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Financial Viability For Sustainable Development Of Plastic And Packaging Companies Listed In Vietnam

Dr. Hoang Dinh Huong

Hanoi University of Natural Resources and Environment , Email: Huonghd.ecore@gmail.com

Abstract: The study aimed to analyze the impact of financial viability on the sustainable development of plastic and packaging manufacturing companies under the Vietnam Stock Exchange – Import and Export (HNX, HoSE, and Upcom) through a study of 30 plastic and packaging companies, corresponding to 360 observations for the period 2010 - 2021. Using Qualitative Research (Synthetic Methods; Statistical methods, description; Inductive and interpretive methods) and quantitative research methods (linear regression methods), the author identified seven financial factors affecting the sustainable development of companies, including (1) Capital size of plastic and packaging manufacturing companies (Size); (2) Short-term debt ratio (Std); (3) Short-term asset investment ratio (Inv); (4) Ratio of accounts receivable (Rec); (5) Return on assets (ROA); (6) Return on equity (ROE). Based on the research results, the author offers several discussions and assessments on the critical role of improving the financial viability of plastic and packaging manufacturing companies and recommendations for financial solutions aimed at sustainable development for companies.

Keywords: Financial ability; Durable growth; Competitiveness; Performance

1. INTRODUCTION

In a market economy, most companies set sustainable development goals as higher than the goal of maximizing profitability, and even many consider sustainable development a vital factor of the business. Because when the company develops sustainably, cash flow increases, profits, revenue, capital, funding, and the company's reputation increase rapidly. Plastic and packaging manufacturing companies in recent years have substantially developed income, despite being negatively affected by the Covid-19 pandemic. However, the turnover of plastic products and packaging in 2021 reached 4.93 billion USD, up nearly 35% compared to 2020; in 2021, the plastic industry will contribute up to 7.19 billion USD to Vietnam's total export turnover. Major markets such as the US, EU, and Japan ... all sharply increased import order contracts from Vietnamese plastic manufacturing companies. Specifically, the US imported plastic products from Vietnam worth nearly 1.85 billion USD, up 68.64%. Ranked second is Japan with 696.9 million USD, up 3.55%, followed by the ASEAN region with 575.8 million USD, up 23.3%, and the EU market reached 557.7 million USD, up 21.7%.

Table 1. Vietnam plastic product export market in 2021

Market	Year 2021 (Million USD)	Increase/decrease compared to 2020 (%)
America	1.847	68,64
Japan	696,86	3,55
ASEAN	575,82	23,33
EU	557,68	21,73

(Source: https://baodautu.vn/ and Import and Export Report 2021)

Besides plastic manufacturing companies with strong financial capacity and high competitiveness, there are still many companies with limited financial capacity, affecting operational efficiency and ability to maintain development in the market, causing delays in delivery as well as not ensuring quality, quantity, and delivery deadline as committed. Thereby causing a loss of trust with customers; as a result, many companies have had to stop operations, dissolve and merge with partners with more substantial financial capacity, such as Saigon Plastics Joint Stock Company; Saigon Plastic Packaging Joint Stock Company; Tan Hoa Plastic Joint Stock Company; NHP Import and Export Production Joint Stock Company ... Researchers have explained this through works such as Nwanya (2017), the cause of the decline in production efficiency of plastic manufacturing companies is due to an increase in downtime in production. Multiple regression analysis is also used to compare rest and other variables such as cycle time, power, weight, and overall equipment efficiency (OEE). The optimization model maximized uptime to 332 minutes per active shift, thus reducing downtime. This result showed a significant increase in production rates for different product categories, increasing by 140, 120, 120, 240, and 90 products after optimization(Nwanya, Udofia, & Ajayi, 2017), respectively. According to Poves-Calderno et al. (2019), the effect of non-fulfillment orders in plastic sheet manufacturing companies is that long periods of non-production reduce the indicator of overall equipment efficiency (OEE). According to the authors, solving the problem involves using a systematic approach and combining preventive maintenance techniques and SMED of lean manufacturing methods, with the aim of reducing inefficient time to improve the OEE(Poves-Calderno, Ramirez-Mendoza, Nuñez-Ponce, & Alvarez-Merino, 2019). According to Aliamutu (2022), the increase in environmental costs has a significant and positive effect on the financial performance of plastic manufacturing companies. Plastic manufacturing companies should put resources into the ecological cost fund as much as possible to improve their economic viability(Aliamutu, 2022). According to Gu et al. (2020), the spread of volatility from the international oil market to the recycled plastic market and plastic stockpiles is direct. However, the impact of oil prices on profits from recycled plastic prices is negligible. The authors observed that online attention chains were positively correlated with the association between oil price returns and plastic stock index returns but were inversely correlated with dynamic correlations between recycled plastic price returns and plastic stock index returns. The findings suggest that as oil prices and plastic manufacturers' performance are inextricably linked, these companies can use virgin plastic as a primary raw material and pay more attention to alternatives (i.e., recycled plastics) to improve their raw material portfolios, thereby reducing associated costs(Gu, Wang, Guo, & Fan, 2020)...

Therefore, in addition to developing the scale of plastic and packaging companies, it is necessary to set development goals but must be sustainable to reduce risks and losses in the present and future. Sustainable development has two aspects: when enterprises control and ensure the stability of funding for development, sustainable development will bring maximum benefits to businesses, whereas enterprises develop uncontrollably, imbalances in resources and financial needs, the growth rate of revenue exceeds the growth rate of net cash flow, interest and capital flows will come depending on external financial sources, non-repayable debt, the risk of economic imbalance, possible risks. So how to develop but must be sustainable, in accordance with the business's financial ability, is one of the resolute principles of business managers producing plastics and packaging.

2. LITERATURE REVIEW AND PREVIOUS RESEARCH STUDIES

Around the world, there are different views on the financial viability of the sustainable development of plastic and packaging companies, according to Higgins (1977). The researcher developed a sustainable development model (SGR) and came up with four financial indicators that affect companies' sustainability: Dividends, profit margins, asset turnover, and capital structure (Higgins, 1977). According to Asgar et al. (2015), there is an inverse relationship between a company's growth opportunities and the rate of change in retained earnings ratio, and at the same time, a direct and meaningful relationship between company size and a change in controlled earnings ratio, i.e., a reciprocal relationship (Asgari, Pour, Zadeh, & Pahlavan, 2015). According to Hafid (2016), factors that make a company's profits gradually decrease due to the composition of the cost of goods sold and other costs increasing. The correlation between variable (ROL) reflected in profit margins and Gross Assets Return (TATO) affecting the overall sustainability (SGR) of the company shows a strong correlation between them (Hafid, 2016). According to Mukherjee et al. (2018), a significant positive relationship exists between liquidity, profitability, and leverage with the company's sustainable growth rate (Mukherjee & Sen, 2018). Rubunda et al. (2019) show that equity financial structure positively and significantly impacts development, while the resulting retained earnings structure is negligible(Rubunda, Namusonge, & Oluoch, 2019). According to Nugroho (2020), return on equity (ROE) is the only factor affecting sustainable development (SGR) (Nugroho, 2020). According to Akhtar et al. (2021). Three measures of financial leverage, i.e., short-term debt (STDL), long-term debt (LTDL), and total debt (TLEVR), were applied to consider their impact on operating efficiency, i.e., sustainable development (SGR). The result has a significant negative effect on financial leverage on sustainable development. The results show that (STDL), a significant debt source, contributes to higher refinancing risks for companies and thus negatively affects operational efficiency (Akhtar, Yusheng, Haris, Ain, & Javaid, 2022). According to Mubeen et al. (2021), businesses with secondary equity issues are more likely to grow sustainably than businesses without secondary equity issues. Company-specific factors important to evaluating the SGR model include leverage and size, while dividend and profit policies give different results (Mubeen, Ahmed, Iqbal, & Arif, 2021).

From different perspectives on the financial viability for sustainable development and considering the perspective of plastic and packaging manufacturing companies as a type of production of a specific nature, according to the author of the article: Financial ability for sustainable development for plastic and packaging manufacturing companies consists of two constituent parts: Endogenous financial knowledge and exogenous financial ability. The endogenous financial ability for sustainable development of the enterprise is part of the profit left for reinvestment. Exogenous financial capability is the sustainable development of enterprises mobilized from outside to meet capital needs for growth.

3. METHODOLOGY AND PROPOSED MODEL

The study uses a combination of qualitative research methods and quantitative research.

* Qualitative research methods: Synthetic methods; Statistical methods, description; Inductive and interpretive methods

* Quantitative research objectives. The study used a linear regression model based on panel data Pooled OLS, FEM, and REM to examine the impact of financial viability on the sustainable development of plastic and packaging companies on VNX.

* Method. The study uses STATA 14 software to analyze regression model selection and verify and estimate the array data regression model fixed impact regression (Fixed-Effects Model, Covariance model, Within Estimate,

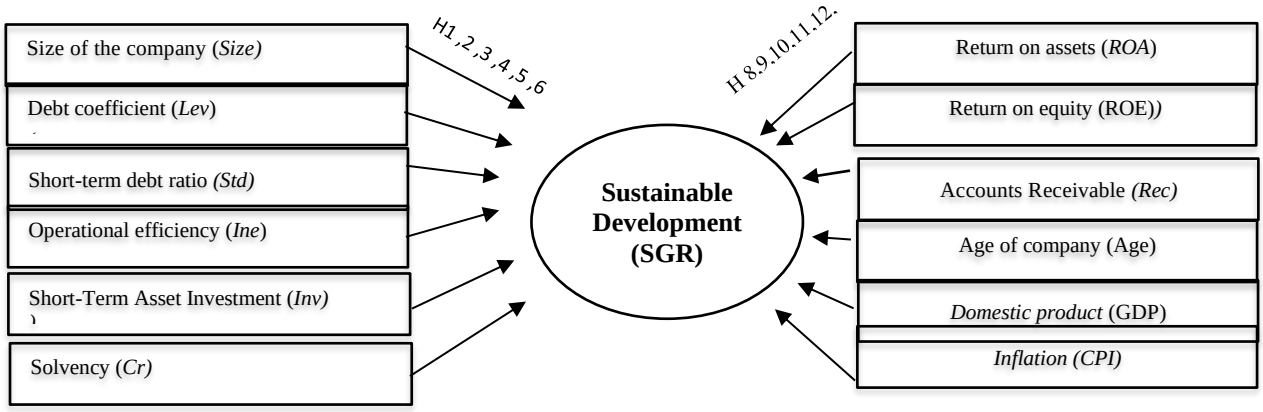
Individual Dummy Variable Model, Least Squares Dummy Variable Model- Fem), random impact regression (Radom-Effects Model, Random Intercept, Partial Pooling Model-Rem), experimental Hausman test, to select the appropriate model from among three models. The chosen model continues to be tested for defects, and remediation is carried out for defects in the model.

* Research data. The data used by the author is secondary data taken from the page (Vietstock.vn), the annual report of plastic and packaging manufacturing companies, and the General Statistics Office (Gso.gov.vn). The data set includes financial statements of 30 plastic and packaging manufacturing companies under the Vietnam Stock Exchange (on HNX, HoSE, Upcom), corresponding to 360 observations in the period 2010 – 2021, the study will exclude newly established, or consolidated companies that make financial data not comparable and companies do not disclose enough information needed in research. According to Bollen (1989), when analyzing a linearly structured model, the sample size is calculated using the formula n=5*2i (i is the observed variable in the model). According to Tabachnick and Fidell (2007), multiple linear regression analysis sample sizes are calculated using the formula n= 50 + 8q (q is the number of independent variables in the model).

- Data cleaning: Before conducting data analysis, the author calibrates the variables' parameters to ensure that the data processing results honestly reflect the research object.

* Selection of variables in the model.

The dependent variable is developed sustainability (variable SGR is measured by the ratio of Reinvested Retained Return/Early Equity), and the proprietary variable is capability finance of company product plastic export and packaging.



* Statistics of variables in the model, name and symbol variables, calculation formulas.

Table 2. Statistics of variables of the financial ability model for sustainable development of plastic and packaging companies in Vietnam

Tt	Names and variable symbols	Calculation formula	Expectations
Variable Dependency: Sustainable Development (SGR)			
Independent variables:			
1	Size of the company (Size)	Ln (Total Assets)	+
2	Debt-to-equity ratio (Lev)	Total Debt/Equity	+
3	Short-term debt ratio (Std)	Short-term liabilities/Liabilities	+
4	Short-Term Asset Investment Rate (Inv)	Short-term assets/Total assets	+

5	Operational efficiency (Ine)	Operating expenses/net revenue	-
6	Ratio of Receivables (Rec)	Receivables /Total Assets	-
7	Solvency (CR)	Short-term assets/Current liabilities	+
8	Return on assets (ROA)	Profit after tax / Average total assets	+
9	Return on equity (ROE)	Profit after tax / Average equity	+
Control variables and macro variables:			
10	Age of company (Age)	Ln (Year of the metric collection – Year of establishment)	+
11	Gross domestic product (GDP)	Annual growth of real GDP	+
12	Inflation (CPI)	Annual inflation growth rate	-

(Source: compiled by author)

* The research model takes the form of:

$SGR = \beta_0 + \beta_1*Size_{it1} + \beta_2*Lev_{it2} + \beta_3*Std_{it3} + \beta_4*Inv_{it4} + \beta_5*Ine_{it5} + \beta_6*Rec_{it6} + \beta_7*Cr_{it7} + \beta_8*ROA_{it8} + \beta_9*ROE_{it9} + \beta_{10}*Age_{it10} + \beta_{11}*GDP_{it11} + \beta_{12}*CPI_{it12} + v_i + \varepsilon_{it}$ với i =1,2,…,n và t = 1,2,..,t (*)

Inside:

β_0: Blocking factor

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}$,: are the slope coefficients of independent variables

$\mu_{it} = v_i + \varepsilon_{it}$, the model's error is separated into two parts: v_i represents unobservable elements that differ between objects but do not change over time, ε_{it} represents unobservable factors that differ between objects and change over time.

* Research hypotheses:

- Hypothesis H_{01}: The variable (Size) has the same influence as the variable (SGR); the larger the size of the company, the more sustainable development.

- Hypothesis H_{02}: The variable (Lev) has the same influence as the variable (SGR); the greater the financial leverage the company uses, the more sustainable it will be.

- Hypothesis H_{03}: The variable (Std) has the same influence as the variable (SGR); the more companies prioritize using short-term debt, the more sustainable it is.

- Hypothesis H_{04}: The variable (Inv) has the same influence as the variable (SGR); the higher the rate of short-term asset investment, the more sustainable development.

- Hypothesis H_{05}: Variable (Ine) has the opposite effect on variable (SGR); the lower the company's operating costs, the more sustainable it will be.

- Hypothesis H_{06}: Variable (Rec) has the opposite effect on variable (SGR); the lower the proportion of receivables, the more sustainable development.

- Hypothesis H_{07}: The variable (Cr) has the same influence as the variable (SGR); the higher the solvency, the more sustainable development.

- Hypothesis H_{08}: Variable (Roa) has the same influence as a variable (SGR); the higher the asset's profitability, the more sustainable development.

- Hypothesis H_{09}: Variable (Roe) has the same influence as the variable (SGR); the higher the return on equity, the more sustainable development.

- Hypothesis H_{10}: The variable (Age) has the same influence as the variable (SGR); the longer the company has a long operating time, the more sustainable it is.

- Hypothesis H_{11}: Variable (GDP) has the same influence as a variable (SGR); the annual growth of real GDP, the more sustainable the plastic and packaging companies of VNX.

- Hypothesis H_{12}: Variable (CPI) has the opposite effect on variable (SGR); the annual inflation growth rate decreases and the more sustainable the plastic and packaging companies of VNX develop.

4. RESEARCH RESULTS

Table 3 shows the standard deviation used to measure the dispersion of the dataset around the mean. It is easy to see that most variables' STD Deviation/Mean values have values less than 1, the standard deviation is less than the average, weak volatility data, and observational statistical data of low spread sample.

Table 3. Statistical results of variables in the model

Variable	Obs	Mean	Std. Dev.	Min	Max
SGR	360	467.554	542.676	-8.773.625	1.642.931
Lev	360	13.808	2.635.541	-266.425	3.612.935
Std	360	.8647972	.1532449	.269099	1
Inv	360	.5993077	.1709135	.1278685	.9868603
Ine	360	.8632197	.1293986	.6201131	2.445.487
Rec	360	.2303969	.1053873	.0301232	.7003667
CR	360	2.324.612	2.373.132	.0816988	1.729.825
ROA	360	.0449482	.1282605	-1.693.255	.2803001
ROE	360	.0759309	.5450281	-8.773.625	1.642.931
Age	360	2.864.255	.8308376	0	4.110.874
GDP	360	.0571667	.0143912	.0258	.0708
CPI	360	.0308667	.0959395	-.2436	.1813
Size	360	2.682.865	1.330.575	2.440.852	3.027.293

(Source: Statistical research on Stata 14 software)

* Multi-line testing. The study used the variance inflation factor (VIF) to examine multicollinearity. If the VIF coefficient does not exceed 10, the study model has a multicollinearity sign.

Table 4. multicollinearity test results in the model

Variable	Bright	1/VIF
ROA	4.24	0.236025
Lev	4.11	0.243109
Ine	4.11	0.243601
ROE	3.75	0.266979
Inv	2.54	0.394141
CR	2.02	0.494235
Rec	1.70	0.589209
Std	1.61	0.619892
Size	1.30	0.770439
Age	1.18	0.847942
GDP	1.09	0.918811
CPI	1.03	0.973105
Mean VIF	2.39	

(Source: Statistical author on STATA 14 software)

The variables included in the model (*) are related to rotation which has interrelated characteristics, so when running regression, the author conducts regression separately to avoid multicollinearity. However, in order to consider the remaining independent variables that are multicollinearity with each other, the author performs a multicollinearity test with independent variables when included in the model at the same time. Observation of Table 4 shows that the VIF of the variables in the model all has values less than 10. This suggests that the study regression model does not have multicollinearity phenomena, independent variables that do not affect the interpretation results of the model.

* Selection of estimation model

To perform panel data regression, the study used regression of least squares (Pool-OLS), fixed effects regression method (FEM), and random effects regression method (REM).

The study used the Hausman test to choose between regression (FEM) and (REM) models for the sample's tabular data.

The Hausman test has the following hypotheses:

$H_{0:}$ There is no correlation between the explanatory variables and the random component (i.e., the REM model is consistent)

$Q_{1:}$ There is a correlation between the explanatory variables and the random element (i.e., the FEM model is suitable).

Hausman test results (Table 5), the study received prob results of 0.0294 less than 0.05 (5%). Thus, with a significance of 5%, there is no basis to refute the H_0 hypothesis; the suitable method chosen is fixed influence (FEM). Therefore, the study will use modeling (FEM) to regress the impact of financial viability on the sustainable development of plastic and packaging companies in the period 2010 – 2021:

Table 5. Hausman Test results for the model

	Coefficients			
	(b) FEM	(B) REM	(b−B) Difference	sqrt(diag(V_b−V_B)) S.E.
Lev	.1401317	.1335975	.0065343	.0429604
Std	2.33915	−.7455849	3.084735	.9700404
Inv	−3.369285	−1.94129	−1.427996	1.037213
Ine	−1.349257	−.1729857	−1.176271	1.915494
Rec	2.169948	−.8007725	2.97072	1.047114
CR	.2597766	.2325127	.0272639	.0312936
ROA	−1.895472	−1.318066	−.5774062	1.798268
ROE	100.6024	100.3942	.2081482	.2202318
Age	−3.203181	−1.091036	−2.112145	.7993249
GDP	−4.647696	−1.633131	−3.014565	2.039225
CPI	.7675444	.7516849	.0158595	.1073929
Size	1.434919	.2397698	1.195149	.3853384

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(12) = (b−B)'[(V_b−V_B)^(−1)](b−B)
= 22.80
Prob>chi2 = 0.0294

(Source: Statistical research on STATA 14 software)

* Check the suitability of the model.

Checking the variance, table 5 results of the FEM model (xttest3 command) show that prob=0.0000<0.05 fem models have variable variance.

Table 6. Test results of variable error variance in FEM

Modified Wald test for GroupWise heteroskedasticity
in the fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (91) = 3.7e+35
Prob>chi2 = 0.0000

(Source: Statistical research on STATA 14 software)

Self-correlation test (xtserial command). Table 7 shows that the FEM model has prob=0.0836>0.05, so the FEM model has no self-correlation.

Table 7. Self-correlation test results in FEM

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 81) = 3.068
Prob > F = 0. 836

(Source: Statistical research on STATA 14 software)

Next, the study conducted multicollinearity testing between variables in the model and variance testing (collin command). The results of the multicollinearity test shown in Table 8 show that the independent variables have VIF<10 values, demonstrating no multicollinearity.

Table 7. Multicollinearity inspection results in FEM

Variable	VIF	SQRT VIF	Tolerance	R-Squared
Lev	4.11	2.03	0.2431	0.7569
Std	1.61	1.27	0.6199	0.3801
Inv	2.54	1.59	0.3941	0.6059
Ine	4.11	2.03	0.2436	0.7564
Rec	1.70	1.30	0.5892	0.4108
CR	2.02	1.42	0.4942	0.5058
ROA	4.24	2.06	0.2360	0.7640
ROE	3.75	1.94	0.2670	0.7330
Age	1.18	1.09	0.8479	0.1521
GDP	1.09	1.04	0.9188	0.0812
CPI	1.03	1.01	0.9731	0.0269
Size	1.30	1.14	0.7704	0.2296
Mean VIF	2.39			

(Source: Statistical research on STATA 14 software)

As such, the FEM model does not have multicollinearity. To overcome the variable error variance defect, the study used the Feasible Generalized Least Squares (FGLS) model to obtain a solid and efficient estimate. The study used the Esttab command to compare models with each other (Table 9). Command: Esttab OLS FEM REM GLS, r2 star(* 0.1 ** 0.05 *** 0.01) brackets no-gap compress

Table 9. Results of regression of financial capacity model impacting the sustainable development of plastic and packaging companies in Vietnam

Variable	OLS	Five	REM	GLS
Lev	0.0134	0.140	0.134	-0.00832
	[0.08]	[0.90]	[0.87]	[-0.05]
Std	-4.599**	2.339	-0.746	-4.400***
	[-2.42]	[1.15]	[-0.41]	[-3.31]
Inv	2.336	-3.369	-1.941	3.893***
	[1.09]	[-1.34]	[-0.82]	[2.72]
Ine	0.259	-1.349	-0.173	-1.673
	[0.07]	[-0.29]	[-0.04]	[-0.81]
Rec	-8.765***	2.170	-0.801	-10.66***
	[-3.09]	[0.76]	[-0.29]	[-5.37]
CR	0.153	0.260**	0.233**	0.0134
	[1.11]	[2.23]	[2.03]	[0.20]
ROA	-6.984*	-1.895	-1.318	-5.067**
	[-1.90]	[-0.43]	[-0.32]	[-2.26]
ROE	99.53***	100.6***	100.4***	99.76***
	[122.26]	[138.94]	[142.22]	[149.40]
Age	-0.150	-3.203***	-1.091*	-0.144
	[-0.45]	[-3.32]	[-1.89]	[-0.53]
GDP	8.633	-4.648	-1.633	1.599
	[0.54]	[-0.41]	[-0.14]	[0.16]
CPI	0.972	0.768	0.752	-0.731
	[0.38]	[0.44]	[0.42]	[-0.47]
Size	-0.475**	1.435***	0.240	-0.478***
	[-2.42]	[2.93]	[0.75]	[-3.43]
_cons	14.09**	-31.70**	-4.490	16.77***
	[2.02]	[-2.48]	[-0.47]	[3.63]
N	360	360	360	360
R-sq	**0.755**			
t statistics in brackets				
* p<0.1, ** p<0.05, *** p<0.01				

(Source: Regression Study on STATA 14 Software)

Model regression results (Table 9):

SGR = 16.77 – 0.478*Size – 4.400*Std + 3.893*Inv - 10.66*Rec - 5.067*ROA + 99.76*ROE + μ

The deterministic factor (R^2) is the coefficient that assesses the suitability of the regression model. The value of the coefficient (R2) indicates what percentage of variation in the dependent variable can be explained by the regression model. Based on the regression results, six independent variables explain 75.5% of the interpretation of the SGR recovery variable, including Capital size of the plastic and packaging company (Size); Short-term debt ratio (Std); Short-term asset investment rate (Inv); Ratio of receivables (Rec); Return on assets (ROA); Return on equity (ROE). Specifically, the impact results are as follows:

- The capital size of plastic and packaging companies(Size): The opposite impact on the sustainable development of plastic and packaging companies, with a high significance of 1%. This is in line with the practice in Vietnam when many plastic and packaging companies are state-owned, large-scale, but not high in performance leading to financial incontinence, missed business opportunities, and difficulties in fending off when risks occur.

- Short-term debt ratio (Std)**:** Harms the sustainable development of plastic and packaging companies, with a high significance of 1%. The larger the use of short-term capital, the more limited their ability to grow sustainably.

- Short-term asset investment rate (Inv)**:** Has a similar impact on the sustainable development of plastic and packaging companies, with a high significance of 1%. The more companies invest in short-term assets, the more sustainable the ability to develop, and the more reasonable the decisions to invest in short-term investments.

- Receivables ratio (Rec): Has the opposite impact on the sustainable development of plastic and packaging companies, with a high significance level of 1%; this is in line with the practice in Vietnam; if companies maintain a high receivable ratio, it means that most of the capital of the companies goes to finance customers and partners, At this time, the financial strength of companies will depend on the economic situation as well as fluctuations in the portfolios of customers and partners and bring significant risks to the business.

- Return on equity (ROE): Has a similar impact on the sustainability of plastic and packaging companies, with a very high significance level of 1%. The greater the return on equity of plastic and packaging companies, the stronger the financial capacity of the plastic and packaging manufacturing company, and the more sustainable the company will develop. This is also in line with the practice in Vietnam when a plastic and packaging company has an increased return on equity, which means that the plastic and packaging company does business effectively and thus contributes to increasing equity through profits left; therefore, financial strength will be further enhanced.

- Return on total assets (ROA): The opposite impact on the sustainable development of plastic and packaging companies, with a high significance level of 5%. In the research period, companies have not used their assets well. They have not contributed to sustainable development for the company.

In addition, the model (*) shows a less significant relationship between the variables: solvency (CR); Operational Efficiency (Ine); leverage (Lev) and control and macro variables (GDP, CPI, Age) with sustainable development. Implications of management activities such as improving solvency, improving operational efficiency, and using leverage have not significantly contributed to increasing financial capacity and sustainable development of plastic and packaging manufacturing companies. Especially in the research period, no significant relationship was found between the age variable of companies and sustainable development, which means that the longer the companies have been in operation, the more The theory has a lot of experience in management and administration, has the advantage of market share, and profit to help the company develop sustainably, but the results of the regression model (*) give the opposite effect.

5. DISCUSSION AND CONCLUSION

Based on the results of the model regression inspection, the author makes some recommendations on financial solutions for sustainable development goals for plastic and packaging products on the Vietnam Stock Exchange (VNX):

Firstly, companies with a long period of operation are recommended to restructure and restructure strategic investors to improve operational efficiency; such companies include

Tan Tien Plastic Packaging Company; Tan Khanh An Packaging Company; Saigon Mesh Textile Company; Binh Minh Plastic Company; Da Nang Plastics Company; Vietnam Plastics Company; Rang Dong Holding Company; Tan Phu Vietnam Company...

Secondly, actively increase the size of equity such as: increasing retained profits for reinvestment (during this period, dividend surplus policy can be applied), increasing the contributed capital of the owner, and issuing shares (such as preferred shares to increase the efficiency of the stock issuance channel), mergers and consolidations with companies in the same plastic and packaging industry with the same financial capabilities and business characteristics. Ormergers and coalitions with domestic and foreign corporations with strong financial capacity.

Thirdly, withdraw debt capital, especially short-term debt, or restructure debt in the direction of increasing the long-term debt ratio (debt capital can be mobilized through the issuance of convertible bonds with a reasonable period of 2-3 years, with this form in the short term to meet the needs of capital, and will the debt convert into equity after the maturity of the bond).

This is, maintaining the policy of low receivables and strengthening debt collection. The apparent benefits of bear selling will increase competitiveness, contribute to market expansion, attract many customers, reduce inventory, and enhance customer relationships, thereby increasing revenue and profit. However, an amount of capital is misappropriated, rising costs, the risk of incurring bad debts, and the chance of not being recovered adversely affect the sustainable development of the enterprise.

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APPENDIX: PLASTIC AND PACKAGING MANUFACTURING COMPANIES LISTED ON THE VIETNAM STOCK EXCHANGE (VNX)

No.	Stock code	Company Name	Year of establishment	Total assets (billion VND)
1	AAA	An Phat Bioplastics Joint Stock Company	2002	10.009,53
2	Old	Tan Binh Culture Joint Stock Company	1989	276,58
3	APH	An Phat Holdings Joint Stock Company	2002	12.328,07
4	BBH	Hoang Thach Packaging Joint Stock Company	1999	102,57
5	BMP	Binh Minh Plastic Joint Stock Company	1977	2.838,02
6	Day	Dong A Plastic Group Joint Stock Company	2001	2.028,80
7	DNP	Dong Nai Plastic Joint Stock Company	2004	14.040,01
8	DPC	Da Nang Plastic Joint Stock Company	1976	73,62
9	DTT	Do Thanh Industrial Joint Stock Company	1994	152,12
10	HCD	HCD Manufacturing and Trading Investment Joint Stock Company	2011	554,42
11	HNP	Hanel Plastic Foam Joint Stock Company	1994	226,68
12	NHP	NHP Import and Export Production Joint Stock Company	2013	294,07
13	NNG	Ngoc Nghia Industry - Service - Trading Joint Stock Company	1993	1.998,93
14	NSG	Saigon Plastic Joint Stock Company	1989	150,32
15	NTP	Tien Phong Youth Plastic Joint Stock Company	2007	4.898,20
16	PBP	PetroVietnam Packaging Joint Stock Company	2010	102,14
17	PBT	Petroleum House and Trading Joint Stock Company	2008	336,24
18	PMP	Phu My Protein Packaging Joint Stock Company	2004	255,04
19	RDP	Rang Dong Holding Joint Stock Company	1960	2.222,43
20	SFN	Saigon Mesh Textile Joint Stock Company	1968	77,71
21	SPA	Saigon Packaging Joint Stock Company	1999	204,35
22	SPP	Saigon Plastic Packaging Joint Stock Company	2001	425,47
23	TDP	Thuan Duc Joint Stock Company	2007	2.739,09
24	TKA	Tan Khanh An Packaging Joint Stock Company	1983	96,78

25	TPC	Tan Dai Hung Plastic Joint Stock Company	1984	749,10
26	TPP	Tan Phu Vietnam Joint Stock Company	1975	1.244,13
27	TTP	Tan Tien Plastic Packaging Joint Stock Company	1966	1.509,30
28	VKP	Tan Hoa Plastic Joint Stock Company	2000	125,21
29	VNP	Vietnam Plastics Joint Stock Company	1960	457,95
30	VTZ	Viet Thanh Plastic Production and Trading Joint Stock Company	2011	885,97

(Source: Author of HNX website. VN and HSX. VN)