










“Sustainability-related disclosure rules and financial market indicators: Searching for interconnections in developed and developing countries”

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SUSTAINABILITY-RELATED DISCLOSURE RULES AND FINANCIAL MARKET INDICATORS: SEARCHING FOR INTERCONNECTIONS IN DEVELOPED AND DEVELOPING COUNTRIES

Abstract

In today's fast-paced business environment, integrating sustainability into financial decision-making has been a key driver of change. As stakeholders increasingly demand greater corporate transparency and accountability, regulatory bodies have stepped in to ensure that sustainability reporting is standardized and robust. This paper aims to establish the relationship between the sustainability-related disclosure rules and the dynamic indicators of the financial market. The object of the study is 74 countries of the world, which are grouped into developed and developing countries. The time period is 2021, for the stock market capitalization indicators – 2020, as the most recent years with available data. The research methods are normality tests (Shapiro-Wilk and Shapiro-Francia test), comparison methods (Student's t-test and Mann-Whitney U test, regression analysis with dummy variables), linear and non-linear correlation and regression analysis (logarithmic, polynomial). The results obtained confirmed that the sustainability-related disclosure rules are higher in developed countries than in developing ones. At the same time, in developed countries, the growth of such requirements affects the increase in stock price volatility, stock market capitalization, foreign direct and portfolio investments. For developing countries, there is also an increase in the stock market capitalization, portfolio investments and the volume of stock trading. Recognizing these trends can benefit both financial market regulators and participants to encourage the formation of a transparent and efficient financial market, thereby mitigating the problems associated with information asymmetry.

Keywords SDG, responsible investments, disclosure, regulatory instruments, stock market, volatility, equity indices

JEL Classification Q01, E44, G18

INTRODUCTION

One of the essential factors in promoting transparency, information efficiency and leveling out information asymmetry in financial markets is the impact of regulatory requirements on the disclosure standardization of sustainability reporting by companies. Moreover, the influence of this factor has an additional effect on overcoming the investment gap in achieving Sustainable Development Goals (SDG), promoting circular economy (Ievdokymov et al., 2018) and accelerating responsible investments (RI).

Adverse geopolitical and socio-economic events such as wars (mainly due to the full-scale Russian invasion of Ukraine), the global consequences of the COVID-19 pandemic, and the threat of climate change have exacerbated the problem of the already insufficient financing of

the SDGs. According to the UN report of the Inter-Agency Task Force, the current regress in achieving the SDGs is estimated as the loss of an entire decade (UN, 2022). In developing countries, the investment gap in achieving the SDGs increased by more than half of the current level (56%) to USD 3.9 trillion in 2020 (OECD, 2022). Furthermore, today the situation is only getting worse, creating cascading reactions in other sectors of the economy.

These prerequisites formed the basis for the rapid development of various global and local responsible investment initiatives that strengthen and direct the financial flows of ESG assets into sustainable investment strategies and solutions. According to Bloomberg (Bloomberg Professional Services, 2023), it is predicted that by 2025 their share will increase to a third in the total volume of assets under management. At the same time, according to the data of the UN Principles for Responsible Investment (PRI) project, there has been significant growth in the regulatory regulation of responsible investment over the past two decades. In 2021, the PRI database included more than 868 regulatory instruments and guidelines, and more than 300 policy reviews were conducted to support and stimulate the consideration of CSR, SDG and ESG criteria during RI (UNPRI, 2023). In this regard, the RI regulatory and standardization sector is also rapidly developing, which will contribute to forming a transparent and efficient financial market.

1. LITERATURE REVIEW AND HYPOTHESES

As concerns over environmental degradation, social responsibility, and corporate governance have gained prominence, the relationship between sustainability-related disclosure rules and financial market indicators has become a subject of extensive research.

A separate thematic block of scientific research traces the historical development of sustainability disclosure rules (Bose, 2020; Pasko et al., 2022; Saini et al., 2022; Khan & Chinnasamy, 2022; Beisenbina et al., 2023), highlighting key milestones such as the Global Reporting Initiative (GRI) guidelines, the International Sustainability Standards Board (ISSB) framework, and the Task Force on Climate-related Financial Disclosures (TCFD) recommendations (O'Dwyer & Unerman, 2020; Beerbaum, 2021; Afolabi et al., 2022; Diwan & Amarayil Sreeraman, 2023). ESG factors can play a significant role in determining a company's competitiveness in the labor market (Oliinyk et al., 2020). Prioritizing ESG initiatives not only aligns with changing societal values but also contributes to a positive company culture, risk management, and long-term success, all of which can attract and retain top talent. Many studies have focused on introducing non-financial reporting in EU countries as the most active global regulator (Van Oostrum et al., 2021, Hoepner & Schneider, 2022).

The main challenges and limitations of ESG market development include the lack of generally accepted political precision regarding standardization and, as a result, comparability of ESG data and ratings, difficulties with the integration of ESG factors into investment decision-making processes, as well as the potential for "greenwashing" (Matos, 2020; Dumrose et al., 2022; Shaikh, 2022; De Silva Lokuwaduge & De Silva, 2022).

A critical analysis of theoretical and empirical frameworks employed in the literature (Liu et al., 2023, Chen et al., 2023, Plastun et al., 2019, Plastun et al., 2020) reveals different perspectives on the mechanisms underlying the relationship between sustainability disclosure and financial market indicators. Chauhan and Kumar (2019) and Naeem and Cankaya (2022) emphasize the positive impact of regulation of disclosure of information on sustainable development on attracting direct financial investments in the financial market. The relationship between the disclosure of ESG information and financial indicators or overall corporate efficiency is also confirmed in Xie et al. (2019), Albitar et al. (2020), Raimo et al. (2021), and Suresha et al. (2023). Soni (2023) explores the relationship between firm-level ESG disclosures and their impact on country-level SDG scores in three prominent emerging markets: India, China, and Brazil. The findings highlight a more vital linkage between firm-specific Environment and SDG scores, suggesting that companies' environmental disclosures contribute to higher SDG scores at the country level.

The presented academic landscape in this direction needs to be more cohesive and systematized. In this study, unlike previous ones, an attempt was made to consider the financial market's key indicators and establish the dependencies between them and the requirements for standardization of reporting (in particular, reporting on sustainable development and CSR).

In this regard, this article aims to establish the relationship between the sustainability-related disclosure rules and the dynamic indicators of the financial market. The research hypotheses are the following:

H1: The level of sustainability-related disclosure rules is higher in developed countries compared to developing ones.

H2: The rise of sustainability-related disclosure rules contributes to a decrease in stock price volatility

H2.1: for developed countries;

H2.2: for developing countries.

H3: The rise of sustainability-related disclosure rules contributes to the increase in the stock market capitalization

H3.1: for developed countries;

H3.2: for developing countries.

H4: The rise of sustainability-related disclosure rules contributes to the increase in S&P global equity indices

H4.1: for developed countries;

H4.2: for developing countries.

H5: The rise of sustainability-related disclosure rules contributes to the increase in portfolio investments

H5.1: for developed countries;

H5.2: for developing countries.

H6: The rise of sustainability-related disclosure rules contributes to the increase in foreign direct investments

H6.1: for developed countries;

H6.2: for developing countries.

H7: The rise of sustainability-related disclosure rules contributes to the increase in stocks traded volume

H7.1: for developed countries;

H7.2: for developing countries.

2. METHODOLOGY

The information base of this study was sustainability-related disclosure rules and financial market dynamic indicators (Table 1) collected from the databases of the UN Principles for Responsible Investment (PRI), Bloomberg, World Federation of Exchanges; Global Stock Markets Factbook and supplemental S&P data, Standard & Poor's, International Monetary Fund, Balance of Payments Statistics Yearbook and data files. For these indicators, a sample of 74 countries of the world was formed, which are grouped into developed countries (DC) and developing countries (DPC) by markets and economic growth and for which data are available for all selected indicators (Appendix A, Table A1). The time period of the study was 2021, for stock market capitalization indicators – 2020, which are the latest years with available data.

Cumulative RI disclosure policy instruments in terms of corporate and investor ESG disclosure, investor ESG integration, mandatory and voluntary RI regulatory instruments were selected as independent variables. All these data were taken from the latest version of the PRI database. Indicators characterizing the dynamics of the financial market were chosen as dependent variables.

The following statistical and econometric methods were used to test the above hypotheses (Table 2). All calculations were performed using the STATA/SE-12 software package. At the first analysis stage,

Table 1. Characteristics of the input data

Indicators	Units of measurement	Symbol	Source
Dependent variables			
Stock price volatility	%	stprvolat	Bloomberg
Stock market capitalization to GDP	%	smcapitaliz	World Federation of Exchanges; Global Stock Markets Factbook and supplemental S&P data, Standard & Poor's
S&P Global Equity Indices	annual % change	spgei	Standard & Poor's, Global Stock Markets Factbook and supplemental S&P data.
Portfolio investment	net (BoP, current US\$)	ptfi	International Monetary Fund, Balance of Payments Statistics Yearbook and data files.
Foreign direct investment	net (BoP, current US\$)	fdi	International Monetary Fund, Balance of Payments Statistics Yearbook and data files.
Stocks traded	% of GDP	sttrd	World Federation of Exchanges database
Independent variables			
RI disclosure policy instruments (cumulative 1930-2021)	cumulative	disclinstr	UNPRI regulation database
Corporate ESG disclosure	cumulative	cordESGd	
Investor ESG disclosure	cumulative	invESGd	
Investor ESG integration	cumulative	invESGi	
Mandatory RI regulatory instruments	cumulative	mndt	
Voluntary RI regulatory instruments	cumulative	vint	

all data were tested for normal distribution using the Shapiro-Wilk and Shapiro-Francia tests, which revealed signs of nonlinearity. The logarithm and elevation to the square were used to eliminate it, which resulted in the need to conduct a nonlinear correlation and regression analysis.

Statistical tests based on comparisons, namely the parametric Student's t-test and the non-parametric Mann-Whitney U-test, were used to test the first hypothesis, which involves comparing two groups of indicators within the same sample. A regression analysis with dummy variables was performed to confirm the obtained results, which can be mathematically represented as follows:

$$Y_i = \alpha + \beta D_i + \varepsilon, \quad (1)$$

where Y_i – the dependent variable of the model, in this case – indicators of the level of sustainabili-

ty-related disclosure rules; α – free term of the equation; β – a coefficient for a dummy variable; D_i – dummy variable in the form of a binary value 0 – for developing countries and 1 – for developed countries; ε – random error.

3. RESULTS AND DISCUSSION

Investigation of hypothesis $H1$ regarding the level of sustainability-related disclosure rules in developed and developing countries requires comparing variables using the statistical Student's t-test and U Mann-Whitney U test (Table 3). For this, the null hypothesis (H_{th0}) is assumed that the mean values for the two samples are the same.

The results, which are statistically significant, showed that the averages for most indicators regarding the level of sustainability-related disclo-

Table 2. Research methodology

Methods	H1	H2	H3	H4	H5	H6	H7
Normality tests (Shapiro-Wilk test, Shapiro-Francia test)	+	+	+	+	+	+	+
Student's t-test	+						
Mann-Whitney U-test	+						
Regression analysis with dummy variables	+						
Linear correlation analysis (Pearson correlation coefficients)		+	+	+	+	+	+
Nonlinear correlation analysis (Spearman rank correlation coefficients)		+	+	+	+	+	+
Linear regression analysis		+	+	+	+	+	+
Nonlinear regression analysis (logarithmic, polynomial)		+	+	+	+	+	+

Table 3. Results of statistical tests to test hypothesis *H1*

Variables	Student's t-test			Mann-Whitney U test		
	t	Pr(T > t)	H _{tho}	z	Prob > z	H _{tho}
<i>disclinstr</i>	4.225	0.000*	rejected	4.824	0.000*	rejected
<i>cordESGd</i>	5.064	0.000*	rejected	4.800	0.000*	rejected
<i>invESGd</i>	6.182	0.000*	rejected	5.629	0.000*	rejected
<i>invESGi</i>	6.771	0.000*	rejected	5.586	0.000*	rejected
<i>mndt</i>	6.009	0.000*	rejected	5.432	0.000*	rejected
<i>vlnt</i>	1.261	0.211	not rejected	2.086	0.037*	rejected

Note: * – statistically significant at the level (p) <0,05.

sure rules differ, while they are indeed larger for developed countries. Only the indicator for RI voluntary regulatory instruments was questionable, but the difference was confirmed based on the Mann-Whitney U-test.

In addition to the statistical tests, a regression analysis with dummy variables was carried out (Table 4). Despite the low and average values of the coefficients of determination, the obtained results are statistically significant and adequate. It should be noted that, on average, developed countries have 6.8 units more RI regulatory instruments in the cumulative total than developing countries. In particular, 4.4 units more corporate ESG disclosures, 3 units more investor ESG disclosures, etc. In the context of mandatory or voluntary RI regulatory instruments, a higher number is observed for the former. As a result, hypothesis *H1* is fully confirmed, so the sustainability-related disclosure

rules are higher in developed countries than in developing countries.

The results of identifying the relationship between the growth of sustainability-related disclosure rules and the level of stock price volatility using correlation and regression analysis within the limits of hypothesis *H2* are shown in Table 5.

The analysis allowed identifying statistically significant relationships only at the level of developed countries, no similar relationships were found for developing countries. At the same time, the coefficients of determination acquired low values: cumulatively, the number of RI disclosure policy instruments can explain only 17.2% of the variance in stock price volatility, similar indicators for corporate ESG disclosure and mandatory RI regulatory instruments are 25.1% and 20, 5% The obtained coefficients indicate a direct relation-

Table 4. Results of regression analysis with dummy variables to test hypothesis *H1*

Variables	Coef.	Std. Err.	t	P > t	95% Conf. Interval		R ²
<i>disclinstr</i>	6.803	0.197	6.110	0.000*	0.810	1.596	0.198
<i>cordESGd</i>	4.412	0.173	5.480	0.000*	0.603	1.292	0.263
<i>invESGd</i>	3.021	0.250	3.180	0.000*	0.291	1.299	0.347
<i>invESGi</i>	2.418	0.180	4.370	0.000*	0.424	1.151	0.389
<i>mndt</i>	6.122	0.158	8.070	0.000*	0.961	1.593	0.334
<i>vlnt</i>	1.022	0.212	0.540	0.591	-0.309	0.538	0.022

Note: * – statistically significant at the level (p) <0,05.

Table 5. Results of correlation and regression analysis to test hypothesis *H2*

Variables	Coef.	Std. Err.	t	P > t	95% Conf. Interval	R	R ²		
								DC	
<i>stprvolat</i>	<i>disclinstr</i>	0.276	0.097	2.85	0.007*	0.080	0.471	0.415*	0.172
	<i>cordESGd</i>	0.550	0.152	3.62	0.001*	0.242	0.857	0.501*	0.251
	<i>mndt</i>	0.423	0.133	3.18	0.003*	0.154	0.693	0.454*	0.205

Note: * – statistically significant at the level (p) <0,05.

ship, i.e., a unit increase in RI disclosure policy instruments (*disclinstr*) is predicted to lead to an increase of 0.276 units the level of stock price volatility. Similarly, growth of 0.550 and 0.423 units for stock price volatility are predicted from corporate ESG disclosure (*cordESGd*) and mandatory RI regulatory instruments (*mndt*) increases.

In this regard, hypothesis *H2.1* is considered to be rejected because, in developed countries, the sustainability-related disclosure rules contribute to an increase in stock price volatility due to corporate ESG disclosure and mandatory RI regulatory instruments. Hypothesis *H2.2* is also considered to be rejected due to the absence of revealed regularities at all.

When testing the *H3* hypothesis regarding the relationship between the growth of sustainability-related disclosure rules and the increase in stock market capitalization, only the non-linear dependence based on the logarithm was statistically significant for developed countries (Table 6). Thus, a 1% increase in investor ESG integration will lead to a 0.73% increase in stock market capitalization.

On the other hand, for developing countries, an increase per unit of RI regulatory instruments is predicted to lead to an increase of 5 units of stock market capitalization, mainly due to investor ESG integration and mandatory instruments. Note that the correlation coefficient indicates a moderate influence, and the coefficient of determination explains about 20-27% of the variance within this dependence.

Thus, hypotheses *H3.1* and *H3.2* are confirmed because the growth of sustainability-related disclosure rules in developed countries and developing

countries contributes to the increase of stock market capitalization at the expense of investor ESG integration, corporate ESG disclosure and mandatory RI regulatory instrument.

The study of the relationship between the growth of sustainability-related disclosure rules and the level of S&P global equity indices using correlation and regression analysis tools showed the absence of any statistically significant and adequate results between the analyzed variables both at the level of developed and developing countries. Considering the obtained results, hypotheses *H4.1* and *H4.2* are considered to be rejected.

The search for interrelationships between the level of sustainability-related disclosure rules and the amount of portfolio investment attraction within the limits of hypothesis *H5* testified to the presence of not only linear but also non-linear dependencies (in particular, polynomial of the second degree), the results are shown in Table 7.

The cumulative RI disclosure policy instruments can predict 15.9% of the variance of the portfolio investments for developed countries and 28.6% for developing countries. The obtained regression coefficients indicate that for developed countries, the increase in the RI disclosure policy instruments (*disclinstr*) has a negative effect on the portfolio investments at low values, after which the effect changes to a positive one. The inverse dependence is observed for developing countries.

For developed countries, there is a direct positive correlation with investor ESG disclosure and integration (explaining more than 11.6% and 13.9% of the variance). In particular, the growth per unit of investor ESG disclosure (*invESGd*) or investor ESG integration (*invESGi*) is predicted to lead to

Table 6. Results of correlation and regression analysis to test hypothesis *H3*

Variables		Coef.	Std. Err.	t	P > t	95% Conf. Interval		R	R ²
DC									
<i>smcapitaliz</i>	<i>invESGi</i>	73.728	25.401	2.900	0.010	20.136	127.320	X	0.331
DPC									
<i>smcapitaliz</i>	<i>disclinstr</i>	5.016	1.774	2.830	0.010	1.347	8.685	0.508	0.258
	<i>cordESGd</i>	9.143	3.749	2.440	0.023	1.388	16.898	0.453	0.205
	<i>invESGi</i>	36.722	12.538	2.930	0.008	10.785	62.659	0.521	0.272
	<i>mndt</i>	11.965	3.330	3.590	0.002	5.076	18.855	0.599	0.359

Note: * – statistically significant at the level (p) <0,05.

Table 7. Results of correlation and regression analysis to test hypothesis *H5*

	Variables	Coef.	Std. Err.	t	P > t	95% Conf. Interval		R	R ²
DC									
ptfi	<i>disclinstr</i>	-1.45e+10	7.28e+09	-1.99	0.044*	-2.92e+10	2.92e+08	x	0.159
	<i>disclinstr2</i>	5.78e+08	7.28e+09	2.40	0.022*	8.96e+07	1.07e+09	x	
	<i>invESGd</i>	1.18E+10	5.28E+09	2.23	0.031*	1.11E+09	2.25E+10	0.341*	
	<i>invESGi</i>	1.80E+10	7.23E+09	2.49	0.017*	3.33E+09	3.26E+10	0.374*	
DPC									
ptfi	<i>disclinstr</i>	2.20E+09	1.06E+09	2.07	0.048*	2.15E+07	4.38E+09	x	0.286
	<i>disclinstr2</i>	-8.54E+07	2.95E+07	-2.89	0.007*	-1.46E+08	-2.49E+07	x	
	<i>invESGd</i>	2.30E+10	6.69E+09	3.44	0.002*	9.30E+09	3.67E+10	x	0.430
	<i>invESGd2</i>	-6.39E+09	1.51E+09	-4.24	0.000*	-9.48E+09	-3.30E+09	x	
	<i>mandt</i>	4.68E+09	1.97E+09	2.38	0.024*	6.53E+08	8.70E+09	x	0.2903
	<i>mandt2</i>	-3.53E+08	1.14E+08	-3.11	0.004*	-5.86E+08	-1.20E+08	x	
	<i>vlnt</i>	3.11E+09	1.83E+09	1.7	0.100	-6.30E+08	6.85E+09	x	0.281
	<i>vlnt2</i>	-2.88E+08	1.06E+08	-2.73	0.011*	-5.05E+08	-7.17E+07	x	

Note: * – statistically significant at the level (p) <0,05.

an increase of 11.8 and 18.0 billion US\$, respectively, attracting portfolio investments.

Non-linear relationships were also found for developing countries with investor ESG disclosure, mandatory and voluntary RI regulatory instruments. At the same time, at low values, the dependence was revealed as positive, and at high values, as negative.

As a result, hypothesis *H5.1* is confirmed because indeed, for developed countries, the growth of sustainability-related disclosure rules under certain conditions increases the portfolio investments. Hypothesis *H5.2* can instead be rejected because an increase in the number of regulatory instruments has an inverse dependence on the involvement of portfolio investments.

Hypothesis *H6.1* test confirmed that the growth of sustainability-related disclosure rules for devel-

oped countries contributes to the increase in foreign direct investments (Table 8).

In particular, ceteris paribus, a unit increase in RI disclosure policy instruments (*disclinstr*) leads to an increase of 3 billion US\$ in foreign direct investments, which is carried out in particular at the expense of corporate ESG disclosure and voluntary RI instruments. At the same time, only 10-17% of the variance is explained by these variables, the correlation coefficients also confirm a moderate positive relationship.

For developing countries, the growth of sustainability-related disclosure rules has an inverse effect on foreign direct investments. In particular, a one-unit increase in the cumulative RI regulatory instruments is predicted to lead to a decrease in foreign direct investments by USD 4.5 billion. The most significant reduction is predicted due to corporate ESG disclosure, mandatory and voluntary

Table 8. Results of correlation and regression analysis to test hypothesis *H6*

	Variables	Coef.	Std. Err.	t	P > t	95% Conf. Interval		R	R ²
DC									
fdi	<i>disclinstr</i>	3.06E+09	1.17E+09	2.62	0.013*	6.91E+08	5.42E+09	0.391*	0.153
	<i>cordESGd</i>	4.12E+09	1.99E+09	2.07	0.045*	1.00E+08	8.15E+09	0.319*	0.102
	<i>vlnt</i>	6.57E+09	2.30E+09	2.86	0.007*	1.92E+09	1.12E+10	0.421*	0.177
DPC									
fdi	<i>disclinstr</i>	-4.49E+09	5.01E+08	-8.96	0.000*	-5.51E+09	-3.46E+09	-0.857*	0.734
	<i>cordESGd</i>	-7.99E+09	1.52E+09	-5.26	0.000*	-1.11E+10	-4.89E+09	-0.699*	0.489
	<i>invESGd</i>	-2.24E+10	4.28E+09	-5.23	0.000*	-3.11E+10	-1.36E+10	-0.697*	0.486
	<i>mandt</i>	-8.05E+09	1.05E+09	-7.67	0.000*	-1.02E+10	-5.90E+09	-0.818*	0.669
	<i>vlnt</i>	-8.22E+09	1.09E+09	-7.55	0.000*	-1.05E+10	-6.00E+09	-0.814*	0.663

Note: * – statistically significant at the level (p) <0,05.

Table 9. Results of correlation and regression analysis to test hypothesis *H7*

Variables	Coef.	Std. Err.	t	P > t	95% Conf. Interval	R	R ²		
DPC									
<i>sttrd</i>	<i>disclinstr</i>	5.680	0.807	7.040	0.000*	4.014	7.346	0.821*	0.673
	<i>cordESGd</i>	11.017	2.224	4.950	0.000*	6.428	15.606	0.711*	0.506
	<i>invESGd</i>	21.544	7.357	2.930	0.000*	6.359	36.729	0.513*	0.263
	<i>mndt</i>	10.187	1.692	6.020	0.007*	6.695	13.680	0.776*	0.602
	<i>vlnt</i>	10.606	1.654	6.410	0.000*	7.191	14.020	0.795*	0.631

Note: * – statistically significant at the level (p) < 0,05.

RI regulatory instruments have a significant negative impact on attracting foreign direct investments. Thus, hypothesis *H6.2* is refuted.

The results of testing hypothesis *H7* regarding the relationship between the growth of sustainability-related disclosure rules and the increase in the volume of share trading are shown in Table 9.

No statistically significant and adequate results were found regarding the relationship between sustainability-related disclosure rules and the volume of stocks trading at the level of developed countries. On the other hand, for developing countries, it is noted that a unit increase in RI disclosure policy instruments (*disclinstr*) is predicted

to lead to a 5.7% increase in the volume of stock trading, while the coefficient of determination is 67.3%. Also, a positive impact was noted due to the growth of corporate and investor ESG disclosure. Mandatory and voluntary RI regulatory instruments have a significant impact (more than 10%) on stocks traded.

Therefore, the growth of sustainability-related disclosure rules contributes to the increase in the volume of stocks traded exclusively in developing countries. The obtained results are summarized in Table 10.

Thus, the level of sustainability-related disclosure rules is higher in developed countries compared to

Table 10. Results of testing research hypotheses

Hypothesis	Result	Description
<i>H1</i>	confirmed	The level of sustainability-related disclosure rules is higher in DC compared to DPC
<i>H2.1</i>	rejected	In DC, the growth of sustainability-related disclosure rules contributes to an increase in stock price volatility due to corporate ESG disclosure and mandatory RI regulatory instruments.
<i>H2.2</i>	rejected	In DPC, no statistically significant relationship between the growth of sustainability-related disclosure rules and stock price volatility was found.
<i>H3.1</i>	confirmed	In DC, the growth of sustainability-related disclosure rules contributes to the increase of stock market capitalization due to investor ESG integration.
<i>H3.2</i>	confirmed	In DPC, the growth of sustainability-related disclosure rules contributes to the increase in stock market capitalization of the market at the expense of investor ESG integration, corporate ESG disclosure, mandatory RI instruments.
<i>H4.1</i>	rejected	In DC, no statistically significant relationships were found between the growth of sustainability-related disclosure rules and the level of S&P global equity indices
<i>H4.2</i>	rejected	In DPC, no statistically significant relationships between the growth of sustainability-related disclosure rules and the level of S&P global equity indices were found
<i>H5.1</i>	confirmed	In DC, the growth of sustainability-related disclosure rules under certain conditions contributes to an increase of portfolio investments, in particular due to investor ESG disclosure and investor ESG integration.
<i>H5.2</i>	rejected	In DPC, the growth of requirements for sustainability-related disclosure rules (in particular, due to investor ESG disclosure, mandatory and voluntary RI regulatory instruments), on the contrary, leads to a decrease in portfolio investments.
<i>H6.1</i>	confirmed	In DC, the growth of sustainability-related disclosure rules helps to increase foreign direct investments due to corporate ESG disclosure and voluntary RI regulatory instruments.
<i>H6.2</i>	rejected	In DPC, the growth of sustainability-related disclosure rules has an inverse effect on foreign direct investments, mainly due to corporate ESG disclosure, mandatory and voluntary RI regulatory instruments.
<i>H7.1</i>	rejected	In DC, no statistically significant relationships were found between sustainability-related disclosure rules and the volume of stocks traded.
<i>H7.2</i>	confirmed	In DPC, the growth of sustainability-related disclosure rules positively affects the volume of stocks traded, mainly due to corporate ESG disclosure, mandatory and voluntary RI regulatory instruments.

developing ones. This growth for developed countries positively affects stock price volatility, stock market capitalization, foreign direct investments, and portfolio investments. Also, in developing countries, the growth of sustainability-related disclosure rules positively affects stock market capitalization, portfolio investments and stock traded volume.

Previous work in this direction includes research on the impact of ESG disclosure on returns and volatility (Liu et al., 2023), financial market anomalies, and information asymmetry (Chen et al., 2023). Both studies focus on the Chinese financial market and require transposition to other global markets.

In both cases, ESG disclosures contributed to the minimization of volatility, information asymmetry and manifestations of the anomaly of the efficient market hypothesis. However, a similar study was not conducted for the Ukrainian

market. Separate works of the author relate to the analysis of similar anomalies in world markets (Plastun et al., 2020).

The current study is a continuation of two previous ones that examined the relationship between ESG disclosure regulation and a country's competitiveness (Plastun et al., 2019) and its SDG ranking (Plastun et al., 2020). However, the context of the study of such regulation's impact on the financial market parameters was not disclosed. In this case, the research question is whether the regulatory requirements for the standardization of the regulation of disclosure of information on sustainable development affect the indicators of the financial market. The answer to this question gives an idea of the future ways of standardization in the field of sustainable development and synergy in the development of the financial market and the RI market in the countries of the world and Ukraine.

CONCLUSION

This study is devoted to identifying the relationship between sustainability-related disclosure rules and the dynamic indicators of the financial market of developed and developing countries. Independent variables were the cumulative amount of disclosure policy instruments in general and their specifications on corporate ESG disclosure/investor ESG disclosure/investor ESG integration and mandatory/voluntary regulatory instruments for RI. Indicators characterizing the dynamics of the financial market are included in the dependent variables (in particular, stock price volatility, stock market capitalization to GDP, S&P global equity indices, portfolio investments, foreign direct investments, stocks traded).

The results show that the level of sustainability-related disclosure rules is significantly higher in developed countries compared to developing ones. The work confirms that in developed countries, the growth of sustainability-related disclosure rules contributes to the increase in stock price volatility (in particular, due to corporate ESG disclosure, mandatory regulatory instruments), stock market capitalization (due to investor ESG integration), portfolio investments (through investor ESG disclosure and ESG integration), foreign direct investments (at the expense of corporate ESG disclosure, voluntary regulatory instruments). However, the growth of the total cumulative number of RI regulatory instruments has a negative effect on the volume of portfolio investment attraction at low values, after which the effect changes to a positive one.

For developing countries, an increase in sustainability-related disclosure rules per unit is predicted to lead to an increase in stock market capitalization (in particular due to corporate ESG disclosure, investor ESG integration, mandatory regulatory instruments), portfolio investments (through ESG disclosure, mandatory/voluntary regulatory instruments) with low values, stock trading (through corporate ESG disclosure, investor ESG disclosure, mandatory and voluntary regulatory instruments). At the same time, the growth of sustainability-related disclosure rules will lead to a decrease in the volume of direct foreign investments (due to corporate ESG disclosure instruments, mandatory/voluntary regulatory instruments)

Considering these patterns will be useful for financial market regulators and their participants, as it will create a more transparent and efficient financial market and avoid information asymmetry.

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APPENDIX A

Table A1. Groups of countries analyzed in this study by markets and economic growth

Groups	Countries
Developed countries (DC)	Australia, Austria, Belgium, Canada, Chile, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Saudi Arabia, Singapore, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, United Arab Emirates, United Kingdom, United States
Developing countries (DPC)	Argentina, Bangladesh, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, China, Colombia, Egypt, India, Indonesia, Kazakhstan, Kenya, Malaysia, Mauritius, Mexico, Mongolia, Morocco, Namibia, Nigeria, Pakistan, Panama, Peru, Philippines, Russia, South Africa, Tanzania, Thailand, Tunisia, Turkey, Ukraine, Venezuela, Vietnam