

# Tác động của công bố thông tin tiêu thụ nước đến giá trị doanh nghiệp: tình huống nghiên cứu tại ngành thực phẩm Việt Nam

## TÓM TẮT

Nghiên cứu phân tích mối quan hệ giữa mức độ công bố thông tin tiêu thụ nước đến giá trị doanh nghiệp từ dữ liệu 23 công ty thực phẩm niêm yết trên Sở Giao dịch Chứng khoán Thành phố Hồ Chí Minh và Sở Giao dịch Chứng khoán Hà Nội trong giai đoạn từ năm 2010 đến năm 2021. Bằng cách sử dụng các phương pháp ước lượng như bình phương nhỏ nhất (OLS), hiệu ứng cố định (FE), hiệu ứng ngẫu nhiên (RE) và hồi quy hai giai đoạn (2SLS), đã cho thấy rằng các công bố về mức tiêu thụ nước tác động tích cực đến giá trị doanh nghiệp. Thông qua lý thuyết các bên liên quan, lý thuyết tín hiệu, lý thuyết tính hợp pháp và lý thuyết kinh tế chính trị. Nghiên cứu cung cấp những lợi ích việc tự nguyện công bố thông tin tiêu thụ nước và hàm ý chính sách cho các nhà quản trị doanh nghiệp, nhà đầu tư và cơ quan quản lý.

**Từ khóa:** *mức tiêu thụ nước, giá trị công ty, công bố thông tin, ngành thực phẩm, Việt Nam.*

# Influence of Water Usage Disclosure on Firm Value: Evidence from Food sector in Vietnam

## ABSTRACT

This paper explores the association between water consumption disclosure and firm value in Vietnam's food sector, based on samples of 23 listed food firms on the Ho Chi Minh City Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) from 2010 to 2021. By employing Ordinary Least Squares (OLS), Fixed Effects (FE), Random Effects (RE) and Two-Stage Least Squares (2SLS) estimation methods, our study indicates that water consumption reporting is positively associated with firm value. Through the lenses of stakeholder theory, signaling theory, legitimacy theory and political economy theory; the study is expected to provides empirical evidence voluntary water information disclosure's benefits and policy implications to managers, investors, and regulatory authorities.

**Keywords:** *water consumption, firm value, information disclosure, food industry, Vietnam.*

## 1. INTRODUCTION

The fast-changing movement confronts many barriers relevant to the scarcity of natural resources, especially water. Since the rapid economic growth and industrialization have generated heightened demand. The available water resources are diminishing, and this scarcity presents an increasing corporate risk to physical assets, reputation, and financial stability<sup>1</sup>. Therefore, the company increasingly recognizes the need to align its goals with pursuing sustainable growth through responsible operation in using water<sup>2</sup>. Consequently, promoting efficient water resource usage fosters sustainability, resilience, competitiveness, and stakeholder trust, which enhances the environment<sup>3</sup>.

Ministry of Finance enacted Circular 155/2015/TT-BTC on October 6<sup>th</sup>, 2015, which outlined information disclosure guidelines for listed firms. It introduces a compulsory disclosure mandate for sustainable development, requiring companies to report on seven sustainable development dimensions, including water consumption, in their annual reports.

Circular 96/2020/TT-BTC has replaced Circular 155/2015/TT-BTC since January 1<sup>st</sup>, 2021 and retaining the sustainable development requirements including water usage disclosure information.

Many theorem studies prove a favourable association between voluntary disclosure and company's value. From signaling theory perspective, sustainability information gives favorable notice to the potential stakeholders<sup>4</sup>; thus increases value to firm performance<sup>5</sup>. The stakeholder theory posits that the firm with more transparent information regarding sustainable activities is motivated by stakeholders' benefit<sup>6</sup>. Furthermore, value-added assets<sup>7</sup>, and legitimacy theory<sup>3</sup> also anticipate that environmental, social, and governance information have a beneficial effect on both corporate performance and value.

Nevertheless, the empirical studies' outcomes are controversial in water and corporate value relationship. Numerous studies have demonstrated the beneficial effects<sup>8-10</sup>. Other researchers demonstrate the unfavorable effect<sup>8</sup>. Finally, many studies show a non-effect association<sup>11,12</sup>, which reveals that the nexus

among water consumption disclosure and enterprise value still needs to be explored.

To address the existing literature gaps, the study examines how water consumption disclosure effects enterprise value in an emerging country like Vietnam.

In this study, we selected the food industry as a case study for several compelling reasons. Firstly, the food industry in Vietnam plays a vital role in the country's economy and academic landscape<sup>13</sup>. It serves crucial functions such as providing food security, meeting nutritional requirements, and generating employment possibilities. Secondly, the food sector is closely attached to health and consumer safety<sup>14,15</sup>. Since then, the food industry has attracted significant attention from the public, surpassing other industries<sup>16</sup>. Thirdly, the food processing sector heavily relies on essential resources such as water, raw materials, and electricity. Water consumption by the food industry is significant due to resource extraction demands, intricate production procedures, and extensive-scale operations. Fourthly, the extensive supply chain of the food industry increases water consumption. Finally, food companies' production operations have a detrimental influence on the environment. This is mainly due to their insufficient knowledge about waste management, failure to enforce regulations, and lack of civil society engagement in environmental conservation<sup>13</sup>. All of these factors lead to substantial water consumption in the food industry<sup>17</sup>.

The study provides contributions to the academic literature in two distinct ways. Firstly, it offers empirical evidence supporting water consumption disclosure's impact on firm value under perspectives of stakeholder, signaling, legitimacy and political economy theory. Secondly, it suggests valuable insights for managers, investors, and regulatory authorities, especially in Vietnam's food industry.

The rest of this paper follows a format: Section 2 summarizes the theoretical frameworks and relevant literature. Section 3 presents an overview of research methodology. Section 4 provides the empirical findings. Finally, Section 5 showcases the conclusion and discussion.

## 2. THEORETICAL FRAMEWORK AND LITERATURE REVIEWS

### 2.1. Effect of water consumption on firm value

*The stakeholder theory* emphasizes the crucial role of a company's cooperation with its stakeholders in achieving success<sup>18</sup>. Companies are not independent entities motivated solely by self-interest; rather, they bear a responsibility to confer benefits upon stakeholders<sup>19</sup> including employees, customers, suppliers, authorities, stockholders, governments, environmentalists, and other groups or individuals affected by the company<sup>20</sup>. Gaining stakeholder support and endorsements is vital for the enterprise's ongoing viability<sup>21</sup>. The corporate social responsibility revelation has proven to be efficacious in securing stakeholder approval<sup>19</sup>. Therefore, according to stakeholder theory, it is evident that organizations ought to improve transparency regarding their water use policies through increased information disclosure. This approach will enable firms to effectively address the concerns and expectations of stakeholders<sup>22</sup>, ensuring their continuous investment and expediting the firm's sustainable development.

*Signaling theory* suggests that corporations employ signals as a means of communicating their capacity to generate profits in the current or future market<sup>23</sup>. These signals extend beyond financial information and encompass non-financial data, such as the company's social and environmental performance and risk management, thus affecting stock prices and firm value<sup>24,25</sup>.

*Legitimacy theory* centers on the interplay between companies and society, emphasizing the fundamental argument that all activities

undertaken by the corporation should be appropriate and adhere to the prevailing values, norms, and societal expectations<sup>26</sup>. Firms voluntarily reveal their social and environmental information to strengthen their social legitimacy and social responsibility<sup>27</sup>. All effort outcomes lead to enhanced firm value<sup>19</sup>.

*Political economy theory* asserts the intertwined and interdependent relationship between society, politics, and the economy<sup>28</sup>, forming one coherent entity. Consequently, businesses must consider societal and political factors when assessing firm performance. Voluntarily releasing financial, social, and environmental information is a way for companies to alleviate pressure from various, including governments, customers, and environmental organizations, while enabling firms to align their interests with stakeholders<sup>28</sup>. In other words, disclosing information regarding water consumption contributes to the company's sustainable development.

Several empirical studies have examined water consumption disclosure's impact on firm value in nations; however, the findings need more consensus due to varying evidence. The first research stream showed that water consumption reporting has a beneficial

association with enterprise value. Khuong et al.<sup>9</sup> conducted an empirical study with 170 publicity firms on HOSE between 2015 and 2019. The outcome asserts that water disclosure is positively associated with firm value using the Ordinary Least Squares (OLS) estimate method. Ali et al.<sup>29</sup> support that water consumption favorably affects earnings per share (EPS). According to their market capitalization, the study concentrated on the top 50 companies in Malaysia's electrical sector.

However, Simionescu et al.<sup>8</sup> discovered two outcomes within their study context. This study examined how water, waste, and energy consumption effects 71 Information Technology firms listed in S&P 500 from 2009 through 2020. The results indicate that water consumption positively impacts Return on Assets (ROA), indicating increased profitability. In contrast, water consumption negatively affects the Price-to-Book (PB) ratio, signaling a possible market value decline.

On the other hand, Burritt et al.<sup>12</sup> discovered a nonlinear relationship between disclosing water consumption and company value with data from 100 listed Japan firms. Particularly, profitability was unaffected by water disclosures.

Author	Dataset	Research period	Methodology	Sign
Khuong, et al. <sup>9</sup>	170 public companies on the Ho Chi Minh Stock Exchange	2015 - 2019	OLS	Positive
Ali, et al. <sup>29</sup>	The top 50 market-capitalization companies in the power and electric generation sector	2014 - 2018	OLS	Positive on EPS
Simionescu, et al. <sup>8</sup>	71 technological companies (S&P 500)	2009 - 2020	OLS	Negative on PB Positive on ROA
Burritt, et al. <sup>12</sup>	100 listed companies in Nikkei 225	2013 - 2014	OLS	No effect

## 2.2. Hypothesis Development

Both stakeholder theory<sup>6,21</sup> and signal theory<sup>4,23</sup> propose that the enhancement of transparency in the disclosure of information has a beneficial impact on the value of a company. Furthermore, the inclusion of Value-added asset theory<sup>7</sup>, Political economy theory<sup>25</sup>, and Legitimacy theory<sup>1</sup> support that the water consumption disclosure positively affects firm value. To shed light on conflicting empirical evidence, some recent studies centered on emerging economies<sup>2,26,30</sup> indicate an beneficial association between water usage and enterprise value. The implementation of Circular 96/2020/TT-BTC, which relate to disclosure information, has prompted Vietnamese enterprises, especially those operating in the food industry, to disclose non-financial information. Based on the actual food industries' situation and the argumentation above, we propose the research hypothesis:

*Hypothesis: Water consumption disclosure has a favorable impact on corporate value.*

### 3. RESEARCH METHODS

#### 3.1. Data

This study analyzed a dataset from 23 food publicity firms on the Ho Chi Minh Stock Exchange (HOSE) and Ha Noi Stock Exchange (HNX) from 2010 through 2021. According to [www.cophieu68.com](http://www.cophieu68.com), which is a collective count of 32 food companies that are currently listed and actively traded on both the HOSE and the HNX. The dataset was collected from 23 food companies, which is 72% of all listed food firms on both the HOSE and HNX. The study's sample was chosen from companies that possessed comprehensive financial data during the examination period. The correctness assurance and financial data reliability can be achieved by sourcing authoritative financial statements. By utilizing historical transaction records, stock prices can be extracted, and data regarding water disclosure is obtained from the firms' annual reports using a scoring technique. All data is

winsorized at the 1% and 99% levels to ensure accuracy and remove outliers.

#### 3.2. Variables

##### 3.2.1. Dependent variable

Table 1 presents a complete summary of the definitions and measures of the variables included in the present study. Tobin's q (Q) serves as the dependent variable, which measures the firm's market-to-book value discrepancy. Since 2017, this indicator has gained widespread recognition and evaluates efficiency using market profitability indicators as a proxy firm value<sup>31</sup>. To get Q), add up the market value of common shares, the book value of preferred shares, and the book value of total liabilities; then divided by the book value of total assets<sup>32</sup>.

##### 3.2.2. Independent variable

Independent variable is Water Consumption Disclosure (WCD). Since Vietnam hasn't official dataset for Vietnam in this domain, we must use the coding method from other research studies<sup>33-36</sup>. Wiseman<sup>34</sup> created a way to evaluate environmental disclosure based on specificity and the presence or absence of monetary information. This method has been used in several studies to measure environmental disclosure<sup>35</sup>. Because of the low disclosure level observed in Vietnam's food sector, we will give WCD a score between 0 and 2. A score of 2 indicates the disclosure of details about monetary and quantity information, a score of 1 represents general information' disclosure, and a score of 0 suggests no water consumption information.

##### 3.2.3. Control variables

The control factors are used in this study consisting GOV, LEV and SIZE to control the government ownership, leverage and the size of listed firms as in previous studies of Simionescu et al.<sup>8</sup>. The government ownership value (GOV) measures the government's control over a company. To calculate it, divide the owned government share by the total number of shares

outstanding<sup>37</sup>. The leverage percentage (LEV) is the result of dividing total debt by equity. The influence of LEV on firm value continues a topic of contention in scholarly discourse<sup>38-40</sup>. The firm's size (SIZE) uses the natural logarithm of total assets to measure. The previous study opines a favourable association between company size and firm value<sup>40</sup>.

**Table 1.** The variables

Variables	Formula
Dependent variable	
Q	(Market value of equity + Book value of debt) / Book value of total assets.
Independent variable	
WCD	A binary variable that equals 2 if a corporation provides detailed disclosure of monetary and quantity information on water consumption, and 1 if general information disclosure, else 0.
Control variables	
GOV	The percentage of government ownership
LEV	Debt/ equity
SIZE	Ln (total assets)
Others (For robustness test)	
QD	
MB	Market value of share / Book value of share

### 3.3. Research model

The research model proposed utilizes dynamic panel data, building upon the research conducted by Khuong, et al.<sup>9</sup>, Khunkaew, et al.<sup>10</sup> and Simionescu, et al.<sup>8</sup>:

$$Q_{it} = \beta_0 + \beta_1 WCD_{it} + \beta_2 GOV_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \text{Year dummies} + \varepsilon_{it} \quad (1)$$

The paper uses four main estimation methods, including Ordinary Least Square (OLS), Fixed Effects (FE), Random Effects (RE), and Two-stage Least Square (2SLS), to examine the relationship between water consumption and

corporate value. By employing these diverse statistical techniques, the study attempted to provide a robust and comprehensive outcomes.

## 4. EMPIRICAL RESEARCH

### 4.1. Descriptive statistics

**Table 2.** Descriptive Statistics

Variables	Obs	Mean	SD	Min	Max
Q	270	1.396	0.849	0.477	5.889
QD	268	1.016	0.853	-0.173	5.487
MB	265	0.086	0.068	-0.096	0.289
WCD	275	0.567	0.866	0	2
GOV	275	0.219	0.233	0	0.619
LEV	270	1.038	0.817	0.121	4.122
SIZE	262	27.278	1.619	25.248	32.209

Table 2 presents the variables' descriptive analysis in this study. The Q's mean value is 1.396, indicating that, on average, companies operating in the food industry have a market value of roughly 140% of their book value. Notably, the maximum recorded value for Q is 5.889, showing a corporation that possesses a market value above its book value by nearly 6 times. In contrast, the minimum recorded figure is 0.477, meaning a company with a market value that is only 0.477 times its book value. Moving on to other factors, the mean water consumption disclosure (WCD) value is observed to be 0.567, suggesting that food companies frequently disclose water consumption at an intermediate level. GOV has a mean of 0.219, indicating that, on average, the government controls over 21% of firms in the food industry. The average value of LEV is 1.038, which reveals the firm's debt is typically 1.038 times its equity. Particularly, the lowest value of LEV is 0.12, whilst the max value is 4.12. Lastly, SIZE displays a mean of 27.278, with 32.209 being the highest number and 25.248 being the lowest.

### 4.2. Correlation Analysis

Regarding the correlation analysis, The result in Table 3 displays the findings that reveals important relationships between various variables and firm value (Q). Water consumption disclosure (WCD) significantly correlates with Q

at the 1% significance level which means that the firms disclosing more information about their water consumption will likely have higher value. Furthermore, there is a positive association between government ownership (GOV), firm size

(SIZE), and Q, suggesting that higher government ownership and bigger size firms tend to obtain better Q. In contrast, leverage (LEV) exhibits a negative correlation with Q at a significance level of 1%.

**Table 3.** Pearson analysis

	<b>Q</b>	<b>QD</b>	<b>MB</b>	<b>WCD</b>	<b>GOV</b>	<b>LEV</b>	<b>SIZE</b>
<b>Q</b>	1						
<b>QD</b>	0.981***	1					
<b>MB</b>	0.769***	0.740***	1				
<b>WCD</b>	0.407***	0.398***	0.320	1			
<b>GOV</b>	0.134**	0.130**	-0.098	-0.124**	1		
<b>LEV</b>	-0.162***	-0.115	-0.062	-0.049	-0.028	1	
<b>SIZE</b>	0.192***	0.201***	0.313***	0.312	-0.356	0.044	1

\*\*\*, \*\*, \*: 1%, 5%, 10% significant level

#### 4.3. Regression Analysis

In Table 4, we use a t-test to investigate differences in firm value factors such as Q, QD, MB, and other variables between the water disclosed information group (WCD>0) and the non-disclosure group (WCD=0). Firm value of WCD>0 group is significantly higher than the

non-disclosure group's. Furthermore, the control variables such as government ownership (GOV) and company size (SIZE) also show differences between the two groups in this analysis. The p-value of 0.202 indicates that the mean of the variable leverage ratio (LEV) is not notably different between both groups.

**Table 4.** Subsample analysis

	<b>WCD=0</b>	<b>WCD&gt;0</b>	<b>Difference</b>	<b>T</b>	<b>p-value</b>
<b>Q</b>	1.167	1.912	-0.745	-7.271	0.000
<b>QD</b>	0.784	1.514	-0.730	-7.097	0.000
<b>MB</b>	2.789	4.558	-1.769	-5.729	0.000
<b>GOV</b>	0.244	0.165	0.078	2.617	0.005
<b>LEV</b>	1.066	0.977	0.089	0.837	0.202
<b>SIZE</b>	26.962	27.970	-1.007	-4.868	0.000

After the examination of the subsample, we conduct a regression analysis. The coefficients, together with corresponding standard deviations, are enclosed between parentheses and denoted by an asterisk to express the level of significance. In Table 5, the OLS method is employed to estimate the model, which examines how water consumption disclosure

effects enterprise value. Both variations of the OLS model were employed with and without year dummies. The findings from both models indicate a statistically significant impact of the WCD on Q. Therefore, this finding provides approval to the above hypothesis, revealing water consumption disclosure has a favorable effect on corporation value.

**Table 5.** Impact of Water Consumption Disclosure on Firm Value

Dependent variable	Q	
Method	OLS	OLS
<b>WCD</b>	<b>0.354***</b> (0.055)	<b>0.356***</b> (0.064)
<b>GOV</b>	<b>0.928***</b> (0.207)	<b>0.947***</b> (0.210)
<b>LEV</b>	<b>-0.187***</b> (0.057)	<b>-0.188***</b> (0.058)
<b>SIZE</b>	<b>0.098***</b> (0.031)	<b>0.100***</b> (0.032)
<b>Const</b>	<b>-1.523*</b> (0.862)	<b>-1.504*</b> (0.892)
Year dummies	No	Yes
R-square	<b>0.254</b>	<b>0.270</b>

\*\*\*, \*\*, \*: 1%, 5%, 10% significant level

Table 6 indicates FE and RE estimation methods, which reinforce the beneficial impact of WCD on Q at 1% and 5% significant levels. Hausman test results prove that FE method provides a better alignment to the data than the RE. 2SLS estimation method mitigates endogeneity in the research model. The findings obtained in the 2SLS estimation provide evidence that strongly supports our hypothesis. Next, Durbin and Wu-Hausman tests prove that 2SLS method resolves endogeneity effectively.

**Table 6.** Impact of Water Consumption Disclosure on Firm Value

\*\*\*, \*\*, \*: 1%, 5%, 10% significant level

#### 4.4. Robustness Tests

For the purpose of substantiating the research outcomes, we replace the primary dependent variable, Q, with two alternative proxies, namely Tobin's Q detail (QD) and the market-to-book ratio (MB). Table 7 presents the estimation approach for the QD variable utilizing the OLS, FE, and RE methods. Table 8 displays the OLS estimate as well as the 2SLS estimate for the MB variable, facilitating a full examination of the findings. The results shown in both tables provide more evidence to support our hypothesis that WCD has an advantageous impact on firm value. In relation to the alternative proxy QD, we notice that the WCD has a positive impact on the QD in all three estimating methods. Nevertheless,

the variables GOV and LEV lack a statistically significant influence on corporate value. Moreover, government ownership has a non-effect for MB in the OLS estimation. The 2SLS estimated a favorable impact of WCD on MB, with a significance level of 10%. The Durbin and Wu-Hausman test reveals that 2SLS outcome is sustainable.

**Table 7.** Robustness Test

Dependent variable	QD		
	OLS	FE	RE
<b>WCD</b>	<b>0.360***</b> (0.065)	<b>0.085*</b> (0.050)	<b>0.146***</b> (0.048)
<b>GOV</b>	<b>0.965***</b> (0.213)	<b>-0.280</b> (0.287)	<b>0.052</b> (0.262)
<b>LEV</b>	<b>-0.139**</b> (0.059)	<b>-0.007</b> (0.071)	<b>-0.028</b> (0.065)
<b>SIZE</b>	<b>0.106***</b> (0.032)	<b>0.282***</b> (0.104)	<b>0.161***</b> (0.057)
<b>Const</b>	<b>-2.114**</b> (0.907)	<b>-6.687**</b> (2.837)	<b>-3.470**</b> (1.576)
<b>Year dummies</b>	<b>Yes</b>	<b>No</b>	<b>No</b>
<b>R-square</b>	<b>0.2556</b>	<b>0.093</b>	<b>0.075</b>
<b>Hausman (Chi<sup>2</sup>)</b>	9.51	p-value	0.0496

\*\*\*, \*\*, \*: 1%, 5%, 10% significant level

**Table 8.** Robustness Test

Dependent variable	Q		
	FE	RE	2SLS
<b>WCD</b>	<b>0.101**</b> (0.049)	<b>0.164***</b> (0.047)	<b>0.365***</b> (0.061)
<b>GOV</b>	<b>-0.362</b> (0.279)	<b>-0.053</b> (0.258)	<b>2.330***</b> (0.815)
<b>LEV</b>	<b>-0.041</b> (0.071)	<b>-0.053</b> (0.065)	<b>-0.208***</b> (0.063)
<b>SIZE</b>	<b>0.328***</b> (0.103)	<b>0.161***</b> (0.058)	<b>0.172***</b> (0.054)
<b>Const</b>	<b>-7.498***</b> (2.791)	<b>-3.030*</b> (1.586)	<b>-3.834**</b> (1.624)
<b>Year dummies</b>	No	No	
<b>R-square</b>	<b>0.124</b>	<b>0.101</b>	<b>0.115</b>
<b>Hausman (Chi<sup>2</sup>)</b>	20.28	p-value	0.0004
<b>Durbin (Chi<sup>2</sup>)</b>	3.938	p-value	0.047
<b>Wu-Hausman F</b>	3.905	p-value	0.049

Dependent variable	MB	
	OLS	2SLS

<b>WCD</b>	<b>0.595***</b> (0.194)	<b>0.433*</b> (0.249)
<b>GOV</b>	<b>0.975</b> (0.640)	<b>2.738**</b> (1.165)
<b>LEV</b>	<b>-0.462***</b> (0.173)	<b>-0.621***</b> (0.201)
<b>SIZE</b>	<b>0.421***</b> (0.098)	<b>1.158***</b> (0.391)
<b>Const</b>	<b>-7.959***</b> (2.731)	<b>-28.531***</b> (10.716)
<b>R-square</b>	<b>0.224</b>	<b>0.013</b>
<b>Year dummies</b>	Yes	No
<b>Durbin (score) chi2</b>	4.769	<i>p-value: 0.029</i>
<b>Wu-Hausman F</b>	4.744	<i>p-value: 0.030</i>

\*\*\*, \*\*, \*. 1%, 5%, 10% significant level

## 5. CONCLUSIONS

By employing Ordinary Least Squares (OLS), Fixed Effects (FE), Random Effects (RE), and Two-Stage Least Squares (2SLS), this study presents robust and compelling empirical evidence that the voluntary information disclosure on water consumption exerts a positive influence on the firm value of enterprises operating within Vietnam's food industry. The outcomes are highly supported by stakeholder, signaling, legitimacy and political economy theory. Additionally, the study reveals the significance of water consumption information on firm value. Finally, this study fills the research gap and offering valuable insights into the nation's industrial environment's context-specific intricacies.

The study's findings are significance for sustainable finance scholars and enterprises, particularly in emerging economies like Vietnam. Firstly, it recommends that managers prioritize disclosing water consumption information. This approach enables managers to effectively address transparency and sustainability needs, satisfying stakeholders' expectations. Secondly, it offers notable benefits to investors, who can leverage the disclosed information to make decisions when choosing stocks, given its positive effect on firm value. Thirdly, the regulatory authorities can take advantage of research outcomes to develop robust and effective policies referring to information

disclosure practices. Finally, policymakers may promote accountability, environmental responsibility, and long-term value creation within the food industries.

However, this study is subject to limitations, such as omitting of control variables (ownership structure and growth proxies), which may have caused biases and absent variables' concerns. In addition, acquiring data was challenging due to the official sources on sustainable reporting in Vietnam. Thus, the findings might not capture the entire landscape of water consumption disclosure in Vietnam's food industries. Therefore, by addressing these constraints in the future, scholars can enhance comprehensive and robust outcomes, contribute to a full understanding relationship between disclosure practice and corporation's value in Vietnam.

## REFERENCES

1. P. Jones, D. Hillier, and D. Comfort. Water stewardship and corporate sustainability: a case study of reputation management in the food and drinks industry, *Journal of public affairs*, **2015**, 15 (1), 116-126.
2. C. Sukmadilaga, S. Winarningsih, I. Yudianto, T. U. Lestari, and E. K. Ghani. Does Green Accounting Affect Firm Value? Evidence from ASEAN Countries, *International Journal of Energy Economics and Policy*, **2023**, 13 (2), 509.
3. M. F. Alsayegh, R. Abdul Rahman, and S. Homayoun. Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure, *Sustainability*, **2020**, 12 (9), 3910.
4. S. M. Bae, M. A. K. Masud, and J. D. Kim. A cross-country investigation of corporate governance and corporate sustainability disclosure: A signaling theory perspective, *Sustainability*, **2018**, 10 (8), 2611.
5. S. Carnini Pulino, M. Ciaburri, B. S. Magnanelli, and L. Nasta. Does ESG disclosure influence firm performance?, *Sustainability*, **2022**, 14 (13), 7595.
6. U. Uwuigbe and J. Jimoh. Corporate environmental disclosures in the Nigerian manufacturing industry: a study of selected

firms, *African Research Review*, **2012**, 6 (3), 71-83.

7. J. Lee, S. Kim, and E. Kim. Voluntary disclosure of carbon emissions and sustainable existence of firms: with a focus on human resources of internal control system, *Sustainability*, **2021**, 13 (17), 9955.
8. L. N. Simionescu, S. C. Gherghina, Z. Sheikha, and H. Tawil. Does water, waste, and energy consumption influence firm performance? Panel data evidence from S&P 500 information technology sector, *International Journal of Environmental Research and Public Health*, **2020**, 17 (14), 5206.
9. N. V. Khuong *et al.* The effect of water disclosure on firm value in Vietnamese listed companies, *Polish Journal of Environmental Studies*, **2022**, 31 (4).
10. R. Khunkaew, J. Wichianrak, and M. Suttipun. Sustainability reporting, gender diversity, firm value and corporate performance in ASEAN region, *Cogent Business & Management*, **2023**, 10 (1), 2200608.
11. O. Akinlo and O. O. Iredele. Corporate Environmental Disclosures and Market Value of Quoted Companies in Nigeria, **2014**,
12. R. L. Burritt, K. L. Christ, and A. Omori. Drivers of corporate water-related disclosure: evidence from Japan, *Journal of cleaner production*, **2016**, 129 65-74.
13. T. T. M. Dieu. Greening food processing industries in Vietnam: Opportunities and constraints, *Environment, Development and Sustainability*, **2006**, 8 229-249.
14. A. Souliotis, K. Giazitzi, and G. Boskou. A tool to benchmark the food safety management systems in Greece, *Benchmarking: An International Journal*, **2018**, 25 (8), 3206-3224.
15. D. Kong, L. Shi, and Z. Yang. Product recalls, corporate social responsibility, and firm value: Evidence from the Chinese food industry, *Food Policy*, **2019**, 83 60-69.
16. X. Partalidou, E. Zafeiriou, G. Giannarakis, and N. Sariannidis. The effect of corporate social responsibility performance on financial performance: the case of food industry, *Benchmarking: An International Journal*, **2020**, 27 (10), 2701-2720.
17. R. Khedkar and K. Singh. Food industry waste: A panacea or pollution hazard?, *Paradigms in pollution prevention*, **2018**, 35-47.
18. J. Tullberg. Stakeholder theory: Some revisionist suggestions, *The Journal of Socio-Economics*, **2013**, 42 127-135.
19. R. F. Ratri and M. Dewi, "The effect of financial performance and environmental performance on firm value with Islamic social reporting (ISR) disclosure as intervening variable in companies listed at Jakarta Islamic Index (JII)," in *SHS Web of Conferences*, 2017, vol. 34: EDP Sciences, p. 12003.
20. T.-K. Chiu and Y.-H. Wang. Determinants of social disclosure quality in Taiwan: An application of stakeholder theory, *Journal of business ethics*, **2015**, 129 379-398.
21. X. Liu and V. Anbumozhi. Determinant factors of corporate environmental information disclosure: an empirical study of Chinese listed companies, *Journal of cleaner production*, **2009**, 17 (6), 593-600.
22. D. de Grosbois and D. A. Fennell. Determinants of climate change disclosure practices of global hotel companies: Application of institutional and stakeholder theories, *Tourism Management*, **2022**, 88 104404.
23. A. Firmansyah, M. C. Husna, and M. A. Putri. Corporate social responsibility disclosure, corporate governance disclosures, and firm value in Indonesia chemical, plastic, and packaging sub-sector companies, *Accounting Analysis Journal*, **2021**, 10 (1), 9-17.
24. M. N. Utomo, S. Rahayu, K. Kaujan, and S. A. Irwandi. Environmental performance, environmental disclosure, and firm value: empirical study of non-financial companies at Indonesia Stock Exchange, *Green Finance*, **2020**, 2 (1), 100-113.
25. A. W. Wirawan, L. J. Falah, L. Kusumadewi, D. Adhariani, and C. D. Djakman. The effect of corporate social responsibility on the firm value with risk management as a moderating variable, *Journal of Asia-Pacific Business*, **2020**, 21 (2), 143-160.
26. B. Solikhah. An overview of legitimacy theory on the influence of company size and industry sensitivity towards CSR disclosure, *International Journal of Applied Business and Economic Research (IJABER)*, **2016**, 14 (5), 3013-3023.

27. P. Kurnia, E. Darlis, and A. A. Putra. Carbon emission disclosure, good corporate governance, financial performance, and firm value, *The Journal of Asian Finance, Economics and Business (JAFEB)*, **2020**, 7 (12), 223-231.
28. J. Cotter, N. Lokman, and M. M. Najah. Voluntary disclosure research: which theory is relevant?, *Journal of Theoretical Accounting Research*, **2011**,
29. I. M. Ali, N. M. Husin, and B. Alrazi, "The effect of corporate water disclosure on financial performance," in *IOP Conference Series: Earth and Environmental Science*, 2021, vol. 943, no. 1: IOP Publishing, p. 012035.
30. H. T. T. Pham, S.-C. Jung, and S.-Y. Lee. Governmental ownership of voluntary sustainability information disclosure in an emerging economy: Evidence from Vietnam, *Sustainability*, **2020**, 12 (16), 6686.
31. D. A. Carter, D. A. Rogers, B. J. Simkins, and S. D. Treanor. A review of the literature on commodity risk management, *Journal of Commodity Markets*, **2017**, 8 1-17.
32. K. H. Chung and S. W. Pruitt. A simple approximation of Tobin's q, *Financial management*, **1994**, 70-74.
33. R. Said, Y. Hj Zainuddin, and H. Haron. The relationship between corporate social responsibility disclosure and corporate governance characteristics in Malaysian public listed companies, *Social responsibility journal*, **2009**, 5 (2), 212-226.
34. J. Wiseman. An evaluation of environmental disclosures made in corporate annual reports, *Accounting, organizations and society*, **1982**, 7 (1), 53-63.
35. S. Zeng, X. Xu, Z. Dong, and V. W. Tam. Towards corporate environmental information disclosure: an empirical study in China, *Journal of Cleaner Production*, **2010**, 18 (12), 1142-1148.
36. S. Zeng, X. Xu, H. Yin, and C. M. Tam. Factors that drive Chinese listed companies in voluntary disclosure of environmental information, *Journal of Business Ethics*, **2012**, 109 309-321.
37. M. Alfaraih, F. Alanezi, and H. Almujamed. The influence of institutional and government ownership on firm performance: evidence from Kuwait, *International Business Research*, **2012**, 5 (10), 192.
38. V. A. Aivazian, Y. Ge, and J. Qiu. The impact of leverage on firm investment: Canadian evidence, *Journal of corporate finance*, **2005**, 11 (1-2), 277-291.
39. J. J. McConnell and H. Servaes. Equity ownership and the two faces of debt, *Journal of financial economics*, **1995**, 39 (1), 131-157.
40. J. Obradovich and A. Gill. The impact of corporate governance and financial leverage on the value of American firms, **2013**,