DOES FIRM VALUE MATTER FOR CORPORATE DISCLOSURE? A STUDY OF COVID-19-RELATED DISCLOSURE BY VIETNAMESE LISTED FIRMS

GIÁ TRỊ CÔNG TY CÓ QUAN TRỌNG ĐỐI VỚI CÔNG BỐ THÔNG TIN DOANH NGHIỆP? NGHIÊN CỨU CÔNG BỐ THÔNG TIN LIÊN QUAN ĐẾN COVID-19 CỦA CÁC CÔNG TY NIÊM YẾT VIỆT NAM

Hoang Thi Thanh Thanh, Nguyen Huu Cuong*

The University of Danang - University of Economics, Danang, Vietnam

*Corresponding author: nguyenhuucuong@due.udn.vn

(Received: June 23, 2023; Revised: August 09, 2023; Accepted: August 14, 2023)

Abstract - Existing research has explored the relationship between firm value and corporate disclosure, but little is known about this association during the COVID-19 pandemic and ensuing economic crisis. This study investigates whether firm value influences corporate disclosure in the Vietnamese stock market in 2021, the second year of the pandemic. Using Tobin's Q as a measure of firm value and COVID-19-related disclosure as a proxy for corporate disclosure, a regression model is employed. Control variables capturing the firm's profile and internal corporate governance are included. The sample consists of the top 100 Vietnamese listed firms by market capitalization in 2021. The findings reveal a negative impact of firm value on corporate disclosure, indicating that a firm's market evaluation can influence its decision to disclose information during a pandemic-induced economic crisis.

Key words - Corporate Disclosure; Covid-19 Related Disclosure; Corporate Governance; Firm Value; Vietnamese Listed Firms

Tóm tắt – Hiện nay đã có các nghiên cứu về mối quan hệ giữa giá trị doanh nghiệp (DN) và công bố thông tin (CBTT), nhưng mối liên hệ này trong đại dịch COVID-19 và khủng hoảng kinh tế còn rất ít được biết đến. Nghiên cứu này kiểm chứng xem giá trị DN có ảnh hưởng đến CBTT của các công ty niêm yết ở Việt Nam vào năm 2021, năm thứ hai sau đại dịch. Bài viết đánh giá mối liên hệ này qua phân tích hồi quy sử dụng Tobin's Q làm thước đo giá trị DN và đo lường CBTT liên quan đến COVID-19 để làm đại diện cho việc CBTT của DN. Mô hình hồi quy còn bao gồm các biến kiểm soát phản ánh hồ sơ và quản trị công ty. Mẫu bao gồm 100 công ty niêm yết hàng đầu của Việt Nam theo vốn hóa thị trường vào năm 2021. Kết quả cho thấy, tác động tiêu cực của giá trị DN đến CBTT, phản ánh đánh giá của thị trường có thể ảnh hưởng đến quyết định CBTT của DN trong thời kỳ khủng hoảng kinh tế do đại dịch gây ra.

Từ khóa – Công bố thông tin; công bố thông tin Covid-19; quản trị công ty; giá trị công ty; công ty niêm yết Việt Nam.

1. Introduction

In the wake of the COVID-19 pandemic, the significance of corporate disclosure has been further underscored as companies confront unprecedented challenges and uncertainties. Timely and transparent disclosure of COVID-19-related information has become essential for stakeholders, including investors, analysts, and the public, who seek insights into a firm's crisis response and its potential impact on financial performance and future prospects. Consequently, understanding the factors that influence corporate disclosure during such crises is of paramount interest.

This article focuses on investigating the relationship between firm value and corporate disclosure, with a specific examination of COVID-19-related disclosure practices among listed firms in Vietnam. Firm value, as measured by Tobin's Q, represents the market's assessment of a company's worth and captures investors' perceptions of its financial health, growth potential, and risk exposure. In this study, corporate disclosure is proxied by the extent of COVID-19-related disclosure, utilizing the framework developed by García-Sánchez *et al.* [1]. High firm value not only reflects strong performance and a healthy financial situation but also stems from a company's efforts to enhance shareholder confidence. To attract and retain investors, firms often opt for transparent disclosure practices to build trust. Moreover, high firm value can be a result of unique advantages such as intellectual property or a characteristic of corporate governance, and divulging information about these strengths can bolster the company's competitive edge. Conversely, if the high firm value is due to a singular competitive advantage or exclusive benefits, the company may restrict the disclosure of crucial details to safeguard sensitive information from competitors.

By examining the unique context of Vietnamese listed firms and their COVID-19-related disclosure practices, this study aims to enhance our understanding of the relationship between firm value and corporate disclosure during crisis periods, with a particular focus on Vietnam's top 100 companies by market capitalization in 2021. Our objective is to contribute to the existing literature on corporate disclosure, addressing the gap in knowledge pertaining to the Vietnamese financial market and the distinctive challenges posed by the COVID-19 pandemic. This is especially significant considering the limited research available on corporate voluntary disclosure in Vietnam [2].

The findings of this study reveal a negative impact of firm value on corporate disclosure. These results prompt a deeper exploration of the underlying reasons behind this relationship, which represents a significant research gap. Furthermore, while ample research exists on the influence of various factors on firm value, investigations into the reverse relationship – Does firm value matter for corporate disclosure? – are scarce. This highlights the unique contribution of this study to the field.

2. Literature review and hypothesis development

2.1. COVID-19-related disclosure

COVID-19-related disclosure encompasses non-financial information included in the narrative reports of listed companies. Similar to other non-financial information, it provides both quantitative and qualitative insights that cannot be measured or expressed in monetary terms and do not directly pertain to the financial aspects of the business [3]. During the COVID-19 pandemic, organizations are encouraged to uphold transparency and openness in their communications, particularly regarding the impacts of the crisis on their operations, to establish and maintain legitimacy [4].

Moreover, comprehensive disclosure is crucial for organizations to prevent the spread of unofficial news that could potentially undermine their crisis management efforts and public image. This disclosure should encompass various aspects, including risk management, internal control mechanisms, workplace safety, environmental relations, and business continuity. Given the exceptional nature of the pandemic and its potential significant financial consequences, as well as the possibility of non-impacts or even positive impacts on firm performance, it is essential to communicate such information to the public [1].

In Vietnam, due to the unforeseen and unpredictable nature of the COVID-19 pandemic, the government has not provided a specific framework for companies to follow regarding information disclosure. Therefore, it is important to note that companies in Vietnam voluntarily disclose COVID-19-related information in their reports. Furthermore, while developed countries have established robust frameworks for COVID-19 disclosure [5], such frameworks are currently lacking in developing countries.

In this study, COVID-19-related disclosure serves as a proxy for the dependent variable, corporate disclosure. This variable is measured using a manual-based analysis tool, analyzing the data from 2021 firms based on the COVID-19 reporting framework developed by García-Sánchez *et al.* [1].

2.2. Firm value

Li *et al.* [6] propose that firm value generally reflects the firm's capacity to provide satisfactory returns to all corporate stakeholders, including shareholders, creditors, management, employees, and government. This is achieved through value-centered management practices and adherence to the rule of law.

Firm value is commonly measured using various proxies, such as Tobin's Q [7-9], profitability indexes [10-12], market value of common equity [13], and combinations of indices for evaluation [14-15]. Tobin's Q, which signifies the ratio of a firm's market value to its asset replacement cost, stands as one of the most extensively employed measures of firm value in current research [16]. In comparison to profitability indicators like ROA and ROE, Tobin's Q is regarded as a more comprehensive gauge of corporate performance and value. Unlike simply reflecting past performance, Tobin's Q captures the firm's future development prospects [6]. Accordingly, this study adopts Tobin's Q as the chosen metric to assess firm value.

2.3. The relationship between firm value and corporate disclosure

The relationship between corporate disclosure and firm value has generated inconsistent findings. Gerged *et al.* [7] document a significant and positive relationship between corporate environmental disclosure and firm value, as measured by Tobin's Q, in the Gulf Cooperation Council countries. In the context of India from 2014 to 2018, Saha [17] suggests that voluntary disclosure exhibits a significant positive impact on firm value. Regarding information quality, Plumlee *et al.* [14] suggest that voluntary environmental quality is associated with firm value through both the cash flow and the cost of equity components. However, some previous studies indicate that firm value (proxied by Tobin's Q) does not have an impact on corporate disclosure [18-19]. Notably, Chen *et al.* [20] argue that higher-value firms are generally less inclined to voluntarily disclose detailed information about new investment projects.

In general, disclosures provide benefits by reducing information asymmetry between the firm and outsiders, including investors, thereby facilitating efficient allocation of scarce resources [21]. However, managers are not always willing to do so. The literature, primarily based on the US and the UK, highlights two possible reasons why high-value firms disclose less information. First, the costs of disclosure may outweigh the benefits [22-25]. Second, these firms may not possess significant private information to disclose in the first place [26-27].

However, in the absence of information disclosure, such as COVID-19-related information during the crisis, investors not only assume negative impacts on firms due to the pandemic but also consider non-disclosure as an adverse signal and penalize non-disclosing firms [28]. Moreover, investors are likely to undertake costly information searches regarding the non-disclosing firms' current situation, thereby increasing costs for investors and ultimately for the firms [29]. Therefore, companies that voluntarily disclose relevant issues can be valued for their transparency and benefit from an investor's perspective. Matsumura *et al.* [13] find that the median value of firms that disclose their carbon emissions is approximately $2.3 billion higher than that of comparable non-disclosing firms.

In this study, we adopt a cost-and-benefit approach to analyze the disclosure behavior of firms during the COVID-19 pandemic and economic crisis, with the aim of examining whether firm value has an impact on corporate disclosure. Given the potential costs and benefits associated with disclosure during a crisis period, we propose the following hypothesis:

Hypothesis. There is a negative association between firm value and voluntary disclosure.

3. Research methodology

3.1. Sample and data description

The study focuses on analyzing a sample of the 100 companies with the highest market capitalization as of December 31, 2021, listed on both the Hanoi (HNX) and Ho Chi Minh (HOSE) stock exchanges. The study includes financial firms such as banks and insurance companies.

However, it also conducts supplementary analysis to examine a sub-sample consisting exclusively of industrial firms.

Nguyen et al. [30] highlighted that the manual-based coding approach often results in a relatively small sample size due to the labor-intensive data collection process, a recognized drawback of this method in the literature. Despite this limitation, the modest sample size aligns with recent disclosure studies [30-32] that employed researcher-constructed disclosure indices. Importantly, the top 100 companies collectively represent approximately 90% of the total market capitalization by the end of 2021, ensuring a high degree of representativeness within the sample. Furthermore, this study specifically examines firms' disclosure behaviors during the pandemic, with a focus on issues related to health and healthcare. As a result, the developed disclosure index is tailored to assess aspects necessitated by a pandemic context, rendering its applicability to non-pandemic years inappropriate. The selection of the year 2021 is purposeful: it was a year when Vietnamese firms encountered substantial pandemic-related impacts and undertook adjustments in their operational practices, reflecting a critical period for disclosure analysis. Thus, while the sample size might be comparatively modest, it effectively encompasses a significant portion of the Vietnamese stock exchanges and holds the potential to be representative of COVID-19 reporting practices within Vietnam.

To gather the necessary data, the study combines information from various reports published by the businesses in 2021, including Integrated Reports, Annual Reports, Financial Statements, and Corporate Governance Reports. Multiple sources are utilized because the reporting framework developed by García-Sánchez *et al.* [1] is based on integrated reporting (IR) regulations, which have limited adoption in Vietnam and are employed by only a small number of companies. These reports are available on the businesses' websites, as well as on stock exchange and Vietstock platforms. They serve as valuable sources to assess the extent of COVID-19-related disclosures and calculate the values of the independent variables in the research model.

3.2. Research model and variable measurement

3.2.1. Research model

The research model, as per Equation 1 below, evaluates the impact of firm value on corporate disclosure, which is proxied by the extent of COVID-19-related disclosure. This evaluation is conducted through regression analysis, using the COVID-19-related disclosure index as the dependent variable, firm value (proxied by Tobin's Q) as the independent variable, and seven control variables as summarized in Table 3.

To test the hypothesis developed in Section 2.2, the model utilizes the financial year data for 2021 and estimates an ordinary least squares (OLS) regression. The specification of the regression equation is as follows:

$$\mathrm{CRD_{it}} = \beta 0 + \beta_1 \mathrm{TBQ}_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{i,t} \quad \text{(Equation 1)}$$

3.2.2. Dependent variable

The research utilizes a non-weighted measurement method to assess corporate disclosure, which is proxied by the extent of COVID-19-related disclosures. To measure this, the COVID-19 reporting framework developed by García-Sánchez *et al.* [1] was employed to manually score the reports of 100 companies for the year 2021. These reports were meticulously examined and compared against the 60 indexes outlined in García-Sánchez *et al* [1]'s framework. A brief overview of the COVID-19 reporting framework is provided in Table 1 and Table 2.

Table 1. *Group of Integrated Reporting Content Elements Following the Pandemic*

Group name	Number of indexes	Value
Organizational Overview and External Environment	6	1/0
Governance	4	1/0
Business Model	6	1/0
Risk and Opportunities	6	1/0
Strategy and Resource Allocation	2	1/0
Performance	3	1/0
Outlook	2	1/0
Basis of Preparation and Presentation	1	1/0
Total	**30**	

Source: *Adapted from García-Sánchez et al. [1]*

Table 2. *Group of Integrated Reporting Capitals Following the Pandemic*

Group name	Number of indexes (including inputs and outputs)	Value
Financial Capital	3	1/0
Manufactured Capital	4	1/0
Intellectual Capital	6	1/0
Human Capital	5	1/0
Natural Capital	3	1/0
Social & Relationship Capital	9	1/0
Total	**30**	

Source: *Adapted from García-Sánchez et al. [1]*

In the measurement process, each item of information (Dj) was evaluated and assigned a score of "1" if it was disclosed or "0" if it was not disclosed. Consequently, the COVID-19-related disclosure score for each company (CRDi) was calculated using the following formula.

$$\mathrm{CRD_i} = \frac{\sum_{j=1}^{60} \mathrm{D_j}}{60}$$

The COVID-19-related disclosure score (CRDi) ranges from 0 to 1, with a higher score indicating a higher extent of COVID-19-related disclosure.

3.2.3. Independent variables

Table 3 below presents a comprehensive operational definition of the independent variables utilized in Equation 1, encompassing both the independent variable and the control variables. The variables are carefully categorized to provide a detailed overview of their definitions and measurements.

As the Tobin's Q variable inherently encompasses aspects like firm performance and value, these specific variables were not incorporated as control factors by the

authors. Furthermore, considering the composition of the research sample, which includes financial, banking, and insurance firms, the inclusion of variables associated with capital structure could potentially introduce significant influence on the regression model outcomes. Notably, the control variables presented in Equation 1 have been frequently included in prior studies investigating the determinant factors of corporate disclosure.

The model integrates control variables derived from both the firm's profile and internal corporate governance. These variables have been extensively explored in prior research and have consistently demonstrated their impact on the extent of disclosure [19], [33]. Within the firm's profile group, we consider variables such as firm size, age, and industry. Meanwhile, the internal corporate governance category encompasses variables like board size, board gender diversity, board independence, and the presence of an audit committee in corporate governance. These influential factors significantly shape a company's information management and disclosure practices, thus exerting a notable influence on the overall level of disclosure.

Table 3. *Definitions and measurements of independent and control variables*

Variables	Definition and Measurement
Panel A Independent variable (Firm value)	
TBQ	Tobin's Q: the ratio of market value of the firm plus preference shares plus total debts divided by total assets
Panel B Control variables	
Firm's profile	
SIZE	Natural log market capitalisation
AGE	Years of establishment of the enterprise
IND	Dummy/Categorical variable: use industry classification based on the NAICS (The North American Industry Classification System).
Internal corporate governance	
BSIZE	Number of directors on the board
BDG	Percentage of female directors on the board
BIND	Percentage of independent directors on the board
AC	Dummy variable: "1" if the firm has an audit committee and "0" otherwise

4. Results

This section provides the results to address the research question regarding the association between firm value, proxied by Tobin's Q, and corporate disclosure, proxied by COVID-19-related disclosures. The analysis is divided into three subsections: descriptive statistics, univariate statistical analysis, and multivariate statistical analysis. These findings, derived from the regression model and accompanied by an examination of the model's assumptions, offer comprehensive insights into the relationship under investigation and enable a thorough evaluation of the hypotheses' predictions.

4.1. Descriptive statistics

Table 4 below presents the descriptive statistics for all the variables considered in the analysis. Panel A presents the descriptive statistics for the continuous variables and Panel B presents the descriptive statistics for categorical variables.

The COVID-19-related disclosure (CRD) variable demonstrates a mean value of 14.630, with a range of 0 to 31, indicating a substantial variation in the overall extent of disclosure among the sample firms. In contrast, the firm value (TBQ) variable shows a narrower range of 1.022 to 9.572, with a mean of 1.855 and a standard deviation of 1.096, suggesting relatively less variability in firm value across the sample.

The firm size (SIZE) variable exhibits a narrow range from 12.910 to 14.559 (VND 8 trillion to VND 288 trillion), with a mean of 13.477 (VND 30 trillion), indicating minor variation in firm size among the sample firms. On the other hand, the firm age (AGE) variable displays a wider range from 7 to 132, with a mean of 29.360 and a relatively high standard deviation of 17.199, indicating significant variation in the age of firms.

The board gender diversity (BGD) variable displays a relatively low mean value of 0.221 and moderate dispersion, with a standard deviation of 0.203, ranging from 0 to 0.800 across the sample firms. Similarly, the board independence (BIND) variable shows a moderate mean value of 0.246 and a relatively low level of dispersion, with a standard deviation of 0.116, ranging from 0 to 0.500.

Table 4. *Descriptive statistics*

Variable	N	Min	Max	Mean	Std. Dev.
Panel A	Descriptive Statistics for Continuous Variables				
CRD	100	0.000	31.000	14.630	7.378
TBQ	100	1.022	9.572	1.855	1.096
SIZE	100	12.910	14.559	13.477	0.452
AGE	100	7.000	132.000	29.360	17.199
BSIZE	100	3.000	11.000	6.510	1.580
BGD	100	0.000	0.800	0.221	0.203
BIND	100	0.000	0.500	0.246	0.116
Panel B	Descriptive Statistics for Categorical Variables				

		Frequency										
Variable	**N**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
IND	100		29	30	22	6	2	1	4	2	2	2
AC	100	70	30									

Table 4 (Panel B) presents the descriptive statistics for categorical variables of 100 firms. The description reveals that out of the 100 firms, 30 firms (30%) have an audit committee in their governance structure (AC).

In addition, there are three industry groups with a significantly higher number of companies in the sample. These groups, in descending order, are Finance and Insurance with 30 firms (30%), Construction and Real Estate with 29 firms (29%), and Manufacturing with 22 firms (22%). The remaining industry groups have a very small number of companies in the sample, listed in descending order as follows: Utilities with 6 firms (6%); Transportation and Warehousing with 4 firms (4%); Retail, Wholesale, Agricultural Production, and Mining with 2 firms each (2% each); and Technology and Information with 1 firm (1%) (IND).

4.2. Univariate statistical analysis

Table 5 below presents the pairwise correlation matrix of the dependent variables to detect potential multicollinearity concerns. Based on a significance level of 5%, a linear relationship is observed between the

dependent variable and the independent variable in the population. Furthermore, none of the correlation coefficients among the independent variables exceed 0.551 (all are below 0.8). Consequently, in the OLS regression, the independent variables included in Equation (1) demonstrate a low risk of multicollinearity.

Table 5. *Correlation matrix of the research variables*

	CRD	TBQ	SIZE	AGE	IND	BSIZE	BGD	BIND	AC
CRD	1	-0.061	0.551**	0.323**	0.274**	0.391**	-0.033	-0.030	0.188
TBQ	-0.142	1	-0.020	-0.109	0.084	-0.125	0.105	0.263**	0.201*
SIZE	0.545**	0.061	1	0.123	-0.032	0.373**	-0.007	-0.232*	-0.086
AGE	0.267**	-0.059	0.084	1	0.134	0.220*	-0.176	-0.137	-0.044
IND	0.211*	0.018	-0.104	0.087	1	0.092	-0.028	0.038	-0.097
BSIZE	0.378**	-0.041	0.436**	0.139	0.005	1	-0.004	-0.004	0.042
BGD	-0.050	0.087	-0.065	-0.142	0.007	-0.026	1	0.104	-0.014
BIND	0.008	-0.011	-0.181	-0.171	0.001	-0.049	0.155	1	0.438**
AC	0.202*	0.079	-0.105	-0.085	-0.084	0.024	-0.002	0.420**	1

Notes: *This table presents Spearman Rank and Pearson correlations between variables included in Equation (1). Spearman Rank correlation coefficients are shown above the diagonal, whilst Pearson correlations are presented below. ** and * show significance at the 0.01 and 0.05 levels (two-tailed).*

4.3. Multivariate statistical analysis

Table 6 below presents the regression results of Equation (1), which tests the hypothesis regarding the relationship between firm value and corporate disclosure. The results indicate that the regression model is statistically significant in explaining the extent of COVID-19-related disclosure ($F = 13.666$, $p < 0.001$). The adjusted R-Square value of 0.506 suggests that the variables included in the model account for 50.6% of the variation in COVID-19-related disclosure extent, indicating a satisfactory fit of the model.

In Equation (1), the dependent variable is the unweighted COVID-19-related disclosure extent (CRD), while the independent variable is Tobin's Q (TBQ), a measure of firm value. We also control for various firm profile and internal corporate governance factors, including firm size (SIZE), age (AGE), industry (IND), board size (BSIZE), gender diversity (BGD), independence (BIND), and the presence of an audit committee (AC) in the corporate structure.

Table 6. *Results of the Multivariate Regression Model*

Variable	Predicted Signs	Std. Coeff.	Sig.	Tolerance	VIF
Panel A Independent variable					
TBQ	–	**-0.193**	**0.009**	**0.967**	**1.034**
Panel B Control variables					
Firm's profile					
SIZE		**0.569**	**0.000**	**0.760**	**1.316**
AGE		**0.204**	**0.006**	**0.930**	**1.075**
IND		**0.282**	**0.000**	**0.966**	**1.035**
Internal corporate governance					
BSIZE		0.086	0.284	0.785	1.273
BGD		0.033	0.655	0.947	1.056
BIND		0.011	0.893	0.768	1.303
AC		**0.312**	**0.000**	**0.795**	**1.258**
Adjusted R^2	0.506				
F-statistics	13.666				
	(<0.001)				
N	100				

In Panel A of Table 6, the OLS regression analysis reveals a negative relationship between firm value (TBQ) and COVID-19-related disclosure extent (CRD) at a 99% confidence level. The coefficient of -0.193 suggests that a one-unit increase in Tobin's Q corresponds to an average decrease of 0.193 units in the CRD index score. This finding aligns with the study conducted by Chen *et al.* [20], providing support for our hypothesis. Therefore, we accept the hypothesis and conclude that firm value, measured by Tobin's Q, is negatively associated with corporate disclosure, as measured by CRD, among the sample firms in this study.

As noted in Section 3.1, the research sample encompasses financial firms, insurance firms, and banks. Additionally, supplementary analyses were conducted using a sub-sample comprising solely industrial firms (n=70). The untabulated results largely align with the main findings.

Although not the primary focus of the study, Panel B of Table 6 presents the results for several control variables related to firm profile and internal corporate governance. It reveals statistically significant associations between these variables and CRD. Factors such as firm size (SIZE), age (AGE), and industry (IND) positively influence the CRD index score. Regarding internal corporate governance, while variables such as board size (BSIZE), gender diversity (BGD), and independence (BIND) do not show significant influences on COVID-19-related disclosure extent, the presence of an audit committee (AC) in corporate governance has a positive impact on corporate disclosure.

5. Conclusion

In this study, we examined the association between firm value and corporate disclosure during the COVID-19 crisis in Vietnam. Our findings reveal a negative impact of firm value, as measured by Tobin's Q, on corporate disclosure, represented by COVID-19-related disclosure. This suggests that the market's evaluation of a firm influences its decision to disclose information during an economic crisis caused by the pandemic.

These findings have important implications for both theory and practice. They contribute to the existing literature on voluntary disclosure practices, particularly in the context of Vietnam, by shedding light on the relationship between firm value and corporate disclosure during times of crisis. The negative impact of firm value on disclosure highlights the challenges faced by companies in balancing transparency with market perceptions and the potential trade-offs during economic downturns.

Furthermore, our study underscores the need for specific regulations or guidelines regarding the disclosure of firms' information related to COVID-19 or other financial crises in Vietnam. The absence of such frameworks raises questions about the factors that can influence voluntary disclosure in the absence of legal requirements. The findings can inform policymakers, regulators, and companies in Vietnam as they develop guidelines or regulations for disclosure practices during times of crisis. Enhancing transparency and disclosure practices in such challenging periods can help build trust, facilitate informed decision-making, and mitigate risks.

However, it is important to acknowledge the limitations of our study. We did not adapt the reporting framework to align with the reality of Vietnamese companies, which may have impacted the measurement of COVID-19-related disclosure. Additionally, the limited sample size of the firms in our study and the potential presence of omitted variables in the regression analysis warrant caution in generalizing the findings.

Future research could address these limitations by developing reporting frameworks tailored to the Vietnamese context and expanding the sample size to enhance the robustness of the findings. Further investigations into the determinants and consequences of corporate disclosure during crises would provide valuable insights into the dynamics of voluntary disclosure practices.

In conclusion, this study contributes to the understanding of voluntary disclosure practices in Vietnam, particularly during times of crisis. The negative impact of firm value on corporate disclosure highlights the complexities faced by firms in balancing transparency and market perceptions. The findings underscore the importance of regulatory frameworks and guidelines for disclosure practices during economic downturns. By enhancing transparency, companies can foster trust and mitigate risks, ultimately benefiting stakeholders and the broader economy.

Acknowledgements: This research is funded by Funds for Science and Technology Development of the University of Danang under project number B2022-DN04-07

REFERENCES

[1] I. M. G.-Sánchez, N. Raimo, A. Marrone, and F. Vitolla, "How does integrated reporting change in light of COVID-19? A Revisiting of the content of the integrated reports, *Sustainability,* vol. 12, no. 18, pp. 7605, 2020.

[2] I. A. Zamil, S. Ramakrishnan, N. M. Jamal, M. A. Hatif, and S. F. Khatib, "Drivers of corporate voluntary disclosure: a systematic review", *Journal of Financial Reporting and Accounting,* vol. 21, no. 2, pp. 232-267, 2023.

[3] M. Admiraal, R. Nivra, and R. Turksema, "Reporting on nonfinancial information", *International Journal of Government Auditing,* vol. 36, no. 3, pp. 15, 2009.

[4] J. Dowling and J. Preffer, "Organizational legitimacy: social values and organizational behavior", *The Pacific Sociological Review,* vol. 18, no. 1, pp. 122-136, 1975.

[5] FRC, "Guidance on audit issues arising from the Covid-19 (Coronavirus) pandemic", *Financial Reporting Council,* 2020, [Online] Available: https://www.frc.org.uk/news/march-2020/guidance-on-audit-issues-arising-from-the-covid-19, [Accessed October 08, 2022].

[6] Z. Li, G. Liao, and K. Albitar, "Does corporate environmental responsibility engagement affect firm value? The mediating role of corporate innovation", *Business Strategy and the Environment*, vol. *29*, no. 3, pp. 1045-1055, 2020.

[7] A. M. Gerged, E. Beddewela, and C. J. Cowton, "Is corporate environmental disclosure associated with firm value? A multicountry study of Gulf Cooperation Council firms", *Business Strategy and the Environment,* vol. 30, no. 1, pp. 185-203, 2021.

[8] H. Khlif, A. Guidara, and M. Souissi, "Corporate social and environmental disclosure and corporate performance: Evidence from South Africa and Morocco", *Journal of Accounting in Emerging Economies,* vol. 5, no. 1, pp. 51-69, 2015.

[9] I. Ioannou and G. Serafeim, "The consequences of mandatory corporate sustainability reporting", *Harvard Business School Research Working Paper No.11-100,* 2017, p. 49.

[10] N. M. Nor, N. A. Bahari, N. A. Adnan, S. M. Kamal, and I. M. Ali, "The effects of environmental disclosure on financial performance in Malaysia", *Procedia Economics and Finance,* vol. 35, pp. 117-126, 2016.

[11] E. Platonova, M. Asutay, R. Dixon, and S. Mohammad, "The impact of corporate social responsibility disclosure on financial performance: Evidence from the GCC Islamic banking sector. *Journal of Business Ethics,* vol. 151, no. 2, pp. 451-471, 2018.

[12] Y. Qiu, A. Shaukat, and R. Tharyan, "Environmental and social disclosures: Link with corporate financial performance", *The British Accounting Review,* vol. 48, no. 1, pp. 102-116, 2016.

[13] E. M. Matsumura, R. Prakash, S. C. Vera-Munoz, "Firm-value effects of carbon emissions and carbon disclosures", *The Accounting Review,* vol. 80, no. 2, pp. 695–724, 2014.

[14] M. Plumlee, D. Brown, R. M. Hayes, and R. S. Marshall, "Voluntary environmental disclosure quality and firm value: further evidence", *Journal of Accounting and Public Policy,* vol. 34, no. 4, pp. 336-361, 2015.

[15] J. Xie, W. Nozawa, M. Yagi, H. Fujii, and S. Managi, "Do environmental, social, and governance activities improve corporate financial performance?" *Business Strategy and the Environment,* vol. 28, no. 2, pp. 286-300, 2017.

[16] 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*, vol. 8, pp. 1-17, 2017.

[17] R. Saha, "Corporate governance, voluntary disclosure and firm valuation relationship: evidence from top listed Indian firms", *Journal of Accounting in Emerging Economies*, vol. 14, no. 2, pp. 1-33, 2023.

[18] K. Albitar, H. Al-Shaer, and M. Elmarzouky, "Do assurance and assurance providers enhance COVID-related disclosures in CSR reports? An examination in the UK context", *International Journal of Accounting & Information Management,* vol. 29, no. 3, pp. 410-428, 2021.

[19] P. Kent, R. McCormack, and T. Zunker, "Employee disclosures in the grocery industry before the Covid-19 Pandemic", *Accounting and Finance,* vol. 61, no. 3, pp. 4833–4858, 2021.

[20] J. J. Chen, X. Cheng, S. X. Gong, and Tan, Y., "Do higher value firms voluntarily disclose more information? Evidence from China", *The British Accounting Review,* vol. 46, no. 1, pp. 18-32, 2014.

[21] P. M. Healy and K. G. Palepu, "Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature", *Journal of Accounting and Economics,* vol. 31, no. 1-3, pp. 405-440, 2001.

[22] R. A. Dye, "Proprietary and Nonproprietary Disclosures", *The Journal of Business,* vol. 59, no. 2, pp. 331-366, 1986.

[23] B. Jovanovic, "Truthful disclosure of information". *The Bell Journal of Economics,* vol. 13, no. 1, pp. 36-44, 1982.

[24] R. E. Verrecchia, "Discretionary disclosure", *Journal of Accounting and Economics,* vol. 5, pp. 179-194, 1983.

[25] A. Wagenhofer, "Voluntary disclosure with a strategic opponent", *Journal of Accounting and Economics,* 12, no. 4, pp. 341-363, 1990.

[26] R. A. Dye, "Disclosure of nonproprietary information", *Journal of Accounting Research,* vol. 23, no. 1, pp. 123-145, 1985.

[27] W.-O. Jung and Y. K. Kwon, "Disclosure when the market is unsure of information endowment of managers", *Journal of Accounting Research,* vol. 26, no. 1, pp. 146-153, 1988.

[28] P. R. Milgrom, "Good news and bad news: Representation theorems and applications", *The Bell Journal of Economics,* vol. 12, no. 2, pp. 380-391, 1981.

[29] D. M. Johnston, S. E. Sefcik, and N. S. Soderstrom, "The value relevance of greenhouse gas emissions allowances: an exploratory study in the related united states SO2 market" *European Accounting Review,* vol. 17, no. 4, pp. 747-764, 2008.

[30] H. C. Nguyen, P. M. H. Nguyen, B. H. Tran, T. T. N. Nguyen, L. T. T. Hoang, and T. T. H. Do, "Integrated reporting disclosure alignment levels in annual reports by listed firms in Vietnam and influencing factors", *Meditari Accountancy Research*, vol. 30, no. 6, pp. 1543-1570, 2022.

[31] M. Kılıç and C. Kuzey, "Determinants of forward-looking disclosures in integrated reporting", *Managerial Auditing Journal*, vol. 33, no. 1, pp. 115-144, 2018.

[32] Y. A. Rivera-Arrubla, A. Zorio-Grima, and M. A. García-Benau, "Integrated reports: disclosure level and explanatory factors", *Social Responsibility Journal*, vol. 13, no. 1, pp. 155-176, 2017.

[33] M. Elmarzouky, K. Albitar, and K. Hussainey, "Covid-19 and performance disclosure: does governance matter?", *International Journal of Accounting and Information Management*, vol. 29, no. 5, pp. 776-792, 2021.