Remeš, 2009).

The variables influencing the EVA measure’s value are visible from the economic value added decomposition above. Firstly, there comes up the profit from operating activities, the difference between operational revenues and operational costs after taxation. From the viewpoint of dependence between economic value added and the net operating profit, it goes about middle level of linear correlation while the correlation coefficient is of the 0.6308. At the 0.05 significance level, this correlation has been proved by the F-test as statistically significant.

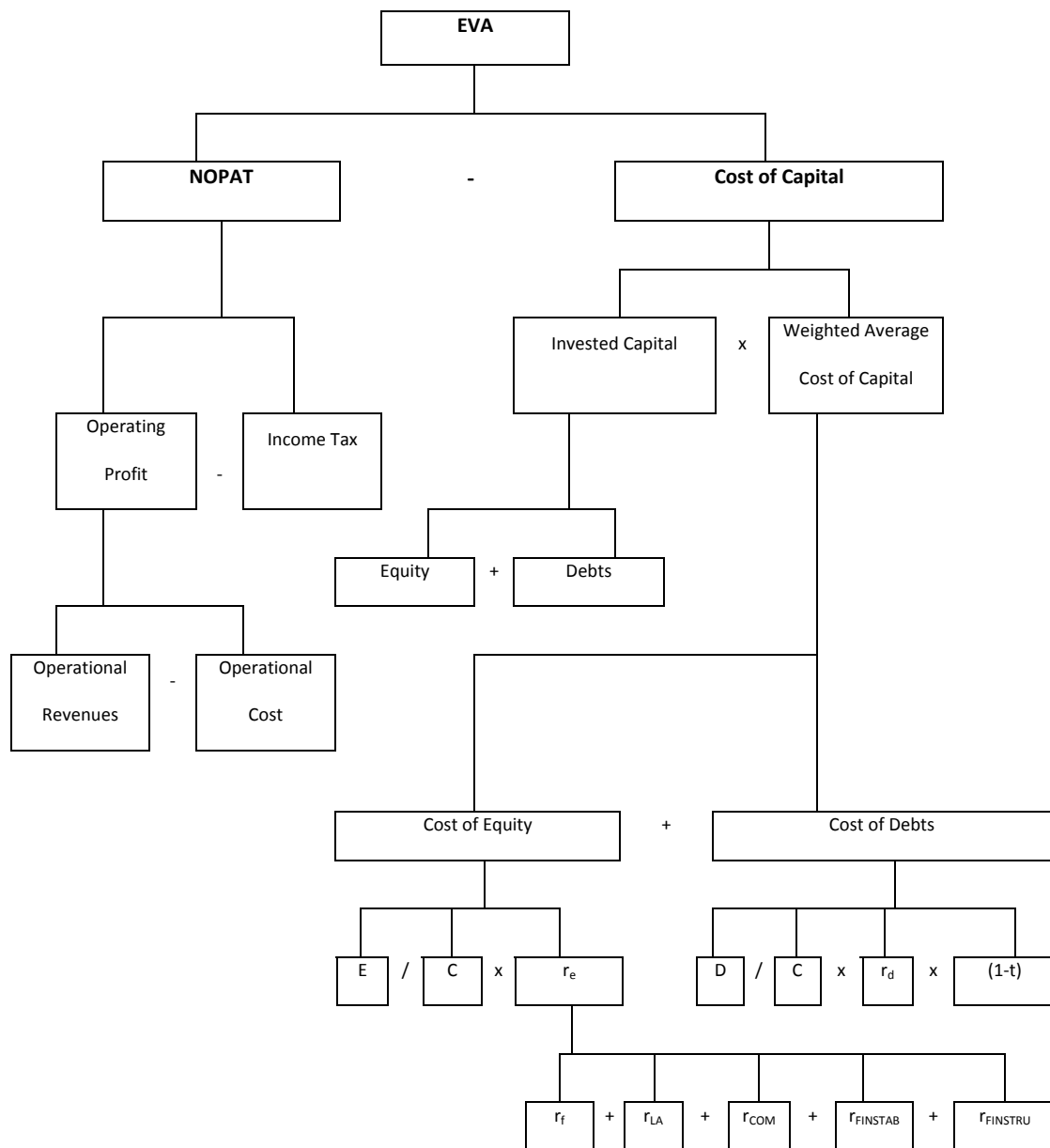
The second essential factor would be the cost of capital and their partial components. As of the weighted average cost of capital (WACC), it is obvious that dependence between EVA and WACC would be negative. This premise has been proved by the result of the correlation analysis. The value of correlation coefficient here is -0.2460 and represents weaker linear dependence which has been proved as statistically significant by the F-test on the 0.05 significance level.

These two variables, net operating profit after taxation and cost of capital, are undoubtedly touched by other influences as they are demonstrated at the Fig. 2. Especially from there it is possible to start with searching for connecting elements of economic value added and index IN 99, respectively at finding the sources of mutual dependence of values of these two variables.

Sources of Correlation between values of index IN 99 and EVA

The statement that IN indexes are the Czech variant of the EVA measure (Synek, 2007) is objectively not possible to consider word by word. It is especially because of the fact that economic value added is one of the modern indicators of company’s performance and it calculates with the opportunity cost, not only with accounting cost. Opportunity cost, or also economic costs here are mostly the cost of equity (Beranová & Martinovičová, 2010).

According to determined content of the economic value added and of the index IN 99, it is possible to



E ... Equity
D ... Debts
C ... Capital

r_e ... discount rate on equity
 r_d ... interest rate on debts
t ... income tax rate

r_f ... risk free rate
 r_{LA} ... risk premium on liquidity
 r_{COM} ... risk premium on company's size
 $r_{FINSTAB}$... risk premium on financial stability
 $r_{FINSTRU}$... risk premium on financial structure

2: Decomposition of Economic Value Added

look for the sources of the values dependence especially in following areas:

- Operating profit;
- Capital employed and capital structure.

Other source of dependence, but not so strong, might be also the liquidity of a company, here represented by the current ratio.

Operating profit in the index IN 99 and in EVA measure occurs in two forms; EVA measure works with the net operating profit after taxation (NOPAT)

while in the index IN 99 earnings before interest and tax are employed. Connection, respectively the relation between values of EVA and index IN 99 coming out from the profit is quite clear then. But it is necessary to put the stress just on these two forms of profit used in the calculations. In the literature (e.g. Kisslingerová, 2007), following relation between NOPAT and EBIT is described:

$$NOPAT = EBIT \times (1 - t).$$

This formula has to be applied carefully especially because different perception of these two forms of profit within the Czech system of financial reporting. If Kislingerová (2007; p. 52) defines EBIT (Earnings before Interest and Tax) as a profit of the year before taxation and stepped up for the interest cost then this formula cannot be accepted.

From the viewpoint of construction of NOPAT (Net Operating Profit after Taxation), it is perceived wholly as profit from operating activities after taxation while it is not the same item that is reported in the Profit and Loss Statement prepared under the Czech accounting law after deduction of a proper part of the income tax from ordinary operations. The reason for this is the fact that in the Czech accounting system, operating profit includes also the items which may be perceived as extraordinary because under standard circumstances, these items should not be connected with usual operating activities. These items are especially:

- Revenues from and costs of sales of fixed assets and materials;
- Changes in adjustments.

Moreover, if EBIT is defined as a profit of the year before taxation stepped up for the interest costs it would include also extraordinary profit, and financial items in higher amounts than is necessary for ordinary operations (for more see Beranová, Basovníčková & Martinovičová, 2010).

Perceptions of EBIT and its interpretation are the main problem point of economic analysis in companies. At determining the value of EBIT it is still necessary to take into account that this item is originated in different economic environment where different system of financial reporting is in force. In the Anglo-Saxon literature, EBIT as well as NOPAT is connected wholly with ongoing operations. That is why, in this literature, EBIT is also called as “operating earnings”, “operating profit”, or “operating income”³. While the problem of profit entering to various economic analyses, it is necessary to mention also the entering extent of revenues because the items of revenues should be included only in an extent connected with the ongoing operations as well.

The second point joining the index IN 99 and the economic value added is the capital structure of a company. Within the index IN 99, the capital structure is represented by the measure of Assets to Debts. As of the economic value added, capital structure is followed by the cost of capital. In the previous part of this paper, the negative value of weight of the Assets to Debts measure is already mentioned and discussed. This negative value leads to that at the unchanged conditions the total value of IN 99 index is increasing with increasing indebtedness of a company. The true is that “unchanged

conditions” are only a theoretical prerequisite that is usually not governing in reality. This is proved also with the result of correlation analysis which has been realized on values of IN 99 index measured on the statistic sample of agricultural companies. Here, the correlation coefficient has the value of -0.1337 which means that there is quite weak but negative dependence, respectively with increasing indebtedness the total value of IN 99 index is decreasing.

The correlation coefficient of almost the same value in absolute (0.1352) is the result of correlation analysis between the values of indebtedness and the economic value added. Here the correlation coefficient has the positive values. In relation to the economic value added, the positive value of the correlation coefficient would prove a theoretical rule that debts are less costly than equity. Employment of higher level of debts in connection with tax shield agent make the cost of capital lower. In accordance with the theory of U-shape curve of cost of capital, these lowering costs of capital are accepted only to a certain level of indebtedness. Then the low value of the correlation coefficient might be described based on this theory.

According to theoretical consequences, a causation of increasing return on equity (ROE) would be joined with higher level of indebtedness (e.g. Kislingerová, 2007; Kislingerová & Hnilica, 2005; Landa, 2008). But acceptance of this theoretical rule cannot be based on the results of investigated statistical sample of agricultural companies. Correlation coefficient of the -0.2400 refers to that increasing indebtedness causes decrease in return on equity. But within the statistical sample, average indebtedness is not excessively high; it has the value of 43.34 percent with the standard deviation of 29.10 percent. After exclusion of extreme values⁴ the average is of 41.35 percent.

Based on the facts above, it is rather difficult to identify a source or sources of dependence between values of IN 99 index and economic value added. In order to find out an effect of debts in capital structure of a company, sensitivity analysis has been realized then while the theoretical premise of “unchanged conditions” has been used at once. For every entity, index IN 99 and economic value added have been calculated again at 20 percent increase and 20 percent decrease in debts. Towards the maintenance of “unchanged conditions”, it is calculated with changes in proportions of equity and debts in the items of registered capital and long-term liabilities. Even if it is only a theoretical presumption, these items have been selected especially because the transfers of amounts between them do not affect the liquidity, do theoretically not change the cost of debts, and do not affect the profit.

3 According to Earnings Before Interest & Tax (EBIT) Definition. On-line: <http://www.investopedia.com/terms/e/ebit.asp>; EBIT Definition. On-line: <http://www.investorwords.com/1631/EBIT.html>

4 The robust 10 percent trimmed mean has been used here.

When debts have been increased for 20 percent and equity has been decreased proportionally value of the index IN 99 increased for 6.27 percent in average. From a general mathematical point of view, this increase in the IN 99 value is caused by the negative weight of the Assets to Debts indicator. At 20 percent increase in debts, economic value added has increased in average for 56.62 percent. This increase comes from lower proportion of equity which has the cost almost five times higher than cost of debts in the most companies observed. This way, total cost of capital has decreased and made the economic value added higher. Also correlation coefficient measuring dependence between the values of IN 99 index and economic value added has been calculated again at the new capital structure. Here, it has the value of 0.2617 which represents dependence for almost 40 percent lower than the original value.

At 20 percent decrease in debts in the investigated statistical sample, index IN 99 is lower for 9.4 percent in average. Economic value added has average decrease for 30.82 percent. Newly calculated correlation coefficient measuring the linear dependence of values of IN 99 and economic value added has the value of 0.2302; so the difference from original value is more than 40 percent again.

For comparison, Tab. I presents correlation coefficients of original values of variables and their values after changes in capital structure.

The last of the suggested joint elements of the index IN 99 and the economic value added is liquidity, respectively the current ratio that occurs as a partial of IN 99 index weighted with the value of 0.015.

In the economic value added, current ratio has only an edge effect. Based on the current ratio the risk premium on liquidity is calculated within the INFA model for calculation of the cost of equity. This risk premium takes the value in the interval from 0 to 10 percent while risk premium on liquidity of 0 percent goes to the companies which have the current ratio higher than 1.5 and the premium of 10 percent is allocated to the companies which have current ratio lower than 1.0. For other companies with the current ratio between 1.0 and 1.5, the risk premium on liquidity is calculated as

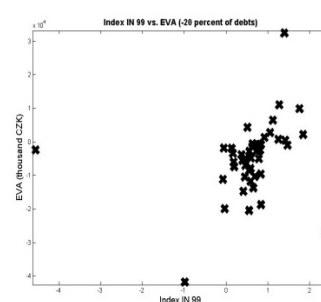
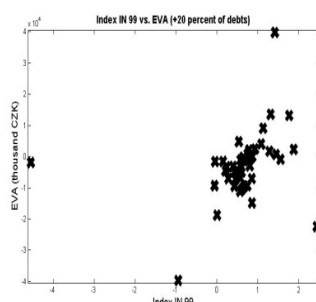
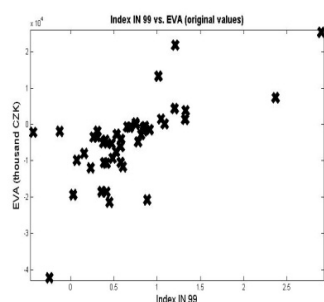
$$r_{FINSTAB} = \frac{(150 - CR)^2}{250},$$

where CR represents current ratio in percent. Than it is quite probable that dependence between values of the economic value added and current ratio would be only minimal, and current ratio would play a greater role within the total value of IN 99 index.

But against the hypothesis, these presumptions are not proved by the results of correlation analysis which shows that even if the supposition of minimal dependence between economic value added and current ratio is accepted⁵, the value of correlation coefficient between the index IN 99 and current ratio is even lower and has the value of 0.0482. Then, current ratio, respectively the amount of current assets and the amount of current liabilities are not possible perceive as sources of dependence between values of the index IN 99 of economic value added.

II: Overview on Correlation of Values of the IN 99 Index and Economic Value Added

	IN 99	EVA	IN99 (+20)	EVA (+20)	IN99 (-20)	EVA (-20)
IN 99	1.0000	0.6695	0.7375	0.3174	0.7389	0.2717
EVA	0.6695	1.0000	0.4119	0.6651	0.4132	0.6582
IN99 (+20)	0.7375	0.4119	1.0000	0.2617	0.9997	0.2275
EVA (+20)	0.3174	0.6651	0.2617	1.0000	0.2660	0.9845
IN99 (-20)	0.7389	0.4132	0.9997	0.2660	1.0000	0.2302
EVA (-20)	0.2717	0.6582	0.2275	0.9845	0.2302	1.0000



3: Graphical Presentation of Dependence between Values of Index IN 99 and Economic Value Added

5 Here the correlation coefficient has value of 0.0994.

CONCLUSION

It comes out from the results of analyses realized that the essential sources of dependence between values of index IN 99 and economic value added are mostly profit and capital structure of a company. Especially the correlation coefficients measuring linear dependence between values on IN 99 and economic value added after changes in capital structure initiate questions about real strength of dependence between these two variables. Of course it is inevitable to take into account that the changes in capital structure have been perceived at unchanged other conditions which occur quite rarely in practice of reality. It is visible on the graphs summarized at Fig. 3

that dependence between values of the index IN 99 and economic value added exists. But it is also visible that this dependence is of another type than linear which is not possible to measure with correlation coefficient.

Investigated statistic sample is also characterized with very low values of the EVA measure. Only 16 percent of agricultural companies here create positive economic value added. But dependence between values of the index IN 99 and economic value added has been proved also by application of Spearman's (pair) test of independence at the significance level of 0.05; and substantial effect of capital structure of a company has approved here again.

SUMMARY

In literature (e.g. Synek, 2007), indexes IN are suggested as a domestic alternative to the economic value added (EVA). These suggestions might be verified by the result of correlation analysis which has been realized on the statistic sample of fifty agricultural companies operating in the Region of Zlin. The correlation coefficient here has the value of 0.669 that means relatively stronger linear dependence between values of the index IN 99 and economic value added.

Index IN 99 is one of the most known of the IN indexes. It belongs to the group of credibility models, i.e. it evaluates whether a company creates value for shareholders or not. The similar interpretation of results is characteristic also for the economic value added. But on the other hand, these indicators do not have the same base; index IN 99 is based on accounting figures while economic value added belongs to the group of modern measures of company's performance calculating not with the accounting data but with economic data, opportunity cost included.

Objective of the paper is to define the relations between values of index IN 99 and economic value added, and to determine resources of this dependence of they exist. In order to realize the objective, authors apply especially the correlation analysis while they use data of fifty agricultural companies from the Region of Zlin.

Based on this statistic sample, the operating profit and the capital structure of a company have been defined as the main sources of dependence between values of the index IN 99 and economic value added. Operating profit comes into these two measures more or less directly, so the source of dependence is obvious here. Attention has to be paid to the forms of entering profit; in the index IN 99 it is EBIT (Earnings before Interest and Tax), in the economic value added it is NOPAT (Net Operating Profit after Taxation).

The capital structure influences values of these measures more indirectly. In the index IN 99 it is the indicator of Assets to Debts and in economic value added there are the cost of capital representing a given capital structure. In order to observe the effect of capital structure on the totals of IN 99 and economic value added, the sensitivity analysis has been applied then. There, index IN 99 and economic value added have been calculated again at increase in debts for 20 percent and at decrease in debts for 20 percent within a given amount of total capital. Unchanged conditions have been supposed here; i.e. the proportion of equity and debts has been changed within the items of registered capital and long-term liabilities. At these changes, the dependence between values of the index IN 99 and economic value added has decreased for around 40 percent. Calculated correlation coefficients have the value of 0.2617, respectively the value of 0.2302 there. These results are possible to be considered as prove of the U-shape curve theory of the cost capital.

As the third possible variable causing the dependency relation between values of IN 99 and economic value added, the liquidity in form of the current ratio has been considered. But it was proved that current ratio has only a very weak effect on the total of both, IN 99 index and economic value added. Then it is possible to conclude that there are the operating profit and capital structure of a company as the greatest sources of relation between values of the index IN 99 and economic value added.

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