THE MEDIATING EFFECT OF INTEGRATED BUSINESS AND ENVIRONMENTAL MANAGEMENT ON THE RELATIONSHIP BETWEEN EXTERNAL PRESSURES AND CARBON DISCLOSURE OF FIRMS IN SELECTED ASIA PACIFIC COUNTRIES

LE THI TRUC LOAN

UNIVERSITI SAINS MALAYSIA

2023

THE MEDIATING EFFECT OF INTEGRATED BUSINESS AND ENVIRONMENTAL MANAGEMENT ON THE RELATIONSHIP BETWEEN EXTERNAL PRESSURES AND CABON DISCLOSURE OF FIRMS IN SELECTED ASIA PACIFIC COUNTRIES

by

LE THI TRUC LOAN

Thesis submitted in fulfilment of the requirements
for the degree of
Doctor of Philosophy

February 2023

ACKNOWLEDGEMENT

Firstly, I would like to thank my supervisor Prof. Dr Fauziah Md. Taib for her intuitive insight inspired this research, her time spent on reviewing my work and for encouraging me from the initial to the final stage of this thesis. A special thank goes to her who commented on improving the whole thesis with logical thoughts and gave me valuable advice to sort out the problems in relation to the research area. Without her, I was not able to incorporate all the pieces of the research project. Secondly, I sincerely thank to all professors, and staff of Universiti Sains Malaysia for giving me good opportunities and environment to stay and study in Malaysia for five years. Thirdly, I wish to thank my friends in Penang for their endless love, support, and encouragement. I was very impressed with their care for each other and for creating a family-like environment in which we share happiness or sorrow with other. Fourthly, words cannot express the love; on the bottom of my heart, I wish to thank my family, especially my husband and my three children, who made too many sacrifices for me. Finally, I am thankful to the government of Vietnam, for sponsoring my PhD study at USM.

TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

LIST OF ABBREVIATIONS

AHP	Analytic hierarchy process
CDP	Carbon Disclosure Project
CEP	Corporate environmental performance
CG	Corporate governance
CSI	Corporate social initiatives
CSP	Corporate social performance
CSR	Corporate social responsibility
ETS	Emission trading scheme
GHG	Greenhouse gas
OECD	Organization for Economic Co-operation and Development
OR	Odd ratio
POMP	Percent of maximum possible scores
USM	Universiti Sains Malaysia

LIST OF APPENDICES

KESAN MEDIASI PERNIAGAAN BERSEPADU DAN PENGURUSAN PERSEKITARAN TERHADAP HUBUNGAN ANTARA TEKANAN LUARAN DAN PENDEDAHAN KARBON FIRMA DI NEGARA ASIA PASIFIK TERPILIH

ABSTRAK

Tujuan tesis ini adalah untuk mengkaji hubungan antara tekanan luar dan penzahiran karbon korporat dan untuk mengkaji peranan pengantara perniagaan bersepadu dan pengurusan alam sekitar terhadap hubungan ini dengan membina dan menguji lima hipotesis. Hipotesis ini dibina berdasarkan teori pihak berkepentingan, teori pandangan berasaskan sumber dan kajian terdahulu yang berkaitan. Kajian ini menggunakan pendekatan deduktif melalui strategi penyelidikan kuantitatif dengan menggunakan data sekunder. Satu sampel sebanyak 454 firma yang beroperasi di Asia Pasifik dan yang telah menyerahkan laporan maklumat karbon mereka melalui Projek Penzahiran Karbon, telah dipilih. Indeks pengurusan perniagaan dan alam sekitar bersepadu kemudiannya dibina dan teknik statistik melalui IBM SPSS Statistics 26 digunakan dalam penyelidikan semasa. Keputusan menunjukkan bahawa kepenggunaan, ikutan penganalisis, dan Protokol Kyoto memang mempengaruhi tahap penzahiran karbon; sementara itu instrumen penetapan harga karbon tidak. Selain itu, peranan pengantara perniagaan bersepadu dan pengurusan alam sekitar dalam hubungan antara tekanan luar dan penzahiran karbon korporat didapati penting. Penemuan ini memberi kerajaan, pembuat dasar dan ahli akademik pemahaman yang lebih baik tentang tingkah laku penzahiran karbon firma di negara Asia Pacifik terpilih dan mengisi jurang kajian empirikal mengenai amalan penzahiran dalam bidang ini. Penemuan utama daripada kajian ini ialah tekanan luar

mempengaruhi keputusan firma menyepakudan perniagaan dan amalan pengurusannya yang seterusnya mempengahuri tahap penzahiran karbon korporat. Kajian masa depan harus mengkaji peranan bersepadu dengan lebih lanjut, terutamanya pada tahap ekonomi yang berbeza dan konteks yang pelbagai.

THE MEDIATING EFFECT OF INTEGRATED BUSINESS AND ENVIRONMENTAL MANAGEMENT ON THE RELATIONSHIP BETWEEN EXTERNAL PRESSURES AND CARBON DISCLOSURE OF FIRMS IN SELECTED ASIA PACIFIC COUNTRIES

ABSTRACT

The purpose of this thesis is to examine the relationship between the external pressures and corporate carbon disclosure and to examine the mediating role of integrated business and environmental management on this relationship by constructing and testing five hypotheses. These hypotheses were built based on stakeholder theory, resource-based view theory and previous related studies. This study utilized a deductive approach through quantitative research strategy by deploying secondary data. A sample of 454 firms operating in Asia Pacific and submitting their carbon information reports *via* the Carbon Disclosure Project was selected. An integrated business and environmental management index was then built and statistic techniques *via* IBM SPSS Statistics 26 were applied in the current research. Results indicate that consumerism, analyst following, and Kyoto Protocol affect the level of carbon disclosure, while carbon pricing instrument does not. Moreover, the mediating role of integrated business and environmental management in the relationship between the external pressures and corporate carbon disclosure is found to be significant. The findings give the governments, policy makers and academicians a better understanding about the behaviour of firms' carbon disclosure in selected Asia Pacific countries and fill the gap of empirical studies on the disclosure practice in this area. The main takeaway from this study is that external pressures influence a firm's decision to integrate its business and management

practices which in turn influence the level of corporate carbon disclosure. Future studies should examine the integrated role further, especially at different economic levels and diverse contexts.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter firstly gives an overview of the issues discussed in the thesis. Main problems leading to the need to conduct the current research are then pointed out. The researcher then presents research objectives and research questions. Next, the researcher shows a brief description of the scope of the study. Finally, the chapter ends with significance of the study, thesis organization and a summary.

1.2 Research background

1.2.1 The importance of corporate carbon disclosure

Growing scientific evidence shows that there is a close relationship between human activity and global warming (Bebbington & Larrinaga-Gonzaléz, 2008). Human activities cause a remarkable rise in fossil fuels burning and land usage, generating greenhouse gases (GHG) into the atmosphere. This leads to a rise in the heat from the sun. This increase, in turn, entails the greenhouse effect that drives climate change. Because of this, extreme weather conditions throughout all continents become more and more difficult to be predicted. The Arctic fires happening in June 2019 is a good example for this weather unpredictability due to climate change. In fact, climate change is driving an increase in the weather conditions that can stoke wildfires (Dunne, 2020).

In recent years, climate change has been a debatable topic that grabs managers' attention (Howard-Grenville et al., 2014), because of its pressures on business activities. In fact, climate change could have impact on cash flow assumptions, terminal values and exit values of firms (AccountingforSustainability, 2021), which, in turn, causes business risk and mainstream business issues (CanadianSecuritiesAdministrators, 2019). Indeed, climate risks are considered substantial financial risks for a number of firms because of their direct and measurable impact on the manufacture and delivery of goods and services (Felmate, Moudrak, Bakos, & Schofield, 2020). In addition, global efforts to cut down carbon emissions will put a pressure on valuations of business (Brinkman, Hoffman, & Oppenheim, 2008). Furthermore, companies must pay carbon tax or carbon price if they operate in countries that promulgate environmental legislations, such as carbon tax or emission trading scheme (Al-Tuwaijri et al., 2004). Also, in this context, different stakeholder groups have been interested in climate change and expect companies to disclose relevant information, especially carbon information (Depoers et al., 2016).

Against background of addressing climate change and its pressures on companies' operations, there is a remarkably increasing number of companies choosing to disclose carbon information. This could be explained by the fact that carbon disclosure is being increasingly recognized as an important factor contributing to corporate sustainability. In fact, disclosing carbon information might help companies increase transparency, enhance reputation, enable benchmarking against competitors, motivate employees and reduce potential compliance costs (Nigri & Baldo, 2018). Furthermore, carbon disclosure could be seen as an important means of accelerating transparency and informing stakeholders about corporate strategies and policies related to carbon issue (Chang, Oh, Park & Jang, 2017). Thus, it is not surprising that carbon information disclosure arouse great attention from the academic community as well as environmental economics and management (Zhang & Liu, 2020).

1.2.2 Corporate carbon disclosure channel

Developed countries namely the United Kingdom, the United States, and Australia, have forced firms to report carbon information. Accordingly, companies listed on the London Stock Exchange have been required to monitor and report the greenhouse gas (GHG) emissions on a yearly basis (UK Government, 2013). The US Environmental Protection Agency has required reporting of greenhouse gas emissions and other relevant information from certain source in the economy (US Environmental Protection Agency, 2009). Under the National Greenhouse and Energy Reporting Scheme, corporations with certain thresholds of greenhouse gas emissions, energy consumption and energy production have been required to report emissions and energy information to the Australian government on an annual basis (Australian Government, 2009). In December 2017, the China Securities Regulatory Commission started to require public limited companies to report their environmental information through their annual and semi-annual reports. Meanwhile, carbon disclosure is still optional, especially in emerging countries (Luo, Lan, & Tang, 2012). In this context, relevant companies have made their carbon information available through a variety of channels. Among these channels, the Carbon Disclosure Project (CDP) is considered the most popular channel of carbon information disclosure (Zhang & Liu, 2020).

The CDP is a non-profit, non-governmental organization that provides a channel for firms to report carbon information. The CDP asks businesses all over the world to share information by completing a structured questionnaire about their carbon performance. Firms' responses to the CDP questionnaire indicate their performance on carbon specific issues. The data could help researchers or stakeholders know about the carbon performance and the amount of carbon emissions, measure their progress and compare their performance with competitors (CDP, 2020).

There is a significant influence of the CDP on the agenda for carbon disclosure (Depoers, Jeanjean, & Jerome, 2016). In fact, a large number of companies, cities, states and regions from over 90 countries choose to disclose their carbon information through CDP channel. Ban Ki-moon (CDP, 2021), Former Secretary General, United Nations, states that "the mission of CDP is to achieve to the success of global business in the 21st century. Companies throughout the world are encouraged to measure, manage, disclose, and ultimately reduce their greenhouse gas emissions. No other organization is gathering this type of corporate climate change data and providing it to the marketplace".

1.2.3 Integrated business and environmental management – the new challenge in corporate management

Because managers have paid more attention to the long-term strategic implications of climate change challenges, they start to address the questions of how they can incorporate environmental issue into their business to maintain competitiveness and creating business value (Kleindorfer, Singhal, & Wassenhove, 2005). In fact, recently, many previous studies examined how firms can incorporate environmental concerns in their business activities using some frameworks, such as the triple-bottom-line (Elkington, 1998), industrial ecology (Allenby, 2000), natural capitalism (Hawken & Lovins, 1999), eco-efficiency (Huppes & Ishikawa, 2005), the Natural Step (Holmberg & Robert, 2000), life cycle management (Matos & Hall, 2007) and ecological footprinting (Rees & Wackernagel, 1994). All of these studies offered a framework that can help managers to integrate economic, environmental, and social concerns into their business activities.

Similarly, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development and 17 Sustainable Development Goals (SDGs) as a universal and transformative development strategy. The 2030 Agenda engages the global community in a commitment to achieving sustainable development in its three dimensions – economic, social, and environmental – in a balanced and integrated manner. In other words, integration of the economic, social and environmental dimensions plays an essential role in fostering sustainable development (United Nations, 2015). This means that apart from increased sales and profits and decreased costs, managers have to pay attention to sustainable development of business itself (Petrini & Pozzebon, 2010).

Because of the widening income and other societal gaps, as well as the breach of planetary boundaries that poses an increasingly real risk to the humanity, integrating the three dimensions is an urgent shift in policy approach (Steffen, Richardson, Rockstrom, Cornell, Fetzer, Bennett, Biggs, Carpenter, Vries, Wit, Folke, Gerten, Heinke, Mace, Persson, Ramanathan, Reyers, & Sorlin, 2015). The shift discussed in this study as integrated business and environmental management, presents a significant challenge to corporate management because it requires a reformed corporate framework, strengthened capacities, strong commitment, and an all-round and integrated vision of a sustainable future (United Nations, 2015).

1.3 Problem statement

1.3.1 Lack of empirical studies examining the effect of consumerism on corporate carbon disclosure

Climate change in the context of supply chains has been explored sporadically by previous scholars, but it merits further attention. On the one hand, carbon management and accounting are important topics (Hartmann et al., 2013).

The first empirical publications, on the other hand, look at disclosure in the context of a supply chain in which consumers are identified as stakeholders who can drive management to disclose climate change information (Jira & Toffel, 2013; Scholtens & Kleinsmann, 2011). Although the findings suggested that customers had a positive effect on climate change disclosure, there is currently a lack of research on this topic.

The contemporary business recognizes the growing importance that consumers have placed on corporate social responsibility (Neilson, 2010). Many consumers have considered the societal impact of their purchases, "voting" with their dollars for market behaviours they want to see (Brinkmann, 2004; Shaw et al., 2006). The impact of consumerism has also been presented by act of boycotting, which is defined as punishing businesses for unfavourable behaviour. The 2019 boycott of Toyota, General Motors, and Fiat Chrysler, who all rejected California's attempt to create its own greenhouse gas pollution regulations, is a recent high-profile example (Dewitt, 2019).

It could be argued that consumer pressure plays a significant role in a company's choice of carbon strategy. Indeed, research has shown that when companies show themselves as good corporate citizens, they face fewer risks and tend to stay away from activist boycotts (Luo & Bhattacharya, 2009). Many organizations have been driven to actively engage in corporate social responsibility in general, and carbon emissions responsibility in particular, resulting in good consumer responses (Becker-Olsen et al., 2006; Ricks, 2005). Until now, many scholars on consumerism have concentrated on marketing aspects. Furthermore, there has been little research into the relationship between consumer pressure and corporate carbon disclosure. As a result of this gap, the researcher chose consumerism pressure as a proxy for social pressure when investigating its relationship with corporate carbon disclosure.

1.3.2 Lack of empirical studies examining various external pressures affecting corporate carbon disclosure

It is apparent that carbon emission is the primary source of global warming, posing a substantial threat to human living quality. Nonetheless, carbon emission as well as carbon disclosure are still largely voluntary in most countries. Hence, a number of firms have voluntarily agreed to take a proactive approach to emission reduction and transparency, whereas others have not. This situation motivates the researcher to identify and deeply understand incentives related to voluntary carbon disclosure.

There are many different pressures on corporate carbon disclosure examined in previous research. Some previous scholars determined the effects of social pressure on corporate carbon disclosure. The term "social pressure" represents the pressure that comes from the public opinions. Jaggi, Allini, Macchioni, & Zagaria (2018) indicated that voluntary carbon disclosure of firms, especially those operating in highly polluting industries, was greatly affected by environmental committees, specific committees of the board, who help managers address environmental issues from the perspectives of risks, strategic opportunities, and commitments to stakeholders (Liao et al., 2015). Hahn, Reimsbach, & Schiemann (2015) used size to proxy for social pressure, because of a fact that there were more public and media scrutiny in large firms. They found that the firm size was significantly positive with corporate carbon disclosure decision. This findings was consistent with that of Stanny (2013) and Stanny & Ely (2008).

Some previous scholars also examined the effects of market capital pressure on corporate carbon disclosure. Hahn et al. (2015) showed that leverage was used by corporations to reflect financial market pressure from stockholders and debtholders. They found that the leverage impacted strongly on corporate carbon disclosure decisions.

Some previous scholars examined the role of economic pressure in influencing corporate carbon disclosure. Ott et al. (2017) pointed out that competition pressure may affect corporate decisions in voluntary carbon disclosure. Their findings presented that companies in more concentrated markets, in more substitutability markets and in smaller markets tend to respond the CDP survey actively because of increased pressure on firm operating efficiency and lower market entry barriers.

Some previous scholars also determined the effects of regulatory pressure on corporate carbon disclosure. Freedman & Jaggi (2005) analysed carbon disclosures by large corporations in many countries and discovered that enterprises in countries that joined the Kyoto Protocol had more extensive carbon disclosures, indicating that signing the Kyoto Protocol played a key role in increasing firms' carbon reporting. Peters & Romi (2009) found that environmental policy stringency had a positive relationship with the extent of corporate disclosure. Moreover, Reid & Toffel (2009) pointed out that regulatory threats impacted on propensity of corporate carbon disclosure. Nonetheless, this result seems inconclusive as Stanny (2013)'s findings indicated that the regulatory threat factors had insignificant relationship with corporate carbon disclosure.

The only study considering the impact of social, financial market, economic, and regulatory factors on the motivation of firms to voluntarily participate in the

2009 Carbon Disclosure Project is that of Luo et al. (2012). They found that economic pressure and social pressure were positive significantly with corporate carbon disclosure decisions, whereas financial market pressure and regulatory pressure were not. Furthermore, although there are many theories used as underlying theories in investigation of determinants of carbon disclosure, namely legitimacy theory, stakeholder theory, signalling theory and institutional theory, in general they suggest that firm's propensity to disclose corporate carbon emission and carbon management is associated with social pressure, market pressure, economic pressure, regulatory pressure and institutional pressure (i.e., internal pressure) when they are transferred into (He et al., 2021). Therefore, following Luo et al. (2012), this study also examines these four external pressures on corporate carbon disclosure.

1.3.3 Lack of empirical studies in corporate carbon disclosure in Asia Pacific

The number of companies completing the CDP climate change questionnaire continues to increase. In 2019, over 2,500 global companies responded to the CDP's data request. Among these, Asia Pacific firms made up over 25% of global reporting (CDP, 2020).

As can be seen from figure 1.1, about 15% of relevant studies focused on Asia region. Accordingly, carbon disclosure studies in China, Southeast Asia and Japan and Korea accounted for 2.53%, 8.86% and 3.81% respectively. There is no corporate carbon disclosure related study conducted in Asia Pacific, as far as the researcher knows.

Meanwhile, Asia Pacific is one of the most important economic regions in the world (Zha, 2015) and this region is, on one hand, the most vulnerable in the world to the impact of climate change, and this region, on other hand, contributes over half of the world's total greenhouse gas emissions (ESCAP, 2016). Six out of the ten top global emitters are in the Asia Pacific region (ESCAP, 2016). Climate change has already taken hold in the Asia Pacific region (WorldBank, 2013). A $2^{o}C$ scenario is expected to cause more frequent and severe coastal inundation and erosion, wildfires, heavy precipitation and drought (IPCC, 2014). In fact, the Asia-Pacific region continued to be the world's most disaster prone region in 2015 (ESCAP, 2016). Accordingly, 160 disasters were reported in the region, making up 47 percent of the world's 344 disasters. Despite its vulnerability to climate change, the Climate Change Performance Index 2016 showed that Asia Pacific region still lag behind the European Union in combating climate change (Burck et al., 2017). The cost of inaction is huge, with estimates of a mean loss of 10% of the region's GDP by the end of the century (ESCAP, 2016).

Against this background, six Asia Pacific countries were selected in this study (Australia, China, India, Indonesia, Japan and Korea), based on the following criteria. First, in terms of environmental and climate change, these countries have established mechanisms to address climate change issues (ESCAP, 2018). Second, some countries (China, India, Japan and Korea) are among the top 10 emitters of carbon dioxide in the year 2018 (Rapier, 2019).

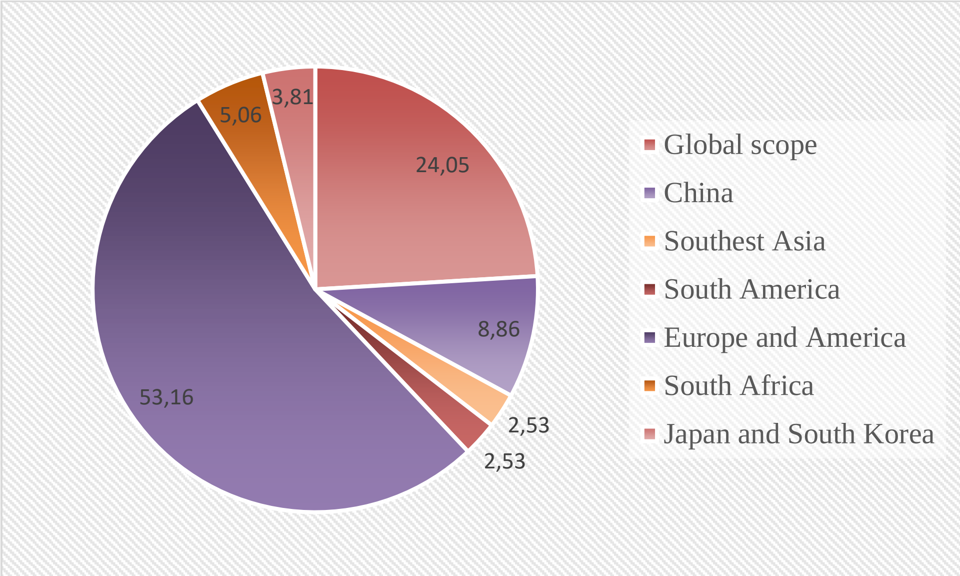

Figure 1.1 Regional distribution of main journals for carbon disclosure publication. Source: Zhang & Liu (2020).

1.3.4 Lack of empirical studies examining carbon disclosure behavior of firms in emerging countries

Most previous studies indicated that corporate environmental reporting in emerging countries is still in its early stages, and that the volume and quality of information released is often inadequate in comparison with that of the developed ones. For instance, Liu & Anbumozhi (2009) discovered that in the current Chinese setting, corporate environmental information disclosure appears to be marginal, with 40% of tested enterprises making no disclosure.

Furthermore, there is little research investigating the factors that influence the corporate environmental disclosure in emerging countries. According to Belal & Momin (2009), external factors, such as pressures from parent firms, the international market, and international organizations, drive the corporate social responsibility (CSR) agenda in emerging countries. This research found that in emerging countries, apart from government influences, disclosure tendencies and behaviour are linked to firm size and industry type (Gao et al., 2005).

Moreover, because these countries frequently lack a robust capital market, the market seems to provide insufficient incentives for businesses to disclose their social and environmental implications (Gao et al., 2005). Also, firms in emerging nations rarely publish separate environmental reports (even if they have major environmental difficulties) and prefer to include such information in their social reports or annual reports, making it difficult to assess the environmental impact of their activities (Belal & Momin, 2009).

In short, carbon disclosure is largely voluntary, particularly in emerging countries. Although a growing number of studies have investigated the factors that drive voluntary carbon disclosure in developed nations, only a few ones have looked into the differences in climate change behaviour of enterprises in emerging countries. Figure 1.1 reveals that more than half of relevant research were undertaken in US, Europe, and other developed countries, while only a few were carried out in emerging countries. This inspires the researcher to go deeper into the key barrier preventing emerging-market companies from publishing voluntary carbon information.

1.3.5 The need of doing research on integrated business and environmental management

The 2030 Agenda for Sustainable Development highlights a global commitment to "achieve sustainable development in all three dimensions-economic, social, and environmental-in a balanced and integrated manner." Despite the fact that a lot of universal support is given to this integrated development strategy, the "how" of integration has not been well explained (United Nations, 2015). In addition, although there is an increasing number of enterprises around the world attempting to incorporate sustainability into their operations, most companies have separated the issue of sustainability from their business strategy and performance evaluation, which are often governed by purely economic performance indicators (Petrini & Pozzebon, 2010). As a result, to encourage theoretical and practical breakthroughs in that management field, more studies are required.

In recent years, scholars from several fields have explored into how businesses can integrate environmental interests into their operations by using frameworks such as the natural step (Holmberg & Robert, 2000), life cycle management (Matos & Hall, 2007), and the integrated model (Holmberg & Robert, 2000). Among them, the integrated model, which entails managing the economic and non-economic effects of the company's value creation process, is regarded as one of the business models that will enable companies to address global issues such as climate change (Katarzyna, 2021). Indeed, one of the challenges to the survival of a business organization is high customer and community expectation that results from the increasing awareness of environmental issues (Silva, 2021). Accordingly, all areas of the organization must shift their attention from monitoring and controlling to management (Silva, 2021). In other words, an integrated approach can efficiently manage multiple requirements for a company's survival (StandardsAustralia, 2003).

According to Park, Sarkis, & Wu (2010), implementing environmental practices into corporate operations can result in a long-term competitive advantage as well as a more integrated business and environmental value generation. As managers have paid more attention to the long-term strategic consequences of environmental concerns, they begin to concentrate on sustainable competitiveness (Kleindorfer, Singhal, & Wassenhove, 2005). Moreover, corporate sustainability requires a strategic approach to guarantee that it is integrated into the business strategy and procedures (Engert et al., 2016).

Managers have clearly realized that corporate sustainability is a critical issue, yet it is rarely addressed in business management (Engert et al., 2016). In fact, each company has its own certain resources (Wernerfelt, 1984), referred to as "the subset of its productive assets that are economically inalienable" (Wernerfelt, 2016). When these resources are valued, they will be a long-term competitive advantage source (Barney & Clark, 2007). Hence, though there is an increasing number of businesses are attempting to evaluate, analyse, and improve the environmental consequences of their operations, the effective integration of environmental management into business practices and management still confronts significant challenges (Engert et al., 2016). This inspired the researcher to create a reliable and valid instrument for assessing integrated business and environmental management, which could be used as a tool to assist managers in moving forward. Once integrated management is embraced proactively, firms will then voluntarily submit information on their mitigation activities (Connelly et al., 2011), known as their "discharge of accountability" (Gray, Owen, & Adams, 1996), *via* stakeholders communication (Zeghal & Ahmed, 1990). The instrument is viewed as a reaction to external forces in this study, implying that firms are positioned as adaptable entities that respond to environmental concerns expressed by stakeholders, presented by its level of carbon disclosure.

The researcher described integrated business and environmental management in its broadest sense as a management approach that considers corporate operations from a long-term, sustainable perspective. Integration is a management action that determines both how we integrate and what we integrate in (Engert et al., 2016). When dealing with complicated challenges such as environmental difficulties, an integrated strategy is the best option (Ewert et al., 2004).

The general contextual factors play an important role in raising the business's awareness of carbon disclosure. This means that multiple sources of pressures, including social, financial market, economic and regulatory pressures, could impact differently on managers' incentives related to carbon disclosure. The way the managers address these pressures is that they are going to look at their limited resources, and then try to integrate the resources into their strategy to bring the external pressures down as well as to take care of their sustainability. In other words, companies that are under the external pressures and limited resources will strategize in term of reorganizing their practices, called integrated business and environmental management. The companies would then use and sell it to all stakeholders to get their buying-in to view the companies as having favourable strategies towards sustainability. This means that better integrated business and environmental management could result in better corporate carbon disclosure. In other words, this study will examine whether corporate integrated business and environmental management could influence the relationship between external pressure and carbon disclosure. As far as the researcher knows, this is the first study using corporate integrated business and environmental management as a mediating role on relationship between the external pressures and corporate carbon disclosure.

1.4 Research questions

On the basis of the previous discussion, the study aims to explore the extent to which external pressures, including social, financial market, economic and regulatory factors, have an impact on corporate carbon disclosure. In addition, as firms are using available resource within the companies to convince stakeholders that they are concerned about the environment by disclosing carbon information, it is believed that integrated business and environmental management mediates the relationship between the external pressures and corporate carbon disclosure. Furthermore, since carbon disclosure is largely voluntary, especially in emerging countries, this study also aims to examine the main factor hindering firms in emerging countries from voluntarily disclosing carbon information. This study therefore aims to answer the following questions:

Question 1: What are the relationships between the various external pressures and the level of carbon disclosure?

Question 2: Among the external pressure, which is the most dominant factor influencing the level of carbon disclosure?

Question 3: Does the corporate integrated business and environmental management mediate the relationship between the external pressures and the level of carbon disclosure?

Question 4: Why do firms in emerging countries seem not to be interested in disclosing carbon information?

1.5 Research objectives

This study will be able to answer the above research questions through the main following objectives.

Objective 1: To examine the relationship between the external pressures and corporate carbon disclosure.

Objective 2: To examine the most dominant factor influencing the level of carbon disclosure.

Objective 3: To examine the mediating role of corporate integrated business and environmental management on the relationship between the external pressures and the level of carbon disclosure.

Objective 4: To find out the reasons why emerging countries seem not to be interested in disclosing carbon information.

1.6 Scope of the study

1.6.1 Scope of content

This thesis was conducted to gain deep insights into predicting the role of external pressures, namely social, financial market, economic and regulatory factors in corporate carbon disclosure behaviour. It then explored the mediating role of integrated business and environmental management in the relationship between the external pressures and corporate carbon disclosure decision. In addition, it pointed out the key factors preventing firms in emerging countries from disclosing voluntary carbon information.

1.6.2 Scope of context

The current study targeted all firms that submitted their 2019 carbon disclosure through CDP and have operated in 6 countries in Asia Pacific, including Australia, China, India, Indonesia, Japan and Korea. The list of these firms was gathered from CDP.

1.7 Significance of the study

The thesis makes important theoretical and practical contributions to integrated business and environmental management, as well as corporate carbon disclosure, in the Asia Pacific region.

1.7.1 Theoretical contributions

In terms of theoretical contribution, this research produces the current trends in environmental research in several ways. Firstly, a growing number of firms around the world have tried their utmost to integrate sustainability into their business practices while most companies have still ignored their considerations of sustainability in their business strategy and performance evaluation, which are frequently dominated by purely economic performance indicators (Petrini & Pozzebon, 2010) and the "how" of integration has not been clarified (United Nations, 2015). Hence, a reliable and valid instrument for measuring integrated business and environmental management developed in this research could be considered as a potential approach helping managers to move forward. By using corporate integrated business and environmental management variable, the purpose of this research is to obtain a better understanding of the observed variation in corporate carbon disclosure. This study may offer a deep insight into corporate integrated business and environmental management with a provision of an additional rationale for variance in corporate carbon disclosure decisions which is neglected in the available literature.

Secondly, the study examines consumerism as a determinant of voluntary carbon disclosure that has been largely ignored in previous literature, as far as the author knows. This research therefore contributes to the literature by including consumerism as a social pressure affecting on corporate carbon disclosure.

Thirdly, despite the fact that the social and environmental reporting practices of firms operating in developed countries have already been extensively researched (see Zhang & Liu (2020) for a review given in some of the studies), ones operating in developing countries have not really been well researched. This study examined corporate carbon disclosure decisions of firms in Asia Pacific as well as firms in emerging countries of this area. Hence, the research contributes to the ongoing discussion of the geographic gap in the carbon disclosure literature.

1.7.2 Practical contributions

The results of the study may provide regulators and policy makers with significant information about the importance of regulatory pressure on encouraging transparency of corporate carbon disclosure. This may encourage them to pay more interest in developing regulatory guidance to ensure that the disclosures are complete, reliable and comparable among issuers (AccountingforSustainability, 2021).

Additionally, the results might offer a deep understanding of the effect of social pressure, financial market pressure and economic pressure on voluntary corporate carbon disclosure. This seems to be imperative information for government, especially in emerging countries, because public awareness is still low in these countries. For example, the findings of this current research may help practitioners become deeply familiar with the relationship between consumerism and commitment to carbon disclosure in a context of relatively high global integration. Because corporations are more inclined to commit to carbon disclosure in nations with stronger consumer pressure, enhancing consumer roles could be a useful method to progressively increase domestic companies' disclosure level.

This study is also of great importance thanks to its offer to the development of a sharp and reliable instrument for measuring integrated business and environmental management. Then it indicates that the integrated business and environmental management plays a mediating role in the relationship between the external pressure and corporate carbon disclosure. These points may be useful for managers to know how to incorporate environmental practices into their business operations, an act that can result in sustainable competitive advantage and a more integrated business and environmental value creation in the context of their unique resource endowment.

1.8 Chapter organization

The current thesis is organized into five chapters. Chapter 1 begins with an overview of the study's background, followed by the problem statement, research questions, and research objectives. In this chapter, the study's scope and significance are also examined. Chapter 2 proceeds with literature review. Then chapter 3 gives a detailed description of research methods. Chapter 4 allows room for reporting the findings. Finally, chapter 5 ends with some discussions and conclusions of the study.

1.9 Summary

This chapter introduces the research topic and the study areas of the thesis. The background of the problem is briefly explained, along with an explanation for why the research is necessary. The study questions and objectives are presented in a straightforward and concise manner. The significance of the research is also mentioned to demonstrate the importance of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The key purpose of this chapter is to review relevant literature on which this study is conducted. Therefore, the chapter begins with an explanation related to the definitions of key concepts, including carbon disclosure, external pressures and integrated business and environmental management. The next section of this chapter gives a detailed presentation of fundamental theories governing the present study, which covers stakeholder theory and resource-based view theory. Then, relevant studies are critically reviewed in order to identify research gaps. The links between the variables are also demonstrated using a theoretical framework. Finally, hypotheses linking the selected variables in the proposed framework are constructed.

2.2 Carbon disclosure

Research on carbon disclosure can generally divided into three categories. The first one is concerned with determinants affecting carbon disclosure decisions of a firm. The second one is concerned with consequences of carbon disclosure. The last one is concerned with quality and adequacy of voluntary carbon disclosure.

2.2.1 Determinants of corporate carbon disclosure

Research on determinants of carbon disclosure can help researchers and policymakers understand how firms interpreted and respond to pressures imposed by governments, communities and other external groups, and may assist in establishing effective regulatory frameworks for promoting transparency in carbon control (He et al., 2021). There are many theories used as underlying theories in investigation of determinants of carbon disclosure, namely legitimacy theory, stakeholder theory, signalling theory and institutional theory; however, in general they suggest that firm's propensity to disclose corporate carbon emission and carbon management is associated with social pressure, market pressure, economic pressure, regulatory pressure and institutional pressure (i.e., internal pressure) when they are transferred into (He et al., 2022).

2.2.2 Consequences of corporate carbon disclosure

Compared with research on determinants of corporate carbon disclosure, that on consequences of corporate carbon disclosure is slightly insufficient (Zhang & Liu, 2020). Relevant studies could be divided into three aspects, including the impact of corporate carbon disclosure on corporate performance, ecological environment, and investors' decision-making.

In terms of the impact of corporate carbon disclosure on corporate performance, most relevant studies have pointed out that corporate carbon disclosure positively affects firm value (Matsumura, Prakash, &Vera-Munoz, 2014; Saka & Oshika, 2014), corporate financial performance (Borghei et al., 2018), stock market liquidity (Krishnamurti & Velayutham, 2018), carbon management systems (Tang & Luo, 2014), corporate reputation (Knox-Hayes & Levy, 2011) and organizational legitimacy (Pellegrino & Lodhia, 2012). Nonetheless, there were some studies presenting that corporate carbon disclosure can reduce the profitability of a company because of the high cost of disclosure (Griffin et al., 2017; Lee et al., 2015). Other research discovered that there was no relationship between corporate carbon disclosure and firm value (Bimha & Nhamo, 2017; Kim & Lyon, 2011).

In terms of the impact of corporate carbon disclosure on ecological environment, some studies have reported that corporate carbon disclosure is beneficial to ecological environment improvement (Akpalu et al., 2017; Qian & Schaltegger, 2017). Nonetheless, most studies have shown that corporate carbon disclosure does not contribute to ecological environment improvement (Knox-Hayes & Levy, 2011; Liesen, Hoepner, Patten, & Figge, 2015; Matisoff, 2013; Tang & Demeritt, 2018).

In terms of the impact of corporate carbon disclosure on investors' decision-making, most studies found that corporate carbon disclosure might affect investors' decision-making, including positive (Griffin et al., 2017; Haigh & Shapiro, 2012; Liesen et al., 2017; Motoshita et al., 2015) and negative impacts (Lee et al., 2015). On the other hand, Sullivan & Gouldson (2012) showed that corporate carbon disclosure in the market cannot meet the needs of investors.

2.2.3 The quality and adequacy of voluntary carbon disclosure

Because of a fact that carbon disclosure is still voluntary in most of the world, some researchers were concerned about the quality of corporate carbon disclosure. Comyns & Figge (2015) developed a self-constructed index to measure disclosure quality with seven principles, including accuracy, completeness, consistency, credibility, relevance, timeliness and transparency. Their findings showed that disclosure quality has not improved significantly and suggested that regulation is needed to discipline the practice. Haigh & Shapiro (2012) showed that the information on carbon performance might not affect portfolio decisions of investors.

The inadequacy of corporate carbon disclosure reflects the gap in expectations between stakeholders and corporate managers (He et al., 2021). Green communities and environmental regulators tend to be interested in carbon pollution, meanwhile, corporate managers tend to focus on compliance costs and risks and on financial performance for shareholders (Haque et al., 2016). In addition, the voluntary nature of carbon disclosure might lead to incomparable data and undermine the usefulness of such information (Andrew & Cortese, 2013). Nonetheless, Luo & Tang (2014) showed that carbon disclosure via CDP channel has improved and such information could help investors make decisions regarding firm market valuation (Matsumura, Prakash, & Vera-Munoz, 2014).

2.3 External pressures

2.3.1 Consumerism as social pressure

Consumerism is a method for assessing the current state of the market system and the extent to which it effectively allocates goods and services in modern society (Kaynak, 1985). It is defined as a movement that promotes the expansion of customer' rights and bargaining power (Kotler, 1972). McIlhenny (1990) defined it as "a citizen movement that will make broad-reaching social, ecological, and political demands on goods and service providers." It is also defined by Maynes (1990) as "the expression of consumer dissatisfaction and the promotion of corrective activities."

Consumerism, according to Cravens & Hills (1970), is a social force in the environment that aims to help and protect customers by putting legal, moral, and economic pressure on businesses. Similarly, Kotler (1972) argued that just as the labour movement started as a protest uprising and became institutionalized in the form of unions, government boards, and labour legislation, the consumer movement, meaning consumerism, will become an increasing institutionalized force in the society. In other words, consumerism manifests itself in efforts to exert pressure on businesses and governments to prohibit immoral commercial practices. The main operations of this stakeholder group mainly focus on consumer protection laws, product and price information accessibility, misleading and fraudulent corporate tactics, and product safety.