## Qualitative relationships between the environmental, social and governance (ESG) performance indicators for supporting the decision-making

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### **ABSTRACT**

The contribution is focused on the interrelationships between environmental, social and corporate governance (ESG) performance indicators. ESG-indicators are increasingly used by investors to understand the processes in society with focusing on the key factors. The aim of the contribution is the proposal of ESG-indicators for measuring the performance and determination of the qualitative relations between them, under influence of multiple factors that can be considered as a prerequisite for success not only in the decision-making process but also for the possibility to determine the Sustainable Value. Different statistical methods were applied in the process of the development of environmental, social and corporate governance indicators. On the basis of analysis of the ESG performance indicators of international organisations (GRI, UNCTAD, UN Global Compact, IFAC, OECD, IFRS, EFFAS-DVFA, CFA, WBCSD, Green Paper, etc.) was carried out an empirical analysis of environmental, social and corporate governance indicators for the companies in the manufacturing sector according to CZ-NACE. The expected result of the research is the proposal of ESG-performance which should help to the investors to decide on their investment activities and simultaneously to be part of the Sustainability Reporting.

**Keywords**: key performance indicators, empirical research, T-test, environmental performance, social performance, corporate governance, ESG performance.

### 1. INTRODUCTION

Many international institutions engaged in the development of ESG-indicators and in accordance with the financial institutions they are trying to find a common language for the definition of ESG-indicators, which affect their common objectives to achieve sustainable, long-term growth and prosperity.

The project holder - Faculty of Business and Management, Brno University of Technology (FBM BUT) - deals in the framework of solution of the project No. P403/11/2085 "Construction of Methods for Complex

Multifactor Assessment of Company Performance in Selected Sectors" funded by the Grant Agency of the Czech Republic (GACR) with the ESG-indicators in the manufacturing sector in the Czech Republic.

As it is clear from the analysis of international organizations (GRI, UNCTAD, IFAC, UN PRI, UNEP FI, OECD, IFRS, EFFAS-DVFA, CFA, etc.), which are dealing with the development of environmental, social and also corporate governance and economic indicators, there are coming to the front the ESG-performance indicators, which they recommend to the investors to incorporate these indicators into the investment analysis and decision-making processes [7], [8], [9]. The integration of ESG-indicators is probably the best way to increase the market share of responsible investments [3], [4], [5], [10], [13].

Even with the growth of socially responsible entrepreneurship SRI the ESG-indicators are incorporating in the assessment of investments. Eurosif has broadened the definition of SRI to a more generic term saying that SRI is any type of investment process that combines investors' financial objectives with their concerns about ESG. A 'values-based' investment strategy, such as norms—based exclusion, has limitations cannot contribute to making responsible investments mainstream [2].

# 2. PROPOSAL OF ENVIRONMENTAL, SOCIAL AND CORPORATE GOVERNANCE INDICATORS FOR PERFORMANCE BASED STATISTICAL ANALYSIS

Within the framework of the research a series of successive steps was carried out to develop environmental, social and corporate governance (ESG) performance indicators. These relate to the objective and the subjective way of the selection of indicators/performance indicators and with the use of a combination of different statistical methods.

The best way how to select the indicators are objective methods, for example on the basis of statistical analyses. Objective indicators are mostly aimed at acquiring a "hard type of data", i.e. they tend to use the observation and

examination of the documents and materials that contain descriptive data. Subjective indicators are based mainly on statements made by the respondents and their reflection of the investigated issue. They are therefore clearly subject to the person and investigated personality [15].

The initial selection of indicators for measurement of the performance of companies can be considered as a combination of objective and subjective approaches. The initial draft of ESG performance indicators was based on the international sources, that means on the basis of the Global Reporting Initiative (G3.1, 2011), UN Global Compact, UNCTAD, CFA Institute, EFFAS-DVFA, IFAC, WBCSD, UNEP FI, ASSET4, CSR, ISO 14000, EMAS III, ISO 26000, EEA, EUROSTAT, OECD-Principles of Corporate Governance 2004, Green Paper 2011, etc.

The questionnaire "PERFORMANCE OF THE COMPANY: ENVIRONMENTAL, SOCIAL, ECONOMIC AND GOVERNANCE" was designed based on processing of above mentioned informational resources.

79 companies from the manufacturing sector with the number of employees over 250 according to the EU-criterion were selected from the entire database and personally visited. The distribution of these companies according to the legal form of business is the following: 42 corporations, 35 Ltd companies, 1 cooperative and 1 state enterprise (see Table 1).

Table1 Manufacturing companies according to Classification of Economic Activities (CZ-NACE)

|         |     | Classification of Economic<br>Activities (CZ-NACE) | Frequency | Valid<br>per cent |
|---------|-----|--|-----------|-------------------|
| Valid   | C * | 10-11 Manufacture of food                          | 8         | 10.3 %            |
|         |     | 13-16 Manufacture of textile                       | 9         | 11.5 %            |
|         |     | and leather  |           |                   |
|         |     | 20-23 Manufacture of                               | 8         | 10.3 %            |
|         |     | chemical   |           |                   |
|         |     | 24-25 Foundry production                           | 11        | 14.1 %            |
|         |     | 26-33 Manufacture of                               | 30        | 38.5 %            |
|         |     | electrical engineering,                            |           |                   |
|         |     | medical products                                   |           |                   |
|         | (D+ | 35-38 Electricity, gas, water                      | 12        | 15.4 %            |
|         | E)* | and waste processing                               |           |                   |
|         |     | Total  | 78        | 100.0 %           |
| Missing |     | System   | 1         |                   |
| Total   |     | ·  | 79        |                   |

<sup>\*</sup>C Manufacturing

Manufacturing companies were selected deliberately, because this kind of companies operated in the fields which are related to social, economic and environmental dimensions of business activities.

Method of selection of the investigated objects, i.e. companies, we can characterize as for a specific purpose and, moreover, based on a voluntary basis. But, as author Reichel states, this is not considered in the qualitative research for insufficient, because the ambition here "is not the representativeness, so … the implementers consider such selection procedure reasonably as appropriate" [14].

From the ownership perspective, there were in the exclusively domestic ownership 44 companies from the participating 79 companies (55.7 %), the rest of 35 companies (44.3 %) is divided into branches of multinational corporations and companies with foreign investor.

From the voluntary management instruments in the companies of manufacturing industry is used the standard ISO 9000 with 89.9 % of the companies, then is followed by the standard ISO 14 000 with 55.7 %, although from the total number of companies it was introduced only in half, the same

also applies to the OHSAS 18 000 48.1 % and MRP 48.1 %. The companies consider the other voluntary instruments (LCA, EMA, Clear production, etc.) for management for less significant.

### 3. METHODOLOGY AND EMPIRICAL RESEARCH OF THE ENVIRONMENTAL INDICATORS

Indicator of the environmental performance of the company (an indicator of the impact of the company's activities on the environment) is understood as specific statement, which allows to measure the environmental performance of the company. Development of environmental indicators/indicators passed through a long evolution, which is described.

In the Czech Republic, in ecologically oriented management system, it is based on CSN EN ISO 14 000, mainly represented by generic standard CSN EN ISO 14 001.

The initial determination of the environmental indicators/indicators is based on the resources from the Global Reporting Initiative (GRI; G 3.1, 2011), EMAS III, the International Federation of Accountants (IFAC, 2012). Furthermore, the research dealt with environmental indicators which monitor published in the Statistical Environmental Yearbook of the Czech Republic [11], [12], [16].

The selection of environmental indicators and related analyses was preceded by calculation of descriptors for each input variable. To the question "Which environmental indicators are monitored?" the respondents stated indicators that the companies are using as environmental performance standards.

The answers to this question confirmed the relevance of these indicators:

- *energy efficiency*: energy consumption (primary sources), 93.7 %,
- effectiveness of the material consumption: consumption of raw materials and consumables 91.1 %,
- waste management: total quantity of waste 82.1 %, hazardous waste 76.3 %,
- water management: water (total water consumption) 75.9 %, total quantity of discharged water 52.7 %.

Other relevant indicators of the impact of the company's activities on the environment are the compliance with laws and regulations, the companies considered this as the most important indicator in 93.7 %, fines and penalties 78.2 % and traffic 68.8 %.

The empirical research further tested the statistical significance (T-test) of the legal forms of enterprise or sector in relation to the environmental aspects of the performance, but this didn't bring any statistically significant results, in fact there is no real relationship between these factors [2], [15]. Whether is the owner of company a foreign or domestic body, also doesn't show any influence on the relationship of the companies to the environment.

Testing the significance of the relationship between the owner of the company and position to the environment showed that it is transmitted indirectly through voluntary management tools. Enterprises with foreign owners have more often established standard ISO 14 000 than companies with domestic owners. Still more often, companies with foreign owners have introduced a management system for production planning and inventory. In other management instruments there are no differences between enterprises with domestic and foreign owners.

The perception of the significance of the environmental aspects (reduction of environmental impact, the

<sup>\*</sup> D+E Water supply, Waste management and Remediation Activities

sum of the environmental indicators) in reference to the performance of the company, is not affected by whether the company has or has not introduced ISO 14 000.

Application of ISO 14000, however, has for consequence a particular conduct in the company concerning the relation to the environment, i.e. that the company with ISO14 000 (compared with company without this standard) is trying more hard to reduce the impact of the company on the environment and consequently also monitor more indicators relating to environmental performance. Using regression analysis, we are interested in how many more indicators the company will track if it has ISO 14 000[13].

The results of the regression analysis indicates that in the case of introduction of the standard ISO 14 000 the company will seek to reduce the impact on the environment in one additional area and will also monitor, moreover, about two environmental indicators has been published by authors Kocmanova, Karpisek, Hrebicek, 2012.

### 4. METHODOLOGY AND EMPIRICAL RESEARCH OF THE SOCIAL INDICATORS

The social performance of the enterprise is another important component of the performance of the company. The trend, which emphasises the social aspects, is the concept of corporate social responsibility (Corporate Social Responsibility-CSR). Companies are invited to adopt the corporate social responsibility as a new concept of the management of company processes. Really responsible companies do not only talk about the socially responsible activities, but they actually perform them systematically, monitor, measure and evaluate them. They create the so-called CSR-reports, i.e. messages focused on corporate social responsibility, which in addition to the basic information on the organisation and manager's attitude devote the major part to the performance and impact of the activities of the organization on the environment, social and economic area. Corporate social responsibility represents a systematic concept of management based on business strategy.

A socially responsible organizations, therefore, adopt in the social field for its principles of management systems such as OHSAS 18001, SA 8000, or Secure undertaking, comply with the principles set out by international organisations OECD (Organisation for economic cooperation and development), UN (United Nations) and ILO (International Labour Organisation).

As the most important and internationally recognized concept for the production of CSR-reports is considered to be the *Standard Global Reporting Initiative* (GRI). The Standard is already commonly used in the developed economies, in the Czech environment; however, for the time being is nearly unknown. Next term in connection with the CSR is the *Ethic or Business Ethics (BE)*.

Socially Responsible Investment (SRI). The term SRI is used for investment decisions, which combine financial performance with social, environmental and ethical factors. The criteria of social responsibility mean for investors a guarantee of safety and long-term sustainability. SRI is a broad approach to investing, it acknowledges that social responsibility and social concerns are important part of the investment decisions and encourage companies to improve their practices in the field of environmental protection, social and ethical issues.

The measurement of social performance can be accessed in several ways. To this will serve significantly the CSR-reports, or reports on sustainable development, which may stand alone or as part of the annual reports.

### GRI's Reporting Guidelines G3.1. and ISO 26000

The mutual relationship of social responsibility (social responsibility (SR), standard ISO 26000), is given in connection with the Reporting Guidance provided by GRI. ISO 26 000 stresses the importance of reporting on social responsibility performance for stakeholders (e.g. employees, local communities, investors and regulators) in accordance with the economic. environmental and social performance. Although ISO 26 000 does not offer guidance on SR<sup>1</sup> performance reporting, the ISO 26000 content does cover a very similar range of topics to that in the GRI Reporting Guidelines. The ISO guidance provides a structure for companies to organize their activities, which can then be measured and presented in the company's report.

GRI provides the most suitable Guidelines to support organizations interested in reporting on the topics covered by ISO 26 000 as part of its comprehensive Sustainability Reporting. Measurement of social performance is by using quantitative and qualitative indicators that require information linked with the corporate influence on the surrounding society and are divided into three categories: working conditions (diversity, health and safety at work), human rights (child and forced labour) and wider social issues affecting customers, community and other stakeholders (corruption, support of the community). In cases where social issues cannot be easily quantified, GRI uses indicators of quality.

ISO 26 000 and GRI G3 and G 3.1 General principles have a similar range of topics in the social field. The preparation of the responsible report can be based on the GRI guidelines.

The empirical research for determination of social indicators/indicators was based on the resources of the Global Reporting Initiative (GRI-G3, (2006), G 3.1, 2011), ISO 26 000, International Federation of Accountants (IFAC, 2012).

To the question "Which social indicators are monitored?" the respondents stated indicators that the companies are using as social performance standards.

Monitoring of social indicators on a scale from "Yes"(4) to "No"(1). The questionnaires showed that for the companies is monitoring in the "Labor Practices and Decent Work (LA)" important at: number of employees 96.2 %, the number of work accidents 96.2 %, the total number and rate of staff fluctuation 88.2 %, expenditure on education and training 84.8 %, labour relations 81.2 %, occupational diseases, the number of deaths 78.2 %.

Less significant for the company are the equivalent opportunities 56.0 %. Most varies in response "Human Rights" human rights 53.4 % and discrimination 36.4 % and a freedom of association and collective bargaining 47.9 %. However, the companies monitor these social indicators. Less significant for the company are the equivalent opportunities 56.0 %, human rights 53.4 % and discrimination 36.4 %; however, the companies monitor these social indicators. Important social indicators in the "Product Responsibility(PR)": safety and quality of products, 96.2 %, labelling products and services 83.5%, marketing communication 76.6% and health and safety of customers 71.8%. From the other social indicators "Society" resulted that the companies give emphasis on compliance with laws and regulations with products 94.9%. Insignificant indicators are involved in public policy and child labor.

Testing of the statistical significance (Levene's Test for Equality of Variances, T-test) of the property does not affect the relationship of the company to the CSR. The Levene's Test

<sup>&</sup>lt;sup>1</sup> ISO 26000: http://www.iso.org/iso/social\_responsibility.

is defined as:  $H_{0:} \, \sigma_{is \; used}^{\; \; 2} = \sigma_{is \; not \; used}^{\; \; 2}$   $H_{a:} \, \sigma_{is \; used}^{\; \; 2} \neq \sigma_{is \; not \; used}^{\; \; 2}$ 

The perception of the significance according to the T-test of the social aspects according to the CSR and of the social indicators relative to the performance of the company is affected by whether the company is adhering to CSR, then it states more areas to which it applies in the context of corporate social responsibility. Statistically significant difference can be described only in the case of social approaches to socially responsible behaviour. Classification of the averages of the social attitudes towards socially responsible behaviour and monitoring of social indicators depending whether the company adhere or not to the CSR, see Table 2.

If the company is committed to CSR, then it states more areas to which it applies in the framework of corporate social responsibility (statistically significant, t (46) = 4.63, P < 0.001, the strength of the effect is r = 0.57).

However, this difference vanishes at non-significant level with  $\sum$  Monitoring of social indicators. It is possible that the selected items in the sum of monitored social indicators show in an imperfect way elements of social responsibility; this can be detected by use of the factor analysis.

| Characteristics        | CSR                           |       | N                              |       | Mean Std |       | l. Deviation                      | Std. Error Mean |        |
|------------------------|-------------------------------|-------|--------------------------------|-------|----------|-------|-----------------------------------|-----------------|--------|
| Σ Social attitudes     | Is used                       |       | 20                             |       | 10.35    |       | 1.814                             | 0.406           |        |
| towards CSR            | Is not in use                 |       | 59                             |       | 7.93     |       | 2.525                             | 0.329           |        |
| Σ Monitoring of        | Is used                       |       | 20                             |       | 15.25    |       | 4.423                             | 0.989           |        |
| social indicators      | Is not in use                 | 59    |                                | 14.36 | 2.935    |       | 0.382                             |                 |        |
| Variables              |                               |       | Σ Social attitudes towards CSR |       |          | CSR   | Σ Monitoring of social indicators |                 |        |
|                        |                               |       | EQVA*                          |       | EQVNA**  |       | EQVA*                             | EQVNA**         |        |
| Levene's Test for      | ne's Test for F               |       |                                | 1.427 |          |       | 1.263                             |                 |        |
| Equality of Variances  | P -value                      | (     | 0.039                          |       |          | 0.265 |                                   |                 |        |
| T-test for Equality of | t                             | 3     | 3.944                          |       | 4.630    | 1.027 |                                   | 0.843           |        |
| Means                  | df                            |       | 77                             |       | 45.681   | 77    |                                   | 24.911          |        |
|                        | P-value. (2-tail.)            | (     | 0.000                          |       | 0.000    | 0.308 |                                   | 0.407           |        |
|                        | Mean Difference               | 2     | 2.418                          |       | 2.418    | 0.894 |                                   | 0.894           |        |
| Std. Error Difference  |                               |       | (                              | ).613 |          | 0.522 | 0.870                             |                 | 1.060  |
|                        | 95% Confidence                | Lower | 1                              | 1.197 |          | 1.367 | -0.839                            |                 | -1.290 |
|                        | Interval of the<br>Difference | Upper | 3                              | 3.639 |          | 3.469 | 2.627                             |                 | 3.078  |

<sup>\*</sup> Equal variances assumed \*\* Equal variances not assumed (Source: own processing of empirical research)

### 5. METHODOLOGY AND EMPIRICAL RESEARCH OF THE CORPORATE GOVERNANCE INDICATORS

International standards *Corporate Governance* have been implemented at the national level in the framework of the Code of the administration and management of the companies.[1]In the Czech Republic the *Code of corporate governance based on the principles of the OECD* was issued for the first time in 2001 and in 2004 then came out the amended version, created by the working group of the Commission for securities under the leadership of Ježek, T. This code presents a summary of rules for good practice in the management and administration of companies, some of which are already contained in the jurisdiction of the Czech Republic.

Empirical surveys have shown a link between level of management and administration of the company and its success in meeting the set objectives, in particular the value growth for the shareholders. It was confirmed that the companies which joined one of the Codes of good practice and comply with the declared proceedings are more attractive for the shareholders. Shareholders are willing to pay for the shares of well-governed companies more than for the companies where they do not have this information.

Qualitative approaches make use of evaluation and analysis comparing the extent to which are observed the above-mentioned Codes of good practice. Companies are then assessed according to how consistently they keep the individual principles and recommendations from the codes.

Determining of the corporate governance indicators in the empirical research is based on the Code of the Administration and management of the company (OECD 2004, Czech Republic 2004), the "Green Paper" The EU corporate governance Framework (EU, 2011) and International Federation of Accountants (IFAC, 2012). From other sources, that have been analysed, there are CA, CFA Institute, ASSET4 ESG, FEE and EFFAS-DVFA.

In empirical research were analysed principles and principles of functioning of the CG of the companies concerned, on the basis of the Code OECD, 2004. To identify the relevant indicators of CG, the selected sample of companies in the manufacturing sector was given questions concerning, firstly, the composition of the CG and of the top management, further questions were based on the Code with a focus on the rights of shareholders, fair treatment of shareholders, task of interested parties in the administration and management of the company, public disclosure and transparency, the relationship of CG to the responsibility. Respondents could comment whether they track the given aspect on a scale from "Yes" to (4) up to "No" (1).

The questionnaires analysis showed that 70.0 % members of the CG in the Czech Republic are members of the top management; in foreign companies this is not acceptable that the members of the CG would be members of the top management.

On the question "Which indicators you consider important in connection with CG?" the respondents defined indicators, which are used by the company as a CG performance scale. Replies to this question have confirmed the relevance of these indicators:

- vision and strategy 84.2 %,
- effectiveness of administration and control 71.1 %,
- structure of the administration and control 63.5 %,
- administration and management (CG) and the top management (representation) 52.1 %,
- corruption, 46.6 %,
- rights of the shareholders 39.1 %,
- examining the conflict of interest 30.7 %.

The indicator politics of remuneration of directors/top management 50.7 % is for the respondents less relevant. For the companies are uninteresting the indicators contributions to political parties 67.1 %, equal opportunities: ratio of men and women in the administration and management 30.1 % and the number of judicial decisions 28.4 %.

Testing of statistical significance (Levene's Test for Equality of Variances, T-test) of the influence of CG on the behaviour of the company:

In the event that the undertaking has set up also informing CG on the results of the environment and the responsible behaviour by supplying regular analysis, then it is seen in the emphasis on social responsibility and environmental performance, see Table 3.

If the Levene's Test is significant (the value under "Sig" is less than 0.05), the two variances are significantly different. If it is not significant (Sig. is greater than 0.05), the two variances are not significantly different; that is, the two variances are approximately equal. Statistically significant results are recorded in the data in the following areas:

- a higher number of major social sectors in the CR (statistically significant, t (75) = 5.49, P < 0.001 the strength of the effect r = 0.54),
- perception of the environmental aspects related to environmental protection as important for the overall performance of the enterprise (statistically significant, t (77) = 2.89, P < 0.05 the strength of the effect r = 0.31),
- reduction of impacts on living environment in more fields (statistically significant, t (75) = 3.79, P < 0.001 the strength of the effect r = 0.40),
- monitoring of higher number of indicators of environmental performance (statistically significant, t (77)=3.08, P<0.001 the strength of the effect r=0.33).

Testing statistical significance (T-Test) if CG is receiving regular reports from the social and environmental field, didn't bring any statistically significant results, it is independent on whether the bodies of the CG are located in the country or abroad.

Table 3 Relationship between the corporate governance and on the results of the environment and the social responsibility

| Characteristics                                  |     | N  | Mean   | Std. Deviation | Std.   |
|--|-----|----|--------|----------------|--------|
|  |     |    |        |                | Error  |
|  |     |    |        |                | Mean   |
| $\Sigma$ Monitoring of social indicators         | No  | 49 | 13.71  | 3.657          | 0.522  |
|  | Yes | 30 | 16.00  | 2.228          | 0.407  |
| $\Sigma$ Social attitudes towards socially       | No  | 49 | 7.59   | 2.700          | 0.386  |
| responsible behaviour                            | Yes | 30 | 10.10  | 1.348          | 0.246  |
| ∑ Environmental aspects related to               | No  | 49 | 3.6735 | 2.06547        | 0.2950 |
| environmental protection                         | Yes | 30 | 5.0667 | 2.11617        | 0.3863 |
| $\sum$ Environmental aspects associated with the | No  | 49 | 3.4082 | 1.44220        | 0.2060 |
| use of natural resources                         | Yes | 30 | 3.6333 | 1.35146        | 0.2467 |
| $\Sigma$ Reducing impact on the environment      | No  | 49 | 10.73  | 2.985          | 0.426  |
|  | Yes | 30 | 12.73  | 2.477          | 0.452  |
| ∑ Monitored environmental indicators             | No  | 49 | 6.76   | 2.213          | 0.316  |
|  | Yes | 30 | 8.40   | 1.632          | 0.298  |

| Variables  |         | Levene's Test<br>for Equality of<br>Variances |              | T-test for Equality of Means |      |                           |                         |                               |   |        |
|--|---------|---|--------------|------------------------------|------|---------------------------|-------------------------|-------------------------------|---|--------|
|  |         | F   | P -<br>value | t                            | df   | P-<br>value.<br>(2-tail.) | Mean<br>Differen-<br>ce | Std. Error<br>Differen-<br>ce | 95% Confidence<br>Interval of the<br>Difference |        |
|  |         |   |              |                              |      |                           |                         |                               | Lower   | Upper  |
| ∑ Monitoring of  | EQVA*   | 4.767   | 0.032        | 3.086                        | 77   | 0.003                     | 2.286                   | 0.741                         | 3.761   | 0.811  |
| social indicators  | EQVNA** |   |              | 3.452                        | 77   | 0.001                     | 2.286                   | 0.662                         | 3.604   | 0.967  |
| ∑ Social approaches  | EQVA*   | 18.38   | 0.000        | 4.732                        | 77   | 0.000                     | 2.508                   | 0.53                          | 3.564   | 1.453  |
| to CSR   | EQVNA** |   |              | 5.482                        | 74.5 | 0.000                     | 2.508                   | 0.458                         | 3.42  | 1.597  |
| ∑Environmental   | EQVA*   | 0.428   | 0.515        | 2.883                        | 77   | 0.005                     | 1.3932                  | 0.4832                        | 2.3555  | -0.430 |
| aspects related to<br>environmental<br>protection                                    | EQVNA** |   |              | 2.866                        | 60.3 | 0.006                     | 1.3932                  | 0.4861                        | 2.3655  | -0.420 |
| \( \sum \text{Environmental} \) aspects associated with the use of natural resources | EQVA*   | 0.353   | 0.554        | 0.69                         | 77   | 0.493                     | 0.2251                  | 0.3265                        | 0.8754  | 0.425  |
|  | EQVNA** |   |              | 0.7                          | 64.5 | 0.486                     | 0.2251                  | 0.3214                        | 0.8672  | 0.416  |
| ∑ Reducing impact on the environment   | EQVA*   | 2.76  | 0.101        | 3.075                        | 77   | 0.003                     | 1.999                   | 0.65                          | 3.293   | 0.704  |
|  | EQVNA** |   |              | 3.216                        | 70.0 | 0.002                     | 1.999                   | 0.621                         | 3.238   | 0.759  |
| ∑ Monitored environmental  | EQVA*   | 5.719   | 0.019        | 3.523                        | 77   | 0.001                     | -1.645                  | 0.467                         | -2.574  | -0.715 |
| indicators   | EQVNA** |   |              | 3.787                        | 74.2 | 0.000                     | -1.645                  | 0.434                         | -2.51   | -0.779 |

<sup>\*</sup> Equal variances assumed \*\* Equal variances not assumed (Source: own processing of empirical research)

#### 6. RESULTS AND DISCUSSION

The ESG performance indicators provide quantitative and qualitative forms of a feedback which reflect the results in the framework of their corporate strategy, indicators the company develops, inform about them in internal or external reports, always depend on the strategic business priorities, which reflects the unique character of the company. The most important is to recognize what is measured, what is controlled, and it is important that the measures create value for the company and its stakeholders. The proposed key ESG indicators for performance measurement in companies manufacturing for CZ-NACE, see Table 4.

Key performance indicators can help companies to plan and manage their environmental priorities, in particular, when the indicators are focused on the core business strategy, by means of operational plans, which include performance targets. In the event that the company is of the opinion that some of the selected ESG indicators are not relevant for evaluation of the performance then it doesn't have to include this indicator in the overall evaluation of the performance.

Table 4 Key performance ESG indicators for manufacturing for CZ-NACE

| Environmental                                 |   |                                | Social  | Corporate Governance (CG)            |  |  |
|---|---|--------------------------------|---|--------------------------------------|--|--|
| Indicator                                     | Indicator KPI   |                                | KPI   | Indicator                            | KPI  |  |
| EN1-Energy                                    | Total annual energy   | Indicator<br>LA1-Labor         | Number of employees   | G1-                                  | The number of members in   |  |
|   | consumption [MWh] or [GJ] (IN*: EN3)  | Practices and<br>Decent Work   | (IN: LA1)   | Composition<br>CG                    | terms of professional<br>competence [number]   |  |
| The total consumption of renewable energy [%] |   |                                | The number of accidents at work (IN: LA7)   |                                      | The number of members CG of international  |  |
|   | (IN: EN3)   | 4                              |   |                                      | representation [number]  |  |
| EN2-<br>Materials                             | The annual mass flow of<br>materials (energy and<br>water) [t](IN: EN1)       |                                | Total number and the rate of staff turnover (IN: LA2)                                       |                                      | % representation of the<br>members of women and<br>men [%]                                 |  |
|   | The proportion of the recycled materials [% of the total materials] (IN: EN2) |                                | Expediture on education<br>and training (IN: LA10-<br>LA12)                                 |                                      | Frequency of CG meetings [number of meetings]  |  |
| EN3-Waste                                     | The total annual production of waste [t] (IN: EN22)                           |                                | Working relations<br>(IN: LA4, LA5)   |                                      | Model of the administrative authorities[number]  |  |
|   | Total annual production<br>of hazardous waste [t or<br>kg]                    |                                | Occupational illnesses,<br>number of deaths (IN:<br>LA7)                                    | G2-<br>Concentration<br>of ownership | Protection of property rights  |  |
| EN4-Water                                     | The total annual consumption of water [m³/year](IN: EN8)                      |                                | Equivalent opportunities (IN: LA13,LA14)  |                                      | Control of the property rights   |  |
| EN5-Air<br>emissions                          | The total annual emission of greenhouse gases [t] (IN: EN16)                  | PR2- Product<br>Responsibility | Safety and quality of products (IN: PR1, PR2)   |                                      | Voting rights according to<br>the model of the control [%<br>to the models of the control] |  |
|   | Total annual emissions<br>into the atmosphere [kg or<br>t] (IN: EN20)         |                                | Labelling of products and<br>services (IN: PR3-PR5)   |                                      | % distribution of<br>ownership according to the<br>categories of investors[%]              |  |
| EN6-  | Total expenditure and   |                                | Safety and health   | G3-                                  | Monitoring of the  |  |
| Environment<br>al protection<br>investment    | Environment investment in environmental protection                            |                                | protection of customers<br>(IN: PR1, PR2)   | Effectiveness of<br>CG               | performance of the company [CZK]   |  |
| Additional indicators                         |   |                                | Compliance with laws<br>and regulations of the<br>products (IN:PR9)                         |                                      | The strategic management of the company  |  |
| EN6- Compliant with therules                  | nce Environmental laws<br>and regulations<br>[number](IN EN28)                | SO3- Society                   | Community<br>(IN: SO1)  |                                      | % representation of all<br>independent members to all<br>members [%]                       |  |
|   | Fines and penalties<br>[CZK or number]<br>(IN: EN28)                          |                                | Contributions to villages   |                                      | Independence of the composition of the members of the CG                                   |  |
| EN7- Signification environ. impact            | ets (IN- EN29)  | HR4- Human<br>rights           | Forced and compulsory labour (IN: HR7)  |                                      | Remuneration CG.<br>[rewards CZK]  |  |
| EN8- Biodivers                                | Land use [m²] of<br>built-up surface (IN:<br>EN11)                            |                                | Freedom of association<br>and collective bargaining<br>(IN: HR5)<br>Discrimination(IN: HR4) |                                      | Risk management and implementation of policies [occurrence] Internal audit                 |  |
|   |   |                                | ,   | G4-                                  | Ethical codex<br>Frequency of stakeholder  |  |
|   |   |                                |   | Stakeholder<br>engagement            | involvement [forms and quantity of involvements]  Existence of involvement                 |  |
|   |   |                                |   |                                      | mechanisms of the interested groups [occurrence]   |  |
|   |   |                                |   |                                      | Ways of answers for the feedback from stakeholders [occurrence]                            |  |
|   | or in GPI   |                                |   | G5-Monitoring<br>a reporting         | Information openness and transparency [occurrence]   |  |

<sup>\*</sup>IN-indicator in GRI

#### 6. CONCLUSIONS

Empirical research deals with the selection of ESG performance indicators for the CZ-NACE sector-manufacturing industry. Based on analysis of available documents of national and international organizations dealing with the determination of ESG indicators a questionnaire was formed. Based on these facts a modifications were made in the selection of ESG indicators. These modifications preceded the univariate analysis of all variables; two-dimensional analysis and the level of dependence for the two nominal variables and Levene's Test for Equality of Variances, T-test of dependence were further tested.

Use of key performance indicators in a particular organizational context can be challenging. Before a company decides to establish scales of the key performance indicators, it is necessary to understand how they can best be used and integrated into internal management and how they can help and support Sustainable reporting. Managers must consider how to present the key performance indicators in their internal and external reporting. Identification and selection of key performance indicators depends on the context within the company and industry.

It can be therefore concluded that the integration of ESG is currently becoming the investment strategy, whereby the ESG-indicators focus on the economic consequences of long-term risks and opportunities, which are associated with strategies of companies in which investments are made. ESG-performance indicators are becoming a tool of the future cash flows. Investors want above all to achieve excellent financial returns under the predetermined risk levels.

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