

Corporate Transparency, Sustainable Development and SDG 2 and 12 in Agriculture: The Case of Ukraine

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Abstract

This paper explored sustainability transparency and SDGs 2 and 12 disclosure and its influence on their overall efficiency, using data from Ukrainian agricultural companies. To do this Sustainability Transparency Index (STI) methodology is developed and used. The following hypothesis is tested: the higher the STI score is, the better position of the company is among its peers. For these purposes, STI index is calculated for the top100 Ukrainian agriculture companies. Correlation analysis, Granger causality tests and regression analysis provide evidences in favour of high dependence of position in top100 from the STI score: the more efforts companies invest into Sustainability Transparency, the higher the position in ranking is. This is direct evidence that companies' sustainability transparency is an important element of its activity nowadays. Recommendations to improve sustainability transparency based on suitable reporting practices are provided in this paper.

Keywords

Sustainable development goals, transparency, sustainability reporting, Sustainability Transparency Index, agricultural management, resilient agricultural practices.

JEL Classification: Q01; O13; O44.

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Introduction

According to United Nations, key problems of humanity are health care, climate changes, poverty and gender inequality. In 2015, 17 Sustainable Development Goals (SDGs) and 169 targets were introduced on global and national levels (United Nations, 2015) to solve these problems. SDGs caused serious changes in the behaviour of economic subjects. Companies have paid more attention to sustainable development and become more transparent about these efforts to the world (Androniceanu, 2021).

One of the tools for achieving the SDGs is to strengthen the regulatory requirements for the disclosure of information by companies on

environmental (E), social (S) and governance (G) ESG – criteria. Ensuring the transparency of the business environment and reporting on the incorporation of CSR into the activities of companies is the key to effective monitoring of progress in achieving SDGs in the corporate sector.

ESG investing comprises' financial and ethical paradigms is to prioritize investments that positively impact society and the world. ESG investment has become a prominent and influential industry, constituting a significant portion of global equity portfolios and funds (Daugaard, 2020).

On micro level financial performance of companies with social-responsible investment is better than

traditional ones (López et al., 2007; Nicolescu et al. 2020). The positive impact can be ensured by different socially responsible activities – both internal and external. Particularly, there are obvious links between investments in human capital, including practices of personnel development, and firm performance (Samoliuk et al., 2021; Urbancová & Vrabcová, 2020). These links are typical for enterprises of different age and size (Bilan et al., 2020; Čera et al., 2020) and first of all responsible practices have impact on financial performance (Myšková and Hájek, 2019; Vo et al., 2020).

According to Statman (2000), ESG-based stocks outperform traditional ones. From the geographical point of view, ESG indices perform better in the European markets than in the US ones (Cortez et al., 2009).

According to the MSCI (Morgan Stanley Capital International) 2021 Global Institutional Investor survey (a survey of 200 asset owner institutions with assets totalling approximately \$18 trillion), over three-quarters (77%) of investors increased ESG investments “significantly” or “moderately” in 2020, with this figure rising to 90% for the largest institutions (over \$200 billion of assets).

Companies use SDGs and ESG for communication with stakeholders and emphasize its fundamental role in value creation potential, social benefits, risk mitigation (Indahl and Jacobsen, 2019; Androniceanu, 2019).

The last decade has been marked by the dynamic development of regulatory disclosure tools based on ESG criteria and SDGs. More than 300 governmental and non-governmental, mandatory and voluntary instruments have been introduced in the 50 largest countries by GDP (both developed and developing UNPRI, 2016b).

Plastun et al. (2019) showed that the more ESG criteria are used for disclosure regulation, the higher the country's ranking in the Ranking of 50 largest economies. Non-government corporate ESG disclosure has the most significant influence. In Plastun et al. (2020) the linkage between countries SDGs achievement ranking and country's ranking in the Ranking of 50 largest economies was showed additionally. Ukraine's adoption of a national SDGs target system in 2017 unites it with the global community. However, the level of SDGs progress in Ukraine compared to the 50 leading countries in the world is low - 46th out of 149 countries in the 2016 Global SDG Indicators Database (2016). Sukhonos et al. (2019) showed that corporate social responsibility activity

in Ukraine is relatively low because of the low perception of sustainability ideology and reporting. Plastun et al. (2021) provide some preliminary explanation of SDGs 2 and 12 disclosure achievements in Ukraine agriculture companies and found that problems in their achieving are similar for these countries.

Agriculture plays a fundamental role in daily life, providing livelihoods for one-third of the global population and enabling food production. The sector accounts for 9.5% of Gross Domestic Product (GDP) across developing countries and 26% of GDP for the world's least-developed countries. In 2018, agriculture added USD 3.3 trillion to the world economy, up 50% from 2008 (USD 2.2 trillion).

Agriculture is not only the key sector of public support (Pronko, 2020) but also one of the key spheres to achieve SDGs, because it deals with food security, hunger, waste-free production and reduction of environmental pollution (Oláh et al., 2021; Popp et al., 2021).

Agriculture provides impact on the multiply SDGs from “No Poverty” (SDG 1) to “Zero Hunger” (SDG 2) and “Sustainable Consumption and Production” (SDG 12).

According to GIIN (Sunderji et al., 2020) the highest affected SDGs are SDG 8 “Decent work and economic growth” (81%), SDG 2 “Zero Hunger” (68%), SDG 5 “Gender equality” (62%) and SDG 1 “No Poverty” (57%).

Despite the evidence that sustainable management practices are important for business, ESG-efforts in agriculture are very limited.

The key guidelines in conducting agribusiness based on sustainable development for companies worldwide are Food and Agriculture Business Principles, developed by the UN Global Compact network. The fundamental principle is “encourage good governance and accountability”, which requires companies to be transparent and highlight their influence.

Based on data from Ukrainian agricultural companies, this paper aims to show that sustainability transparency issues is an important element nowadays. To do this Sustainability Transparency Index (STI) methodology is developed and applied to the top100 Ukrainian agriculture companies. Correlation analysis, Granger causality tests and regression analysis showed that the higher the STI score, the better the company's position in the overall ranking

of agricultural companies. This is direct evidence that sustainability transparency of the company is vital element of its activity nowadays.

Materials and methods

The samples of the biggest companies were formed to conduct a comparative study of the agricultural companies' transparency in Ukraine and their disclosure about SDG 2 and 12.

To select Ukrainian companies, the website Latifundist, 2021 was used. It presents the top 100 agricultural holdings of Ukraine in terms of the land bank.

Preliminary, for each company, the English-language web-sites and the most recent published sustainability reports were analysed. In case of their absence, sites and reports in Ukrainian were analysed. The study was conducted in March 2021.

The research methodology included the author's questionnaire on the status of disclosure by companies on SDG and CSR, emphasising certain ESG-criteria through content analysis of sites and reports of agricultural companies.

The question list included the following parameters and their options, which describe the sustainability disclosure state by agricultural companies (Table 1).

Parameter	Option
Links to sustainability information	There is no website
	There is the site, information on CSR and sustainable development are not available
	Available
Existence of sustainable development policy	Existent (with type indication)
	No policy
Reporting periods are available	List of periods disclosed in the reporting
The most recent reporting period	The period for which the reporting is analysed through content analysis
Sustainable Development and SDG Report	Information on SDG or CSR is on the site
	Sustainable Development Report
	Non-financial report
	Chapter in the annual report
	Consolidated reporting
	Report of independent auditors
Corporate governance	

Source: Compiled by the authors

Table 1. Basic questionnaire on the state of sustainability disclosure, SDG and CSR by agricultural companies (to be continued).

Parameter	Option
Management report	Available
	Absent
Disclosure according to ESG criteria	Ecological
	Social
	Government (including anti-corruption)
SDG	In terms of some goals
	Absent
Other relevant goals related to CSR and sustainable development	Available
	Absent

Source: Compiled by the authors

Table 1. Basic questionnaire on the state of sustainability disclosure, SDG and CSR by agricultural companies (continuation).

This questionnaire was used for Ukrainian companies to characterize their sustainable development transparency and Goals. Next questionnaire was transformed into binary form. It makes it possible to normalise the values of the studied information parameters and sustainability reports of Ukrainian agricultural holdings and build their Sustainability Transparency Index (STI) (Table 2).

The algorithm of the normalization method of values of sustainability disclosure parameters, CSR and SDG in the reporting of agricultural holdings within the specified limits is the following. First, it is necessary to find the number of parameters for the index, the number of verified criteria and set the maximum evaluation value. Let the maximum index value be from 0 to 100. Similar algorithm was used in Makarenko et al. (2020) They analysed sustainability reporting in Ukraine in ESG disclosure based on The Quality and Compliance Bank Management Reports Index and showed a low level of compliance in the country as well. Then the algorithm consists of the following steps:

1. Finding minimum and maximum number of evaluation criteria [min; max].
2. Finding the number of verified criteria – x.
3. Setting the maximum value for k.
4. Calculation the rating value according to Equation 1.

$$y = \left(\frac{x - \min}{\max - \min} \right) * k, \text{ where } x \neq \min; \quad (1)$$

The calculated values of the index are presented on a 100-point scale with a letter rating system. The minimum point is E, then the maximum is

Parameter	Option		0
Links to sustainability information	There is no website		+
	There is the site, information on CSR and sustainable development are not available		+
	Available		
Existence of sustainable development policy	Existent (with type indication)		
	No policy		+
Sustainable Development and SDG Report	There is no information on SDG or CSR on the website (sustainable development report, non-financial report, chapter in the annual report, information in the consolidated financial statements, etc.)		
	Absent		+
Management report	Available		
	Absent		
Disclosure according to ESG criteria	Ecological	Available	+
		Absent	+
	Social	Available	+
		Absent	+
	Government	Available	+
		Absent	+
	Anti-corruption	Available	+
		Absent	+
Disclosure on SDG	Available		
	Absent		+
Other relevant goals related to SDG and sustainable development	Available		
	Absent		+

Source: Compiled by the authors

Table 2. Modified questionnaire on the state of disclosure on sustainable development, SDG and CSR by Ukrainian agricultural companies.

A. Totally, there are 5 evaluation sets with certain intervals that can be represented as follows:

1. A [80;100]
2. B [60;80]
3. C [40;60]
4. D [20;40]
5. E [0;20]

Below is example of STI calculations for the case of “Kernel” (Ukrainian agricultural company). Out of 25 general evaluation parameters, 11 were verified for “Kernel” (Equation 2):

$$STI_{\text{kernel}} = \left(\frac{11 - 0}{25 - 0} \right) * 100 = 52,0 (C) \quad (2)$$

Results and discussion

The UN Global Compact is a supranational organization that brings together companies that have signed ten principles of socially favourable,

environmentally friendly policies that protect human rights, fight against corruption, and actively promote SDGs. The global network includes 13,555 companies from 162 countries, and published 81,808 reports (communications on achieving these principles). In Ukraine, signatories are 107 well-known companies such as agro-industrial holding Astarta-Kyiv, MHP, Kernel.

As a result, we see a lack of involvement of companies from the agricultural sector to communicate on SDG progress in Ukraine. These communications can take place not only in the reports according to the principles of the UN Global Compact but also in the sustainability, compiled according to one of the many standards (SASB, CDP, GRI), etc. The leading codified sustainability reporting system is the GRI system of standards. In total, it presents 15,588 organizations with 63,582 reports.

In Ukraine, 22 companies have published 78 reports during the time of the database existence. The same

three agricultural companies are signatories to the UN General Assembly (agro-industrial holding Astarta-Kyiv, MHP, Kernel). These data indicate a small representation of agricultural companies in both countries in the commonly accepted bases for sustainability disclosure.

The extensive research on SDG incorporation into the Ukrainian companies' activities by non-governmental institutions is conducted by the CSR Ukraine and UN Global Compact Network Ukraine. In particular, the latest study in 2020 included an analysis of 116 cases from 64 companies on CSR in 2016-2019 and 97 non-financial reports of companies that are the largest taxpayers in 2015-2019 (Figure 1).

SDG 2 is one of the least mentioned goals by companies. The vast majority of companies are in the Top-100 Ukrainian companies representing the mining, metallurgical and energy sectors.

Regarding SDG 12, primarily Ukrainian companies' contribution is conducting educational activities on separate waste collection and management. However, according to the dynamics of SDG 12 indicators, progress in this area is insufficient.

At the same time, SDGs 2 and 12 are partially integrated into corporate sustainability strategies, investment strategies and CSR practices. The solution to this problem could be to encourage companies to SDG disclosure and implement strict requirements for including the goals in forming the management report and key companies' indicators in terms of SDG.

The UN Global Compact Network Ukraine (2021a) provides alternative data on incorporating

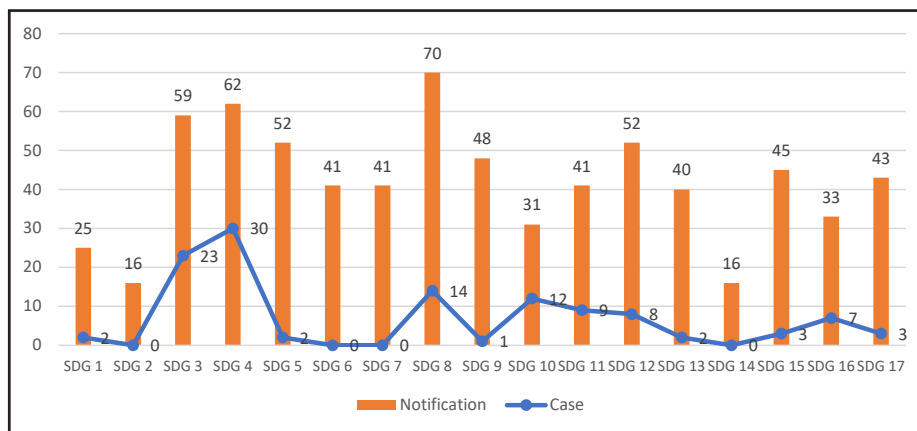
the SDGs 2 and 12. In particular, in 2020, 1 case on SDG 2 implementation in companies' activities was introduced, and 3 cases related to SDG 12 (Table B.1).

A detailed analysis of the UN Global Compact Network cases in the context of their goals, the solutions aimed to achieve them allowed drawing a foregone conclusion. First of all, the investigated cases do not apply to agro-industrial companies. Metro Cash & Carry Ukraine, Food Bank, Subsidiary with foreign investments Pernod Ricard Ukraine is indirectly involved in the food industry.

Unfortunately, these cases do not contain data on investment in these projects, which is primarily due to insufficient SDG disclosure by Ukrainian companies and the low quality of their communications with stakeholders. 37% of Ukrainian companies do not have their website. It does not allow to conclude their level of transparency in CSR and SDG initiatives. Three Ukrainian companies have non-functioning websites (Svitanok, Freedom Farm, Greenstone).

Half of the analysed Ukrainian agricultural holdings have information on SDG and CSR on their website.

59 out of 100 Ukrainian agricultural holdings do not have a CSR policy published on their website. Meanwhile, such a policy does not correlate with the size of the company's land bank. In particular, five companies from the top 10 agricultural holdings of Ukraine (Agroprosperis, Mriya, Epitsentr Ahro, HarvEast Holding, IMK) do not have sustainability policies, and some companies have their website (Agroprosperis, Mriya, Epitsentr Ahro).

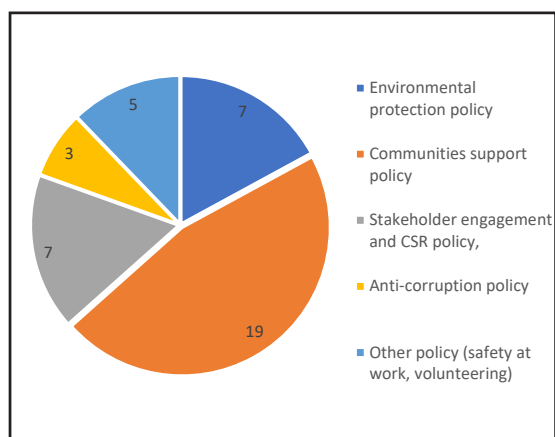


Source: CSR Ukraine (2020), The contribution of Ukrainian business to the implementation of Ukraine's Sustainable Development Goals 2016-2020 (<https://csr-ukraine.org/wp-content/uploads/2020/12/Vpliv-bi-znesu-na-CSR.pdf>.)

Figure 1: The condition of SDG incorporation into the activities of Ukrainian companies according to the Center of CSR Ukraine.

Kernel has the largest number of formalized corporate sustainability policies (number one in the Latifundist (2021) rating according to the land bank size). It has a sustainability policy, environmental protection, community cooperation, labour protection, industrial, technical and transport safety. Astarta-Kyiv is the third in the ranking and has a policy on sustainable development, a plan of interaction with stakeholders, a policy to fight against corruption.

19 out of the 41 Ukrainian companies have integrated some fields of accountability, transparency and sustainable development at the policy level into corporate governance. The vast majority have policies to promote rural development, projects and communities (Figure 2). In second place are the general policies on CSR, sustainable development, interaction with stakeholders (7 companies). In the third place is a set of policies that characterize the various areas of corporate volunteering, philanthropic activities and the creation of safe working conditions (5 policies).



Source: compiled by the authors according to companies' sites and sustainability reports

Figure 2: Types of sustainability policies of the top 100 Ukrainian agricultural holdings as of March 2021.

Analysis of the Ukrainian agricultural holdings under the duration of sustainability reporting (according to the list of available reporting periods disclosed in the reporting) shows that most companies cover traditional financial statements for the last 3-5 years.

Only Astarta (8 reports for 2013-2020), MHP and Kernel (6 non-financial reports for 2015-2020) follow the tradition of sustainability reporting.

Regarding the sustainability disclosure format

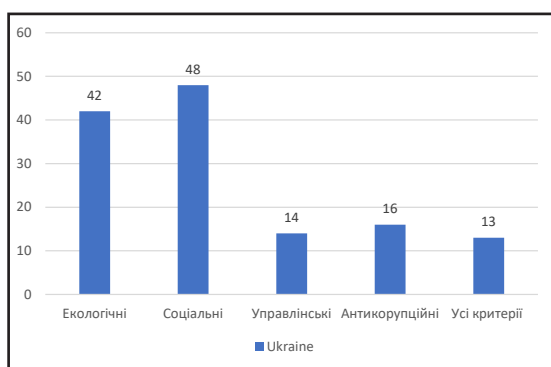
and its goals, the transparency of Ukrainian agricultural companies is quite negative. It is by the fact that 50% of companies do not disclose sustainability issues (Figure 2), and do not submit even publicly available financial statements on their websites.

In addition to the two categories of Ukrainian agricultural holdings (50% of those that do not disclose about themselves, and 31% that provide separate sustainability information in the annual financial or consolidated financial statements), there is a group of agricultural holdings led by Kernel. This 8% of the 100 companies have a regular section in the annual report, which describes their progress towards sustainable development and its goals for stakeholders. Non-financial and sustainable development reports are generally published only by MHP and Astarta. Sustainability information and CSR is presented on the corporate pages of APK-Invest, Zelena Dolyna, Kusto Agro and KSG Agro. Other disclosures on sustainable development by Ukrainian companies are sporadic.

An important marker of the transparency of Ukrainian agricultural holdings and their compliance with the legal requirements for non-financial reporting in Ukraine is their accordance (as large and medium-sized companies) with the requirements of the Law "On Accounting and Financial Reporting" to prepare a management report and disclose according to ESG criteria.

Out of 100 surveyed Ukrainian agricultural holdings, only 14% have published management reports covering social, environmental and governance aspects, the company's operating environment strategy (Figure 3). In this aspect, the most successful companies are MHP, Agroprosperis, Astarta, Vitagro, Nibulon, AgroGeneration, Zakhidnyy Buh, Dnipro Agro Group, Ukraine-2001, AGRICULTURAL TECHNOLOGY COMPANY, A.G.R. Group, SAT, Ecoprod, Cygnet Agrocompany, Kischenzi.

Ukrainian agricultural holdings mainly disclose their initiatives regarding environmental and social aspects of sustainable development and their criteria. Also, Ukrainian companies pay attention to anti-corruption and good management practices (16 and 14% of the 100 surveyed Ukrainian agricultural holdings). 13 Ukrainian companies cover environmental, social, governance and anti-corruption initiatives in their activities.



Source: compiled by the authors according to companies' sites and sustainability reports

Figure 3: Level of disclosure according to ESG - criteria by agricultural holdings in Ukraine .

In addition, six companies out of the top 10 Ukrainian agricultural holdings covered all criteria (Kernel took the 1st place, MHP – 2nd, Astarta-Kiev – 4th, Mriya – 5th, HarvEast Holding – 7th, IMK – 8th, Nibulon – 16th, Grain Alliance – 24th (Baryshivska Grain Company), Zakhidnyy Buh – 27th, Agromino – 28th, Ukraine-2001 – 38th, Agricom Group – 49th, Arnica – 79th). The other seven companies are differentiated by several positions of the rating by the size of the land bank. It indirectly confirms the lack of connection between the volume of the company's land bank and its transparency on sustainable development and SDGs.

SDG 2 (7 companies) are the most actively implemented by Ukrainian companies. No companies pay attention to SDG 9. SDG 7, 8, 13 are implemented by 5 companies, and SDG 3 and 12 - by 4 (Figure 4).

The companies' activities in case of progress, targets and investments in SDG 2 are presented

in the reporting information by Kernel, MHP, Astarta-Kiev, Nibulon, Agricom Group, Arnica, Goodvalley Ukraine. SDG 12 is highlighted in the reports of Kernel, Astarta-Kiev, Arnica, Goodvalley Ukraine.

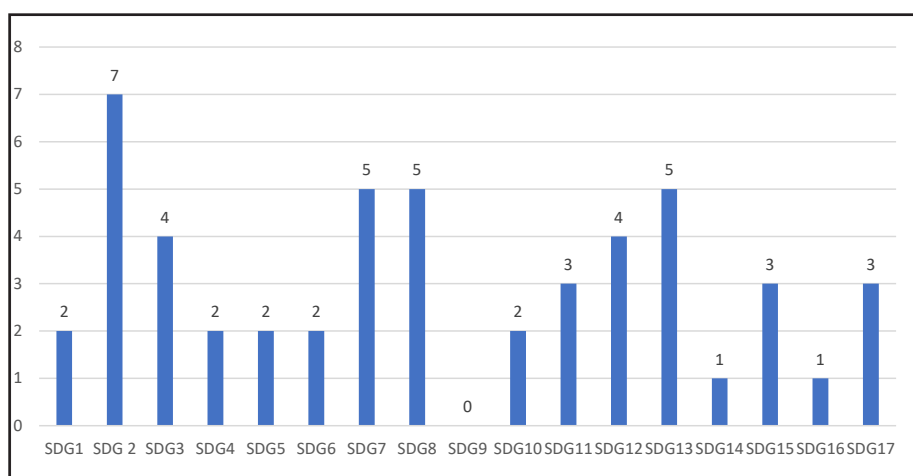
Two Ukrainian companies, in addition to 17 SDGs, mention other relevant goals related to CSR and sustainable development.

For example, as a signatory to the UN Global Compact, Kernel has set an ESG-related goal – to reduce GHG emissions intensity by 5% over a five-year horizon in our oilseed processing business. The general vision of Agricom Group in the context of SDGs sounds like creating the potential of the Ukrainian countryside.

Disclosure of all 17 SDGs set obviously proved the level of agriculture sustainability transparency. But SDG 2 and 12 are the most important for agriculture companies.

It is worth to note that the highest level of SDG 2 disclosure in Ukrainian agriculture companies as a positive benchmark, created only by the largest companies with high level of STI values. As well as SDG 12 is not disclosed properly. Possible explanations of these situation is linked with initial stage of sustainable production technologies introduction by Ukrainian agroholdings as well as usage of extensive technologies in food security provision. The SDG 2 and especially SDG 12 disclosure in agriculture companies sustainability reporting should be promoted.

According to the results of the STI calculation (Appendix A), we obtained the following results (Table 3).



Source: compiled by the authors according to companies' sites and sustainability reports

Figure 4: Level of disclosure by Ukrainian companies in terms of SDGs for March 2021.

Intervals	Number of companies	Average point	Companies
A [80;100]	1	92.0	Astarta-Kiev
B [60;80]	1	68.0	Agricom Group
C [40;60]	5	44.8	Kernel, MHP, Nibulon, Goodvalley Ukraine, Arnica
D [20;40]	27	23.4	Clever Agro, Grain Alliance Baryshivska Grain Company), Agromino, Ukraine-2001, Fozzy Group
E [0;20]	66	4.7	Agroton, AgroGeneration, Ecoprod, Agricultural product, Avis Ukragro

Source: Compiled by the authors based on own calculations

Table 3: Grouping of Ukrainian agricultural holdings by STI index value.

The average value of the index for all 100 companies is 46.58 points. However, there is a significant variation of these values (maximum 92 points stand for Astarta, and minimum 0 is present in 29 companies).

There is a relationship between the company reporting and its ownership: if the company has foreign management, it is a guarantee that it is doing well with reporting. The only exception is Prometey. As for agricultural holdings with Ukrainian management, such dependence was not found. Moreover, the large size and turnover of the company do not guarantee that it will have better reporting (if at all) than a company with a poor land bank.

Correlation analysis (correlation coefficient = -0.25) provides preliminary evidence that between Rank and STI there is a reversal relationship: the higher the STI is – the better position in the ranking the company has (or vice versa: the better the position of the company in the ranking – the higher STI has).

To find the answer to the question who is the driver: STI or Rank Granger Causality tests are performed. Results are presented in Table 4. As can be seen, the driving factor is STI. This means the more efforts companies invest into Sustainability Transparency, the higher the position in ranking is.

	F	p-value
Granger Causality Test: $Y(\text{Rank}) = f(\text{STI})$	7.75	0.01
Granger Causality Test: $Y(\text{STI}) = f(\text{Rank})$	1.24	0.27

Source: Compiled by the authors based on own calculations

Table 4: Granger Causality Test: Rank vs STI.

Based on these results, a simple linear regression $Y(\text{Rank}) = f(\text{STI})$ is estimated to quantify the parameters of relationship; the results are reported in Table 5.

Parameter	Value
Mean Rank (a_0)	59.24 (0.00)
Slope for the STI (a_1)	-0.47 (0.01)
F-test	6.21 (0.01)
Multiple R	0.25

Note: P-values are in parentheses

Source: Compiled by the authors based on own calculations

Table 5: Regression analysis results: case of $Y(\text{Rank}) = f(\text{STI})$.

Results imply that the Rank can be described by the following equation:

$$\text{Rank}_i = 59.24 - 0.47 \times \text{STI}_i \quad (3)$$

i.e., there is a negative relationship between the Rank and the STI score. It means the higher the STI score is the better position of the company in the ranking.

We also estimate a regression with dummy variables for $Y(\text{Rank}) = f(A; B; C; D; E)$; the results are shown in Table 6.

Parameter	Value
Mean Rank (a_0)	51.00 (0.08)
Slope for the A (a_1)	-46 (0.27)
Slope for the B (a_2)	0 (-)
Slope for the C (a_3)	-13.6 (-)
Slope for the D (a_4)	0.04 (0.99)
Slope for the E (a_5)	4.70 (0.87)
F-test	1.18 (0.32)
Multiple R	0.22
Multiple R	0.25

Note: P-values are in parentheses

Source: Compiled by the authors based on own calculations

Table 6: Regression analysis results: case of $Y(\text{Rank}) = f(A; B; C; D; E)$

As can be seen, the Rank would be higher than the average for the companies from A, B, C groups. Affiliation to groups D and E means the company

would be ranked below average. This is evidence in favour of rank dependence from STI score and thus transparency of the company.

To conclude, the sustainability transparency of the company is an important element nowadays. As a result, appropriate reporting practices are required.

Conclusion

This paper explored sustainability transparency among agricultural companies in Ukraine.

Agriculture is key sphere for promotion progress in SDG 2 and 12. Despite the evidence that sustainability agriculture practices are important for business, ESG-efforts in agriculture are very limited. One of the reasons of such state of art is not sufficient sustainability transparency and disclosure by agriculture companies.

Nevertheless, the Food and Agriculture Business Principles (UN Global Compact (2021b) fundamental principle is “encourage good governance and accountability”, which stressed the huge role of transparent agriculture practice in achievement SDGs.

Authors proved that high-quality and verified sustainability reports, long history of reporting by international standards, participation in CSR and sustainable development networks and disclosure on SDGs (including 2 and 12) is key characteristics of agriculture companies transparency and effective stakeholder (investor) engagement.

The samples of the biggest 100 agriculture companies were formed to conduct a comparative study of the agricultural companies' transparency in Ukraine and their disclosure about SDG 2 and 12.

The following hypothesis was tested (H1): the higher the transparency, the better the company's position is among its peers. To do this Sustainability Transparency Index (STI) methodology is developed. To test H1 STI index is calculated for the top100 Ukrainian agriculture companies.

Preliminary stage of hypothesis testing was comparative analysis of the sustainability transparency of Ukrainian agricultural holdings according to the basic questionnaire and construction STI as well as benchmarking analysis of these companies progress towards SDGs 2 and 12 and CSR practice.

Benchmarking analysis shows that according to UN Global Compact, GRI SDD, CSR Ukraine a small representation of agricultural companies in both countries in the commonly accepted bases for sustainability and SDGs disclosure.

Basic questionnaire on the state of sustainability disclosure, SDG and CSR by agricultural companies includes links to sustainability information on the company's websites, existence of sustainability policy, available reporting period, SDG Reporting, Management report, disclosure according to ESG criteria.

The algorithm of the normalization method of sustainability CSR and SDG disclosure parameters of agricultural holdings within the specified limits was used for STI constructing.

Correlation analysis, Granger causality tests and regression analysis provide evidence in favour of high dependence of position in top 100 from the STI score.

Results of study means that sustainability transparency in agriculture companies is an important element of its activity nowadays. Recommendations to improve sustainability transparency based on suitable reporting practices are provided in this paper.

Main areas for improvement includes:

- verification of analytics sustainability transparency in agriculture, development of methodologies for formulating the sustainability indicator in agriculture companies reporting, verification procedures by auditors in the framework of building a CSR and SDGs (esp. SDG 2 and 12) strategy in the agriculture;
- development the requirements for reliability of the financial and sustainability reporting for agriculture companies in both countries and its mandatory audit;
- taking into account approaches to the mandatory audit of public interest companies, the promotion of good faith in the market of accounting services and agriculture market.
- promoting obligatory and voluntary incentives for the more comprehensive SDG 2 and more special SDG 12 disclosure by agriculture companies in both countries.

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Appendix A

Company	Astarta-Kiev	Agricom Group	Kernel	MHP	Nibulon	Goodvalley Ukraine	Arnica	Clever Agro	Grain Alliance (Baryshivka grain company)	Agromino
Sustainability information	1	1	1	1	1	1	1	1	1	1
Existence of sustainable development policy	1	1	1	1	1	1	1	1	1	1
Sustainable Development Report	1	1	1	1	1	0	0	0	1	1
E	1	1	1	1	1	1	1	1	1	1
S	1	1	1	1	1	1	1	1	1	1
G	1	1	1	1	1	0	1	1	1	1
C	1	1	1	1	1	1	1	0	1	1
SDG 1	1	1	0	0	0	0	0	0	0	0
SDG 2	1	1	1	1	1	1	1	0	0	0
SDG 3	1	1	0	0	0	1	0	0	0	0
SDG 4	1	1	0	0	0	0	0	0	0	0
SDG 5	1	1	0	0	0	0	0	0	0	0
SDG 6	1	1	0	0	0	0	0	0	0	0
SDG 7	1	1	1	0	0	1	0	0	0	0
SDG 8	1	1	1	0	0	0	1	1	0	0
SDG 9	1	1	0	0	1	0	1	1	0	0
SDG 10	1	1	0	0	0	0	0	0	0	0
SDG 11	1	0	0	1	0	1	0	0	0	0
SDG 12	1	0	1	0	0	1	1	0	0	0
SDG 13	1	0	1	1	0	1	0	0	0	0
SDG 14	1	0	0	0	0	0	0	0	0	0
SDG 15	1	0	1	0	0	0	0	1	0	0
SDG 16	0	0	0	0	1	0	0	0	0	0
SDG 17	1	0	0	1	1	0	0	0	0	0
Other goals	0	1	1	0	0	0	0	0	0	0
Verified parameters	23	17	13	11	11	11	10	8	7	7
STI	92	68	52	44	44	44	40	32	28	28
Group	A	B	C	C	C	C	C	D	D	D

Source: Compiled by authors

Table A.1: Top-10 agricultural companies in Ukraine by STI index value.

Appendix B

Parameter	Case 1	Case 2	Case 3	Case 4
Project	“You can – Metro will help”: waste management and hunger-fighting initiative	Public station for waste sorting «No waste recycling station»	The entrenchment of the practice of industrial waste minimization through their reuse	Boosting corporate energy efficiency in enterprises
SDG	2	12	12	12
Criteria	Social	Social	Environmental	Environmental, Governance
Company	Metro cash & carry Ukraine, Kyiv city charity foundation “Food Bank”	Subsidiary with foreign investments Pernod Ricard Ukraine	Ukrenergo	GIZ, Ministry of economic development and trade of Ukraine
Number of partners	Over 90	2	-	Over 10
Area	18 regions where METRO is present in Ukraine	Kyiv	Regions where the companies are present	70 enterprises from 4 industries (machine building, production of building materials, dairy industry, bread and bakery products)
Duration	2011 – currently	June 2018 - currently	2019	2018 – currently
Goals	Reduce the amount of waste in the food industry and fight against hunger by donating food and non-food products to people in need – children, people with disabilities, pensioners, people in need.	Improve the environment by involving the community in the waste sorting; encourage authorities to accelerate the adoption of necessary legislation for building the waste sorting and recycling infrastructure; change the attitudes of young people to waste management; reduce the amount of waste disposed in the landfills	To achieve environmentally sound use of all waste types throughout their life cycle by minimizing the amount of industrial waste and ensuring the possibility of their reuse; to ensure sound management of natural resources	To upgrade the quality and degree of technological sophistication and innovation of Ukrainian industries. Energy modernization of Ukrainian enterprises, taking into consideration the reduction of greenhouse gas emissions
Solution	Cooperation with food bank organization; implementation of the regular charitable initiative: “METRO Mykolay”, “Share Easter breakfast”, “Collect a school bag”, aimed at collecting food and non-food goods for charitable and non-profitable organizations in all cities of METRO Stores operation in Ukraine.	Waste sorting by the station's professional team, providing practical training for schoolchildren regarding the importance of waste sorting and processing.	The identification of the state-of-the-art methodologies of industrial waste reuse. The transfer of industrial waste (in particular porcelain insulators) to companies engaged in manufacturing construction mixtures in production processes. The reuse of industrial waste (in particular porcelain insulators) during constructions at the company's substations. The extension of the use period of porcelain insulators, which would have to be disposed of, uses them for substations' decorations.	Based on the open competition results, there were selected enterprises for pilot energy audits and pilot projects to increase energy efficiency. Advice and support are provided to companies by local service organizations who have been trained by international experts and are receiving further support and back-up from them.
Results	The donations have already received more than 90 organizations. Among the recipients – orphans, families in need, people with disabilities, refugees, pensioners. The company conducted “You can – METRO will help” social program	No Waste Recycling Station helps to reduce the amount of waste disposed in the landfills in Kyiv.	Various methods of reuse of industrial waste are defined. The use of natural resources is reduced. Further researches on scientifically sound methods of reusing industrial waste are being conducted	The Training Networks for Energy Efficiency (LEEN stands for “Learning Energy Efficiency Networks”) were introduced. In such networks, companies work together on a partnership basis to learn from each other and achieve agreed energy-saving goals. There were formed the Network of energy efficiency bakers and the Network of Manufacturers of Energy Efficient Building Materials
Impact	More than 1 million units of various food, non-food goods and basic needs products have been donated since the project implementation	470 tons of recyclables collected and sent for recycling; 200 lectures and 100 tours were provided	The utilization of industrial waste amounting to UAH 750,000 was avoided.	11 different enterprises from the region plan for 18 months to save 6330 Mwt of energy and reduce CO ₂ emissions by 4,210 tons

Source: compiled by the authors on the basis of UN Global Compact Network Ukraine (2020), Voluntary business progress review of achieving sustainable development goals in Ukraine

Table B.1: Examples of real companies' cases in achieving SDG 2 and 12 in Ukraine.