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Do SDGs Practices Enhance Firm Performance in Thailand? : A Multi-Year Analysis

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ABSTRACT

This study explores the relationship between involvement in Sustainable Development Goals (SDGs) activities and firm performance by focusing on six SDGs and their impact on Tobin's Q, return on assets (ROA), and return on equity (ROE) as performance measures. The analysis utilizes data for the years 2019 to 2022, encompassing 474 firm-year observations from firms listed on the Stock Exchange of Thailand (SET) that voluntarily disclose their SDG activities data. Employing a fixed-effect panel regression model, we examine the effects on performance in the current year (t), the following year (t+1), and the year after (t+2) to capture both short-term and long-term impacts.

Our findings suggest that engaging in SDG activities provides long-term positive influence on firm performance even some SDGs show negative impact in a short run. These results support the Long-Term Value Creation proposition that integrating SDGs into a firm's strategy can lead to improved financial outcomes in the long term.

Keywords: SDGs, Firm Performance, Long-Term Value Creation

การมีส่วนร่วมในกิจกรรมที่เกี่ยวข้องกับ SDGs ช่วยส่งเสริมผลประกอบการของบริษัทในประเทศไทยหรือไม่? : การวิเคราะห์หลายระยะเวลา

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บทคัดย่อ

การศึกษานี้มุ่งสำรวจความสัมพันธ์ระหว่างการมีส่วนร่วมในกิจกรรมที่เกี่ยวข้องกับเป้าหมายการพัฒนาที่ยั่งยืน (Sustainable Development Goals: SDGs) และผลประกอบการของบริษัท โดยมุ่งเน้นไปที่ SDGs ทั้งหมด 6 ข้อ และผลกระทบต่อ Tobin's Q, อัตราผลตอบแทนต่อสินทรัพย์ (Return on Assets: ROA) และอัตราผลตอบแทนต่อส่วนของผู้ถือหุ้น (Return on Equity: ROE) ซึ่งถูกใช้เป็นตัวชี้วัดผลประกอบการ การวิเคราะห์นี้ใช้ข้อมูลจากปี 2019 ถึง 2022 รวมทั้งสิ้น 474 ข้อมูล ในรูปแบบบริษัท-ปี จากบริษัทที่จดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย (SET) ซึ่งได้เปิดเผยข้อมูลการดำเนินกิจกรรมที่เกี่ยวข้องกับ SDGs ของตนโดยสมัครใจ งานวิจัยนี้ใช้แบบจำลองการถดถอย เพื่อศึกษาผลกระทบต่อผลประกอบการในปีปัจจุบัน (t), 1 ปีถัดไป (t+1) และ 2 ปีถัดไป (t+2) เพื่อทดสอบทั้งผลกระทบในระยะสั้นและระยะยาว

ผลการศึกษาพบว่า การเข้าร่วมกิจกรรม SDGs ส่งผลดีต่อผลประกอบการของบริษัทในระยะยาว แม้ว่าในระยะสั้นบาง SDGs อาจมีผลกระทบเชิงลบ ผลการวิจัยนี้สนับสนุนแนวคิดการสร้างมูลค่าในระยะยาว (Long-Term Value Creation) โดยแสดงให้เห็นว่าการบูรณาการ SDGs เข้ากับกลยุทธ์ของบริษัทสามารถนำไปสู่ผลลัพธ์ทางการเงินที่ดีขึ้นในระยะยาว

คำสำคัญ: SDGs ผลประกอบการของบริษัท การสร้างมูลค่าในระยะยาว

1. INTRODUCTION

Since September 2015, the 2030 Agenda for Sustainable Development has been universally adopted by all United Nations (UN) member states (Shen, Venaik, & Liesch, 2023). Sustainable development encompasses a conceptual and practical approach that seeks to strike a harmonious equilibrium between economic, social, and environmental objectives (UN, 2015). The primary aim is to safeguard the well-being of both current and future generations. In essence, sustainable development is the pursuit of development that strives to satisfy the present generation's needs without jeopardizing the capacity of future generations to fulfill their own requirements (UN, 1987). The agenda outlines a set of 17 Sustainable Development Goals (SDGs) (UN, 2015).

From then on, governments and businesses have increasingly prioritized the SDGs (KPMG, 2022). All member states of the UN have made a commitment to pursue the ambitious 2030 Agenda for Sustainable Development by incorporating SDGs into their respective plans and strategies. For instance, Thailand has seamlessly integrated SDGs into its 20-Year National Strategy Framework and the 12th National Economic and Social Development Plan, spanning from 2017 to 2021, along with its Thailand 4.0 policy (Open Development Thailand, 2023). In alignment with these national frameworks, business sectors, particularly large-listed corporations, have also embraced the integration of SDGs into their own strategic plans and initiatives (Santos & Silva Bastos, 2021). For instance, PTT Public Company Limited, which ranks as the largest publicly traded oil and gas company in Thailand, has articulated its commitment to achieving “Sustainable growth for all (PTT Public Company Limited 2023b)” and has set an ambitious “Net Zero Emissions target by 2050 (PTT Public Company Limited 2023a)”.

The importance of SDGs for Thai listed firms extends beyond corporate social responsibility to competitiveness in global markets. Achieving SDGs can help Thai firms mitigate non-tariff trade barriers (NTTBs). For instance, as global markets and trading partners, particularly in the European Union, firms that align with SDG principles may suffer less to strict trade restrictions that can arise from non-compliance with environmental and social regulations (Burnete & Choomta, 2015; Redondo Alamillos & de Mariz, 2022). Moreover, comply to SDGs can enhance brand reputation (Hepner, Chandon, & Bakardzhieva, 2021),

increase investor confidence (Rizzello & Kabli, 2020), and open up access to sustainability-linked financing (Sinha, Mishra, Sharif, & Yarovaya, 2021), all of which are crucial for long-term growth and stability.

Our research is prompted by the ongoing exploration of SDGs disclosures, which represents a relatively novel area requiring further investigation. The objective of this study is to observe the actual impact of SDG activities on firm performance. Thus, the primary research question is whether SDG activities impact firm performance, encompassing both short-term and long-term perspectives. Our study offers several noteworthy contributions. Firstly, from a theoretical standpoint, it endeavors to elucidate the relationship between SDG activities and performance over both short- and long-term horizons by drawing insights from Stakeholder Theory, Resource-Based View (RBV), and Long-Term Value Creation. Secondly, in terms of practical implications, our findings are pertinent to a wide spectrum of stakeholders, including publicly listed companies, government entities, and other participants in the marketplace. This relevance extends to an array of SDG activities, irrespective of their specific influence on short- and long-term firm performance.

The subsequent sections of this paper are structured as outlined below: Section 2 furnishes a concise overview of SDGs, expounds on the theoretical foundation, offers an overview of extant research findings, and articulates our hypotheses. In Section 3, we detail the research context, data sources, and analytical methodologies employed. Section 4 is dedicated to scrutinizing the results derived from our analyses. Finally, in Section 5, we draw conclusions and delve into the implications of our findings.

2. LITERATURE REVIEW

2.1 SDGs

The central focus of the United Nations' 2030 Agenda for Sustainable Development revolves around a set of 17 SDGs, as illustrated in Table 1. These 17 SDGs encompass a range of strategies aimed at eradicating poverty, enhancing healthcare and education, fostering economic growth, all while addressing the challenges posed by climate change (Shen et al., 2023). Due to the data we are able to access, our study focuses on SDGs 5, 6, 7, 8, 13 and 14 which are shown in italic on table 1.

Table 1 A brief description of the 17 UN SDGs.

SDGs	Description
SDG 1 No poverty	End poverty in all its forms everywhere.
SDG 2 Zero hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
SDG 3 Good health and well-being	Ensure healthy lives and promote well-being for all at all ages.
SDG 4 Quality education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
SDG 5 Gender equality	*Achieve gender equality and empower all women and girls.*
SDG 6 Clean water and sanitation	*Ensure availability and sustainable management of water and sanitation for all.*
SDG 7 Affordable and clean energy	*Ensure access to affordable, reliable, sustainable and modern energy for all.*
SDG 8 Decent work and economic growth	*Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.*
SDG 9 Industry, innovation and infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
SDG 10 Reduced inequalities	Reduce inequality within and among countries.
SDG 11 Sustainable cities and communities	Make cities and human settlements inclusive, safe, resilient and sustainable.
SDG 12 Responsible consumption and production	Ensure sustainable consumption and production patterns.
SDG 13 Climate action	*Take urgent action to combat climate change and its impacts.*

SDGs	Description
SDG 14 Life below water	***Conserve and sustainably use the oceans, seas and marine resources for sustainable development.***
SDG 15 Life on land	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
SDG 16 Peace, justice and strong institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
SDG 17 Partnerships for the goals	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

Source: Shen et al. (2023)

2.2 Theoretical framework

The influence of SDG awareness on firm performance can be elucidated through the lenses of Stakeholder Theory, Resource-Based View (RBV), and Long-Term Value Creation. According to Stakeholder Theory, firms must consider the interests of diverse stakeholders, including customers, employees, suppliers, and communities, in their decision-making processes (Winn, 2001). Consequently, engagement in SDG activities can foster stronger relationships with these stakeholders (Nishitani, Nguyen, Trinh, Wu, & Kokubu, 2021), resulting in an improved corporate reputation (Grover, Kar, & Ilavarasan, 2019), enhanced customer loyalty (Barta, Belanche, Flavián, & Terré, 2023), and increased employee satisfaction and retention (Westerman, Acikgoz, Nafees, & Westerman, 2022). As a result, these outcomes can have a positive impact on the overall performance of the firm.

From the perspective of the Resource-Based View (RBV), firms can establish a competitive advantage by effectively utilizing distinctive and valuable resources (Khanra, Kaur, Joseph, Malik, & Dhir, 2022). SDG initiatives can be regarded as a wellspring of intangible resources (Alvino, Di Vaio, Hassan, & Palladino, 2021), such as a robust brand identity (Hepner et al. 2021), social capital (Alizadeh & Sharifi, 2021), and ethical leadership (Muff, Liechti, & Dyllick, 2020). These resources have the potential to bolster a company's competitive standing (Saini, Antil, Gunasekaran, Malik, & Balakumar, 2022) and contribute to its long-term performance (Muhmad & Muhamad, 2021).

Viewed through the lens of Long-Term Value Creation, which underscores the significance of prioritizing the creation of long-term value over short-term profit maximization (Haksever, Chaganti, & Cook, 2004), firms that engage in the SDGs may incur immediate expenses (Sinha et al., 2021). However, in the long run, they stand to gain advantages (Xue, Shahbaz, Ahmed, Ahmad, & Sinha, 2022) by cultivating resilience (Assarkhaniki, Sabri, Rajabifard, & Kahalimoghadam, 2023), mitigating risks (Rosati, Rodrigues, Cosenz, & Li-Ying, 2023), and establishing themselves as sustainable business (Olwig, 2021).

In sum, engaging in SDGs activities may result in immediate expenses but can lead to long-term improvements in performance.

2.3 Existing evidence

The SDGs were introduced just a decade ago, and as a result, there is a limited body of evidence concerning the impact of SDG activities on firm performance. Several studies have contributed to this growing body of knowledge. For instance, Girón, Kazemikhasragh, Cicchiello and Panetti (2021) conducted an analysis of a dataset comprising 369 large firms situated in low- and middle-income countries in Asia and Africa in 2017. They discovered that gender diversity within the manufacturing sector was associated with enhanced firm performance, as measured by Tobin's Q. In a similar vein, Theparak, Ekasingh, Trakarnsirinont and Kitiwong (2022) investigated a dataset encompassing listed firms within Thailand's SET100 group for the period spanning 2016 to 2019. Their findings indicated that engagement in SDG-related activities correlated positively with firm performance, as assessed by Tobin's Q.

Shen et al. (2023) delved into an extensive dataset comprising 2,744 Chinese firms, spanning the period from 2010 to 2020. Their analysis revealed that SDG activities were associated with improved firm performance, as measured by one-year ahead return on assets. Additionally, Bose, Khan and Bakshi (2024) explored the impact of SDG disclosure on firm performance, as assessed by Tobin's Q. Their study encompassed a dataset comprising 6,914 firm-year observations from 30 countries over the period of 2016 to 2019. Their findings indicated that firms with a higher level of SDG disclosure tended to exhibit stronger overall performance. Collectively, these existing pieces of evidence reaffirm the notion that SDG activities, particularly those aligned with a firm's industry, are positively linked to firm performance.

2.4 Hypotheses

Based on our theoretical framework and the available body of evidence, we posit the following hypotheses:

H1: Involvement in SDG activities enhances short-term firm performance.

H2: Involvement in SDG activities enhances long-term firm performance.

3. METHODOLOGIES

3.1 Data

The empirical analysis in this study utilizes data for the years 2019 to 2022, consisting of 474 firm-year observations from firms listed on the Stock Exchange of Thailand (SET) that voluntarily disclose their Sustainable Development Goals (SDGs) data. The data was retrieved from the DATASTREAM database.

3.2 Methodology

We offer the following fixed effect panel regression model to test our 2 hypotheses. Firm performance variables are Tobin’s Q, return on asset, and return on equity. Moreover, we applied 3 timeframes in the model, which are t, t+1, and t+2, to capture the short-term and long-term impacts of SDGs on firm performances since the current investment in SDGs activities might affect not only short-term (t and t+1) performance but also the long-term (t+1 and t+2) (Ortiz-de-Mandojana & Bansal, 2016)

$$Firm\ Performance_t = \beta_0 + \beta_1 SDG13_t + \beta_2 SDG14_t + \beta_3 SDG5_t + \beta_4 SDG6_t + \beta_5 SDG7_t + \beta_6 SDG8_t + \beta_7 ln\_size_t + \beta_8 lev_t + \alpha_{YEAR} + \varepsilon$$

$$Firm\ Performance_{t+1} = \beta_0 + \beta_1 SDG13_t + \beta_2 SDG14_t + \beta_3 SDG5_t + \beta_4 SDG6_t + \beta_5 SDG7_t + \beta_6 SDG8_t + \beta_7 ln_{size_t} + \beta_8 lev_t + \alpha_{YEAR} + \varepsilon$$

$$Firm\ Performance_{t+2} = \beta_0 + \beta_1 SDG13_t + \beta_2 SDG14_t + \beta_3 SDG5_t + \beta_4 SDG6_t + \beta_5 SDG7_t + \beta_6 SDG8_t + \beta_7 ln\_size_t + \beta_8 lev_t + \alpha_{YEAR} + \varepsilon$$

3.3 Variables

3.3.1 Dependent Variables

In order to test the relation between SDGs and firm performance, there are 3 variables chosen in this study as dependent variables: Tobin's Q, Return on Assets, and Return on Equity. Tobin's Q is selected as a measure of market-based firm performance. It reflects investor reactions and expectations (Huang & Hilary, 2018), indicates growth opportunities (Wintoki, Linck, & Netter, 2012), and expected to have less impact from earnings management (Bennouri, Chtioui, Nagati, & Nekhili, 2018). Contrastingly, Return on Assets and Return on Equity are also employed to observe the accrual-based firm performance. These two ratios measure firm's profitability compared to accounting-based values (Eriksen & Knudsen, 2003). Unlike the market-based, these accounting-based measures enable us to capture firms' managerial performance (Ke, Rui, & Yu, 2012) with less subjected to market volatility and shocks (Singh, Tabassum, Darwish, & Batsakis, 2018)

3.3.2 Test Variable

In this study, we focus on the impact of firm's SDGs coverage on its performance. There are 6 SDGs that employed in our examination as shown in table 1 which are: SDG5 Gender equality: Achieve gender equality and empower all women and girls, SDG6 Clean water and sanitation: Ensure availability and sustainable management of water and sanitation for all, SDG7 Affordable and clean energy: Ensure access to affordable, reliable, sustainable and

modern energy for all, SDG8 Decent work and economic growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, SDG13 Climate action: Take urgent action to combat climate change and its impacts, and SDG14 Life below water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development. Involvement in SDG activities data are obtained from DATASTREAM database and has been transform into dummy variable as 1 if firm has coverage and 0 if firm has no coverage each SDGs.

3.3.3 Control Variable

There are two control variables employed in this test which are firm size and leverage. Size of the firms is calculated as the natural logarithm of a firm's market capitalization while firm's leverage is the proportion of total debt to total assets of the firm.

4. RESULTS

Descriptive statistics for all variables used in the analysis are presented in Table 2. The full sample comprises 474 observations. Data for t+1 time period variables (tbq1, roa1, and roe1) are available for 321 observations, while those for t+2 time period variables (tbq2, roa2, and roe2) are limited to 177 observations.

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
tbq	474	.549	.202	.118	.902
roa	474	.054	.057	-.121	.26
roe	474	.120	.138	-.417	.673
tbq1	321	.555	.201	.141	.902
roa1	321	.053	.059	-.121	.26
roe1	321	.115	.146	-.417	.673
tbq2	177	.565	.196	.159	.902
roa2	177	.053	.06	-.121	.26
roe2	177	.118	.147	-.417	.673
SDG13	474	.648	.478	0	1
SDG14	474	.236	.425	0	1

Variable	Obs	Mean	Std. Dev.	Min	Max
SDG5	474	.411	.493	0	1
SDG6	474	.369	.483	0	1
SDG7	474	.456	.499	0	1
SDG8	474	.650	.478	0	1
lnsize	474	10.53	1.563	5.815	14.055
lev	474	.327	.205	0	.753

Table 3 presents the correlations between each pair of variables and Table 4 presents VIFs. None of the test and control variables with correlation coefficients that are greater than 0.60. For VIFs, the highest value is 2.711 and the average is 1.821. VIF values much lower than 10, which is the most common threshold value for multicollinearity problem (O'brien, 2007). Therefore, multicollinearity does not exist among the data.

Table 5 reports the findings of the regression analysis. Heteroscedasticity-adjusted standard errors are clustered at both industry and firm level in order to account for the serial correlation of the independent variable for each firm. Each 3 columns represent the findings of the test on the associations of SDGs to firm performance (tbq, roa, roe) in t, t+1, and t+2 timeframes respectively.

Table 3 Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) tbq	1.000																
(2) roa	-0.493***	1.000															
	(0.000)																
(3) roe	-0.180***	0.857***	1.000														
	(0.000)	(0.000)															
(4) tbq1	0.952***	-0.506***	-0.186***	1.000													
	(0.000)	(0.000)	(0.001)														
(5) roa1	-0.431***	0.745***	0.593***	-0.513***	1.000												
	(0.000)	(0.000)	(0.000)	(0.000)													
(6) roe1	-0.155***	0.604***	0.660***	-0.234***	0.869***	1.000											
	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)												
(7) tbq2	0.904***	-0.540***	-0.161**	0.963***	-0.573***	-0.306***	1.000										
	(0.000)	(0.000)	(0.033)	(0.000)	(0.000)	(0.000)											
(8) roa2	-0.398***	0.580***	0.399***	-0.473***	0.787***	0.655***	-0.540***	1.000									
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)										
(9) roe2	-0.120	0.402***	0.394***	-0.212***	0.668***	0.747***	-0.259***	0.863***	1.000								
	(0.111)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)									
(10) SDG13	0.199***	-0.168***	-0.104**	0.217***	-0.183***	-0.098*	0.308***	-0.255***	-0.123*	1.000							
	(0.000)	(0.000)	(0.024)	(0.000)	(0.001)	(0.080)	(0.000)	(0.001)	(0.102)								
(11) SDG14	0.170***	-0.082*	-0.049	0.165***	-0.099*	-0.065	0.192**	-0.129*	-0.080	0.337***	1.000						
	(0.000)	(0.076)	(0.291)	(0.003)	(0.077)	(0.248)	(0.011)	(0.088)	(0.289)	(0.000)							
(12) SDG5	0.125***	-0.057	0.019	0.107*	-0.063	0.022	0.170**	-0.111	-0.001	0.545***	0.262***	1.000					
	(0.006)	(0.218)	(0.685)	(0.055)	(0.257)	(0.692)	(0.024)	(0.143)	(0.990)	(0.000)	(0.000)						
(13) SDG6	-0.020	0.036	0.068	0.012	-0.041	0.011	0.099	-0.047	0.007	0.427***	0.315***	0.453***	1.000				
	(0.665)	(0.431)	(0.141)	(0.828)	(0.467)	(0.847)	(0.191)	(0.532)	(0.924)	(0.000)	(0.000)	(0.000)					
(14) SDG7	0.150***	-0.073	0.020	0.165***	-0.094*	0.003	0.224***	-0.145*	-0.025	0.586***	0.349***	0.457***	0.520***	1.000			
	(0.001)	(0.113)	(0.671)	(0.003)	(0.093)	(0.952)	(0.003)	(0.055)	(0.743)	(0.000)	(0.000)	(0.000)	(0.000)				
(15) SDG8	0.222***	-0.111**	-0.030	0.238***	-0.138**	-0.036	0.330***	-0.238***	-0.101	0.755***	0.356***	0.542***	0.470***	0.556***	1.000		
	(0.000)	(0.016)	(0.512)	(0.000)	(0.014)	(0.521)	(0.000)	(0.001)	(0.180)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
(16) ln_size	0.261***	0.063	0.160***	0.259***	-0.023	0.070	0.289***	-0.076	0.034	0.225***	0.222***	0.145***	0.046	0.231***	0.199***	1.000	
	(0.000)	(0.168)	(0.000)	(0.000)	(0.684)	(0.214)	(0.000)	(0.315)	(0.655)	(0.000)	(0.000)	(0.001)	(0.316)	(0.000)	(0.000)		
(17) lev	0.552***	-0.377***	-0.204***	0.486***	-0.311***	-0.162***	0.401***	-0.245***	-0.082	0.064	0.125***	0.044	0.007	0.055	0.077*	0.111**	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.001)	(0.279)	(0.161)	(0.006)	(0.341)	(0.880)	(0.233)	(0.095)	(0.015)	

*** p<0.01, ** p<0.05, * p<0.1

Table 4 Variance inflation factor

	VIF	1/VIF
SDG13	2.711	.369
SDG14	1.254	.797
SDG5	1.622	.616
SDG6	1.589	.629
SDG7	1.889	.529
SDG8	2.653	.377
ln size	1.204	.831
lev	1.029	.972
2020.year	1.871	.534
2021.year	2.122	.471
2022.year	2.086	.479
Mean VIF	1.821	.

Table 5 Multiple Regression Analysis

	Firm Performance $_{t}$			Firm Performance $_{t+1}$			Firm Performance $_{t+2}$		
	tbq	roa	roe	tbq1	roa1	roe1	tbq2	roa2	roe2
SDG13	0.0198	-0.0269*	-0.0747*	0.0195	-0.0269*	-0.0747**	0.0324	-0.0270	-0.0631
	(0.0246)	(0.0116)	(0.0319)	(0.0330)	(0.0112)	(0.0284)	(0.0460)	(0.0158)	(0.0407)
SDG14	0.0163	-0.00464	-0.0222	0.0137	-0.00474	-0.0254	0.0207	-0.00580	-0.0277
	(0.0256)	(0.00946)	(0.0266)	(0.0254)	(0.00860)	(0.0219)	(0.0363)	(0.0125)	(0.0322)
SDG5	0.0106	0.00129	0.0157	-0.00353	0.00588	0.0271	-0.0102	0.00725	0.0327
	(0.0239)	(0.00670)	(0.0144)	(0.0247)	(0.00835)	(0.0213)	(0.0353)	(0.0121)	(0.0312)
SDG6	-0.0664*	0.0169**	0.0348*	-0.0506*	0.00556	0.0125	-0.0254	0.0145	0.0297
	(0.0313)	(0.00569)	(0.0160)	(0.0252)	(0.00853)	(0.0217)	(0.0365)	(0.0125)	(0.0323)
SDG7	0.0187	-0.00388	0.0104	0.0151	0.00177	0.0196	0.000294	0.00154	0.0203
	(0.0313)	(0.00875)	(0.0302)	(0.0263)	(0.00889)	(0.0227)	(0.0366)	(0.0126)	(0.0324)
SDG8	0.0677	0.00167	0.0184	0.0884**	-0.00190	0.0178	0.102*	-0.0172	-0.0189
	(0.0335)	(0.00850)	(0.0171)	(0.0317)	(0.0107)	(0.0273)	(0.0417)	(0.0143)	(0.0369)
ln size	0.0176	0.00582	0.0190*	0.0183**	0.00274	0.0127*	0.0270**	0.000994	0.0101
	(0.0125)	(0.00351)	(0.00702)	(0.00683)	(0.00231)	(0.00589)	(0.00997)	(0.00342)	(0.00883)
lev	0.506**	-0.104**	-0.143	0.448***	-0.0901***	-0.119**	0.370***	-0.0681**	-0.0530
	(0.172)	(0.0356)	(0.0899)	(0.0462)	(0.0156)	(0.0398)	(0.0624)	(0.0214)	(0.0552)

	Firm Performance $_t$			Firm Performance $_{t+1}$			Firm Performance $_{t+2}$		
	tbq	**roa**	**roe**	**tbq1**	**roa1**	**roe1**	**tbq2**	**roa2**	**roe2**
cons	0.169	0.0402	-0.00181	0.192*	0.0596*	0.0223	0.103	0.0781*	0.0402
	(0.0888)	(0.0304)	(0.0640)	(0.0766)	(0.0259)	(0.0660)	(0.111)	(0.0381)	(0.0985)
Year	INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
N	474	474	474	321	321	321	177	177	177
adj. R^2	0.372	0.181	0.101	0.320	0.108	0.037	0.284	0.093	-0.004
F	16.51	5.060	2.990	14.67	4.525	2.115	8.744	2.995	0.923
df_m	11	11	11	11	11	11	9	9	9
df r	30	30	30	309	309	309	167	167	167

*Note: ***, **, and * stand for statistical significance at the levels of 0.01, 0.05, and 0.10, respectively. Standard errors are shown in parentheses. Firm and industry standard error are clustered.*

According to the result of regression analysis in Table 5, there are only 3 SDGs that show statistical significance to firm performance. The first one is SDG13 climate action. SDG13 shows negative statistical significance to ROA and ROE in both t and t+1 (coef.=-0.0269, SE=0.0116 for ROA; coef.=-0.0747, SE=0.0319 for ROE; coef.=-0.0269, SE=0.0112 for ROA1; coef.=-0.0747, SE=0.0284 for ROE1). However, there is no significance shown in t+2. Thus, SDG13 may be viewed as costly investment with no direct benefits to firm's operation and not related to return then provides negative impact to short-term firm performance.

Second, SDG6 Clean water and sanitation is positively related to ROA and ROE (coef.= 0.0169, SE=0.00569 for ROA; coef.=0.0348, SE=0.0160 for ROE) but conversely show negative impact to TBQ in both t and t+1 (coef.= -0.0664, SE=0.0313 for TBQ; coef.= -0.0506, SE=0.0252 for TBQ1). As well as SDG13, SDG6 show no significance in t+2. This can be implied as different impact of SDG6 on the view of market-based and accounting-based firm performance. Cleaning and sanitizing water may be viewed as a costly activity from market participant. However, by the explanation with Resource-Based View (RBV) concept, since the firm able to develop sustainable water management and effectively utilizing their resource. it signals the cost reduction and effective operation which refer better profit margin. Thus, it positively impacts both ROA and ROE.

Lastly, SDG8 decent work and economic growth shows major difference compare to SDG13 and SDG6. This is the only SDGs which show significant impact to firm performance in the long-run. It shows positive significance to firm performance in the TBQ models in t+1 and t+2 (coef.= 0.0884, SE=0.0317 for TBQ1; coef.=0.102, SE=0.0417 for TBQ2) but not in t. This effect consistent with the brief description of SDG8 which is promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. So, this SDG may have no impact in the initial period but prioritizing decent work and economic growth may lead to sustained improvements in firm performance.

From 3 different firm performance timeframe models, there is no significance from SDG13 and SDG6 in t+2 model while SDG8 show no effect in t model. These results can be concluded that, in short-run, SDG13 presents short-term challenges through its negative influence on firm performance as well as SDG6 which exhibits both positive and negative effects. In contrast, SDG8 has positive effect to firm performance in the long-run. However, the SDGs 5, 7, and 14 are not significant with any firm performance measures in both short-term and long-term.

Therefore, hypothesis H1 is rejected due to the presence of both positive and negative effects of SDG activities on short-term firm performance. Conversely, hypothesis H2 is accepted, as there is one specific SDG activity that demonstrates a positive impact on firm performance in the long run.

As the results are mixed with positive and negative in short-run (t and t+1) and positive in the long-run (t+2), it can be implied that even SDGs activity is widely recognized as beneficial, it may be considered as non-profit investment that sometime negatively affect short-term firm performances. However, in the long-run, SDGs provide positive effect to firm performance. Our findings mostly support the concept of Long-Term Value Creation, showing that SDGs activities may incur immediate expenses and possible to provide initial decrease in firm performance. However, in the long run, these activities deliver potential long-term advantages.

5. CONCLUSION

Since the 17 Sustainable Development Goals (SDGs) has been introduced in September 2015, it become major agenda for governments and businesses. So, this study aims to examine the impact of SDGs activities on firm performance in both short-term and long-term perspectives by utilized 474 firm-year observation from listed company in the Stock Exchange of Thailand (SET) from 2019 - 2022.

The result of our study illustrates how different Sustainable Development Goals (SDGs) affect firm performance over time. While the short-term impacts appear to be both negative and positive, the long-term seems to be clearer with positive result on firm performance. In the short-term, SDG13 climate action shows negative associations with ROA and ROE while SDG6 Clean water and sanitation presents mix relationship with firm performance, it has negative impact on TBQ but positively with ROA and ROE. Conversely, in the long-term, SDG8 Decent Work and Economic Growth associates with TBQ in a positive way.

This finding consistent with the Long-Term Value Creation concept which posits the outweigh of sustained long-term benefits over the initial expenses that negatively affect short-term firm performance and also support the benefits of firm's investment in SDGs activities in the long-run.

Thai listed companies should be mandated to follow the SDGs index. Not only because of market pressures, but aligning with the SDGs helps Thai companies remain competitive in global markets where sustainability is becoming a key criterion for trade and investment decisions which are crucial for long-term growth and stability.

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