



**GREEN PRODUCTION INNOVATION AND GREEN CRAFT INNOVATION
EFFECTS ON RELATIONSHIP BETWEEN ENVIRONMENTAL CORPORATE
SOCIAL RESPONSIBILITY AND CORPORATE VALUE IN CHINA**

By

AO XIANGYUAN

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfilment of the Requirements for the Degree of
Doctor of Philosophy**

December 2022

SPE 2022 57

COPYRIGHT

All material contained within the thesis, including without limitation text, logos, icons, photographs, and all other artwork, is copyright material of Universiti Putra Malaysia unless otherwise stated. Use may be made of any material contained within the thesis for non-commercial purposes from the copyright holder. Commercial use of material may only be made with the express, prior, written permission of Universiti Putra Malaysia.

Copyright © Universiti Putra Malaysia



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

**GREEN PRODUCTION INNOVATION AND GREEN CRAFT INNOVATION
EFFECTS ON RELATIONSHIP BETWEEN ENVIRONMENTAL CORPORATE
SOCIAL RESPONSIBILITY AND CORPORATE VALUE IN CHINA**

By

AO XIANGYUAN

December 2022

Chairman : Professor Ong Tze San, PhD
School : Business and Economics

Since the introduction of increasingly strict environmental protection laws in China, organisations and corporations have attached great importance to it. Encouraging companies to adhere to these stringent regulatory requirements and truly assume environmental responsibility is an urgent issue of concern to the government and companies' board of directors. Therefore, as a solution to this urgent problem, it is particularly important to study the moderating effect of green innovation on the relationship between environmental corporate social responsibility (ECSR) and corporate value.

This study adopted the theoretical bases of the stakeholder theory and resource-based theory to, first, examine the effect of ECSR dimensions (environmental production consciousness, eco-friendly production, and green management) on corporate value among listed companies in China. Second, this study evaluated the moderating effects of green production innovation and green craft innovation between ECSR and corporate value among these companies. Empirical analysis was conducted using panel data of the listed companies in China from 2015 to 2020. The results showed that the effects of the three ECSR dimensions (environmental production consciousness, eco-friendly production, and green management) on corporate value are statistically significant, but cannot be regarded as positive or negative. Green production innovation was found to moderate the effects of the three ECSR dimensions on corporate value. However, green craft innovation only exhibited a moderating effect between two ECSR dimensions and corporate value. This study's findings fill the research gap in the fields of ECSR and enterprise green innovation and broaden the perspective of the sustainable development literature. The findings are also of great significance to the government for the implementation of environmental protection strategies and local economic development. Additionally, it is relevant to businesses in considering their environmental strategy.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**KESAN PENYEDERHANAAN INOVASI HIJAU KORPORAT TERHADAP
HUBUNGAN ANTARA TANGGUNGJAWAB SOSIAL KORPORAT ALAM
SEKITAR DAN NILAI KORPORAT DI KALANGAN SYARIKAT
TERSENARAI DI CHINA**

Oleh

AO XIANGYUAN

Disember 2022

Pengerusi : Profesor Ong Tze San, PhD
Sekolah : Perniagaan dan Ekonomi

Semenjak pengenalan undang-undang perlindungan alam sekitar yang semakin tegas di China, organisasi dan syarikat telah memberi kepentingan tinggi kepada undang-undang tersebut. Menggalakkan syarikat untuk mematuhi keperluan kawal selia yang ketat ini dan benar-benar memikul tanggungjawab alam sekitar merupakan isu mustahak yang dipertimbangkan kerajaan dan lembaga pengarah syarikat. Oleh itu, sebagai penyelesaian kepada masalah mendesak ini, adalah penting untuk mengkaji kesan penyederhanaan inovasi hijau terhadap hubungan antara tanggungjawab sosial korporat alam sekitar (*ECSR*) dan nilai korporat.

Kajian ini mengguna pakai asas teori pihak berkepentingan dan teori berasaskan sumber untuk, pertama, mengkaji kesan dimensi *ECSR* (kesedaran pengeluaran alam sekitar, pengeluaran mesra alam, dan pengurusan hijau) ke atas nilai korporat dalam kalangan syarikat tersenarai di China. Kedua, kajian ini menilai kesan penyederhanaan inovasi pengeluaran hijau dan inovasi kraf hijau antara *ECSR* dan nilai korporat di kalangan syarikat ini. Analisis empirikal telah dijalankan menggunakan data panel syarikat tersenarai di China dari 2015 hingga 2020. Keputusan menunjukkan bahawa kesan ketiga-tiga dimensi *ECSR* (kesedaran pengeluaran alam sekitar, pengeluaran mesra alam, dan pengurusan hijau) terhadap nilai korporat adalah signifikan secara statistik, tetapi tidak boleh dianggap sebagai positif atau negatif. Inovasi pengeluaran hijau didapati menyederhana kesan tiga dimensi *ECSR* tersebut ke atas nilai korporat. Namun demikian, inovasi kraf hijau hanya mempamerkan kesan penyederhanaan antara dua dimensi *ECSR* dan nilai korporat. Penemuan kajian ini mengisi jurang penyelidikan dalam bidang *ECSR* dan inovasi hijau syarikat serta meluaskan perspektif literatur pembangunan mampan. Penemuan ini juga

amat penting kepada kerajaan untuk pelaksanaan strategi perlindungan alam sekitar dan pembangunan ekonomi tempatan. Selain itu, ia adalah relevan kepada perniagaan dalam mempertimbangkan strategi alam sekitar mereka.



ACKNOWLEDGEMENTS

Upon completing my PhD thesis, I would like to express my sincere appreciation to all those who have offered me invaluable help in this process.

My deepest regards and appreciation go to my supervisory committee, especially my main supervisor, Assoc. Prof. Dr. Ong Tze San for the motivation, support, guidance, and dedication. My gratitude also goes to members of my supervisory committee, Dr. Aslam Izah binti Selamat and Dr. Haslinah binti Muhammad, for their advice and valuable comments. I will forever be thankful for the knowledge, training and intellectual guidance provided by the committee during this academic pursuit. My warmest regards are also extended to all members of staff as well as the students of the School of Business and Economics, UPM.

My profound appreciation goes to my parents, Ao Zhijian and Zeng Lian, for instilling the discipline, moral support, and care I needed in life. To my pet dog Zeng Wangcai, I really appreciate your love, understanding, and patience. Special regards are also given to my family members for their prayers and motivation. I sincerely appreciate the concern and effort of my friends as well, who offered me tremendous support and contributions.

I am thankful to the Communist Party of China and the motherland China for the reform and opening-up towards the great rejuvenation of the Chinese nation. Finally, I am grateful to people around the world for their contribution in the fight against COVID-19.

Here's to world peace.

This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

Ong Tze San, PhD

Professor
School of Business and Economics
Universiti Putra Malaysia
(Chairman)

Aslam Izah binti Selamat, PhD

Senior Lecturer
School of Business and Economics
Universiti Putra Malaysia
(Member)

Haslinah binti Muhammad, PhD

Senior Lecturer
School of Business and Economics
Universiti Putra Malaysia
(Member)

ZALILAH MOHD SHARIFF, PhD

Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 13 April 2023

Declaration by the Graduate Student

I hereby confirm that:

- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- this thesis has not been submitted previously or concurrently for any other degree at any institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia, as according to the Universiti Putra Malaysia (Research) Rules 2012;
- written permission must be obtained from supervisor and the office of Deputy Vice-Chancellor (Research and innovation) before thesis is published (in the form of written, printed or in electronic form) including books, journals, modules, proceedings, popular writings, seminar papers, manuscripts, posters, reports, lecture notes, learning modules or any other materials as stated in the Universiti Putra Malaysia (Research) Rules 2012;
- there is no plagiarism or data falsification/fabrication in the thesis, and scholarly integrity is upheld as according to the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) and the Universiti Putra Malaysia (Research) Rules 2012. The thesis has undergone plagiarism detection software

Signature: _____

Date: _____

Name and Matric No: Ao Xiangyuan

Declaration by Members of the Supervisory Committee

This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

Signature: _____
Name of Chairman
of Supervisory
Committee: Professor Dr. Ong Tze San

Signature: _____
Name of Member
of Supervisory
Committee: Dr. Aslam Izah binti Selamat

Signature: _____
Name of Member
of Supervisory
Committee: Dr. Haslinah binti Muhammad

TABLE OF CONTENTS

	Page
ABSTRACT	i
ABSTRAK	ii
ACKNOWLEDGEMENTS	iv
APPROVAL	v
DECLARATION	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiv
LIST OF ABBREVIATIONS	xv
CHAPTER	
1 INTRODUCTION	1
1.1 Background of the Study	1
1.2 Motivation of the study	4
1.3 Problem Statement	5
1.4 Research Questions	8
1.5 Research Objectives	9
1.6 Significance of the Study	9
1.7 Scope of the Study	10
1.8 Definitions of Terms	11
1.9 Organisation of Chapters	11
1.10 Chapter Summary	12
2 LITERATURE REVIEW	13
2.1 Underpinning Theories	13
2.1.1 Stakeholder Theory	13
2.1.2 Resource-based theory	14
2.2 Relevant Theories	15
2.2.1 Voluntary Disclosure Theory	15
2.2.2 Institutional Theory	16
2.3 Theoretical Approach	17
2.3.1 Stakeholder Theory and ECSR	18
2.3.2 Stakeholder Theory and Corporate Green Innovation	19
2.3.3 Resource-based Theory and Corporate Value	20
2.3.4 Resource-based Theory and Innovation Capability	21
2.4 Justification	22
2.5 Environmental Corporate Social Responsibility (ECSR)	23
2.5.1 Environmental Production Consciousness	23
2.5.2 Eco-friendly Production	24
2.5.3 Green Management	24
2.6 Corporate Green Innovation (CGI)	25
2.6.1 Green Production Innovation (GPI)	27

2.6.2	Green Craft Innovation (GCI)	27
2.7	Previous studies on the relationship between Independent and Dependent Variable	28
2.7.1	Environmental Corporate Social Responsibility and Corporate Value	28
2.7.2	Corporate Green Innovation and Corporate Value	29
2.8	The Moderating Effect of Corporate Green Innovation between Environmental Corporate Social Responsibility and Corporate Value	30
2.8.1	The Moderating Effect of GPI between ECSR and Corporate Value	32
2.8.2	The Moderating Effect of GCI between ECSR and Corporate Value	33
2.9	Proposed Theoretical Framework	34
2.10	Gaps Identified	37
2.11	Chapter Summary	37
3	RESEARCH METHODOLOGY	38
3.1	Research Framework	38
3.2	Research Variables	38
3.2.1	Independent Variable	39
3.2.2	Moderating Variable	41
3.2.3	Dependent Variable	43
3.2.4	Control Variables	44
3.3	Research Design	48
3.4	Research philosophy	48
3.4.1	The Ontology Assumption	48
3.4.2	The Epistemology Assumption	49
3.4.3	The Axiology Assumption	49
3.5	Sampling and Data	49
3.5.1	Sample Population	49
3.5.2	Sampling Frame	50
3.5.3	Unit of Analysis	50
3.5.4	Sampling Procedure	50
3.5.5	Data Sources and Timeframe	51
3.6	Data Analysis Methods	52
3.6.1	Descriptive Analysis	52
3.6.2	Correlation Analysis	52
3.6.3	Multicollinearity	53
3.6.4	Panel Data Analysis	53
3.6.5	Robustness Checks	56
3.6.6	Diagnostic Check	57
3.7	Chapter Summary	58
4	RESULT AND DISCUSSION	59
4.1	Descriptive Statistics of Research Variables	59
4.2	Correlation Matrix of Research Variables	60
4.3	Multicollinearity	62
4.4	Panel data results	62

4.4.1	Direct Results of Environmental Corporate Social Responsibility and Corporate Value (Model 1)	63
4.4.2	The moderating effect of GPI on ECSR and Corporate Value (Model 2)	68
4.4.3	The moderating effect of GCI on ECSR and Corporate Value (Model 3)	75
4.5	Robustness and Endogeneity Check: GMM	85
4.5.1	Diagnostic Checks	85
4.5.2	GMM Regression Results for the Moderating Effect of GCI	86
4.5.3	GMM Regression Results for the Moderating Effect of GPI	89
4.6	Moderating Effect Testing Results	91
4.7	Summary of the Chapter	91
5	SUMMARY AND CONCLUDING REMARKS	92
5.1	Summary of Key Findings	92
5.1.1	Research Objective: To examine the effect of the ECSR on Corporate Value	92
5.1.2	Research Objective: To evaluate the moderating effect of GPI between ECSR and corporate value	94
5.1.3	Research Objective: To access the moderating effect of green craft innovation between ECSR and corporate value	95
5.2	Theoretical Contribution	96
5.3	Practical Contribution	97
5.4	Limitations of the Study	98
5.5	Chapter Summary	99
	REFERENCES	100
	BIODATA OF STUDENT	123
	LIST OF PUBLICATIONS	124

LIST OF TABLES

Table	Page
3.1 ECSR Dimensions	41
3.2 CGI Dimensions	43
3.3 Dependent Variable	44
3.4 Control Variables	46
4.1 Descriptive statistics	60
4.2 Descriptive Statistics for the Sample (Exclude 2020)	60
4.3 Collinear diagnosis of ROA	62
4.4 Collinear diagnosis of Tobin's Q	62
4.5 Results of OLS, FEM and REM for Model 1a (ECSR and Tobin's Q)	64
4.6 Results of OLS, FEM and REM for Model 1b (ECSR and ROA)	65
4.7 Summary of Findings of Direct Relationship	67
4.8 Results of OLS, FEM and REM for Model 2a (Moderating effect of GPI on TQ and ECSR)	69
4.9 Results of OLS, FEM and REM for Model 2a (Moderating effect of GPI on TQ and ECSR)	70
4.10 Results of OLS, FEM and REM for Model 2a (Moderating effect of GPI on TQ and ECSR)	71
4.11 Results of OLS, FEM and REM for Model 2b (Moderating effect of GPI on ROA and ECSR)	72
4.12 Results of OLS, FEM and REM for Model 2b (Moderating effect of GPI on ROA and ECSR)	73
4.13 Results of OLS, FEM and REM for Model 2b (Moderating effect of GPI on ROA and ECSR)	74
4.14 Results of OLS, FEM and REM for Model 3a (ECSR and GCI*EPC)	77
4.15 Results of OLS, FEM and REM for Model 3a (ECSR and GCI*EPC)	78

4.16	Results of OLS, FEM and REM for Model 2b (ECSR and GCI* GM)	79
4.17	Results of OLS, FEM and REM for Model 3b (moderating Effect of GCI on ECSR and ROA)	81
4.18	Results of OLS, FEM and REM for Model 3b (ECSR and EFP*GCI)	82
4.19	Results of OLS, FEM and REM for Model 3b (moderating Effect of GCI on ECSR and ROA)	83
4.20	GMM results for the Moderating Effect of GCI (GCI)	87
4.21	GMM results for the Moderating Effect of GPI (GPI)	90
4.22	Summary of Moderating effect Results	91
5.1	Summary of the findings	96

LIST OF FIGURES

Figure		Page
1.1	Rankings in the 2020 Environmental Performance Index for 180 countries	6
2.1	Proposed theoretical framework	34
2.2	Research Mapping	35
2.3	Gaps Identified from Past Literature	36



LIST OF ABBREVIATIONS

ECSR	Environmental Corporate Social Responsibility
EPC	Environmental production consciousness
EFP	Eco-friendly production
GM	Green management
TQ	Tobin's Q
ROA	Return on Assets
GPI	Green Production Innovation
GCI	Green Craft Innovation

CHAPTER 1

INTRODUCTION

This introductory chapter covers the brief background of the study and discusses the research topic on how environmental corporate social responsibility (ECSR) influences corporate value via the moderating effect of corporate green innovation (CGI). It also outlines the problem statement, research objectives, research questions, scope of the study, and significance of the study. Lastly, the organisation of this thesis is provided at the end of the chapter.

1.1 Background of the Study

Based on the concept of sustainable development, profit maximisation is not the only goal pursued by corporations; rather, the goal is to make corporate profits and environmental protection compatible. Accordingly, in past decades, corporate social responsibility (CSR) has attracted more and more attention from academic and practical circles. CSR refers to a series of actions taken by corporations to promote social welfare, which go beyond their explicit monetary interests (McWilliams and Siegel, 2000). CSR also encompasses practices that improve the workplace and benefit society in ways that surpass what is required by law (Vogel, 2005).

Since the rise of research on environmental strategy and industrial CSR, scholars have continuously presented different views on the linkage between these concepts. In fact, as part of CSR, ECSR also has CSR-like functionality. The primary concept of ECSR can be understood as a strategy for managing the environment, primarily through the prevention of environmental damage and the protection of ecologically sound ecosystems (Ismail, 2009; Rasche et al., 2017; Rela et al., 2020). As an important component of CSR, ECSR plays a crucial role in the interaction between corporations and the natural environment (Kim, Park, & Ryu, 2017). A considerable amount of academic research has discussed what drives firms to participate in ECSR and how it affects corporate performance (Bansal & Hunter, 2003; Zhang, Xing & Wang, 2020; Hart, 1995). According to Li, Liao and Albitar (2020), ECSR can be a manifestation of the ability to integrate environmental factors into a firm's day-to-day management. Thus, ECSR can be a means for building competitive advantage (Lloret, 2016). Just as with CSR, the main purpose of ECSR is to satisfy the demands of different stakeholders, which allows firms to access and capitalise on tangible and intangible resources (Wu, Liang, & Zhang, 2020). Moreover, Niu, Zhou, and Pei (2020) believe that ECSR is a self-serving tool for managers to demonstrate their social responsibility. Business managers who choose to implement ECSR and pay more attention to the impact of environmental protection on corporate benefits are mainly motivated by social or government pressure (Wu, Liang, & Zhang, 2020). Xu, Wei, and Lu (2019) discussed that there are indeed corporations that implement ECSR to shut down their pollution scandals, whereby they adopt ECSR strategies to enhance their reputation and alleviate

stakeholder pressure. All these characteristics can add resources for an organisation to build competitive advantage.

Due to the trend of public opinion from different stakeholders and the worsening environmental situation, corporations often need to improve their environmental performance to alleviate environmental pressure. In the China context, the full implementation of the country's strictest Environmental Protection Law in 2015 has increased environmental regulation costs and environmental governance pressure for corporations. This encourages corporations of China to actively respond to various environmental requirements and obtain corresponding ecological environmental rights (Qin et al., 2019). Consequently, Chinese firms' acceptance of environmental responsibility reduces the penalty costs and cash outflow caused by environmental violations, which is conducive to the improvement of corporate value (Li, Liao, & Albitar, 2020).

However, Rugman and Verbeke (1998) identified early on the dilemma that companies face, which is the high cost of environmental protection. Not all companies have "environmental freedom," as those with limited capital chains cannot actively implement environmental strategies; this limits their environmental performance. In fact, many short-sighted Chinese corporations tend to regard environmental responsibility as a burden on the company, such that their management tends to make decisions based on profit maximisation rather than wasting energy on environmental issues (Kolk, Hong, & Van Dolen, 2010). To mitigate this, approach that places an unhealthy emphasis on economic growth and toward one that is more sustainable and takes into account addresses the negative impact on the environment. Liu et al. (2010) pointed out that a considerable number of Chinese corporations has realised the significance of environmental management and tried to improve ecological performance in several ways. In this regard, ECSR mandates that Chinese corporates strike a balance between generating revenues and minimising their impact on the environment in their products, production processes, and production behaviours. This is to be accomplished through the implementation of advanced technological applications that encourage the development of environmentally friendly innovations (Li, Liao, & Albitar, 2020).

ECSR is a driver for companies to combine environmental protection with corporate value. ECSR can enhance corporate value and market position, such as by generating a good reputation among employees, consumers, and other public organisations (Dixon-Fowler, Ellstrand & Johnson, 2017). There is, however, a poor correlation between corporate social responsibility and profitability (Margolis & Walsh, 2003). ECSR brings corresponding economic burdens to Chinese firms, including agency problems and additional costs associated with inefficient resource allocation (Xie et al., 2019). In addition to its positive and negative linkages, a neutral relationship between ECSR and corporate value has also been reported (McWilliams & Siegel, 2001; Moore, 2001). As a result, there is a continuing debate on the relationship between ECSR and corporate value in China.

An organisation often creates a unique resource pool that is impossible for its competitors to imitate or threaten (Wernerfelt, 1984). Its competitive advantage over other organisations is based on these heterogeneous resources and their relationships (Rumelt, 1974). More specifically, organisations' sustainable competitive advantage is established because the organisation controls its resources and capabilities that are valuable, scarce, irreplaceable, and difficult to replicate (Barney, 1991). In general, resources refer to anything that can show the core competitiveness of an organisation (Wernerfelt, 1984), which can exist in the form of both tangible assets and intangible assets (Caves, 1980). For example, trademarks, employee knowledge, skills, and capabilities, machinery and technology, capital, contracts, and effective procedures and processes can all be called resources (Wernerfelt, 1984).

Resources are indeed imperative in this competitive economic world, where every business must face difficulties to succeed and profit. In order to obtain more resources to overcome difficulties, business entrepreneurs and policy makers have identified and adopted various types of innovations and strategies (Anser, Zhang, & Kanwal, 2018). Corporate innovation activities run through the whole process of operations, wherein innovation ability is a comprehensive reflection of the overall ability from input to output to the realisation of product value (Li & Ni, 2018). Among the various innovations, green innovation is often considered a vital factor for firms and industries, as well as for business and innovation scholars. To the findings of the study that was conducted by Nameroff, Garant, and Albert (2004), approximately half of all research and development projects at most business include significant information regarding the environment and safety. Accordingly, green-oriented innovation actions are no longer viewed as an afterthought of a company's innovation activities, but rather as an intrinsic component of its strategic decisions that are required to enhance its current capabilities and competitive position (Li & Kozhikode, 2009; Manso, 2011). In fact, a significant proportion of Chinese corporations has made green innovation a strategic priority (Belderbos, Park, & Carree, 2021), which indicates the relative importance firms place on value capture as opposed to value creation. Green innovation differs from innovation in that it emphasises environmental progress rather than for-profit activities (Xie, Hoang & Zhu, 2022), which pursues the same goal as ECSR. However, the findings of Mithani (2017) suggest that CSR may weaken management's focus on innovation. On the other hand, García-Piqueres and García-Ramos (2020) used survey data from Spanish companies to reveal that CSR is related to product and process innovation. Meanwhile, Hojnik and Ruzzier (2016), Huang, Liao and Li (2019), and Tang et al. (2018) posited that green innovation can improve product differentiation, business performance, and competitive advantage of corporate. In addition, annual statistical reports released by China's Ministry of Ecology and Environment show that environmental governance in China is under strict regulation. Therefore, ECSR and CGI may be the core driving forces to enhance corporate competitiveness.

According to Ramus and Steger (2000), corporate management needs to pay more attention to green innovation than to other innovative activities. At the corporate level, the decision-making behaviour of corporate management has a

certain impact on CSR; this impact is bound to form the conditions to promote CGI (Pekovic & Vogt, 2020). Corporate managers' active support for ECSR activities would relieve the pressure from the government and other regulators, which has a positive effect on ECSR (Banerjee et al., 2003). Meanwhile, there is no denying that green innovation is a double-edged sword. While improving firms' competitive advantage, it does bring some negative effects, such as high risk and uncertainty (Manso, 2011). Indeed, a growing number of scholars have been trying to find the right balance between economic growth and environmental responsibility in the strategic development of corporations (Cheng, Yang & Sheu, 2014 ; Przychodzen et al, 2020). In this context, green innovation can be considered as an environment-oriented firm behaviour and an effective strategy to promote a sustainable competitive advantage (Ma, Hou & Xin, 2017; Rezende, Bansi, Alves & Galina, 2019).

Therefore, in view of China's strict environmental protection laws, Chinese firms have assumed environmental responsibility and are striving to balance it with CGI. Clearly, ECSR and green innovation are two major corporate trends that are driving change and thus contributing to social and environmental well-being (Huang, Liao & Li, 2019; Przychodzen et al, 2020). Listed Chinese companies engaged in ECSR activities bring about economic and ecological changes, as well as the integration of viable business processes towards sustainable development (Berrone et al., 2013). Furthermore, the impact of green process and product innovation on social and corporate environmental strategies contributes to the efficient use of energy and natural resources, increased productivity, and thereby, higher corporate value. Despite the growing importance of ECSR and CGI, however, the academic community does not seem to have found a unified view on the role of CGI in ECSR and corporate value among China's listed companies. Therefore, this study sought to investigate the relationship between ECSR and corporate value via the moderating effect of CGI.

1.2 Motivation of the study

With the rapid process of industrial development, the number of firms has mushroomed, causing environment pollution to become more serious. Specifically, what was originally soil pollution has expanded to more complex forms of water pollution, air pollution, marine pollution, and noise pollution. Subsequently, more and more organisms have become extinct from nature, while human survival in the environment has also become a huge challenge (Huang, Liao and Li, 2019; Wu, Ma and Tang, 2019). According to the World Bank (2007), although China's economic growth rate has been maintained at more than 8%, the Chinese government is actively looking for solutions to the severe environmental pollution. Data from the Asian Development Bank (ADB, 2001) further reports that out of 41 cities ranked by air pollution levels, eight of the 10 most polluted cities are in China. In terms of global warming, by 2007, China had surpassed the United States as the world's largest emitter of the greenhouse gas carbon dioxide, and an estimated 300,000 people died prematurely each year due to air pollution.

In the primary stage of industrialisation, mankind obtained a large amount of raw materials and energy from nature for the needs of industrial development. Subsequently, deforestation caused the death of many primitive creatures, while the excessive mining of coal resources made the foundation sink, seriously worsening the ecological balance (Yang & Nie, 2016). Moreover, urbanisation leads the population to concentrate in cities and towns. Compared to the empty countryside, the bad ecology and high population density render per capita resources in China relatively scarce (Yang & Xiang, 2018). Therefore, environmental protection is not only the universal moral obligation of human society in the era of environmental crisis, but also the basic value requirement of environmental ethics. In reality, there are close links between the daily operations of firms and the natural environment, which have a profound impact on natural resources, the environment, and ecology (Yang & Nie, 2016).

Undoubtedly, economic development is accompanied by serious environmental pollution costs. To accelerate their own economic development, developing countries choose extensive economic growth methods at the expense of their local environment. Though it sacrifices the healthy living environment of residents, such growth attracts a large amount of financial support because it can obtain quick and high returns (Tang et al., 2016; Wu et al., 2019). For example, data from the World Bank in 2018 showed that China's industrial added value had reached \$4.95 trillion as early as 2017, leading the world at nearly a quarter of the global total. However, as discussed earlier, China's current rapid economic development comes at the cost of serious damage to the environment. For example, China consumes about 70% of the world's energy and emits 80% of its sulphur dioxide (SO₂) and dust. Thus, the country's economic development model promotes the rapid progress of the local economy while destroying the local ecological environment, pushing energy and environmental conditions closer to the constraint boundary (Tang et al., 2016; Wang et al., 2022). The rapid industrialisation and urbanisation rate, along with the resulting and increasingly serious ecological problems, has placed unprecedented pressure on the Chinese government. The current study investigates the moderating effect of corporate green innovation in the relationship between ECSR and the corporate value in the context of China.

1.3 Problem Statement

The Environmental Performance Index (EPI) is an index system that ranks the environmental sustainability and current environmental performance of each country by collecting data from a range of policy makers and experts who specify core challenges in pollution and natural resource management. The EPI provides a benchmark for cross-country and cross-sectoral performance comparisons to identify environmental problems and measure policy effects. China's EPI ranked 120 out of 180 countries worldwide in 2020 (Figure 1.1), which is a relatively poor position. In fact, China was ranked 94 out of 133 when the index was published in 2006, and has remained at the bottom of the rankings in subsequent releases. In addition, the environmental dimension of the environmental, social, and governance (ESG) evaluation mainly examines firms'

environmental management, resource and energy utilisation, waste discharge, coping with climate change, and so on. It takes undesirable environmental events related to the corporation's environmental risk management evaluation as negative indicators. In the ESG evaluation of Chinese listed companies in 2020, the score of "environment" was the lowest, with an average of 25.59.

For China, environmental issues have become an urgent focus at present. After urbanisation, the unbalanced development brought by the huge difference between urban and rural areas has led to serious environmental problems. Industrialisation, despite providing a large number of job opportunities for local residents, has also caused a bad impact on the local ecological environment (Zuo et al., 2021; Wang et al., 2022). The instability of the ecological environment has had serious negative repercussions on the local people as well as on China's social and economic development (Kan, 2008). That is why China's Central Economic Work Conference called for a tough battle against pollution, with the goal of reducing the total emission of major pollutants and improving ecological and environmental quality by the end of 2020 (Cormier et al., 2009; Cormier & Magnan, 2013; Tang et al., 2016).

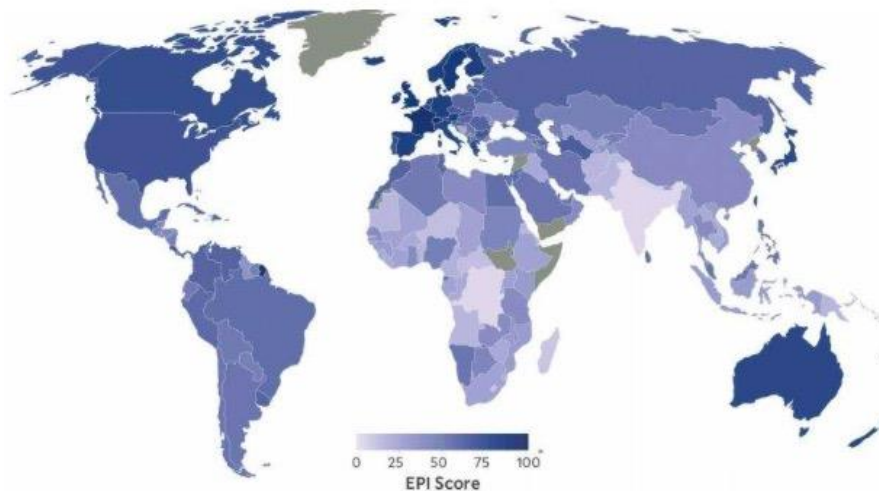


Figure 1.1 : Rankings in the 2020 Environmental Performance Index for 180 countries

The rapid development of the industry has brought great challenges to China's ecological environment. Environmental protection and innovation have now become the two key factors of economic transformation in countries dominated by industrial economies, while CSR and sustainable development are the two major business trends to promote the change of social conscience towards social and environmental welfare (Hang et al., 2022). For example, 5° C of global warming might result in losses of US\$7 trillion, which is greater than the market capitalisation of the London Stock Exchange. 6° C of global warming

could result in a present value loss of US\$13.8 trillion in manageable financial assets, or nearly 10% of the global total (The Economist Intelligence Unit, 2015). Consequently, studies on the impact of ECSR and green innovation on corporate value have been replicated in the United States and other developed countries (Auger et al., 2003; Marin & Ruiz, 2007), Europe (Castado et al., 2009; Battaglia et al., 2014; Turyakira et al., 2014), and selected markets (Chen, 2008; Chaudhary, 2009). For example, the green innovation of 86 listed companies in Latin American emerging markets from 2013 to 2017 was found to damage their financial performance (Duque-Grisales et al., 2020). Thus, not all corporations in similar circumstances are able to embrace sustainable development or green innovation to achieve better competitiveness or performance (Wong, 2012; Jahanshahi, Al-Gamrh & Gharleghi, 2020).

As mentioned earlier, industrialisation and rapid economic development complement each other, but also pressure the local ecological environment greatly. Heavy pollution and energy consumption have seriously damaged local ecological balance, but these problems have not been dealt with corresponding methods (Shao et al., 2020). As a solution to this issue, China's new environmental protection law in 2015 has strict provisions and requirements. For instance, the law mandates that organisations that cause damage by polluting the environment and destroying the ecosystem should undertake due obligations and be punished. Since the implementation of this new law, the number of environmental penalties has increased significantly year by year (China Ecology and Environment Bulletin, 2017). Specifically, in the five years since its enforcement, more than 40 billion yuan has been imposed in fines for environmental violations (Ministry of Ecology and Environment of China, 2020). In addition, in 2020, the law toughened penalties by removing the financial cap of 500,000 yuan. For example, China's listed company Shennong Group has been fined 1.593 million yuan for its pollution problems (China Environment Network). In addition to the pressure of financial penalties, penalised companies also suffer severe damage to their reputations under the pressure of other external regulators. Therefore, corporations' effective management of social and environmental impacts outside their value chain may be a core driver of their competitiveness. In other words, corporations without high-quality environmental management consciousness and efficient eco-friendly production may lack corresponding competitiveness.

As an extension of innovation in general, green innovation is different yet related. Particularly, generic innovation can produce "dirty technology" that temporarily boosts revenues but hurts long-term growth, while green innovation incurs higher costs in the R&D process (Zhang, Qin & Liu, 2020). Corporate myopia thus tends to reduce the investment in environmental protection. Data from 482 Chinese listed companies in high energy consumption industries showed that the stronger the company's altruism and egoism motivations, the more likely it is to exercise ECSR (Wang et al., 2021). Zhang, Qin and Liu (2020) pointed out that firm management that prioritises environmental governance will implement a green innovation strategy due to greater pressure from stakeholders. At the same time, companies whose executives attach importance to environmental governance will respond more actively to and deal with environmental problems

caused by corporate production (Bansal & Hunter, 2003). They also focus on the enhancement of the firms' ability to respond to environmental concerns (Papagiannakis & Lioukas, 2012), thus promoting the efficiency of green innovation and improving corporate image among customers (Zhang, Qin & Liu, 2020). However, in the short term, the company bears the economic cost of implementing ECSR, meaning the results of the activity cannot be directly positive (Pedersen et al., 2018). Consequently, many short-sighted companies do not invest in green innovation, which leads to poor environmental performance.

To sum up, China's sustained and rapid economic growth, mainly driven by manufacturing and infrastructure investment, has resulted in significant detrimental effects for the environment (Tang et al., 2016; Cai & Li, 2018). The Chinese government is actively steering the country away from an over-emphasis on growth towards a better strike a balance by considering social and environmental concerns as well. As members of society, corporations must take the initiative to shoulder environmental responsibilities and effectively improve environmental problems, which can be the core driver of their competitiveness. However, previous studies have considered green innovation as a whole and have not refined its impact on the relationship between ECSR and corporate value. To address this gap, this study's framework proposed the interaction between ECSR and CGI from the perspective of corporate value, thereby broadening previous research on these concepts' interrelationships.

1.4 Research Questions

The specific research questions of this study were:

1. Does ECSR influence the corporate value of listed companies in China?
2. Does green production innovation (GPI) moderate the relationship between ECSR and the corporate value of listed companies in China?
3. Does green craft innovation (GCI) moderate the relationship between ECSR and the corporate value of listed companies in China?

1.5 Research Objectives

Based on the research problems outlined above, this study sought to achieve the following research objectives:

1. To examine the effect of ECSR on the corporate value of listed companies in China.
 - 1.1 To examine the effect of Environmental Protection Consciousness on the corporate value of listed companies in China.
 - 1.2 To examine the effect of Eco-Friendly Production GM on the corporate value of listed companies in China.
 - 1.3 To examine the effect of Green Management on the corporate value of listed companies in China.
2. To determine the moderating effect of GPI on the relationship between ECSR and the corporate value of listed companies in China.
3. To determine the moderating effect of GCI on the relationship between ECSR and the corporate value of listed companies in China.

1.6 Significance of the Study

A vast amount of literature has studied the relationship between CSR and corporate value. This study analysed the relationship between ECSR and corporate value in particular, via the moderating effect of CGI. In doing so, this study has both theoretical and practical significance, as explained below.

Theoretical Significance:

In terms of the literature, this study is of great significance for future research on emerging markets and developing countries where modernisation and urbanisation have rapidly progressed. Specifically, it extends research on the development of ECSR practices in the context of Chinese listed companies. Theoretically, the results of this study bring future researchers a differentiated perspective on sustainable development. At the same time, the new findings are worthy contributions that enrich the related literature on ECSR and CGI among listed corporations. The study also expands the application scope of the resource-based theory to provide evidence for firms to effectively pursue and realise co-existing but contradictory organisational goals via green innovation. The results of this research can further be used by scholars to establish and implement a strategic framework using the latest measurement dimensions developed by this study.

In connection with empirical significance, this study contributes to the body of knowledge by proving the relationship between ECSR and corporate value among Chinese listed companies. It also evidences the variation in the impact of ECSR on corporate value according to different green innovation capabilities in an emerging market.

Practical Significance:

From the practical perspective, this study mainly intends to provide valuable information to both firm insiders and external investors. Specifically, individual listed firms can be compared in terms of their participation in ECSR and CSR practices for key stakeholders to better choose specific locations and corporate strategies. Furthermore, suppliers should know their customers' participation in ECSR practices to help them implement green supply chain operations. New firms can further increase their potential customer base by observing the results of this study and taking relevant measures. Finally, it is of great significance for the government to consider the implementation of environmental protection strategies by corporations to improve their value, so as to benefit local economic development.

Policy Significance:

First for corporate judgments. The results of this study make it easier to choose environmentally beneficial tactics and to invest in the right green innovations. Especially when the corporate taking environmental responsibility into account when selecting the best green production innovation and green craft innovation plan. Based on these findings, corporate management can successfully prevent needless losses for the sake of the corporate value. In addition, the findings are helpful for policy makers to assess the effectiveness of laws and regulations, which is helpful for government departments to consider for further decisions. The results of this study are valuable for regulators to consider the outcomes of their supervision and inspection of Chinese listed corporations.

1.7 Scope of the Study

This study aimed to examine the moderating effect of CGI on the relationship between ECSR and corporate value using evidence from Chinese listed companies. The study's panel data covered a period of six (6) years from 2015 to 2020.

1.8 Definitions of Terms

For the purpose of this research, the following definitions are provided to ensure a common understanding of the terms used.

Environmental corporate social responsibility (ECSR): ECSR refers to activities aimed at environmental protection for community development and sustainability (Turker, 2009). The core concept of ECSR can be interpreted understood as a strategy to environmental management that prioritises the protection and restoration of ecologically viable ecosystems (Ismail, 2009; Rasche et al., 2017; Qiu, Shaukat & Tharyan, 2016).

Corporate Green Innovation (CGI): Green innovation is a general term for technologies, processes, or products that can reduce environmental pollution as well as energy and raw material consumption (Braun & Wield, 1994). CGI is a corporate management activity to reduce pollution emissions, protect the ecological environment, and improve the utilisation rate of resources (Triguero et al., 2013; Wang, Xue & Yang, 2020).

Corporate Value (CV): Corporate value refers to the value of the corporation itself, which is the market evaluation of its tangible and intangible assets. Unlike corporate profits, corporate value does not refer to the total book assets of the corporate; rather, profit is part of the value created by the market value of all the firm's assets. The actual market value of a corporation usually far exceeds the value of its book assets because of its reputation (Varaiya, Kerin & Weeks, 1987; Sucuahi & Cambarihan, 2016; Dang et al. 2019). Corporate value is generally estimated using financial indicators such as return on assets and market indicators such as Tobin's Q (Amato & Falivena, 2020; Dang et al. 2019; Luo & Bhattacharya, 2006).

1.9 Organisation of Chapters

This thesis is organised in five chapters. Chapter 1 discusses the background of study, which is composed of the introduction, problem statement, research objectives and questions, significance of the study, scope of the study, and key terms' definition. Chapter 2 presents a literature review of ECSR, corporate value, and CGI. The chapter also describes the underpinning theories and explains the relationships among the variables. In concluding the second chapter, the research framework and research hypotheses are presented. The research methodology is elaborated in Chapter 3, where the data, methods of data collection, and statistical analysis approaches are all specified. Chapter 4 reports the analysis results, and finally, Chapter 5 summarises the findings and concludes the study.

1.10 Chapter Summary

This chapter first introduced the background of the study topic in the setting of China, then stated the problems attempted to be solved by this study. That is, the direct relationship between ECSR and corporate value have a rich and solid foundation in past research, yet have not been viewed through the interaction of CGI. In addition, this chapter clearly stated the research objectives and research problems, as well as the significance of this study. In summary, the purpose of this study was to fill the research gap on ECSR and corporate value in the field of CSR research.



REFERENCES

- A. Rasche M. Morsing & J. Moon, (Eds.). (2017). *Corporate social responsibility: Strategy, communication, governance*. Cambridge: Cambridge University Press.
- Afshar, J., Al-Gamrh, A., & Gharleghi, B. B. (2020). Sustainable development in Iran post-sanction: Embracing green innovation by small and medium-sized corporates. *Sustainable Development*, 2(8), 781-790.
- Aguilera-Caracuel, J., and Guerrero-Villegas, J. (2018) How Corporate Social Responsibility Helps MNEs to Improve their Reputation. The Moderating Effects of Geographical Diversification and Operating in Developing Regions. *Corp. Soc. Responsib. Environ. Mgmt.*, 25(4), 355– 372.
- Aguilera-Caracuel, J., Hurtado-Torres, N. E., Aragón-Correa, J. A., & Rugman, A. M. (2013). Differentiated effects of formal and informal institutional distance between countries on the environmental performance of multinational enterprises. *Journal of Business Research*, 66(12), 2657–2665.
- Aguinis, H., & Glavas, A. (2012). What we know and don't know about corporate social responsibility: A review and research agenda. *Journal of Management*, 38(4), 932-968.
- Altuzarra, A. (2010). Public funding for innovation at different levels of government: An analysis of Spanish manufacturing. *European Journal of Economics, Finance and Administrative Sciences*, 20(5), 15-33.
- Ang, S. H. (2008). Competitive intensity and collaboration: Impact on firm growth across technological environments. *Strategic Management Journal*, 29(10), 1057–1075
- Anser, M. K., Zhang, Z., & Kanwal, L. (2018). Moderating effect of innovation on corporate social responsibility and corporate performance in realm of sustainable development. *Corporate Social Responsibility and Environmental Management*, 2(5), 799– 806.
- Anser, M. K., Zhang, Z., & Kanwal, L. (2018). Moderating effect of innovation on corporate social responsibility and firm performance in realm of sustainable development. *Corporate Social Responsibility and Environmental Management*, 25(5), 799–806.
- Ao, X., Teh, B. H., Ong, T. S., Muhammad, H., Selamat, A. I., & Chen, A. (2022). Does the utilisation of new energy and waste gas resources contribute to product innovation from the perspective of a circular economy? Evidence from China. *Frontiers in Energy Research*, 10(9), 1-6.
- Asteriou, D., & Hall, S. G. (2011). *Applied Econometrics*. China: Palgrave Macmillan Publishers Limited.

- Archibugi, D., & Coco, A. (2004). A new indicator of technological capabilities for developed and developing countries. *World Development*, 32(4), 629-654.
- Arellano, M and Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies*, 58(2), 277-297.
- Arora, S., & Gangopadhyay, S. (1995). Toward a theoretical model of voluntary overcompliance. *Journal of Economic Behavior & Organization*, 28(3), 289–309.
- Asher, C. C., Mahoney, J. M., & Mahoney, J. T. (2005). Towards a property rights foundation for a stakeholder theory of the firm. *Journal of Management and Governance*, 9(1), 5–32.
- Asteriou, D., & Hall, S. G. (2011). *Applied Econometrics*. China: Palgrave Macmillan Publishers Limited.
- Auger, P., Burke, P., Devinney, T. M., & Louviere, J. J. (2003). What Will Consumers Pay for Social Product Features? *Journal of Business Ethics*, 42(3), 281–304.
- Ayala-Ponce, N., Vilchis-Vidal, A., & Picard-Ami, M.L. (2018). Corporate environmental responsibility and competitiveness: The maquiladora industry of the Mexican northern borderlands. *Business Strategy & Development*, 1(3), 169-179.
- Bai, J., Qu, J., Maraseni, T. N., Wu, J., Xu, L., & Fan, Y. (2019). Spatial and temporal variations of embodied carbon emissions in China's infrastructure. *Sustainability*, 11(3),749.
- Bai, Y., Song, S., Jiao, J., & Yang, R. (2019). The impacts of government R&D subsidies on green innovation: Evidence from Chinese energy-intensive firms. *Journal of Cleaner Production*, 233(1),819-829.
- Banerjee, B., Iyer, E., & Kashyap, R. (2003). Corporate environmentalism: Antecedents and influence of industry type. *Journal of Marketing*, 67(2),106-122.
- Bansal, P., & Hunter, T. (2003). Strategic explanations for the early adoption of ISO 14001. *Journal of Business Ethics*, 46(3), 289-299.
- Bansal, T., & Clelland, I. (2004). Talking trash: Legitimacy, impression management, and unsystematic risk in the context of the natural environment. *Academy of Management Journal*, 47(6), 93–103.
- Barboza, G. (2019). Endogenous consumers' preferences as drivers of green corporate social responsibility. *Social Responsibility Journal*, 15(4), 78-93.

- Barney, J. (1991) Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.
- Battaglia, M., Testa, F., Bianchi, L., Iraldo, F., & Frey, M. (2014). Corporate social responsibility and competitiveness within SMEs of the fashion industry: Evidence from Italy and France. *Sustainability (Switzerland)*, 6(2), 872-893.
- Belal, A. R., Cooper, S. M., & Khan, N. A. (2015). Corporate environmental responsibility and accountability: What chance in vulnerable Bangladesh? *Critical Perspectives on Accounting*, 33(11), 44–58.
- Belderbos, R., Park, J., and Carree, M. (2021). Do R&D Investments in Weak IPR Countries Destroy Market Value? the Role of Internal Linkages. *Strategy Management Journal*. 42(8), 1401–1431.
- Bell, E., & Bryman, A. (2007). The ethics of management research: An exploratory content analysis. *British Journal of Management*, 18(1), 63-77.
- Berman, S., Wicks, A., Kotha, S. and Jones, T. (1999) Does Stakeholder Orientation Matter? The Relationship between Stakeholder Management Models and Firm Financial Performance. *Academy of Management Journal*, 42(4), 488-506.
- Berrone, P., Fosfuri, A., Gelabert, L., & Gomez-Mejia, L. (2013). Necessity as the mother of "green" inventions: Institutional pressures and environmental innovations. *Strategic Management Journal*, 34(8), 891–909.
- Berry, M.A. and Rondinelli, D.A. (1998) Proactive Corporate Environmental Management: A New Industrial Revolution. *The Academy of Management Executive*, 12(3), 38-50.
- Bewley, K., & Li, Y. (2000). Disclosure of environmental information by Canadian manufacturing companies: A voluntary disclosure perspective. *Advances in Environmental Accounting and Management*, 1(1), 201-236.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143.
- Boiral, O. (2007). Corporate greening through ISO 14001: A rational myth? *Organization Science*, 18(1), 127–146.
- Borghesi, S., Cainelli, G., & Mazzanti, M. (2015). Linking emission trading to environmental innovation: Evidence from the Italian manufacturing industry. *Research Policy*, 44(3), 669-683.
- Born, B., & Breitung, J. (2016). Testing for Serial Correlation in Fixed-Effects Panel Data Models. *Econometric Reviews*, 35(7), 1290-1316.

- Braun, E., & Wield, D. (1994). Regulation as a means for the social control of technology. *Technology Analysis and Strategic Management*, 6(3), 259-272.
- Brogi, M., & Lagasio, V. (2019). Environmental, social, and governance and company profitability: Are financial intermediaries different? *Corporate Social Responsibility and Environmental Management*, 2(6), 576–587.
- Brown, S. J. (2011). The efficient markets hypothesis: The demise of the demon of chance? *Accounting & Finance*, 5(1), 79-95.
- Busch, T., & Friede, G. (2018). The robustness of the corporate social and financial performance relation: A second-order meta-analysis. *Corporate Social Responsibility and Environmental Management*, 25(4), 583-608.
- Buysse, K., & Verbeke, A. (2003). Proactive environmental strategies: A stakeholder management perspective. *Strategic Management Journal*, 24(5), 453-470.
- Collis, J., & Hussey, R. (2009). *Business research: a practical guide for undergraduate and post graduate students* (3rd ed.). Hampshire, England: Palgrave Macmillan Publishers Limited.
- Cai, W. & Li, G. (2018). The drivers of eco-innovation and its impact on performance: Evidence from China. *Journal of Cleaner Production*, 176(6): 110-118.
- Camagni, R., & Capello, R. (2013). Toward smart innovation policies. *Growth Change*, 4(4), 355-389.
- Cao, H., & Chen, Z. (2019). The driving effect of internal and external environment on green innovation strategy-The moderating role of top management's environmental awareness. *Nankai Business Review International*, 10(3), 342-361.
- Castaldo, S., Perrini, F., Misani, N., & Tencati, A. (2009). The missing link between corporate social responsibility and consumer trust: The case of fair trade products. *Journal of Business Ethics*, 84(1), 1-15.
- Caves, R. E. (1980). Industrial Organization, Corporate Strategy and Structure. *Journal of Economic Literature*, 18(1), 64–92.
- Chan, Ling-Foon, A. N. Bany-Ariffin, and Annual Bin Md Nasir. 2019. Does the method of corporate diversification matter to firm's performance? *Asia-Pacific Contemporary Finance and Development* 26(6): 207–33.
- Chandrashekar, A., Dougless, T., & Avery, G. C. (1999). The environment is free: The quality analogy. *Journal of Quality Management*, 4(1), 123–143.

- Chang, T. W., Yeh, Y. L., & Li, H. X. (2020). How to shape an organization's sustainable green management performance: The mediation effect of environmental corporate social responsibility. *Sustainability*, 1(2), 9198.
- Chaudhary, N. K. (2009). Facilitators and Bottlenecks of Corporate Social Responsibility. *Indian Journal of Industrial Relations*, 44(3), 386-395.
- Chen, M. J. (2008). Reconceptualizing the competition–cooperation relationship: A transparadox perspective. *Journal of Management Inquiry*, 1(7), 288–305.
- Chen, Y. S. (2008). The driver of green innovation and green image - Green core competence. *Journal of Business Ethics*, 81(3), 531-543.
- Chen, Y. S., Lai, S. B., & Wen, C. T. (2006). The influence of green innovation performance on corporate advantage in Taiwan. *Journal of Business Ethics*, 67(4), 331-339.
- Cheng, C. C. J., Yang, C. L., & Sheu, C. (2014). The link between eco-innovation and business performance: A Taiwanese industry context. *Journal of Cleaner Production*, 64(1), 81-90.
- Chowdhury, M. M. H., Paul, S. K., Sianaki, O. A., & Quaddus, M. A. (2020). Dynamic sustainability requirements of stakeholders and the supply portfolio. *Journal of Cleaner Production*, 255(5), 120148.
- Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, 33(4/5), 303-327.
- Coluccia, D., Dabic, M., Del Giudice, M., Fontana, S., & Solimene, S. (2020). R&D innovation indicator and its effects on the market: An empirical assessment from a financial perspective. *Journal of Business Research*, 119(8), 259-271.
- Cormier, D., Ledoux, M. J., & Magnan, M. (2011). The informational contribution of social and environmental disclosures for investors. *Management Decision*, 49(8), 1276-1304.
- Cormier, D., & Magnan, M. (2013). The economic relevance of environmental disclosure and its impact on environmental legitimacy. *Business Strategy and the Environment*, 24(6), 431-450.
- Cormier, D., Aerts, W., Ledoux, & M. J., Magnan, M. (2009). Attributes of social and human capital disclosure and information asymmetry between managers and investors. *Canadian Journal of Administrative Sciences*, 26(1), 71-88.

- D'Amato, A., & Falivena, C. (2020). Corporate social responsibility and firm value: Do firm size and age matter? Empirical evidence from European listed companies. *Corporate Social Responsibility and Environmental Management*, 27(2), 909–924.
- Dacin, M. T., Goodstein, J., & Scott, W. R. (2002). Institutional theory and institutional change: Introduction to the special research forum. *The Academy of Management Journal*, 45(1), 43–56.
- Daddi, T., Testa, F., Frey, M., & Iraldo, F. (2016). Exploring the link between institutional pressures and environmental management systems effectiveness: An empirical study. *Journal of Environmental Management*, 183(7), 647–656.
- Dahlsrud, A. (2008). How corporate social responsibility is defined: an analysis of 37 definitions. *Corp. Soc. Responsib. Environ. Mgmt*, 15: 1-13.
- D'Amato, A., & Falivena, C. (2020). Corporate social responsibility and firm value: Do firm size and age matter? Empirical evidence from European listed companies. *Corporate Social Responsibility and Environmental Management*, 2(7), 909– 924.
- Dang, H. N., Vu, V. T. T., Ngo, X.T. & Hoang, H. T. V. (2019). Study the impact of growth, corporate size, capital structure, and profitability on corporate value: Evidence of corporates in Vietnam. *Journal of Corporate Accounting & Finance*, 30(1), 144-160.
- Danneels, E. (2002). The dynamics of product innovation and corporate competences. *Strategic Management Journal*, 23(12), 1095–1121.
- DARNALL, N. (2003). WHY FIRMS CERTIFY TO ISO 14001: AN INSTITUTIONAL AND RESOURCE-BASED VIEW. *Academy of Management Proceedings*, 2003(1).
- Darnall, N., Jolley, G. J., & Handfield, R. (2008). Environmental management systems and green supply chain management: Complements for sustainability? *Business Strategy and the Environment*, 17(1), 30–45.
- Delmas, M. (2001). Stakeholders and competitive advantage: The case of ISO 14001. *Production and Operations Management*, 10(3), 343–358
- Demirel, P., & Kesidou, E. (2011). Stimulating different types of ecoinnovation in the UK: Government policies and firm motivations. *Ecological Economics*, 70(8), 1546–1557.
- Dess, G. G., & Beard D. W. (1984). Dimensions of organizational task environments. *Administrative Science Quarterly*, 29(1), 52-73.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.

- Dixon-Fowler, H. R., Ellstrand, A. E., & Johnson, J. L. (2017). The role of board environmental committees in corporate environmental performance. *Journal of Business Ethics*, 140(3), 423-438.
- Doran, J., & Ryan, G. (2016). The importance of the diverse drivers and types of environmental innovation for corporate performance. *Business Strategy and the Environment*, 25(2), 102-119.
- Draper, N.R. and Smith, H. (1998) Applied Regression Analysis. 3th Edition, Wiley, New York.
- Duque-Grisales, E., Aguilera-Caracuel, J., Guerrero-Villegas, J., & García-Sánchez, E. (2020). Does green innovation affect the financial performance of Multilatinas? The moderating role of ISO 14001 and R&D investment. *Business Strategy and the Environment*, 29(8), 3286–3302.
- Enderle, G. (2004). The ethics of financial reporting, the global reporting initiative, and the balanced concept of the firm. In *Corporate Integrity and Accountability*.
- Endrikat, J. (2016). Market Reactions to Corporate Environmental Performance Related Events: A Meta-analytic Consolidation of the Empirical Evidence. *Journal of Business Ethics*, 138(3), 535–548.
- Escrig-Olmedo, E., Muñoz-Torres, M. J., Fernández-Izquierdo, M. Á., & Rivera-Lirio, J. M. (2017). Measuring corporate environmental performance: a methodology for sustainable development. *Business Strategy and the Environment*, 26(2), 142-162.
- European Commission (2022). Eco- Management and Audit Scheme. https://ec.europa.eu/info/departments/environment_en (accessed 3 October, 2022).
- Fama, E. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383–417.
- Fama, E. (1965). The behavior of stock-market prices. *Journal of Business*, 38(1), 34-105.
- Fang, Z., Kong, X., Sensoy, A., Cui, X., & Cheng, F. (2021). Government's awareness of Environmental protection and corporate green innovation: A natural experiment from the new environmental protection law in China. *Economic Analysis and Policy*, 70(7),294-312.
- Fassin, Y., de Colle, S., & Freeman, R. E. (2017). Intra-stakeholder alliances in plant-closing decisions: A stakeholder theory approach. *Business Ethics*, 26(2), 97-111.
- Feng, Z., & Chen, W. (2018). Environmental regulation, green innovation, and industrial green development: An empirical analysis based on the spatial durbin model. *Sustainability*, 10(1), 223-223.

- Ferrón-Vílchez, V. (2017). The dark side of ISO 14001: The symbolic environmental behavior. *European Research on Management and Business Economics*, 23(1), 33–39.
- Fineman, S. and Clarke, K. (1996), GREEN STAKEHOLDERS: INDUSTRY INTERPRETATIONS AND RESPONSE. *Journal of Management Studies*, 33: 715-730
- Fisher-Vanden, K. and Thorburn, K. (2011) Voluntary Corporate Environmental Initiatives and Shareholder Wealth. *Journal of Environmental Economics and Management*, 62(7), 430-445.
- Fordham, A. E., & Robinson, G. M. (2018). Mechanisms of change: Stakeholder engagement in the Australian resource sector through CSR. *Corporate Social Responsibility and Environmental Management*, 25(4), 674-689.
- Fosu, S., Danso, A., Ahmad, W., & Coffie, W. (2016). Information asymmetry, leverage and firm value: Do crisis and growth matter?. *International Review of Financial Analysis*, 46, 140-150.
- Freeman, R. E. (1994). The Politics of Stakeholder Theory: Some Future Directions. *Business Ethics Quarterly*, 4(4), 409–421.
- Gao, Y., Wang, Y., & Zhang, M. (2021). Who really cares about the environment? CEOs' military service experience and corporates' investment in environmental protection. *Business Ethics: A European Review*, 30(1), 4-18.
- García-Piqueres, G., & García-Ramos, R. (2020). Is the corporate social responsibility–innovation link homogeneous? Looking for sustainable innovation in the Spanish context. *Corporate Social Responsibility and Environmental Management*, 27(2), 803– 814
- García-Villaverde, Pedro M., Gloria Parra-Requena, and María J. Ruiz-Ortega. (2017). From pioneering orientation to new product performance through competitive tactics in SMEs. *BRQ Business Research Quarterly* 20: 275–90.
- Gnyawali, D. R., & Park, B. J. (2009). Co-opetition and technological innovation in small and medium-sized corporates: A multilevel conceptual model. *Journal of Small Business Management*, 47(3), 308-330.
- Gray, D. E. (2017). *Doing research in the business world*. London: SAGE publishers Ltd.
- Geng, Y., Sarkis, J., Ulgiati, S., and Zhang, P. (2013). Measuring China's circular economy. *Science* 339 (6127), 1526–1527.
- Guidry, Ronald P. & Patten, Dennis M., 2012. "Voluntary disclosure theory. and financial control variables: An assessment of recent environmental disclosure research," *Accounting forum, Elsevier*, vol. 36(2), pages 81-90.

- Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). New York: MacGraw.
- Guo, Y., Xia, X., Zhang, S., & Zhang, D. (2018). Environmental regulation, government R & D funding and green technology innovation: Evidence from China provincial data. *Sustainability (Switzerland)*, 10(4), 940.
- H. Stock, J., & W. Watson, M. (2010). Introduction to Econometrics (3rd Edition) (Addison-Wesley Series in Economics). In *Addison-Wesley* (Vol. 1).
- Hair, J., Celsi, M., Money, A., Samouel, P., & Page, M. (2016). *Essentials of business research methods* (3rd ed.). New York and London: Routledge.
- Hair, J., Black, B., Babin, B., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis*. Upper Saddle River, NJ.: Prentice-Hall, Inc.
- Hammar, H., & Löfgren, Å. (2006). The variability of environmental protection expenditures between sectors in Sweden. *European Environment*, 16(4), 246-257.
- Han, H., Chua, B-L., Ariza-Montes, A., & Untaru, E-N. (2020). Effect of environmental corporate social responsibility on green attitude and norm activation process for sustainable consumption: Airline versus restaurant. *Corporate Social Responsibility and Environmental Management*, 27(4), 1851– 1864.
- Hansen, L. P. (1982). Large Sample Properties of Generalized Method of Moments Estimators. *Econometrica*, 50, 1029–1054.
- Hart, S. L. (1995). A natural resource-based view of the corporate. *Academy of Management Review*, 20(4), 986-1014.
- Harvey, B., & Schaefer, A. (2001). Managing Relationships with Environmental Stakeholders: A Study of U.K. Water and Electricity Utilities. *Journal of Business Ethics*, 30(3), 243–260.
- Henriques, I., & Sadorsky, P. (1996). The determinants of an environmentally responsive firm: An empirical approach. *Journal of Environmental Economics and Management*, 30(3), 381–395.
- Henriques, I., & Sadorsky, P. (1996). The determinants of an environmentally responsive firm: An empirical approach. *Journal of Environmental Economics and Management*, 30(3), 381–395.
- Hizarci-Payne, A. K., İpek, İ., & Kurt Gümüş, G. (2021). How environmental innovation influences corporate performance: A meta-analytic review. *Business Strategy and the Environment*, 30(2), 1174– 1190.
- Hoffman, K., Parejo, M., Bessant, J., & Perren, L. (1998). Small corporates, R&D, technology and innovation in the UK: A literature review. *Technovation*, 18(1), 39-55.

- Hojnik, J., & Ruzzier, M. (2016). The driving forces of process eco-innovation and its impact on performance: Insights from Slovenia. *Journal of Cleaner Production*, 133.
- Hoogendoorn, B., Guerra, D., & van der Zwan, P. (2015). What drives environmental practices of SMEs? *Small Business Economics*, 44(4), 759–781.
- Hooghiemstra, R. (2000). Corporate communication and impression management – New perspectives why companies engage in corporate social reporting. *Journal of Business Ethics*, 27(1), 55-68.
- Hoopes, D.G., Madsen, T.L. and Walker, G. (2003), Guest editors' introduction to the special issue: why is there a resource-based view? Toward a theory of competitive heterogeneity. *Strat. Mgmt. J.*, 24: 889-902.
- Horbach, J. (2008). Determinants of environmental innovation-new evidence from German panel data sources. *Research Policy*, 37(1),163-173.
- HOSKISSON, R. E., COVIN, J., VOLBERDA, H. W. & JOHNSON, R. A. 2011. Revitalizing entrepreneurship: The search for new research opportunities. *Journal of Management Studies*, 48, 1141-1168.
- Hu, D., Qiu, L., She, M., & Wang, Y. (2021). Sustaining the sustainable development: How do corporates turn government green subsidies into financial performance through green innovation? *Business Strategy and the Environment*, 30(5), 1– 22.
- Hu, S., Liu, S., Li, D., & Lin, Y. (2019). How does regional innovation capacity affect the green growth performance? Empirical evidence from China. *Sustainability*, 11(18), 5084.
- Hu, X., Liu, J., Yang, H., Meng, J., Wang, X., Ma, J., & Tao, S. (2020). Impacts of potential China's environmental protection tax reforms on provincial air pollution emissions and economy. *Earth's Future*, 8(4), 1-4.
- Huang, Z., Liao, G., & Li, Z. (2019). Loaning scale and government subsidy for promoting green innovation. *Technological Forecasting and Social Change*, 144(7), 148-156.
- Hummel, K., & Schlick, C. (2016). The relationship between sustainability performance and sustainability disclosure—Reconciling voluntary disclosure theory and legitimacy theory. *Journal of Accounting and Public Policy*, 35(5), 455–476.
- Isaksen, A., & Karlsen, J. (2010). Different modes of innovation and the challenge of connecting universities and industry: Case studies of two regional industries in Norway. *European Planning Studies*, 18(12), 1993-2008.

- Ismail, M. (2009). Corporate Social Responsibility and its role in community development: An international perspective. *Journal of International Social Research*, 2(9).
- Javed, M., Rashid, M. A., Hussain, G., & Ali, H. Y. (2020). The effects of corporate social responsibility on corporate reputation and firm financial performance: Moderating role of responsible leadership. *Corporate Social Responsibility and Environmental Management*, 27(3)1395-1409.
- Jennings, P. D., & Zandbergen, P. A. (1995). Ecologically Sustainable Organizations: An Institutional Approach. *The Academy of Management Review*, 20(4), 1015–1052.
- Jia, X. (2020). Corporate social responsibility activities and firm performance: The moderating role of strategic emphasis and industry competition. *Corporate Social Responsibility and Environmental Management*, 27(1), 65-73.
- Jiang, X., & Akbar, A. (2018). Does increased representation of female executives improve corporate environmental investment? Evidence from China. *Sustainability*, 10(12), 4750.
- Kammerer, D. (2009) The Effects of Customer Benefit and Regulation on Environmental Product Innovation: Empirical Evidence from Appliance Manufacturers in Germany. *Ecological Economics*, 68(1), 2285-2295.
- Kan, H. (2008). [Review of *Clearing the Air: The Health and Economic Damages of Air Pollution in China*, by M. S. Ho & C. P. Nielsen]. *China Review International*, 15(3), 383–385.
- Ketchen, D.J., Jr., Hult, G. T. M., & Slater, S. F. (2007). Toward greater understanding of market orientation and the resource-based view. *Strategic Management Journal*, 28(9), 961-964.
- Khan, M. I., & Chang, Y. C. (2018). Environmental challenges and current practices in China-A thorough analysis. *Sustainability (Switzerland)*, 10(7), 2574.
- Kim, H., Park, K., & Ryu, D. (2017). Corporate environmental responsibility: A legal origins perspective. *Journal of Business Ethics*, 140(3), 381–402.
- Kimber, A., Lawrence, K. D., & Arthur, J. L. (1992). Robust Regression-Analysis and Applications. *Applied Statistics*, 41(1).
- Kirner, E., Kinkel, S., & Jaeger, A. (2009). Innovation on path and the innovation performance in low-technology corporates: An empirical analysis of German industry. *Research Policy*, 38(3), 447–458.
- Kitsikopoulos, C., Schwaibold, U., & Taylor, D. (2018). Limited progress in sustainable development: Factors influencing the environmental management and reporting of South African JSE-listed companies. *Business Strategy and the Environment*, 27(8),1295-1301

- Klassen, R. D., & Whybark, D. C. (1999). The impact of environmental technologies on manufacturing performance. *Academy of Management Journal*, 42(6), 599–615.
- Klein, P. G., Mahoney, J. T., McGahan, A. M., & Pitelis, C. N. (2012). Who is in charge? A property rights perspective on stakeholder governance. *Strategic Organization*, 10, 304–315.
- Kolk, A., Hong, P. and van Dolen, W. (2010), Corporate social responsibility in china: an analysis of domestic and foreign retailers' sustainability dimensions. *Bus. Strat. Env.*, 19: 289-303.
- Kong, T., Feng, T., & Ye, C. (2016). Advanced manufacturing technologies and green innovation: The role of internal environmental collaboration. *Sustainability*, 8(10), 9–11.
- La Rocca, M., La Rocca, T., Gerace, D. & Smark, C. J. (2009). Effect of diversification on capital structure. *Accounting & Finance*, 49 (4), 799-826.
- Law, S. H. (2019). *Applied panel data analysis short panels* (1st ed.). Selengor: Universiti Putra Malaysia Press.
- Lawrence, J. B. Jr., & Iversen, G. R. (1979). *Contextual analysis: Concepts and statistical techniques*. Wadsworth Publishing Company.
- Lee, J.W., Kim, Y.M. & Kim, Y.E. (2018). Antecedents of adopting corporate environmental responsibility and green practices. *Journal of Business Ethics* 148(1): 397–409.
- Lee, K. H., & Min, B. (2015). Green R&D for eco-innovation and its impact on carbon emissions and corporate performance. *Journal of Cleaner Production*, 108(1), 534–542.
- Lepak, David P., Ken G. Smith, and M. Susan Taylor. (2007). Introduction to special topic forum value creation and value capture: A multilevel perspective. *Academy of Management Review* 32(4): 180–94.
- Li, J. J., Poppo, L., & Zhou, K. Z. (2008). Do managerial ties in China always produce value? Competition, uncertainty, and domestic vs. foreign firms. *Strategic Management Journal*, 29(4), 383–400.
- Li, J., & Kozhikode, R. K. (2009). Developing new innovation models: Shifts in the innovation landscapes in emerging economies and implications for global R&D management. *Journal of International Management*, 15(3), 328-339.
- Li, R., & Ramanathan, R. (2020). Can environmental investments benefit environmental performance? The moderating roles of institutional environment and foreign direct investment. *Business Strategy and the Environment*, 29(8), 3385– 3398.

- Li, Y. (2014). Environmental innovation practices and performance: Moderating effect of resource commitment. *Journal of Cleaner Production*, 66(1), 450-458.
- Li, R. H., & Su, C. H. (2012). Evaluation of the circular economy development level of Chinese chemical enterprises. *Procedia Environmental Sciences*, 13, 1595–1601.
- Li, Yiwei, Mengfeng Gong, Xiu-Ye Zhang, and Lenny Koh. (2017). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *The British Accounting Review* 50: 60–75.
- Li, Z., Liao, G., & Albitar, K. (2020). Does corporate environmental responsibility engagement affect corporate value? The mediating role of corporate innovation. *Business Strategy and the Environment*, 29(3), 1045– 1055.
- Li, Z., & Ni, J. (2018). Dynamic product innovation and product decisions under quality authorization. *Computers & Industrial Engineering*, 116(2), 13–21.
- Lioui, A., & Sharma, Z. (2012). Environmental corporate social responsibility and financial performance: Disentangling direct and indirect effects. *Ecological Economics*, 78(6), 100–111.
- Liu, X., Liu, B., Shishime, T., Yu, Q., Bi, J., & Fujitsuka, T. (2010). An empirical study on the driving mechanism of proactive corporate environmental management in China. *Journal of Environmental Management*, 91(8), 1707-1717.
- Lloret, A. (2016). Modeling corporate sustainability strategy. *Journal of Business Research*, 69(2), 418-425.
- Luo, X., & Bhattacharya, C. B. (2006). Corporate social responsibility, customer satisfaction, and market value. *Journal of Marketing*, 70(4.), 1–18.
- Luo, Y. (2003). Industrial dynamics and managerial networking in an emerging market: The case of China. *Strategic Management Journal*, 24(13), 1315–1327.
- Luxmore, S. R., Hull, C. E., & Tang, Z. (2018). Institutional determinants of environmental corporate social responsibility: Are multinational entities taking advantage of weak environmental enforcement in lower-income nations? *Business and Society Review*, 123(1), 151-179.
- Ma, Y., Hou, G., & Xin, B. (2017). Green process innovation and innovation benefit: The mediating effect of firm image. *Sustainability (Switzerland)*, 9(10), 1778.
- Mallon, Mark R., Stephen E. Lanivich, and Ryan L. Klinger. 2017. Resource configurations for new family venture growth. *International Journal of Entrepreneurial Behavior and Research* 24(6): 521–37.

- Manso, G. (2011). Motivating innovation. *Journal of Finance*, 66(5), 1823-1860.
- Mantovani, A., Tarola, O., & Vergari, C. (2017). End-of-pipe or cleaner production? How to go green in presence of income inequality and pro-environmental behavior. *Journal of Cleaner Production*, 160(1), 71-82.
- Marano, V. and Kostova, T. (2016), Unpacking the Institutional Complexity in Adoption of CSR Practices in Multinational Enterprises. *Jour. of Manage. Stud.*, 53(1), 28-54.
- Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly*, 48(1), 268
- Marin, L., & Ruiz, S. (2007). "I Need You Too!" Corporate Identity Attractiveness for Consumers and the Role of Social Responsibility. *Journal of Business Ethics*, 71(3), 245–260.
- Marsat, S., & Williams, B. (2012). CSR and Market Valuation: International Evidence. *SSRN Electronic Journal*.
- Marshall, A. (2004). *Principles of economics*. Digireads Publishing.
- Martinez-Conesa, I., Soto-Acosta, P., & Palacios-Manzano, M. (2017). Corporate social responsibility and its effect on innovation and corporate performance: An empirical research in SMEs. *Journal of Cleaner Production*, 142(1), 2374–2383.
- Matten, D., & Moon, J. (2008). "Implicit" and "Explicit" CSR: A Conceptual Framework for a Comparative Understanding of Corporate Social Responsibility. *The Academy of Management Review*, 33(2), 404–424.
- Maurizio, L. R., & Tiziana, L. R. (2010). Is ownership a complement to debt in affecting corporate's value. A meta-analysis.
- Mbanyele, W., Huang, H., Li, Y., Muchenje, L. T., & Wang, F. (2022). Corporate social responsibility and green innovation: Evidence from mandatory CSR disclosure laws. *Economics Letters*, 212(3), 110322.
- McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. In *Academy of Management Review* (Vol. 26, Issue 1)pp. 117-127.
- Mendes, L (2012) Clean technologies and environmental management: A study on a small dairy industry in Brazil. *Resources and Environment*, 2 (3), 100-106.
- Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22(4), 853-886.
- Mithani, M. A. (2017). Innovation and CSR – Do they go well together? *Long Range Planning*, 50(6), 699– 711.

- Mohsen, K., Saeed, S., Raza, A., Omar, S., & Muffatto, M. (2021). Does using latest technologies impact new venture innovation? A contingency-based view of institutional environments. *Journal of Small Business Management*, 59(4), 852–886.
- Moraga, G., Huysveld, S., Mathieux, F., Blengini, G. A., Alaerts, L., van Acker, K., de Meester, S., & Dewulf, J. (2019). Circular economy indicators: What do they measure? *Resources, Conservation and Recycling*, 146, 452–461.
- Moore, G. (2001). Corporate social and financial performance: An investigation in the U.K. supermarket industry. *Journal of Business Ethics*, 34(2), 299–315
- Muhlhaus, D., Weiber, R., Kim, J. S & Hyun, J. H. (2012). A conceptual approach to modelling the success of communities of innovation. *Total Quality Management & Business Excellence*, 2(3), 1013-1034.
- Mule, R. K., Mukras, M. S., & Nzioka, O. M. (2015). Corporate size, profitability and market value: An econometric panel analysis of listed corporates in Kenya. *European Scientific Journal*, 11(13), 376–396.
- Nameroff, T. J. & Garant, R. J. & Albert, M. B., 2004. "Adoption of green chemistry: an analysis based on US patents," *Research Policy*, 33(6),959-974.
- Ngo, L.V., & O'Cass, A. (2012). In Search of Innovation and customer-related performance superiority. *Journal of Production and Innovation Management*, 29(5), 861-877.
- Niu, Z., Zhou, X., & Pei, H. (2020). Social determinants of sustainability: The imprinting effect of social class background on corporate environmental responsibility. *Corporate Social Responsibility and Environmental Management*, 27(6), 2849–2866.
- Novitasari, M., & Agustia, D. (2021). Green supply chain management and firm performance: The mediating effect of green innovation. *Journal of Industrial Engineering and Management*, 14(2), 391-403.
- Novitasari, M., & Tarigan, Z. J. H. (2022). The Role of Green Innovation in the Effect of Corporate Social Responsibility on Firm Performance. *Economies*, 10(5), 117.
- Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views. *Strategic Management Journal*, 697–713
- Pan, X., Chen, X., Sinha, P., & Dong, N. (2020). Are firms with state ownership greener? An institutional complexity view. *Business Strategy and the Environment*, 29(1), 197–211..

- Papagiannakis, G., & Lioukas, S. (2012). Values, attitudes and perceptions of managers as predictors of corporate environmental responsiveness. *Journal of Environmental Management*, 100(8), 41-51.
- Park, H.M. (2011) Practical Guides to Panel Data Modeling: A Step-by-Step Analysis Using Stata. Tutorial Working Paper. International University of Japan, Minami Uonuma.
- Paulraj, A. (2009). Environmental motivations: A classification scheme and its impact on environmental strategies and practices. *Business Strategy and the Environment*, 18(7), 453-468
- Pedersen, E. R. G., Gwozdz, W., & Hvass, K. K. (2018). Exploring the relationship, between business model innovation, corporate sustainability, and organisational values within the fashion industry. *Journal of Business Ethics*, 149(2), 267–284.
- Pekovic, S., & Vogt, S. (2021). The fit between corporate social responsibility and corporate governance: The impact on a corporate's financial performance. *Review of Managerial Science*, 15(9), 1095-1125.
- Peloza, J., & Shang, J. (2011). How can corporate social responsibility activities create value for stakeholders? A systematic review. *Journal of the Academy of Marketing Science*, 39(4), 117–135.
- Peteraf, M.A. and Barney, J.B. (2003), Unraveling the resource-based tangle. *Manage. Decis. Econ.*, 24(1): 309-323.
- Porter, M. E., & Van Der Linde, C. (1995). Toward a new conception of the environment – competitiveness relationship. *Journal of Economic Perspectives*, 9(4), 97–118.
- Prajogo, D., Tang, A. K., & Lai, K. (2012). Do firms get what they want from ISO 14001 adoption? An Australian perspective. *Journal of Cleaner Production*, 33(11), 117–126.
- Przychodzen, W., De La Hiz, D. I. L., & Przychodzen, J. (2020). First-mover advantages in green innovation—Opportunities and threats for financial performance: A longitudinal analysis. *Corporate Social Responsibility and Environmental Management*, 27(1), 339–357.
- Qin, Y., Harrison, J., & Chen, L. (2019). A framework for the practice of corporate environmental responsibility in China. *Journal of Cleaner Production*, 235(20), 426–452.
- Qin, H., Y. Prasetyo, M. Bass, C. Sanders, E. Prentice, and Q. Nguyen. (2019). Seeing the forest for the trees: A bibliometric analysis of environmental and resource sociology. *Society and Natural Resources* 16(4), 1–18.
- Qiu, Y., Shaukat, A., & Tharyan, R. (2016). Environmental and social disclosures: Link with corporate financial performance. *The British Accounting Review*, 48(1), 102-116.

- RABI, N. O. R. L. I. Z. A. N. B. I. N. M. A. T. (2008). *The moderating effect of corporate governance characteristics on the relationship between innovation and firm performance: A study on Malaysian public listed companies* (thesis).
- Ramus, C., & Steger, U. (2000). The role of supervisory support behaviors and environmental policy in employee 'ecoinitiatives' at leading edge European companies. *Academy of Management Journal*, 43(4), 605-626.
- Rao, P. and Holt, D. (2005), "Do green supply chains lead to competitiveness and economic performance?", *International Journal of Operations & Production Management*, 25(9),898-916.
- Rashidirad, M., Soltani, E., & Salimian, H. (2015). 'Reductionistic' and 'holistic' views of resource- based theory: A review of the literature. *Strategic Change*, 24(5), 509-525.
- Rela, I. Z., Awang, A. H., Ramli, Z., Md Sum, S., & Meisanti, M. (2020). Effects of environmental corporate social responsibility on environmental well-being perception and the mediation role of community resilience. *Corporate Social Responsibility and Environmental Management*, 27(5), 2176-2187.
- Ren, S., He, D., Zhang, T., & Chen, X. (2019). Symbolic reactions or substantive pro-environmental behaviour? An empirical study of corporate environmental performance under the government's environmental subsidy scheme. *Business Strategy and the Environment*, 28(6), 1148–1165.
- Rezende, L. de A., Bansi, A. C., Alves, M. F. R., & Galina, S. V. R. (2019). Take your time: Examining when green innovation affects financial performance in multinationals. *Journal of Cleaner Production*, 233(1), 993-1003.
- Risius, M., & Spohrer, K. (2017). A Blockchain Research Framework. *Business & Information Systems Engineering: The International Journal of WIRTSCHAFTSINFORMATIK*, 59(6), 385–409.
- Ronald, P. G., & Patten, D. M. (2012). Voluntary disclosure theory and financial control variables: An assessment of recent environmental disclosure research. *Accounting Forum*, 36(2), 81-90.
- Rugman, A.M. and Verbeke, A. (1998), Corporate strategies and environmental regulations: an organizing framework. *Strategy Management Journal*, 19(1), 363-375.
- Rumelt, R.P. (1974) *Strategy, Structure, and Economic Performance*. Harvard University Press, Cambridge.
- Sam, G. (2019). Chapter 3 – Research Methodology and Research Method. *Research Methodology and Research Method, May 2019*.

- Samuelson, P. (1965). Proof that properly anticipated prices fluctuate randomly. *Industrial Management Review*, 6(2), 41-49.
- Saunila, M., Ukko, J., & Rantanen, H. (2014). Does innovation capability really matter for the profitability of SMEs? *Knowledge and Process Management*, 21(2), 134-142.
- Sears, G. J. & Baba, V. V. (2011). Toward a multistage, multilevel theory of innovation. *Canadian Journal of Administrative Sciences*, 28(4), 357-372.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill building approach* (5th ed.). Wiley.
- Seman, N. A. A., Zakuan, N., Rashid, U. K., Nasuredin, J., & Ahmad, N. (2018). Understanding stakeholder pressures in adopting environmental management practices based on stakeholder theory: A review. *International Journal of Research*, 5(11), 1530–1545.
- Severo, E. A., Guimarães, J. C. F. de, & Dorion, E. C. H. (2017). Cleaner production and environmental management as sustainable product innovation antecedents: A survey in Brazilian industries. *Journal of Cleaner Production*, 142(20), 87-97.
- Shao, S., Hu, Z., Cao, J., Yang, L., & Guan, D. (2020). Environmental regulation and corporate innovation: A review. *Business Strategy and the Environment*, 29(7), 1465– 1478.
- Saunders, M., Lewis, P., & Thornhill, A. (2016). Research methods for business students. In *Research methods for business students* (7th ed.).
- Sharfman, M. P., Shaft, T. M., & Tihanyi, L. (2004). A model of the global and institutional antecedents of high-level corporate environmental performance. *Business & Society*, 43(1), 6–36.
- Sheikh, N. A., Wang, Z., & Khan, S. (2013). The impact of internal attributes of corporate governance on firm performance: Evidence from Pakistan. *International Journal of Commerce and Management*, 23(1)38-55.
- Shu, C., Zhou, K. Z., Xiao, Y., & Gao, S. (2016). How Green Management Influences Product Innovation in China: The Role of Institutional Benefits. *Journal of Business Ethics*, 133(3), 471-485.
- Siegel, D. S. (2009). Green management matters only if it yields more green: An economic/strategic perspective. *Academy of Management Perspectives*, 23(3), 5-16.
- Slater, S. F., Olson, E. M., & Hult, G. T. M. (2006). The moderating influence of strategic orientation on the strategy formation capability–performance relationship. *Strategic Management Journal*, 27(12.), 1221-1231.

- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104(11), 333-339.
- Song, W., Ren, S., & Yu, J. (2019). Bridging the gap between corporate social responsibility and new green product success: The role of green organizational identity. *Business Strategy and the Environment*, 28(1), 88-97.
- Song, W., & Yu, H. (2018). Green innovation strategy and green innovation: The roles of green creativity and green organizational identity. *Corporate Social Responsibility and Environmental Management*, 25(2), 135-150.
- Stahl, G. K., & Sully de Luque, M. (2014). Antecedents of responsible leader behavior: A research synthesis, conceptual framework, and agenda for future research. *Academy of Management Perspectives*, 28(3), 235–254
- Stoelhorst, J. W. (2021). Value, rent, and profit: A stakeholder resource-based theory. *Strategic Management Journal*.
- Studenmund, A. H. (2017). Using econometrics: a practical guide (Seventh Edition.). Pearson.
- Sucuahi, W., & Cambarihan, J. M. (2016). Influence of profitability to the corporate value of diversified companies in the Philippines. *Accounting and Finance Research*, 5(2), 149.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Journal*, 20(3), 571 – 610.
- Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, 31(5), 463-490.
- Tang, K., Kragt, M. E., Hailu, A., & Ma, C. (2016). Carbon farming economics: What have we learned? In *Journal of Environmental Management* 172(1), 49-57.
- Tang, M., Walsh, G., Lerner, D., Fitza, M. A., & Li, Q. (2018). Green innovation, managerial concern and corporate performance: An empirical study. *Business Strategy and the Environment*, 27(1), 39–51.
- Thurrow, A. P., & Holt, J. (1997). Induced policy innovation: Environmental compliance requirements for dairies in Texas and Florida. *Journal of Agricultural and Applied Economics*, 29(1), 17–36.
- Tobi, H., & Kampen, J. K. (2018). Research design: The methodology for interdisciplinary research framework. *Quality & Quantity: International Journal of Methodology*, 52(3), 1209–1225.

- Tran, T. M. T., Yuen, K. F., Li, K. X., Balci, G., & Ma, F. (2020). A theory-driven identification and ranking of the critical success factors of sustainable shipping management. *Journal of Cleaner Production*, 243(14), 118401.
- Triguero, A., Moreno-Mondéjar, L., & Davia, M.A. (2013). Drivers of different types of eco-innovation in European SMEs. *Ecological Economics*, 9(2), 25-33.
- Tsai, J.-F., Nguyen, P.-H., Lin, M.-H., Nguyen, D.-V., Lin, H.-H., & Ngo, A.-T. (2021). Impacts of environmental certificate and pollution abatement equipment on SMEs' performance: An empirical case in Vietnam. *Sustainability*, 13(17), 9705.
- Tsai, K.-H., & Liao, Y.-C. (2017) Innovation capacity and the implementation of eco-innovation: Toward a contingency perspective. *Business Strategy and the Environment*, 26(7), 1000– 1013.
- Turyakira, Peter, Venter, Elmarie, & Smith, Elroy. (2014). The impact of corporate social responsibility factors on the competitiveness of small and medium-sized enterprises. *South African Journal of Economic and Management Sciences* , 17(2), 157-172
- UNEP (2017) United Nations Environment Programme <https://www.un.org/youthenvoy/2013/08/unep-united-nations-environment-programme/#:~:text=The%20United%20Nations%20Environment%20Programme,country%2C%20regional%20and%20global%20levels> (accessed 3 October, 2022).
- Varaiya, N., Kerin, R. A. & Weeks, D. (1987). The relationship between growth, profitability, and corporate value. *Strategic Management Journal*, 8(5), 487-497.
- Vogel, D. J. (2005). Is There a Market for Virtue?: The Business Case for Corporate Social Responsibility. *California Management Review*, 47(4), 19–45.
- Vorhies, D. W., Morgan, R. E., & Autry, C. W. (2009). Product-market strategy and the marketing capabilities of the firm: Impact on market effectiveness and cash flow performance. *Strategic Management Journal*, 30(12), 1310-1334.
- Wang, C. H., Juo, W.-J. (2021). An environmental policy of green intellectual capital: Green innovation strategy for performance sustainability. *Business Strategy and the Environment*, 30(7), 1– 14.
- Wang, J., Xue, Y., & Yang, J. (2020). Boundary-spanning search and corporates' green innovation: The moderating role of resource orchestration capability. *Business Strategy and the Environment*, 29(11), 361– 374.

- Wang, T., Jian, S., Wang, J., & Yan, D. (2022). Dynamic interaction of water–economic–social–ecological environment complex system under the framework of water resources carrying capacity. *Journal of Cleaner Production*, 368(25), 133132.
- Wang, W.-K., Lu, W.-M., Kweh, Q. L., & Lai, H.-W. (2014). Does corporate social responsibility influence the corporate performance of the US telecommunications industry? *Telecommunications Policy*, 38(7), 580–591.
- Wang, N., Lee, J. C. K., Zhang, J., Chen, H., and Li, H. (2018). Evaluation of urban circular economy development: an empirical research of 40 cities in China. *J. Clean. Prod.* 180, 876–887.
- Wernerfelt, B. (1984), A resource-based view of the firm. *Strat. Mgmt. J.*, 5: 171-180.
- Wiesner, J., Christ, C., Führer, W., Behre, H., Cuppen, H., Lumm, M., Mais, F.-J., Schroeder, G., Senge, F., Stockburger, D., Schmidhammer, L., Lohrengel, G., Kerker, L., Regner, H., Rothe, U., Jordan, V., Gutsche, B., Glarner, T., Stolzenberg, K., Talbiersky, J., van Os, C., Higman, C., De Piaggi, R., Miyachi, M., Oda, F., Yonamoto, J., Schumacher, G., & Tischer, W. (2000). Production-integrated environmental protection. In *Ullmann's Encyclopedia of Industrial Chemistry* (Ed.). Wiley.
- Winter, S. C., & May, P. J. (2001). Motivation for compliance with environmental regulations. *Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management*, 20 (4), 675–698.
- Withisuphakorn, P., & Jiraporn, P. (2016). The effect of firm maturity on corporate social responsibility (CSR): Do older firms invest more in CSR? *Applied Economics Letters*, 23(4), 298–301.
- Wong, C. W. Y., Lai, K., Shang, K. C., Lu, C. S., & Leung, T. K. P. (2012). Green operations and the moderating role of environmental management capability of suppliers on manufacturing corporate performance. *International Journal of Production Economics*, 140(1), 283–294.
- Wong, S. K. S. (2012). The influence of green product competitiveness on the success of green product innovation: Empirical evidence from the Chinese electrical and electronics industry. *European Journal of Innovation Management*, 15(4); 468-490.
- Wonglimpiyarat, J. (2010). Innovation index and the innovative capacity of nations. *Futures*, 42(3), 247-253.
- Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data*. The MIT Press.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd ed.). MIT press.

- Wu, J., Ma, C., & Tang, K. (2019). The static and dynamic heterogeneity and determinants of marginal abatement cost of CO₂ emissions in Chinese cities. *Energy*, 178(1), 685-694.
- Wu, W., Liang, Z., & Zhang, Q. (2020). Effects of corporate environmental responsibility strength and concern on innovation performance: The moderating role of corporate visibility. *Corporate Social Responsibility and Environmental Management*, 27(3), 1487-1497.
- Xiang, X., Liu, C., Yang, M., & Zhao, X. (2020). Confession or justification: The effects of environmental disclosure on corporate green innovation in China. *Corporate Social Responsibility and Environmental Management*, 27(6), 2735-2750.
- Xie, X., Huo, J., & Zou, H. (2019). Green process innovation, green product innovation, and corporate financial performance: A content analysis method. *Journal of Business Research*, 101(8), 697-706.
- Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance? *Business Strategy and the Environment*, 28(2), 286-300.
- Xie, X., Zhu, Q., & Wang, R. (2019). Turning green subsidies into sustainability: How green process innovation improves corporates' green image. *Business Strategy and the Environment*, 28(7), 1416-1433.
- Xie, X., Hoang, T. T., & Zhu, Q. (2022). Green process innovation and financial performance: The role of green social capital and customers' tacit green needs. *Journal of Innovation and Knowledge*, 7(1), 100165.
- Xie, X., Huo, J., Qi, G., & Zhu, K. X. (2016). Green Process Innovation and Financial Performance in Emerging Economies: Moderating Effects of Absorptive Capacity and Green Subsidies. *IEEE Transactions on Engineering Management*, 63(1), 101-112.
- Xu, J., Wei, J., & Lu, L. (2019). Strategic stakeholder management, environmental corporate social responsibility engagement, and financial performance of stigmatized corporates derived from Chinese special environmental policy. *Business Strategy and the Environment*, 28(3), 1027-1044.
- Xu, L., Fan, M., Yang, L., & Shao, S. (2021). Heterogeneous green innovations and carbon emission performance: Evidence at China's city level. *Energy Economics*, 99(7), 105269.
- Xu, X., Zeng, S., & Chen, H. (2018). Signaling good by doing good: How does environmental corporate social responsibility affect international expansion? *Business Strategy and the Environment*, 27(7), 946-959.
- Yan, H., Li, X., Huang, Y., & Li, Y. (2020). The impact of the consistency of carbon performance and carbon information disclosure on enterprise value. *Finance Research Letters*, 37(11), 101680.

- Yang, D.-X. & Nie, P.-Y. (2016). Influence of optimal government subsidies for renewable energy corporates. *IET Renewable Power Generation*, 10(9), 1413-1421.
- Yannis, P., & Nikolaos, B. (2018). Quantitative and Qualitative Research in Business Technology: Justifying a Suitable Research Methodology. *Review of Integrative Business and Economics Research*, 7(1), 91-105.
- Yuan, B., & Xiang, Q. (2018). Environmental regulation, industrial innovation and green development of Chinese manufacturing: Based on an extended CDM model. *Journal of Cleaner Production*, 176(1), 895–908.
- Yuan, G., Ye, Q., & Sun, Y. (2021). Financial innovation, information screening and industries' green innovation — Industry-level evidence from the OECD. *Technological Forecasting and Social Change*, 171(10), 120998.
- Yulin, F., Wade, M., Delios, A., & Beamish, P. W. (2007). International diversification, subsidiary performance, and the mobility of knowledge resources. *Strategic Management Journal*, 28(10), 1053-1064.
- Zhang, F., Qin, X., & Liu, L. (2020). The interaction effect between ESG and green innovation and its impact on firm value from the perspective of information disclosure. *Sustainability*, 12(5), 1866.
- Zhang, Y., & Ouyang, Z. (2021). Doing well by doing good: How corporate environmental responsibility influences corporate financial performance. *Corporate Social Responsibility and Environmental Management*, 28(1), 54-36.
- Zhang, Y., Xing, C., & Wang, Y. (2020). Does green innovation mitigate financing constraints? Evidence from China's private enterprises. *Journal of Cleaner Production*, 264(10), 121698.
- Zhang, D., Rong, Z., and Ji, Q. (2019). Green Innovation and Firm Performance: Evidence from Listed Companies in China. *Resour. Conserv. Recycl.* 144, 48–55.
- Zheng, H. L., Liao, G., Wang, Z., & Huang, Z. (2018). Green loan and subsidy for promoting clean production innovation, *Journal of Cleaner Production*, 187(20), 421-431.
- Zhu F, Lai L, Zhu Z and Zhang X (2022) A study on the path of improving the performance of China's provincial circular economy—An empirical study based on the fsQCA method. *Front. Environ. Sci.* 10:1006170.
- Zuo, Q., Guo, J., Ma, J., Cui, G., Yang, R., & Yu, L. (2021). Assessment of regional-scale water resources carrying capacity based on fuzzy multiple attribute decision-making and scenario simulation. *Ecological Indicators*, 130(11), 108034.