CÁC NHÂN TỐ ẢNH HƯỞNG ĐẾN MỨC ĐỘ CÔNG BỐ THÔNG TIN PHÁT TRIỂN BỀN VỮNG TẠI CÁC DOANH NGHIỆP NGÀNH HÓA CHẤT NIÊM YẾT TRÊN THỊ TRƯỜNG CHỨNG KHOÁN VIỆT NAM

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Tóm tắt

Đối tượng nghiên cứu chính của khóa luận này là các nhân tố ảnh hưởng đến việc công bố thông tin bền vững của các công ty hóa chất niêm yết trên thị trường chứng khoán Việt Nam. Phạm vi nghiên cứu tập trung vào các doanh nghiệp niêm yết trên thị trường chứng khoán Việt Nam thuộc ngành hóa chất trong giai đoạn 2017-2019. Kết quả nghiên cứu cũng khẳng định rằng lý thuyết các bên liên quan, lý thuyết đại diện, lý thuyết chi phí sở hữu và lý thuyết tín hiệu là phù hợp. Nghiên cứu này cho thấy có bốn yếu tố có tác động tích cực có ý nghĩa thống kê đến việc công bố thông tin bền vững của các công ty hóa chất niêm yết trên thị trường chứng khoán Việt Nam, đó là: quy mô công ty, tỷ lệ sở hữu nước ngoài, khả năng sinh lời (ROCE) và tỷ lệ sở hữu nhà nước. Vì vậy, để nâng cao nhận thức về tầm quan trọng và yêu cầu của việc công bố thông tin phát triển bền vững, một số đề xuất đã được đưa ra đối với chính phủ, các sở giao dịch chứng khoán và chính các công ty niêm yết.

Từ khóa: ngành hóa chất, phát triển bền vững, thị trường chứng khoán, công ty niêm yết, công bố thông tin.

FACTORS AFFECTING THE SUSTAINABILITY DISCLOSURE OF CHEMICAL COMPANIES LISTED ON THE VIETNAM STOCK MARKET

Abstract

The principal object of the thesis is the factors that influence sustainability disclosure of chemical companies listed on the Vietnam stock market. The research scope focuses on the listed companies on the Vietnam stock market that belong to the chemical industry from 2017-2019. The research results also confirmed that stakeholder theory, agency theory, cost of ownership theory, and signal theory are appropriate. This study reveals that there are four factors that have a statistically significant positive impact on the sustainability information disclosure of chemical

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companies listed on the Vietnamese stock market: company size, foreign shareholding, profitability (ROCE) and state-owned shareholding. Therefore, in order to raise awareness of the importance and requirements of sustainable development information disclosure, some suggestions have been made to the government, stock exchanges and listed companies themselves.

Keywords: chemical, sustainability, stock market, listed companies, information disclosure.

1. Introduction

The development of the global economy and international economic integration have created many opportunities and challenges. In order to build a sustainable and desirable economy, it is indispensable to ignore the important role of the stock market. The sufficient, timely, transparent information disclosure of listed companies is one of the necessary conditions for the stock market operating effectively and developing stably. If not, it will cause loss to potential and existing investors as well as instability in operation of the stock market or further economy.

In Vietnam, the chemical industry is one of the key economic sectors and prioritized to meet the needs of other industries and platforms. Simultaneously, it is recognized as one of the most powerful sources of environmental pollution. Since all of the chemical manufacturing processes use raw material and consumables from each component of the environment, it is clear that damages resulting from the activities in the chemical industry are not due to the very industrial processes only, but because of exhaustion of natural resources, too. Therefore, global solutions have to be found to restrict the adverse impact of the chemical industry on the environment and to restore nature's conditions as far as possible. A well defined approach is concentrated on environmentally sustainable industrial development.

However, the official and transparent disclosure of sustainable development information in Vietnam still has limitations. Consequently, the research of factors affecting the sustainability information disclosure of companies in this sector listed on stock market is greatly significant both in terms of theory and experiment. Moreover, it also helps enterprises to be clearly aware of the role, responsibility and benefits of sustainability information disclosure as well as toward long-term values in the future. For this reason, the writer chose the topic: "Factors affecting the sustainability disclosure of chemical companies listed on the Vietnam stock market".

2. Theoretical framework

2.1. Definition of sustainable development and sustainability information disclosure

The term 'sustainable development' was first used in the "World Conservation Strategy" proposed by IUCN (International Union for Conservation of Nature) in 1980. According to strategy, sustainable development must consider the current state of exploitation of renewable and non-renewable resources; advantages as well as difficulties in organizing short-term and long-term action plans". However, this concept only refers to the sustainability of natural resources, but does not give a comprehensive view of sustainable development.

Sustainability information disclosure is the presentation of information about the environment, society, and humanity by an enterprise in addition to its business activities and required financial information in an annual report. Information about performance of enterprises in terms of environment and society is established, assessed and published by enterprises through

sustainability reports. The sustainable development report is considered as a document to announce, explain and commit corporate responsibility to related parties for its activities. At the same time, this is also the basis to attract capital from potential investors and increase the value of the business. So that businesses increasingly focus on creating and disclosing sustainable development information. In order to create a fair competitive financial market, businesses have a responsibility to disclose their sustainability information transparently and accurately.

2.2. *The role of sustainability information disclosure*

If financial information is considered the basic information that all businesses must issue to the market, the disclosure of sustainability information makes the difference between businesses. Therefore, sustainable development information is an essential role for growing businesses. Firstly, disclosure of sustainable development information makes stakeholders have confidence in businesses. Customers, suppliers, investors, shareholders, the Government, the media, ... are the objects that are interested in and can be affected by the business activities. Secondly, sustainability information disclosure is an effective way to help businesses increase their assessment of risks and awareness opportunities. Beside traditional risks such as interest rate and inflation risks, enterprises have more risks in terms of society and environment in the long-term, mostly out of its control of and often affects on many aspects. Finally, this is one of the factors that helps Vietnamese businesses integrate rapidly with the international economy. Currently, publication of sustainable development reports is becoming popular. The sustainable development report not only helps enterprises consolidate cooperation with stakeholders, investors and the community, but also helps it enhance business risk management, improve adaptability in the environment and compete more effectively. Moreover, a number of studies show that there has been evidence of the relationship between sustainable development and the profitability of enterprises. Lack of information on sustainable development can lead to a loss of business cooperation opportunities, capital from foreign investors who are very interested in sustainable development. Sustainability reporting is a necessary condition for businesses to participate in the international economy.

2.3. *Literature review*

Researchers Ho and Taylor (2007) analyzed the relationship between corporate governance and financial characteristics for the total sustainability index of the 50 largest companies in the US and Japan. The results found that factors such as company size, profitability, liquidity and age all have an impact on sustainability information disclosure.

Hussainey *el al.* (2011) studied factors influencing the disclosure of sustainable development information in Egypt by collecting and analyzing data of 111 companies listed on the Egyptian stock market from 2005 to 2010. The author studies the impact on the disclosure of sustainable development information, including: company size, profitability, liquidity, capital structure, type of ownership and audit company. The result shows that the profitability of the company was an important factor that positively influenced the information disclosure of sustainable development. The financial statements audited by "Non-Big 4" firms also have an effect on disclosure information, especially less disclosure, but this effect is relatively weak. In addition, the authors did not realize there is any relationship between company size, liquidity, capital structure, type of ownership and sustainable development information disclosure.

In 2013, Nguyen with the topic "Factors affecting the level of information disclosure in the financial statements of companies listed on the Ho Chi Minh City Stock Exchange" expanded her research model by analysing the factors of corporate management, ownership structure and corporate nature. Research results showed that factors such as company size, profitability, listing time, and foreign ownership affect the level of sustainability information disclosure.

The group authors Ho and Yekini (2014) conducted a survey of 20 enterprises in the Vietnam stock market for 3 years and gave the following research results: Mainly, financial leverage, debt ratio has an effect on the disclosure of economic, environmental and social information in annual reports of enterprises.

The authors Pham and Do (2015) analyzed data of 205 listed companies on Hanoi and Ho Chi Minh Stock Exchange and showed that: company size and foreign ownership positively affect disclosure information in Vietnam.

In 2015, Nguyen *el al.* also studied the relationship between the level of corporate social responsibility information disclosure with corporate values in Vietnam. The authors analyzed the annual reports of 50 companies listed on the Hanoi and Ho Chi Minh Stock Exchange in the period 2010 - 2013. Research showed that the disclosure of social and environmental information in Vietnam is not popular. In addition, the results of regression analysis showed that the level of corporate social responsibility information disclosure is related to corporate values in the year following the announced year.

3. Hypothesis development

The Size of the Company: Most previous researches have shown that corporate size has an impact on disclosure of sustainability information. Ho & Taylor (2007) found that large firms disclose more financial and non-financial information than small firms. The reason is that large companies often have various and diversified investors, so the need to disclose information in these companies is higher. In addition, research by Barako *el al.* (2007) argues that with diversity in business activities, large companies voluntarily disclose sustainability information to attract more investment capital in order to maintain and expand the businesses. Garde-Sánchez *el al.* (2016) argued that an increased corporate size upturns the informational volume; larger sized corporates report more in order to enhance their reputation and image. Larger sized corporations also have more resources than smaller ones; for instance, time, human and financial capital. Literature has emphasized that these kinds of resources are influencing the corporate to engage in environmental and social activities. Since larger sized corporations can exercise more influence in a societal context, they will have to answer more to various stakeholders' interests and legitimize their activities to a greater extent, in accordance with Stakeholder Theory. Therefore, the hypothesis is proposed as:

H1: The larger enterprises are, the more sustainability information disclosure.

The Financial Leverage: Research by Zhang (2013) and Pham (2013) also found a significant relationship between financial leverage and sustainability information disclosure. Empirical research by Branco and Rodrigues (2008) found that the financial leverage of Portuguese companies has a positive relationship with the disclosure of sustainability information on its websites. However, according to the author Doan (2010), no relationship between this factor and the level of sustainability information disclosure. In addition,

Andrikopoulos and Kriklani (2012) have shown that companies with high financial leverage tend to reduce disclosure information in order to reduce costs in preparing and publishing sustainability information. Therefore, the hypothesis is proposed as:

H2: The higher financial leverage ratio, the more sustainability information disclosure.

The Liquidity: Liquidity ratios are an important class of financial metrics used to determine a debtor's ability to pay off current debt obligations without raising external capital. Liquidity ratios measure a company's ability to pay debt obligations and its margin of safety through the calculation of metrics including the current ratio, quick ratio, and operating cash flow ratio. Therefore, the hypothesis is proposed as:

H3: The higher liquidity ratio, the more sustainability information disclosure.

The Profitability: Previous research has implicated that the profitability factor has a positive relationship with sustainable disclosure (Rahman, Zain, & Al-Haj, 2011). For instance, Said *el al.* (2009) said that the highly profitable enterprises want to receive more investment and improve their image. Therefore, they tend to disclose more information related to economy - environment - society, towards the goal of sustainable development, so that investors have a comprehensive view and make decisions. The research of Singhvi & Deasi (1971) argues that when firms operate efficiently , managers will proactively disclose a lot of information since their reward. In addition, this is also an opportunity to demonstrate the competence of managers as well as enhance their value in the labor market (Barako *el al.*, 2007). Moreover, profitable enterprises have more resources to use for sustainability activities and reporting. Enterprises with less resources available are argued to be more oriented towards activities that will enhance their financial performance rather than their non-financial ones (Gallo & Christensen, 2011; Tagesson *el al.*, 2009). Therefore, the hypothesis is proposed as:

H4: Profitable enterprises will disclose more Sustainability information in their reports compared to less profitable ones.

The Independence of the Board of Directors: According to the agency theory, the Board of Directors with a high independence level will be more effective in monitoring and controlling the company's operations. Therefore, the company is expected to be more successful in enhancing its value of its operations sustainably and transparently. When Non-executive Directors do not participate in running business, they are believed to be able to evaluate management performance more objectively and honestly than Executive Directors. In addition, Non-executive Directors are less dependent on the Chairman of Board than Executive Directors. Therefore, the high proportion of Non-executive Directors in the Board of Directors is expected to perform supervision and control better. In order to minimize information asymmetry, independent members of the Board will often focus on developing long-term and sustainable strategies, on social responsibility activities rather than on short-term, financial objectives. This also facilitates transparency and sustainability information disclosure. The researches of Singhvi & Desai (1971) and Nguyen (2013) showed a positive correlation between the independence of the Board of Directors and the level of sustainability information disclosure of an entity. Therefore, the hypothesis is proposed as:

H5: The higher independence level of the Board of Directors, the more sustainability information disclosure.

The State Ownership: Author Pham and Do (2015) found that the factor of state ownership has a negative relationship with the level of sustainability information disclosure of an entity. The reason is that state-owned enterprises often have little motivation to maximize profit or do not put profit as the top objectives due to the reinvestment capital is guaranteed by the state. Therefore, these entities will not voluntarily disclose information in order to enhance business value and attract more investment capital. Research by Vu (2012), Zhang (2013) also found an adverse relationship between state ownership and the level of sustainability information disclosure of an entity. Since state ownership is public ownership and there is no particular individual owner, the lack of particular rights results in the loss of control from the owner leading to corruption and weak corporate governance, management will act for personal interest rather than for the interest of shareholders. Therefore, the voluntary disclosure of sustainable development information is low. Therefore, the hypothesis is proposed as:

H6: The higher the proportion of state ownership, the more sustainability information disclosure.

The Foreign Ownership: In the integration and development of the economy in the world, there have been more and more companies having capital by foreign shareholders. The majority of foreign investors come from developed countries with strong financial management systems and extremely transparent information. Moreover, this is a group of shareholders who often suffer from risks such as political risks and lack of legal protection. So sustainability disclosure is considered as a tool of monitoring the management performance. Therefore, in order to attract foreign investment, domestic companies must always improve the quality and transparency of information, especially sustainable development information. Research by Haniffa & Coke (2002) also found a positive relationship between foreign ownership and the level of sustainability disclosure of Malaysian listed companies. The larger foreign invested companies, the more information they need to disclose. Chambers *el al.* (2003) studied the sustainability reports of companies in seven Asian countries through analysis of the websites of the top 50 companies. It shows that, of seven Asian countries selected, very few 100% domestic capital firms disclose sustainability information, while companies with foreign capital from the United Kingdom and Japan tend to disclose more sustainability information. The average of the seven countries is 41%, much lower than that of United Kingdom-invested companies (98%) and Japan-invested companies (96%). Therefore, the hypothesis is proposed as:

H7: The higher the proportion of foreign ownership, the more sustainability information disclosure.

4. Method research

4.1. Research Models

As the above hypothesis, the writer created a multiple OLS regression model with the support of SPSS software to evaluate the effects of factors on the sustainability information disclosure as following:

$$SDDI = \beta_0 + \beta_1 CS + \beta_2 BI + \beta_3 CR + \beta_4 FRO + \beta_5 SO + \beta_6 ROCE + \beta_7 LVE + \varepsilon$$

Where:

$$\text{SDDI} = \frac{\sum_{i=1}^{n_j} d_i}{n} \text{ x } 100$$

In order to evaluate the disclosure of sustainability information in the annual report, the writer created a list of sustainability information consisting of 60 criteria based on the Sustainability Reporting Handbook for Vietnamese companies issued by State Securities Commission and International Financial Corporation, and the GRI Sustainability Reporting Standard issued by Global Sustainability Standards Board. The writer has adjusted some criteria to be suitable for the chemical industry in Vietnam and then established a list of 65 criteria to identify the sustainability development disclosure index. (Details in Appendix)

Criteria are encoded by scoring "1" if the criterion is disclosed by the company and "0" if the criterion is not disclosed. The scores of all these criteria are then added up and divided by the total number of maximum criteria related to the enterprise. No points will be given to items that are not related to the company.

Table 1. Measurement independent variables

No.	Variables	Measurement	Relationship with dependent variable	Research
1	CS	Logarithm of total assets at the end of period	Positive	Tagesson *el al.* (2009); Jizi *el al.* (2014)
2	ROCE	Earnings before interest and taxes/ Capital employed	Positive	Sadia Majeed *el al.* (2015)
3	LVE	Debt/Equity (%)	Positive	Cheung & Mark (2010)
4	CR	Current assets/Current liabilities	Positive/ Negative	Cooke (1989); Wallace & Naser (1994)
5	BI	Number of non-executive directors/ Total number of members in the Board of Directors (%)	Positive	Sadia Majeed *el al.* (2015), Arifur Rahman Khan *el al.* (2012)
6	FRO	Foreign equity/Total equity (%)	Positive	Arifur Rahman Khan *el al.* (2012)
7	SO	State equity/Total equity (%)	Positive	Zhang *el al.* (2013), Vu (2012)

Source: Author's synthesis

4.2. Research Data

In 2015, Circular No.155/2015/ TT-BTC dated October 6th, 2015 by the Ministry of Finance on guidelines for information disclosure on the securities market, especially regulation

about disclosing information related to sustainable development for public companies. The Circular takes effect from January 1st, 2016 up to now. Therefore, the writer chooses the period of time within 3 years from 2017 to 2019.

In addition, according to information on the website Vietstock updated to the first half of 2021, the total number of chemical companies listed on the Vietnam stock market is 91 companies. In order to be suitable for the thesis's objectives, the selected companies are listed companies on the Vietnam stock market from 2017 onwards. Therefore, there are only 55 companies in the chemical industry listed on the Vietnam stock market which meet the above condition. Including 22 companies listed on the Hanoi Stock Exchange and 33 companies listed on the Ho Chi Minh City Stock Exchange. Stock codes of selected companies are shown as below. (Details in Table 2.2)

The writer collects necessary information and data from the website of the companies, Hanoi Stock Exchange, Ho Chi Minh City Stock Exchange and other stock websites.

Documents collected of the companies include:

- Financial statements 2017, 2018, 2019

- Annual report 2017, 2018, 2019

- Sustainability report (if any)

The data then continue to be analyzed using SPSS software to determine the impact of factors on sustainability information disclosure.

In order to achieve the thesis's objectives, the writer uses quantitative methods based on descriptive statistics, correlation analysis and regression analysis.

- Descriptive statistics: Collection data and general analysis of collected data.

- Correlation analysis: Determination of correlation between variables.

- Regression analysis: Performing linear regression using the ordinary least squares (OLS) method.

5. Results

5.1. Descriptive Statistics

The level of sustainability disclosure reflects the consideration and responsibility of enterprises to environmental and social issues besides their main business activities. The writer has collected data of 55 chemical companies listed on the Vietnamese stock market in the period from 2017 to 2019.

Table 2. Descriptive Statistics of SDDI 2017-2019

Variable	N	Minimum	Maximum	Mean	Std.Deviation
SDDI2017	55	0.110	0.867	0.41480	0.167505
SDDI2018	55	0.110	0.857	0.41489	0.166701
SDDI2019	55	0.120	0.868	0.41833	0.166035

Source: SPSS software

The sustainability disclosure of chemical enterprises is increasing slightly over the years. In 2017, the average was 41.48%. In 2018, the rate still reached 41.48%, the same as 2017. In 2019, the average was 41.83%, an increase slightly of 0.35% with a maximum disclosure level of 86%. However, there are still many companies that disclose sustainable development information at a low level of less than 15%.

This result partly shows an overview of sustainability disclosure in chemical companies listed on Vietnam's stock market. The reason for the average level of sustainable development information disclosure always fluctuates around 40%, companies in the chemical industry are always aware of their own characteristics, which are causing huge negative impacts on the environment and society. Therefore, companies always make efforts to solve this problem and at the same time provide sufficient information on sustainable development. In particular, the stakeholders (supplier, investor, customer, shareholders ...) of chemical companies are very interested in the sustainable development aspect. Although the level of sustainable development information disclosure has increased slightly over the years, there is still a significant gap between the group of enterprises that disclose a lot of information and those that disclose little information.

During the scoring process, the writer recognized that the expected disclosure level and the actual disclosure level of 55 enterprises differ between five topics. In particular, the general information topic has the lowest difference and the topic environment has the highest difference. In general, the companies have published quite sufficiently general information such as: information about the impact of strategy on current performance, information about its products, research and development... However, these chemical companies still focus on disclosure of information related to finance and business activities, do not paying attention to honest and complete disclosure of information on its impact on environment, information on environmental protection, etc. In addition, the social information is also published well. Companies often publish charitable activities, support local citizen, scholarship funds as well as allowances, bonus for employees. This result will help the government identify which aspects should be focused on and then tighten the regulation.

Table 3. Descriptive Statistics of all variables

Variables	Minimum	Maximum	Mean	Std. Deviation
SDDI	0.11	0.868	0.41601	0.165736
CS	4.6492	7.895	5.97312	0.621833
ROCE	0.01	0.62	0.1800	0.11468
LVE	0	2.017	0.42121	0.465147
CR	0.36	12.79	1.78339	1.676238
BI	0	1	0.7384	0.22629
FRO	0	0.6310	0.100315	0.146425
SO	0	0.75	0.231348	0.284296

Source: SPSS software

According to statistical results in Table 3, the Sustainable Development Disclosure Index (SDDI) at enterprises in the chemical industry listed on the Vietnamese stock market has an average rate of 41.60%, the highest is 86%, and the lowest rate is 11%. It can be said that the level of sustainability information disclosure in these enterprises is still relatively low. With a standard deviation of 16.5%, there exists a significant disparity among corporates. Return on capital employed (ROCE) of chemical companies listed on Vietnam's stock market averaged nearly 18% and ranged from 1% to 62%. This result shows that Return on capital employed in chemical companies in Vietnam is relatively good. However, there is a huge difference between the group of high-profit companies and the group of loss-making companies. Financial leverage of chemical companies listed on Vietnam's stock market is approximately 42% on average and ranges from 0% to 200%. In general, Vietnamese enterprises usually have a relatively high debt/equity ratio. This can lead to financial difficulties as well as financial risks for the business. The average liquidity of chemical enterprises is 1.78 and ranges from 0.36 to 12.97. This result shows that almost all chemical enterprises are able to cover their current liabilities. However, with a relatively large standard deviation of 1.67, it has been shown that there are still many enterprises unable to pay their current liabilities on time compared to those that fulfill their financial obligation well. In 55 companies selected, the average proportion of board members who do not participate in running the business over the total number of board members is 73.84%. This is a relatively high proportion, exceeding the minimum regulation on the proportion of non-executive directors in Vietnam of 1/3 (33.3%). Compared with countries has market same Vietnam, the average proportion of non-executive directors in Vietnam is higher than in other countries such as Malaysia is 38.3% (Akhtaruddin *el al.* 2009); China is 24% (Xiao, 2007); Singapore was 36.90% (Cheng and Courtenay, 2006), but lower than the 70.3% result in Zimbabwe (Mangena and Tauringana, 2007). This result shows that the majority of Vietnamese enterprises in the chemical industry comply with state regulations (at least 1/3 of the board members do not participate in the management). This is a positive sign for corporate governance in Vietnam. Foreign ownership ratio of chemical companies listed on the Vietnam stock market averages 10%. This result shows that the rate of foreign ownership in chemical companies in Vietnam is still relatively low compared to countries such as Kenya, with an average of 28% (Barako, 2007); China is 33.71% (Wang *el al.*, 2008). This may be due to the fact that the Vietnamese stock market is still quite young and the small market size is not attractive enough for potential foreign investors. On the other hand, foreign investors often invest in developing countries, but have experienced a long period of time and gradually stabilized. Furthermore, environmental concerns have limited expansion or added production costs. This may lead to a relatively low foreign investment in chemical enterprises in Vietnam. State ownership rate in chemical companies listed on Vietnam's stock market reached an average of 23.13%; the lowest is 0 and the highest is 75%. This result shows that the average state ownership rate in chemical companies in Vietnam is high compared to other countries such as Singapore at 2% (Eng and Mak, 2003); Jordan is 7% (Naser *el al.*, 2002). But it is lower than China's 26.84% (Wang *el al.*, 2008). The reason why the state ownership rate in Vietnam is still high is because Vietnam is in the process of equitizing state-owned enterprises. The other reason is that the chemical industry is a specific industry that has a direct impact on nature and the environment. Therefore, companies in this industry still need the intervention of the state to come up with effective policies and methods of operation.

5.2. Overall Model Fit

R-Squared is the proportion of variance in the dependent variable which can be predicted from the independent variables. This is an overall measure of the strength of association, and does not reflect the extent to which any particular independent variable is associated with the dependent variable. R-Squared is also called the coefficient of determination.

As predictors are added to the model, each predictor will explain some of the variance in the dependent variable simply due to chance. One could continue to add predictors to the model which would continue to improve the ability of the predictors to explain the dependent variable, although some of this increase in R-squared would be simply due to chance variation in that particular sample. The adjusted R-squared attempts to yield a more honest value to estimate the R-squared for the population. The value of R-squared was 0.441, while the value of Adjusted R-squared was 0.412.

The adjusted R-squared indicates the percentage of variation explained by only the independent variables that actually affect the dependent variable. As can be seen from Figure 2 as below, the adjusted R-squared is 0.412, which indicates that 41.2% of the variation in the output variables are explained by the input variables.

Table 5. Model summary

Model Summary					
Model	**R**	**R^2**	**Adjusted R^2**	**Std. Error of the Estimate**	**Durbin - Watson**
1	0.490[a]	0.441	0.412	0.146230	1.977

a. Predictors: (Constant), SO, CS, ROCE, FRO

b. Dependent Variable: SDDI

Source: SPSS software

The Durbin Watson (DW) statistic is a test for autocorrelation in the residuals from a statistical regression analysis. The Durbin-Watson statistic will always have a value between 0 and 4. A value of 2.0 means that there is no autocorrelation detected in the sample. Values from 0 to less than 2 indicate positive autocorrelation and values from 2 to 4 indicate negative autocorrelation. If there is no autocorrelation, the data collected is good. Specifically in this research, k' = 4, n = 165, looking up the DW table we have dL = 1.535 and dU = 1.94. Attaching to the DW value bar, we see that 1.94 < 1.977 < 2.06, thus, there is no autocorrelation in the model.

5.3. Parameter Estimates

In table 6 as below, the B-coefficient, R-square and Sig. are presented for each independent variable. The B-coefficient shows what effect the independent variable has on the dependent variable if it would increase with one unit presented in percent. Sig. value defines if the coefficient is statistically significant, with other words, the validity of the B-coefficient. The regression value has a significance level of 5%; values over 0.05 is not statistically significant and values below 0.05 are statistically significant.

Table 6. Coefficients

Coefficients^a

Mô hình		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0.049	0.116		0.427	0.670		
	CS	0.035	0.016	0.132	1.863	0.064	0.924	1.082
	ROCE	0.241	0.104	0.116	2.307	0.022	0.890	1.124
	LVE	-0.026	0.028	-0.073	-0.917	0.360	0.725	1.379
	CR	-0.012	0.008	-0.118	-1.1540	0.126	0.792	1.263
	FRO	0.266	0.085	0.235	3.137	0.002	0.827	1.209
	SO	0.164	0.041	0.281	3.978	0.000	0.928	1.077
	BI	-0.111	0.050	-0.152	2.212	0.284	0.981	1.020

a. Dependent Variable: SDDI

Source: SPSS software

Firstly, according to above table, standardized coefficients Beta of four variables are all positive. It indicates that all four factor have positive effect on SDDI. Corporate size (CS) has a B-coefficient of 0.132 and is statistically significant since the Sig. value does not exceed 0,05 (0,064) in relation to total sustainability disclosed. This means that if Corporate size increases with 1 unit, the disclosed sustainability indicators will increase with 0.035%. Profitability (ROCE) has a B-coefficient of 0.166. This indicates if the enterprise is considered to be profitable according to this research's definition, they will disclose 0.24% more sustainability indicators and the relationship is statistically significant (0,022). Financial leverage (LVE) has a B-coefficient of -0.073 and is not statistically significant since the Sig. value exceeds 0,05 (0,36) in relation to total sustainability disclosed. This means that if financial leverage ratio increases with 1 unit, the disclosed sustainability indicators will decrease with 0.026%. Liquidity ratio (CR) has a B-coefficient of -0.118. This means that if financial leverage ratio increases with 1 unit, the disclosed sustainability indicators will decrease with 0.012% and this relationship is not statistically significant because the Sig. value exceeds 0,05 (0,126). Foreign ownership (FRO) has a B-coefficient of 0.228. This means that if the enterprises have representatives from the foreign shareholders, they will disclose 0.266% more sustainability indicators and this relationship is statistically significant because the Sig. value does not exceed 0,05 (0,002). State ownership (SO) has a B-coefficient of 0.278 and is statistically significant since the Sig. value does not exceed 0,05 (0,000) in relation to total sustainability disclosed. This means that if State ownership increases with 1 unit, the disclosed sustainability indicators will increase with 0.164%. Independence of Board of Directors (BI) has a B-coefficient of -0.152. This means that

if the Board of Directors are more independent, they will disclose 0.111% less sustainability indicators and this relationship is not statistically significant because the Sig. value exceeds 0,05 (0,28).

Moreover, Sig value will show if there is a statistically significant correlation between your two variables. If the Sig value is greater than 0.05, there is no statistically significant correlation between your two variables. That means, increases or decreases in one variable do not significantly relate to increases or decreases in your second variable. If the Sig (2-Tailed) value is less than or equal to 0.05, there is a statistically significant correlation between your two variables. That means, increases or decreases in one variable do significantly relate to increases or decreases in your second variable. Variable LVE – Financial Leverage has; Sig = 0.36; CR – Liquidity with Sig = 0.126; BI – Independent of Board of Directors with Sig = 0.284. The Sig values of these variables are all greater than 0.05, so it can be concluded that these variables are not correlated with the level of disclosure sustainability information. Therefore, three variables LVE, CR, BI will be excluded from the research model.

Therefore, there is a standardized multiple regression model:

$$\textbf{SDDI= 0.132CS+0.235FRO+0.281SO+0.166ROCE}$$

This standardized regression model showed that State ownership is the most influential factor (B-coefficient = 0.281) on the sustainability information disclosure of chemical companies listed on Vietnam's stock market. Next is the Foreign ownership factor with the second largest impact with B-coefficient = 0.235. Corporate size and Profitability also have a large influence on sustainability disclosure with B-coefficient of 0.132 and 0.166, respectively.

6. Conclusion

The disclosure of sustainability information has become popular among corporations all over the world and is the stakeholder's great attention. However in Vietnam, this activity is relatively new and research on sustainable development information disclosure is quietly restricted. Therefore, the results of this thesis will be an important contribution to information users on the Vietnamese stock market.

By empirical examining the sustainability disclosure in the annual report and the sustainability report of the business, the research results show that there is a large difference in the disclosure of sustainable development information between listed companies in Vietnam. The research results also confirmed the stakeholder's theory, agency theory, proprietary cost theory, signaling theory are appropriate. This research reveals that four factors have a statistically significant positive effect on disclosure of sustainable development information of chemical companies listed on the Vietnam stock market: Corporate size, Foreign ownership, Profitability (ROCE) and State ownership.

Thereby, there are a number of recommendations for government, stock exchange as well as listed companies themselves in order to enhance awareness about the importance and requirement of sustainability information disclosure. The increased level of sustainable development information disclosure will help investors and shareholders to easily make the right investment decisions, thereby helping businesses develop and the stock market grow healthily and sustainably.

Finally, with the results of this thesis, it is hoped that it will contribute to the improvement of regulations on sustainability information disclosure, thereby orienting a generation of companies that not only focus on profitability but also society and environment.

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