

An Thinh Nguyen · Thu Thuy Pham ·  
Joon Song · Yen-Ling Lin ·  
Manh Cuong Dong *Editors*

# Contemporary Economic Issues in Asian Countries: Proceeding of CEIAC 2022, Volume 2

 Springer

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An Thinh Nguyen · Thu Thuy Pham · Joon Song ·  
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# The United States-China Trade War—The Inevitable Strategic Competition



Thu Trang Nguyen

**Abstract** The United States-China trade war is an important geopolitical and geostrategic phenomenon relating to restructuring economic relations in the world's two largest economies. It is also a manifestation of the crisis and restructuring of globalization. A debate about the return of great power competition began immediately for a new international system. This competition and restructuring have placed the world in unprecedented uncertainty. The fierce competition between the United States and China has extended from trade to high technology spreading in several fields with two value systems. The fact is that since the trade war, the rivalry has been exacerbated as they strive for control of the rules, norms, and institutions that will govern international relations in the next decade. After the research and research process, the paper concludes that the United States-China trade war is an inevitable strategic competition.

**Keywords** United States–China trade war · Strategic competition

## 1 Introduction

After launching, the United States–China trade war has been affecting the global world. In March 2018, former President Donald Trump announced that the United States (US) followed through on months of threats to impose sweeping tariffs amounted to \$50 billion on specific Chinese products and other trade barriers. The US-China trade war began because China had created an unfair trade environment for the US government and businesses (White House, 2018). The trade war happened in 2019, but by the end of this year, the two countries had a “reconciliation” leading to

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the Phase One Agreement signed in January 2020. According to Simon and Kukartseva (2019), the outbreak of the US-China trade war is the new complicated Cold War leading to the crisis of the global world order. The US–China trade war poses practical problems and introduces new theoretical topics in the study of international relations. It is not only an event in a global economy but also a complex phenomenon of international relations due to several serious factors such as geoeconomics, geopolitics, strategic competition, nationalism, democracy, and populism.

The financial and economic crisis of 2008–2009 resulted in a dramatic collapse in non-core liquidity. China became the 143rd member of the World Trade Organization in 2001 and implemented a policy of intervening in currency markets to limit or halt the appreciation of its currency, the renminbi, against the US dollar. The US economy has been in recession, leading to many internal problems and the status of its “temporary weakness.” While the US foreign trade deficit increased, the Chinese economy grew between 8 and 10% (World Bank, 2020) and rose to become the world’s second-largest economy. In response to the above situation, the US implemented a protectionist policy toward its biggest trade partner China—the first step in preparing for a trade war with the world involving multiple battles with China as well as American allies.

However, the US-China trade war is a tool for a rivalry between the two superpowers. It is the first step for multiple competition between the two most powerful powers as well as disruption to the interdependence of the two largest economies. Therefore, the paper focuses on studying “The United States-China trade war” with a qualitative approach, analyzing events in international relations and forecasting methods, affirming that this is an inevitable strategic competition.

## **2 The United States–China Trade War—Origin and Nature of Strategic Competition**

The US and China are both the two largest economies in the world today. International trade is the exchange of goods and services between two or more countries that import and export goods. A trade war is a war between two or more countries that involves the addition and imposition of duties and taxes on each other goods. From an economic perspective, two main reasons for a trade war include trade imbalances and overlapping industrial structures (Blackwell et al., 2020). At the same time, trade protectionism could reduce society’s gross product over time and stifle progress overall (Cheong & Tongzon, 2018; Georgiadis & Gräß, 2016). Taking a closer look at the US–China trade competition, which culminated in the launch of a trade war and technological competition, the above behaviors are more related to the geopolitical and strategic competition between the two countries.

After launching a trade war between the two economies, the moves of the US and China rivalry to expand the geoeconomic war, accompanied by many short-term and long-term impacts on the regional and global economy. Many changes in the

US-China bilateral trade, for instance, tightening tariff barriers and trade retaliation, led to several changes in world trade, including the industrial sector with production lines and raw materials. The main reason for this US behavior is feeling threatened by the growing resurgence of the emerging economy. Besides the trade allegations, the US also accuses China of military technology espionage and stealing the intellectual property of US companies (Sanger & Benner, 2018). The increasingly intense policies and criticisms that led to the trade impasse began to emerge in late 2018 and show no sign of ending the trade war shortly. Although greatly affected by the US launch of the trade war, with the fast speed and large scale of its economy, China can recover from the economic shock. The effects of the US-China trade war could hit vulnerable developing economies.

According to Swenson and Woo (2019), the US is equating geostrategic warfare with economic competition because “the American political-economic system is on the premise that the primary purpose of economic activity is to benefit consumers while maximizing wealth creation” (Gilpin, 2001). Concern about the trade deficit led Donald Trump to impose tariffs on China to limit China’s access to high-tech US products and foreign direct investment. During the President Joe Biden administration, additional sanctions continued to be seen as “a battle between the interests of twenty-first-century democracies and autocratic regimes” (Sanger, 2022). Therefore, the US launched a trade war with China driven by strategic logic in political, economic, and geographical approaches (Flint & Zhang, 2021). Both countries seek to take the leading role in the world in both economic and political and have advantages in strategic advantages.

In the context of increasing globalization, the role of geopolitics, geoeconomics, relations in crisis, and the restructuring period (Vlados & Chatzinikolaou, 2019) is related to the competition for the influence of the two powers leading countries in the world today. According to Layne (2018), China attempted to build an international order in its favor without being bound by the institutions and rules of Pax Americana. While the US has been in a “relative” decline, China’s explosive growth will lead to the erosion of US hegemony (Graaff & Apeldoorn, 2018). As the trade war unfolded, originating from the US and spreading to other countries, nationalism and populism surged to protect national production by imposing tariffs, restricting imports, and foreign competition. Hence, a return of protectionism and the resurgence of populist, nationalist, and anti-globalization waves. Besides, the US policy has affected China, Canada, and the European Union. For example, the UK imposed tariffs on Chinese imports, and China retaliated by imposing duties on a list of US imports. So the impact of the trade war has extended to many other major economies in the international market, which has worsened global trade. The continued trade deficit and changes in the global supply chain related to the US–China trade competition may increase political instability in the concerned countries.

According to Zhang (2018), the trade war cannot achieve the outcome desired by President Donald Trump, and a solution is moving toward a balance of trade structure and long-term strategies. At the same time, Huang (2021) also assessed that the trade war did not bring great economic victory for the US and China. Besides, disruptions in global economic governance (Bayer, 2019) will lead to inequality in developing

countries (Ahluwalia, 2019). For a system of redistribution of power in a multipolar world (Efstathopoulos, 2016), the world system is rapidly changing toward instability (Vlados, 2020). When restructuring the relationship between the world's two leading economies, international relations must enter the process of reshaping the structure at all levels. All of this leads to unfavorable scenarios for world politics.

The US–China trade competition is mainly related to the strategic competition between the two great powers in the new context. President Joe Biden insists the US–China relations need to be all “compete, confront, and cooperate” at the same time, while President Xi Jinping at the 2021 World Economic Forum, “competition is for pursuing excellence = not killing off a rival.” (Huang, 2021). The escalating trade conflict has raised concerns about the possibility that the US and its allies will remove China from global trade and supply chains (Whitten et al., 2020). One of the most optimistic scenarios is the process of strategic competition through the trade war US–China trade is entering the final stage and would form a stable socioeconomic order. However, the current dynamics and unpredictable timing leave governments in small countries in a “security dilemma.” A stable, commonwealth order does not seem to have been facilitated, from the perspective of globalization, and seems unattainable (Friedman, 1999; Rodrik, 2011). Small countries have to face both the rise of the emerging power, China, and the “smart power” of the incumbent power—the United States. At the same time, the recent armed conflict in Ukraine has made small governments warier of strategic competition between great powers.

For all these reasons, the US and China may never be able to develop a true strategic partnership. As China's power grows, it presents potential threats to US allies in Asia, undermining US interests and its hegemony in the global system. In general, Beijing will not be viewed as a partner but as a challenger to Washington. The US strives to protect its interests and influence on a global scale. Therefore, strategic competition between the US and China is inevitable, despite the two sides' efforts to “peacefully coexist.” In other words, the conflict between these two actors can never be overcome (Tellis, 2020).

### **3 The US–China Trade War and the Shaping of a New Cold War Order**

The current US-China competition is reminiscent of the Cold War between the US and the Soviet Union that took place in history. After World War II, the US and the Soviet Union became two superpowers in the new world order. The competition between these superpowers led to the Cold War. The US became the leader of all Capitalist countries, and Soviet Russia took over the leadership of all Communist countries. According to Karaganov (2021), the Cold War is one of the types of international competition for resources (such as territory, population, and economy) caused by geoeconomic, geopolitical, and economic reasons with different ideologies. “Lessons” from Cold War in history could help us better understand the

nature of the current great power competition and forecast Sino-American strategic competition (Friedman & Sela, 2022).

The “old” Cold War ended in history, but the “new Cold War” is a much more complex contemporary unfolding story (Simons & Kukartseva, 2019). Whether a New Cold War has appeared and the beginning of a New Cold War is still a serious debate. Kissinger (Baru & Sharpe, 2021; Kissinger, 2012) and Brzezinski (Fischer & Stark, 2015) predicted a New Cold War would happen in Asia. Several hypotheses for the beginning of the New Cold War have been suggested. It could be Trump’s victory in November 2016, Trump’s first imposition of tariffs on China in January 2018, or the launch of the US–China trade war in 2019. Moreover, the US–China trade war by the Trump administration that led the two countries officially confront is also considered a milestone of the New Cold War (Islam & Cansua, 2021). Besides, Breuer (2022) states that New Cold War is a return to history. However, Sumer (2019) argues that the Cold War will never return to world politics.

Trade wars are not an unknown topic in international trade, but the features of the US–China trade war make this war very special when political and strategic factors are intertwined. With a zero-sum theory, the Trump administration launched a technology war against China that profoundly impacted the development of bilateral relations and is the future trend of world politics and economy (Haiyong, 2019). The US–China trade war started in 2018 and continued to intensify in 2019 causing more damage recently and even appearing the risk of a currency war. It is a part of the US retaliation war with China as it increasingly imposes quotas and higher tariffs. With the “Made in China 2025” program, China plans to become a world leader in industries, including artificial intelligence, robotics, aircraft components, and high-speed trains. This currency war would be a result of competition between the two countries, or a trade war, thus creating a “vicious cycle” (Islam & Cansua, 2021). According to Schumpeter (1934), a country’s technological innovation, and scientific and technical strength are correlated with its economic strength. At the same time, the fierce competition between China and the US has been and will expand from trade to high technology (Wu, 2020). Khan et al. (2022) used the Becker Model and the rolling window approach and concluded that global geopolitical risk has a significant impact on technology. This process has been accelerated by the influence of the fourth industrial revolution which is characterized by breakthroughs in areas, including artificial intelligence (AI), big data, fifth-generation telecommunications networking (5G), nanotechnology, biotechnology, robotics, Internet of Things (IoT), and computing quantum computing.

The US–China trade war could start a New Cold War (Huang, 2021). The terms, such as geopolitics, geoeconomics, and geostrategy, which seemed to have stopped at the end of the Cold War, appear in world politics today. They relate to increasing the nation’s influence and expanding geographical power control of the great powers (Wigell & Vihma, 2016). When China is looking for space to rise and develop in the region, its dominance challenges the US hegemony. Therefore, the US will implement forms of deterrence to strengthen and assert its position of global influence. Both major powers attempt to control their dominance in the trade war. Hence, the restructuring of trade can lead to the restructuring of security and politics. Vulnerable

economies will be affected, even raising the risk of political instability. The expansion of fierce competition between the US and China from economic to other fields will push small countries to feel the need to make choices to pursue their national interests, which could lead to a New Cold War.

## 4 Conclusions and Discussion

The US–China strategic competition, since its appearance, has affected all aspects of economic and political life in many regions around the world. Besides, the current US–China trade war shows that the dynamics of the crisis and the restructuring of the global socioeconomic system are in an accelerating period. The temporary weakening of the US will continue, and China will also experience a decline in economic strength leading to a restructuring toward global equilibrium, a new global architecture, or new globalization (Vlados, 2020). Current developments show that it takes a long time to shape a stable global socioeconomic model. Even the competition between China and the US and the expanding competition could lead to the unpredictable breakdown of the rules-based order (Wu, 2020).

The deterioration of US–China relations since the era of Donald Trump with the launch of a trade war has made the world rethink the nature of the two countries rivalry. Although the Cold War association is a useful inference for understanding the dynamics of US–China strategic competition, it is based on past US–Soviet relations that may lead to a misunderstanding of the current US–China logic (Yin, 2020). However, it is undeniable that the predictions are not very optimistic for the world political situation in the face of the current US–China trade war.

The US officially defines the long-term strategic competition for China and is ready to use its power to prevent Beijing from reshaping the multilateral system. The US–China trade war is one of the challenges when forming a new order or structure that limits development and shared prosperity. When the war spreads globally, the prolongation of the crisis has negative effects on global development leading to world political problems. In this case, the trade competition leads to the repositioning of economic mechanisms and changes in the relationship of global partners. These changes can be the direction to help countries get out of the current crisis and form a “new globalization” structure, providing relatively long-term growth and a balanced framework for the stability of the region and the world.

The dramatic shift in the US–China relationship is the closest case of ongoing power competition, represents, and an intertwined relationship of economic factors with political factors. The fundamental aspects of the US–China strategic competition and the interpretation of its origins, dynamics, and future projections need to be viewed from a multidimensional perspective and require more data. Besides, the topic such as the US–China strategic competition through the trade war also needs more time and tools to grasp the essence of new issues. It means that debates related to new phenomena of international relations continue (Sumer, 2019), and it is difficult to reach a consensus shortly.

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# The Impact of Online CSR Disclosure on Firm Performance in Banking Industry: Evidence from Vietnam



Lan Nguyen-Thi-Huong and Anh Nguyen-Phuong

**Abstract** CSR is the way in which corporations attribute their resources to take responsibility in order to improve the society and environment for a long term which goes beyond the merely economic strategy and legal requirements. It is one of the important factors affecting firm performance. Along with the shift from “traditional CSR” to “modern CSR,” our study assesses the impact of online CSR disclosure on firm performance of listed banks in Vietnam to fill the research gap both in theory and in experimental application. Content analysis and Pool-OLS regression methods are applied to calculate and evaluate the results of testing the research hypotheses. The results show that online CSR disclosure produces a positive effect on firm performance in terms of ROA indicator and the online disclosure of CSR information can produce protection shield to reduce the negative impacts of uncertainty events as COVID-19. Our study provides empirical suggestion that managers should utilize CSR as a strategic action to gain higher firm performance. This result implies that in terms of policy, it is necessary to establish standardized systems that guide and control CSR practices to enhance the effectiveness of CSR disclosure.

**Keywords** Online corporate social responsibility · Firm performance · COVID-19 · Vietnam · Content analysis

## 1 Introduction

The term “Corporate Social Responsibility” (CSR) was shaped in the 1950s in relation to government policy regulations. It became popular in the 1960s and has recently become a global phenomenon (Carrol, 2008). In general, CSR is the way in which

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corporations attribute their resources to take responsibility in order to improve the society and environment for a long term which goes beyond the merely economic strategy and legal requirements (Carrol & Shabana, 2010). CSR activities can remain core value for today and tomorrow and grant for future generations.

Sustainable development of the economy in general, sustainable development of businesses in particular, and CSR have become more important in recent years due to the constant proliferation of problems such as environmental destruction, resource scarcity, and social problems (Sam & Dillon, 2019). In addition, stakeholders are increasingly aware that CSR activities are not only charitable, but also contribute to the positive image of corporation, increasing employee and customer satisfaction as well as other factors that need to be taken into evaluation when measuring business performance (Pedersen, 2015; Weber, 2008).

COVID-19 started to explode in December 2019 and quickly spread around the world. The global pandemic upset the entire world economy. The global economic recession because of COVID-19 is clear, the global growth will drop to 4.4% in 2022, from 5.9% in 2021, and it is expected to slow to 3.8% in 2023 (IMF, 2022). According to IMF's prediction in January 2022, the global economy is entering 2022 in a weaker position than anticipated and this is the most serious crisis after World War II (IMF, 2022). News of the Omicron variant led to increase mobility restrictions and financial market volatility at the end of 2021. Supply disruptions have continued to weigh on activity. Vietnam is not an exception, the latest survey of the Private Economic Development Research Board shows that over 1200 enterprises on the impact of COVID-19 on business activities, if COVID-19 is not controlled, about 74% of businesses will go bankrupt in a month. The main reason of this problem is that businesses cannot compensate for expenses for operations such as salary payment, bank interest, and material cost. In addition, statistics show that nearly 30% of businesses lose 20–50% of revenue and 60% of businesses even halve sales (VietnamFinance, 2020). But there are some businesses that have found solutions to turn challenges into opportunities, a prominent example could be TNG—a leading garment company in Vietnam, which has quickly switched to essential products for COVID-19 which are masks and protective clothing. The first market strategy of the company was to give away one million free masks to people. Thanks to this event, TNG has received a lot of domestic and foreign orders; thus, TNG's revenue and workers' wages were almost unchanged from the previous period. Along with the development of technology, implementing CSR and public relations can help organizations achieve efficiency above expectations.

CSR is one of the important factors affecting firm performance. In the context of technology boom, online CSR disclosure becomes the global phenomenon along with CSR disclosure in annual reports (Kiliç, 2016). Especially, in abnormal times, online CSR disclosure is a special tool that create insurance-like effect that protects firm performance (Shiu & Yang, 2017; Lin et al., 2017). So that, studying about the impact of online CSR disclosure on firm financial performance in the context of global epidemic, namely COVID-19, is necessary and up-to-date.

Along with the change in perception of the role of CSR is the change in the strategy and behavior of enterprises using CSR, especially during unusual periods.

The questions here are as follows: “What is the impact of online CSR on firm performance?”, and “Which CSR strategy implements in the unusual context, lessons from the COVID-19 epidemic?” These questions are answered by explaining the shift from “traditional CSR” to “modern CSR” and then describing how it is applied to business decisions and business management in abnormal circumstances.

Our study assesses the impact of online CSR disclosure on firm performance of listed banks in Vietnam to fill the research gap in both theory and practice. The online CSR disclosure practice assessment framework is determined based on the exploration of previous studies and is relevant to the Vietnamese context. Content analysis and Pool-OLS regression methods are applied to calculate and evaluate the results of testing the research hypotheses. The results show that online CSR disclosure produces a positive effect on firm performance in terms of ROA indicator and the online disclosure of CSR information can produce protection shield to reduce the negative impacts of uncertainty events as COVID-19. Our study provides empirical evidence on the monitoring role of online CSR disclosure in banking industry that can be generalized to other industries in Vietnam. Based on the view of stakeholders, manager should utilize CSR as a strategic action to gain higher firm performance. This result implies that in terms of policy, it is necessary to establish standardized systems as well as a formal list of approved CSR activities that guide a company on how to enhance the effectiveness of CSR disclosure.

## **2 Literature Review**

### ***2.1 Theoretical Background***

#### **2.1.1 Stakeholder Theory**

According to stakeholder theory, firm performance is affected by its stakeholder (Freeman, 2010). The enterprise’s goal is to meet the needs of the stakeholders; if this is done, the profits of the business will be generated. In order to maximize value for the business, it is necessary to maximize value for stakeholders (Freeman, 2010).

Under the perspective of corporate governance, a business has a good policy of social responsibility along with the appropriate behavior of managers which will boost employee morale; attract customers, investors, and other stakeholders, thereby enhancing image and reputation of businesses, contributing to enhance the value of businesses (Rodriguez-Fernandez, 2016).

#### **2.1.2 Legitimacy Theory**

Business enterprises in society must sign a social contract that managers must comply with certain social requirements to achieve their goals. The terms of this contract can

be clearly seen such as a law but also the terms are not clearly defined. It depends on the expectation of the social community with the enterprise (Guthrie & Parker, 1989).

The legitimacy theory explains the CSR behaviors of enterprises with two basic aspects that are businesses need to legitimize their activities and the process of implementing legal activities to benefit businesses (Mohamed et al., 2014).

## ***2.2 Literature Review and Hypothesis Development***

Numerous terms are used to describe the non-financial disclosure practices of organizations, including “social and environmental,” “sustainability,” “ethical,” “triple-bottom-line,” and “CSR” (Skouloudis et al., 2014). CSR reporting is increasingly becoming a widespread instrument through which companies disclose their practices regarding environmental protection, energy conservation, labor conditions, and other aspects of business operations that are not directly related to financial performance (Tang & Li, 2009).

Recently, the amount of studies related to the relationship between CSR disclosure and firm performance increased sharply. Studies that examine the effect of CSR disclosure on corporate performance are conducted through a variety of indices such as stock price (Clarkson et al., 2013), earning per share (Jitaree & Wisuttorn, 2015), cumulative abnormal return (Hassel et al., 2005), and Tobin’s Q (Cahan et al., 2015; Jitaree & Wisuttorn, 2015). The results were very diverse and still a matter of controversy. Some studies demonstrated the positive relationship between CSR disclosure and firm performance (Berthelot et al., 2012; Clarkson et al., 2013; Klerk et al., 2015; Cahan et al., 2015). Besides, some studies indicated the negative relationship (Hassel et al., 2005; Saleh et al., 2011) or no relationship between CSR disclosure and firm performance (Jitaree & Wisuttorn, 2015).

Most of the studies used CSR information that is disclosed in the corporate annual reports (Fatemi et al., 2018; Mishra, 2017). Some other studies have looked at online CSR information publishing on firm performance, but only focused on evaluating the presence of CSR categories in the operation of enterprises that have no consideration related to the quality of CSR categories (Kiliç, 2016; Szegedi et al., 2020). Few studies have examined banks’ websites to determine their CSR information disclosure (Kiliç, 2016). Furthermore, previous studies have almost no observance of online CSR disclosure and firm performance in unusual times as COVID-19.

Based on the aforementioned, this study aims to examine the impact of online CSR disclosure of Vietnamese-listed banks on firm performance to provide additional evidence for academic and practical field. Hypotheses were developed as follows:

***H1: There is a positive relationship between online CSR disclosure and banks’ performance.***

***H2: There is a moderating effect of online CSR disclosure on the relationship between COVID-19 pandemic and banks’ performance.***

### 3 Research Methodology

#### 3.1 Data and Sample

The research sample is selected from commercial banks listed on the Vietnam stock market from 2018 to 2021. Financial information is collected directly from corporate financial statements, and CSR indexes were evaluated by exploring the websites of selected banks.

#### 3.2 Methods

Content analysis is used to give the CSR score of selected firms. Based on the previous studies, the author has built a CSR checklist with 36 categories for Vietnam banks and measured the level of disclosure of information related to the database of selected banks with 2 levels: A score of “1” was assigned if a CSR item was disclosed and “0” if it was not.

After that, this study uses multiple regression analysis for panel data to check the impact of online CSR disclosure on firm performance. Panel data has many advantages over time series and spatial data (cross data) because it allows studying complex models that fluctuate in both directions. To check the impact of online CSR disclosure on banks’ performance, this study uses the least squares regression methods (Pooled OLS) with panel regression test equation as follows:

$$FP_{it} = a_1 + b_1OCSR + b_2Size + b_3Age + e_1 \tag{1}$$

where  $FP_{it}$ : return on assets (ROA) of firm  $i$  in year  $t$ ;  $OCSR$ : online CSR disclosure index;  $Size$ : the natural logarithm of total assets,  $Age$ : age of each bank,  $a_1$ : the intercept term (the constant term),  $b_1, b_2, b_3$ : the estimated regression coefficients (the slope of the regression), and  $e_1$ : the error term.

To check the effect of online CSR disclosure on the impact of COVID-19 pandemic on firm performance, we check the moderating effect of online CSR disclosure by the equation as follows:

$$FP_{it} = a_1 + b_1OCSR + b_2Covid + b_3OCSR * Covid + b_4Size + b_5Age + e_1 \tag{2}$$

where COVID: taking value of 1 if observation belongs to the post-period of COVID-19 pandemic (i.e., 2020–2021), and 0 otherwise,  $a_1$ : the intercept term (the constant term),  $b_1, b_2, b_3, b_4, b_5$ : the estimated regression coefficients (the slope of the regression), and  $e_1$ : the error term.

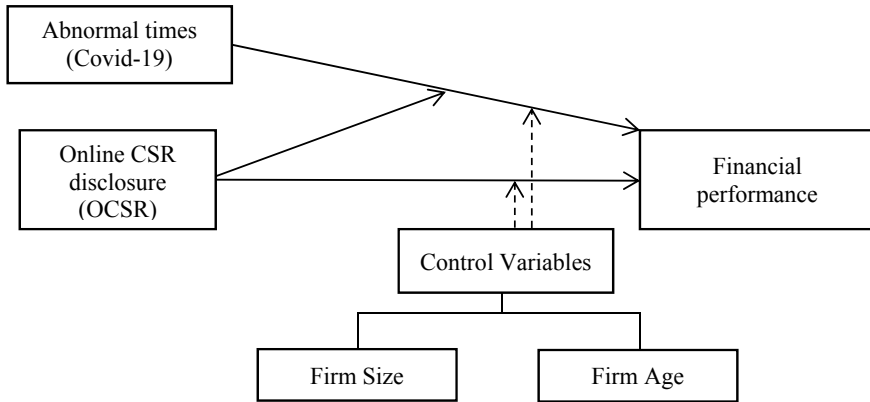


Fig. 1 Research framework. *Source* Author's own

### 3.3 Research Framework

See Fig. 1.

## 4 Empirical Analysis and Results

This part includes calculating the score of online CSR disclosure by content analysis, descriptive statistics, and regression results to determine the impact of online CSR disclosure on financial performance of Vietnamese-listed banks.

### 4.1 Online CSR Disclosure Index

The list of CSR reporting items was drawn from prior studies. Previous studies have categorized CSR into different sub-themes, for instance, Kiliç (2016) as environment and energy, human resources, products and customers, and community involvement; and Branco and Rodrigues (2006) as environment, human resources, products and customers, and community involvement. Thus, in this study, CSR disclosure was classified into the four sub-themes of environment, human resources, corporate governance, and community involvement.

The content analysis method was applied to measure the extent to which the level of banks' CSR disclosure. A total of 36 items of CSR information were identified and divided into four sections according to the four sub-themes. A dichotomous coding technique was applied to analyze the existence or absence of items on banks' websites. Therefore, a score of "1" was assigned if a CSR item was disclosed and "0"

**Table 1** Descriptive statistics

Variables	Mean	Min	Max	Standard deviation
FP	0.059	-1.69	1.341	0.126
OCSR	38.76	22.22	49.56	0.372
Size	21.585	11.917	26.573	1.742
Age	38.62	14	59	3.277
COVID	0.5	0	1	0.11

Source Author's calculation

if it was not. The CSR reporting index for each bank was then calculated as follows:

$$CSR = \sum_{j=1} \frac{d_j}{n} \times 100$$

where  $d_j = 1$  if item  $j$  is disclosed; 0 if item  $j$  is not disclosed; and  $n$  is the number of items.

Overall, the CSR disclosure index comprises four sub-dimensions, namely environment (EN), human resources (HR), corporate governance (CG), and community involvement (CI).

## 4.2 Regression Analysis

### 4.2.1 Descriptive Statistics

Table 1 reports the descriptive statistics for variables in the baseline regression (1). FP has a sample mean of 0.059, i.e., the sample banks achieved a ROA of approximately 5.9% during the sample period. The variables OCSR and Age have sample means of 38.76 and 38.62, respectively. The natural logarithm of total assets has a minimum value of 11.917 and a maximum value of 26.573, with an average value of 21,585. COVID averaged 0.5, with a range from 0 to 1.

Table 2 presents the pair-correlations between variables in the model. All four variables are significantly correlated with FP. In addition, the correlation between the variable Size and Age is also positively related to OCSR. High correlations are also found between COVID and other variables.

### 4.2.2 Empirical Results

The regression technique to test the impact of online CSR disclosure on firm performance was performed by Pool-OLS regression analysis. According to Table 3, the OCSR coefficient in column (1) was statistically significant at the 1% level, indicating

**Table 2** Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)
FP	1.000				
OCSR	0.288***	1.000			
Size	0.182***	0.16**	1.000		
Age	0.135***	0.37***	0.26***	1.000	
COVID	0.125***	0.165***	0.081***	0.095***	1.000

Note p-value < 0.05 (\*\*), p-value < 0.01 (\*\*\*)

Source Author's calculation

that the online disclosure of CSR of our sample banks had a positive effect on banks' performance in terms of ROA. Similarly, the coefficient of Size and Age has positive effect at the 5% significance level. The COVID coefficients in columns (2) and (3) that reflect the impact of pandemic on banks' performance indicated the negative impact at 1% and 5% significance levels, respectively. Despite the challenges that COVID-19 brings for banks, the effect of online CSR disclosure in the COVID-19 period seem to produce the insurance-like effect to control the negative effect of pandemic to the economic efficiency of listed banks as shown by the interaction coefficient of OCSR\*COVID in the model (4) with positive statistically significant. These results support both hypothesis 1 and hypothesis 2.

The R-squared values of model 1, model 2, model 3, and model 4 as shown in Table 3 are 0.21, 0.17, 0.23, and 0.24, respectively, indicating that the independent variables can explain 21, 17, 23, and 24% of variance in ROA of listed banks in Vietnam. The models have low R-square values but are statistically significant at the level of  $\alpha = 0.05$ . The low R-squared values are not surprising as there are many factors affecting both directly and indirectly the ROA of listed banks (Omondi & Muturi, 2013; Ongore & Kusa, 2013; Reguera-Alvarado et al., 2017), which are not considered in the model. Our study focuses on exploring the impact of online CSR

**Table 3** The impact of online CSR disclosure on firm performance

Variables	Dependent variable: firm performance—ROA			
	(1)	(2)	(3)	(4)
OCSR	0.099***	–	0.078***	0.08***
Size	0.054**	0.067***	0.051**	0.050***
Age	0.068**	0.057**	0.062**	0.062**
COVID	–	(0.052)***	(0.045)**	(0.042)**
OCSR * COVID	–	–	–	0.019**
R <sup>2</sup>	0.21	0.17	0.23	0.24
p-value	0.0000	0.0000	0.0000	0.0000

Note p-value < 0.05 (\*\*), p-value < 0.01 (\*\*\*)

Source Author's calculation

disclosure on firm performance in terms of ROA; therefore, such an interpretation can be considered appropriate. This conclusion is also supported by actual socio-scientific studies regarding firm performance with relatively low R-squared values in case of small sample size (El-Mashaleh et al., 2006; Kang et al., 2013; Kennedy, 2008).

## 5 Conclusion

This study explores the impact of online CSR disclosure and COVID-19 on firm performance of listed banks in Vietnam. The results proved that online CSR disclosure produces a positive effect on firm performance in terms of ROA indicator (Kiliç, 2016). Academically, our research adds to previous literature on the impact of online CSR disclosure on firm performance by using an accounting-based criterion. Our study provides empirical evidence on the monitoring role of online CSR disclosure in banking industry that can be generalized to other industries in Vietnam. Based on the view of stakeholders, managers should utilize CSR as a strategic action to gain higher firm performance.

The findings based on exploring the effect of online CSR disclosure on the relationship between COVID-19 pandemic and Vietnamese banks' performance indicated that the online disclosure of CSR information can produce protection shield to reduce the negative impacts of uncertainty events as COVID-19 (Shiu & Yang, 2017). These results offer several crucial implications for managers and policymakers. To achieve effective online CSR disclosure, on the one hand, it is necessary to establish standardized systems as well as a formal list of approved CSR activities to guide a company on how to enhance the effectiveness of CSR disclosure. On the other hand, regulations on the control and assessment of mandatory CSR disclosure should also be enacted to encourage companies to do everything in their power to pursue sustainable development goals and create effective coverage for unforeseen situations.

This study contains some limitations. First, the evaluation of CSR disclosure is based on exploring the banks' websites based on the voluntary regime; therefore, the results of evaluating CSR disclosure index may make some bias because of the lack of information on CSR practices. Second, this study only selected banking industry to explore the research issues; future research may expand the sample to other industries to get an overview of the impact of online CSR practices on business performance. The study also only uses ROA to measure the performance of listed banks; future research can use other performance indicators such as Tobin'Q, EPS, and market value to assess this issue. More emphatically, CSR disclosure involves stakeholder pressures and expectations; therefore, a stakeholder theory-based approach to assess stakeholder perceptions of effectiveness of CSR practices of enterprises should be conducted.

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# Assessment of Barriers to Development Eco-Industrial Parks in Vietnam



Hai Nguyen-Thi

**Abstract** The key to sustainable development is to create a “green economy” that includes all three sectors: industry, people, and government. Therefore, there is an urgent need to develop and implement sustainable eco-industrial parks. However, the transformation orientation from traditional industrial zones to eco-industrial parks in Vietnam is still very new and faces many barriers. This study assesses the barriers affecting the development of eco-industrial parks in Vietnam using the analytical hierarchy process (AHP). The results show that the relative impact on environmental barriers is the largest (0.378), followed by organizational barriers (0.324) and technological barriers (0.298). This result implies that policymakers need to improve regulations and procedures as well as support resources for industrial zones, at the same time, emphasizing the need to raise awareness about the sustainable value of industrial zones and establish long-term partnerships with NGOs.

**Keywords** Eco-industrial parks · Barriers · Vietnam · AHP

## 1 Introduction

Eco-industrial parks (EIPs) are a collection of production and service facilities that seek solutions to improve environmental quality and economic efficiency by coordinating environmental and resource management (including energy, water, and materials) (Lowe & Evans, 1995). In this way, the factories in the EIPs will reap collective benefits that are far greater than the sums achieved by individual factories optimizing their own performance. The goal of EIPs is to improve the economic efficiency of all factories participating in EIPs while minimizing their impact on the environment, connecting factories in industrial zones to become “industrial ecosystems”.

As proposed by the United Nations Environment Programme (UNEP), the key to sustainable development is to create a “green economy” that includes all three sectors:

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industry, people, and government (UNEP, 2011). Therefore, there is an urgent need to develop and implement sustainable eco-industrial parks on the existing basis, especially in developing countries. Furthermore, human activities have impacted nearly every aspect of the environment leading to a continuous increase of problems ranging from the depletion of the ozone layer, to the destruction of various ecosystems, even to the formation of increasingly severe weather phenomena, resource scarcity and social problems (Sam & Dillon, 2019). Examples are many of the cheap, disposable goods we have today, where the example of plastic water bottles according to research by Sam and Dillon (2019) has shown that a factory produces about 20,000 bottles of water a day but they are only used for a few minutes and then released into the environment about 91% of plastic bottles are not recycled and the worst part is the waste that ends up in the ocean causing serious pollution. The devastation of the environment, climate change, and the death of animals have posed a real threat to the balance between man and the world. In this context, several challenges of the twenty-first century have been identified, such as protecting populations from natural hazards, mitigating and adapting to global warming, and optimizing water/energy/food relationship. To meet these challenges, the development of EIPs is one of the solutions that have been adopted by many countries such as China, Taiwan, Korea, the United States, and European countries (Gibbs & Deutz, 2007; Li et al., 2015; Dung, 2019; Zhu et al., 2015). Vietnam is no exception to this trend, developing EIPs is one of the important tasks in the 10-year economic development strategy period from 2021 to 2030. With 403 industrial parks in operation, promoting the development of industrial parks in the direction of ecology will mobilize great resources from the private sector for green industrial solutions, ensure energy security, make a significant contribution to Vietnam's efforts to respond to climate change, promote green growth and circular economy, and demonstrate the political determination of the Vietnamese Government in implementing commitments to sustainable development (Thy, 2022). However, the transition from traditional industrial parks to EIPs in Vietnam is still very new and faces many barriers. Therefore, facing the challenges of EIP development, it is necessary to evaluate and rank the barriers affecting the development of EIPs for optimal solutions.

Research on barriers affecting the development of EIPs has been of interest to a number of scholars. Two fundamental theories, resource dependency theory and resource-based perspective, have been selected by researchers to explain the external and internal barriers to implementing EIPs (Hauschild & Knyphausen-Aufsess, 2013; Hillman et al., 2009; Van Weele & Van Raaij, 2014). External barriers are suggested as economic, political, social, and policy mechanisms (Kim, 2007; Matus et al., 2012). Lack of resources, conflicts in the trade-offs of profit and the pursuit of environmental and social goals, or lack of human resources, and technological level are evaluated as internal barriers affecting the development of EIPs (Chiu & Geng, 2004; Matus et al., 2012; Tudor et al., 2007). Although these studies have shown the barriers detected through empirical research, there is a lack of an assessment of the level of influence of these barriers. Studies on the development of EIPs have also been conducted by a number of researchers in Vietnam, in which scholars have focused on exploring the conceptual contents of EIPs, their characteristics and processes as well

as requirements to implement industrial symbiosis in the formation and development of EIPs (Nguyen Cao Luan, 2014; Nguyen Cong Thanh, 2009; Pham Nguyen Ngoc Anh, 2011). There are also studies that suggest difficulties in implementing the transition to EIPs of industrial zones, but there is no assessment on the extent of the impact of these difficulties or barriers on the readiness of industrial parks to form an industrial ecosystem (Tran Duy Dong, 2020).

Our study to rank the barriers to the development of EIPs needs to be conducted to fill the research gap both in theory and in experimental application. Barriers were identified based on reference to previous studies and selected appropriate to the Vietnamese context based on the application of the Technology–Organization–Environment (TOE) research framework. The opinions of experts from the units directly managing the transition from traditional industrial parks to EIPs and industrial park management boards are collected. Using the Analytic Hierarchical Process (AHP) approach, based on the collected data, we rank the impact of barriers on the development of EIPs from high to low based on the weights calculated for each barrier. The results show that the relative impact on environmental barriers is the largest (0.378), followed by organizational barriers (0.324) and technological barriers (0.298). This result implies that policymakers need to improve regulations and procedures as well as support resources for industrial parks. At the same time, emphasizing the need to raise awareness about the sustainable value of industrial zones and establish long-term partnerships with NGOs.

## 2 Research Overview

### 2.1 Research Background

In Vietnam, there are currently 403 industrial parks, attracting a total foreign direct investment capital of about 12 billion USD, accounting for about 80%-90% of foreign-invested projects in the field of manufacturing, increasing export imports, increasing budget revenue, creating more jobs, and increasing income for workers (Thy, 2022). As originally expected, the development of industrial zones is concerned with environmental and social criteria. However, in fact, the rapid industrial development has caused certain impacts and impacts on the environment. In particular, some industrial parks have not completed the construction of wastewater treatment plants, threatening the health and lives of people due to water pollution, air pollution, and hazardous waste (Dung, 2019). Therefore, it is necessary to transform from traditional industrial zones to more sustainable ones with more emphasis on efficient use of resources and cleaner production. The construction of EIPs is considered as a solution that not only overcomes limitations and inadequacies in environmental problems and reduces resource waste, but also promotes sustainable growth.

In Vietnam, regulations on industrial parks in general have existed since 2008 in Decree No 29/2008/ND-CP regulating industrial parks, export processing zones,