Corporate Governance and SHE Management: A Comparative Analysis of Chinese Enterprises

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Abstract

This thesis seeks to provide theoretical explanations to answer the question: "Why do Chinese enterprises differ with regards to their SHE management practices?" The analytical objective is to explore the causal links between patterns of corporate governance and SHE management practices. The study is structured under an overall research strategy with qualitative orientation aiming at developing and expanding theory through comparative case study. This study contributes in terms of both theoretical debate and practical implications.

The empirical concerns with observed cross-firm variations in SHE management practices motivate the researcher to measure the variations with a comparative framework for SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions, and to further seek explanations of the variations by examining factors that influence SHE management practices. If extraneous factors, suggested by some as rival and alternative explanations, are controlled, patterns of corporate governance are the valid explanatory factors for cross-firm variations in SHE management practices. Governance mechanism and power structure as the structural variable, and corporate value orientation as the ideational variable, are operationalized and configured with different combinations into a 2×2 matrix to present four patterns of corporate governance. An explanatory framework is developed and tested in a comparative case study of Company A and Company X.

Based on the empirical results of spatial and temporal variations in SHE management practices, on changes in patterns of corporate governance, and on the in-depth analysis of the causal nexus between patterns of governance and SHE management practices across different time periods for Company A and Company X, a conclusion is made that supports the development of a theoretical explanatory framework with a central argument and validated propositions. I declare my central argument that patterns of corporate governance with different combinations of structural and ideational variables causally determine the variations in SHE management practices. Thus, changes in the patterns of corporate governance with different combinations of structural and ideational variables will causally lead to variations in SHE management practices.

Declaration

No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this or any other university or any other institute of learning.

Copyright Statement

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List of Abbreviations

APAC: Asia-Pacific

ASX: Australian Stock Exchange

BP: British Petroleum

BS: British Standard

CBS: Culture-Based Safety

CDP: Carbon Disclosure Project

CSE: Colombo Stock Exchange

CSR: Corporate Social Responsibility

CSRC: China Securities Regulatory Commission

DBA: Doctor of Business Administration

DNV: Det Norske Veritas

DQS: Deutsche Gesellschaft zur Zertifizierung von Management System

ecoDa: European Confederation of Directors Associations

EMAS: Eco-Management and Audit Schemes

EMS: Environment Management System

EPA: Environmental Protection Agency

GATT: General Agreement on Tariffs and Trade

HSE UK: Health Safety Executive, United Kingdom

ICC: International Chamber of Commerce

ILO: International Labour Organization

ILO-OSH: International Labour Organization – Occupational Safety and Health

IMS: Integrated Management System

IRRC: Investor Responsibility Research Centre

ISO: International Standardization Organization

JV: Joint Venture

KLD: Kinder, Lydenberg and Domini

MEP: Ministry of Environmental Protection

MOC: Management of Change

OECD: Economic Co-operation and Development

OHS: Occupational Health and Safety

OHSAS: Occupational Health and Safety Assessment Series

SAWS: State Administration of Work Safety

SEC: Securities and Exchange Commission

SHE: Safety, Health and Environment, also be referred to as HSE or EHS

SOE: State Owned Enterprise

TRI: Toxics Release Inventory

TS: Technical Specification

UN: United Nation

WTO: World Trade Organization

Chapter One: Introduction

SHE is an abbreviation for safety, health and environment, which may also be referred to as EHS or HSE. SHE management is now often considered as one integrated set of key initiatives forming part of the agenda for an organization's strategic planning and decision making. Environmental protection, and employee health and safety topics are treated as part of corporate social responsibility (CSR) initiatives which have received increasing attention. CSR provides a framework to connect environmental protection, and occupational health, safety and welfare to other relevant aspects, like human resources, balance between work and family life, other fundamental rights, environmental issues, safety and public health, including product safety, profitability, productivity etc. (Montero et al., 2009). Corporate governance researchers are increasingly interested in the social and environmental performance of organizations (Walls et al., 2012). Coupled with the changing regulatory landscape, Occupational health and safety (OHS) is increasingly being treated as a key corporate governance issue (Lo, 2012). Along with the increasing business need for governance, risk and compliance management, SHE, as an integrated concept for managing the issues related to employee health and safety as well as the environmental protection, is one of the major corporate drivers being brought into the spot light as a key corporate governance issue.

The importance of SHE management as part of social performance in supporting both a company's business growth and its sustainable development, along with the importance of strong corporate governance for a company to avoid the risk of high-profile financial and non-financial incidents (e.g. Enron, BP etc.) due to governance failure, have motivated me to start an important, meaningful and interesting study that explores the causal links, which have remained almost unexplored, between patterns of corporate governance and SHE management practices. My motivation is to theorize the explanatory mechanism for the effects caused by patterns of corporate governance on SHE management practices, aiming to contribute to the theoretical debate on the impact of corporate governance, typically the impact of corporate governance on SHE management. Further, there is a practical stimulus for this study related to my personal professional experience. I am an experienced SHE management executive with more than 25 years of industrial experience in managing SHE matters for different companies in different industries, while gaining quite wide exposure to corporate governance practices. I have witnessed the evolution of SHE management in China and in other countries, and seen the cross-country, cross-industry and cross-firm variations in SHE management practices. For an industrial practitioner, it is highly motivating to understand what really matters to SHE management practices and performance in a company, and how companies can act to substantially improve such practices and performance. The findings of this research provide a good contribution in terms of its managerial and practical implications for enterprise executives/managers and policy makers.

Corporate activity is no longer confined to the pursuit of profit maximization or economic growth. Gradual changes in the global economy, such as the rise in social activism, the emergence of new expectations, globalization, international trade, increased expectations of transparency, and corporate citizenship, now increasingly require corporations worldwide to perform well in every aspect of business, e.g. economic, social and environmental (Jamali et al., 2008). Corporations find social responsibility to be a kind of commercial strategy that improves their reputations and increases their market shares in a highly competitive atmosphere (Hossein, 2016). As such, modern companies are under a huge amount of pressure to discharge their wider responsibility towards society, which is largely considered as CSR, while the CSR agenda encompasses various social and environmental concepts, such as environmental concerns, employee welfare, workplace health and safety, corporate philanthropy, human resource management, community relations and so on. Stakeho1ders are increasingly concerned with the way in which companies are responding to environmental issues (Gamble et al., 1995). In addition, there is an increasing recognition within industry of the need to manage health and safety on a pro-active basis in order to improve safety for individuals at work and to prevent significant financial loss (Kwesi and Justice, 2015). SHE management is critically important to a business because the cost of employee illness and injury, and environmental pollution are high; in the worst cases, losses from a major accident can completely ruin a company, both financially and in other ways (e.g. reputation and intangible assets). There is much empirical evidence from historic disasters, such as major explosions and incidents of environmental pollution, and these kind of SHE incidents have continued to happen in recent years. Environmental costs and obligations are growing significantly and will continue to grow as our society becomes more environmentally conscious and socially responsible, as governmental regulations pertaining to the environment increase, and as corporations are held more responsible and accountable in terms of being good environmental citizens (Rezaee et al., 1995). The costs and obligations of health and safety issues for corporations are growing in the same direction with the same degree of impact on society as environmental issues. In many events, if we examine major SHE-related incidents that have been reported, there are combined effects in terms of the safety, health and environmental impacts on the firm and on society.

SHE is critically important to the firm, society and the environment, as well as to regional and national public policy. Good SHE management as a part of social performance supports a company's business growth and a country's sustainable economic development. Accidents at work and work-related ill-health place an important burden on the global economy and hinder economic growth. Countries with the best records on accidents at work are the most competitive, leading to the conclusion that poor working conditions put a heavy burden on the economy and hinder economic growth (Mahto, 2016). study indicates the cross-country variations in the national incidence rates of occupational accidents, and how these variations correlate with national competitiveness, based on data from the ILO (ILO, 2006). In general, the developed countries have better SHE performance than the developing countries. Some scholars' findings show variations in corporate environmental performance between firms in countries with legal systems based on common law and those based on civil law (Kim et al., 2017, Kock and Min, 2015). Within the same country, empirical evidence shows that cross-industry and cross-firm variations in SHE management practices and performance are common, simply due to different SHE risk profiles in the different industries and business sectors. Further, cross-firm variations also exist in the same industry or business sector. In the construction industry, Chen and Jin (2011) have witnessed variations in contractors' safety performance in terms of incident rates, noting differences in safety performance even in different regional offices of the same contractor, despite the same requirements, programme and procedures being in place.

In China, major incidents have triggered a governmental campaign of nationwide inspections and checks. For example, after the Tianjin explosion in 2015, inspections and checks found a huge number of SHE irregularities in some poorly managed chemical production and storage companies. These irregularities reflected variations in SHE management practices and performance among companies that were inspected within the same industry and same business sector. Obviously, some failed the inspections while others survived (SAWS, 2015). Similarly, law enforcement initiatives by the Ministry of Environmental Protection revealed an increasing number of cases from 2016 to 2017 in terms of day penalties, sequestrations, production restrictions/shutdowns, administrative detentions and environmental pollution crime (MEP, 2017b). This indicated cross-firm variations in environmental behaviour and performance among companies who complied with laws and regulations. Empirically, there are obvious cross-firm variations in the way SHE management practices have been implemented in Chinese enterprises, even in companies in the same country, region or business sectors. This phenomenon raises an empirical concern and leads to the central research question: "Why do Chinese enterprises differ with regards to their SHE management practices?"

The literature review has found no recognized studies that explain fully and directly the cross-country, cross-region, cross-industry, cross-sector and cross-firm variations in SHE management practices. This is an extremely underexplored area, probably due to the fact that SHE management is treated more as an operational issue and has not received enough attention from scholars. There is no good theoretical evidence to identify what has not been solved within existing literature and knowledge. To seek a theoretical explanation for the cross-firm variations in SHE management practices, I have adopted a multilevel approach to analyse the factors impacting not only on SHE management practices, but also on environmental, health and safety, sustainability and CSR performance, either explicitly or implicitly. The multilevel approach allows me to group these factors by the appropriate level of analysis – macro- (e.g. regional and national regulatory, policy elements and international exposures), meso- (e.g. sectoral or market factors, such as industrial characteristics, production structures, resource requirements and constraints), and micro- (e.g. firm-level factors, such as size, history, infrastructure, ownership and governance structure). Through this multilevel analysis, many external factors, e.g. the SHE regulatory regime, international exposure, sectoral and industrial characteristics, market constraints etc., are examined and confirmed to be incapable of answering the central research question. The same applies to some of the internal factors, such as firm size, history etc. All of these are treated as extraneous factors and are managed as control variables. These extraneous factors and associated intervening variables affect the SHE management practices of each company, but they could not explain cross-firm variations. The extant studies seek factors that influence elements of SHE management and examine the associations, but these studies have not solved the problem by providing an explanation for the cross-firm variations in SHE management practices. I declare that, when these extraneous factors are controlled, corporate governance, as a valid explanatory factor, could provide the best answer to the central research question.

The validity of this declaration is based on the interrelationships among corporate governance, corporate social responsibility (CSR) and SHE. Bhimani and Soonawalla (2005) portray corporate governance and CSR as complementary constituents of the same corporate accountability continuum. Beltratti (2005) also claims that corporate governance and CSR are complementary. I agree with this institutionally complementary nature of the relationship between corporate governance and CSR, and that SHE management practices, with perspectives on employee health, safety and environmental protections, should be regarded as central elements in the framework of CSR. There is an increasing number of studies on the causal links between corporate governance and CSR, many of which are based on the common theoretical foundations of agency theory (Jensen and Meckling, 1976) and stakeholder theory (Freeman, 1984, Jensen, 2001, Donaldson and Preston, 1995). This appears to be a valid approach to theorizing about the explanatory mechanism for the links between corporate governance and SHE management practices. However, agency theory and stakeholder theory could not provide fully theoretical explanations for the cross-firm variations in SHE management from a corporate governance perspective, as there is no theoretical and empirical evidence found. There is a need to seek a more appropriate explanatory mechanism and framework for ths links between corporate governance and SHE management practices.

Scholars have recently demonstrated a huge amount of exemplary effort in research on the relationship between corporate governance and CSR, in which CSR is treated as a multidimensional construct. However, research on the links between corporate governance and SHE management practices remains almost unexplored. It is therefore difficult to find an extant theory or theoretical framework developed specifically for the purpose of exploring the links between corporate governance and SHE management. There is no existing study on the relationship between corporate governance and SHE, in which SHE is treated as an integrated concept or construct. These limited studies usually target environmental protection or employee health and safety separately because these are two different dimensions in the framework of CSR. There are some limited academic studies on the links between corporate governance and environmental performance by Walls et al. (2012), de Villiers et al. (2011), Rodrigue et al. (2013), Berrone and Gomez-Mejia (2009), Kassinis and Vafeas (2002), McKendall (1999) etc., and there are virtually no good academic studies on the links between corporate governance and occupational health and safety.

In the limited studies on the links between corporate governance and environmental performance, only some environmental performance indicators have been selected as dependent variables, e.g. environmental strength, environmental concerns, environmental regulatory performance, environmental violations, likelihood of environmental litigation, pollution prevention performance, environmental capital expenditure, general environmental performance etc. The independent variables are chosen from among the dimensions of the internal mechanism of corporate governance, many of which relate to board characteristics (e.g. board composition, board size, presence of an environmental or social responsibility committee, presence of environmentally aware directors or attorneys on the board, dual CEO-Chairperson roles etc.), and some relating to ownership structure and management control, executive compensation etc. Most of the studies rely on archival measures and statistical analysis, with data taken from KLD, EPA TRI, SEC, Board Analysis etc. Data quality could be a concern due to possible fragmented and inaccurate reporting from firms. The studies have usually led to fragmented and contradictory empirical evidence, which makes theory building difficult. There is not enough focus given to the study of the underlying mechanism and process in order to understand why and how the predictor variables and outcome variables correlate. Further, most analysis of causal links in studies on corporate governance focus only on the structural variables of corporate governance. This under-researched area reveals the clear literature gaps, with existing literature failing to provide a comprehensive and integrated understanding of how and why corporate governance affects SHE management in terms of its underlying mechanism and process.

The empirical concern with cross-firm variations in SHE management practices, the central research question focused on understanding these differences, along with the literature gaps in terms of theoretical explanatory mechanisms to illustrate the causal effects of corporate governance on SHE management, have urged me to put forward a central theoretical argument to answer the central research question with the analytical objective of exploring the causal links between patterns of corporate governance and SHE management practices. The research design starts with defining the measurement dimensions and operationalizing them for both dependent variables and independent variables, which are then comparatively analysed to find out how changes in independent variables lead to variations in dependent variations. In order to conduct the structured-focused comparison of firms, i.e. Company A and Company X, a comparative framework with a structured-focused comparison design is developed to evaluate SHE management practices in terms of the selected dimensions of "Leadership, Behaviour, Technique", and twelve associated constitutive attributes. These analytical dimensions and associated constitutive attributes address structures and processes, along with interactions between structures and processes, reflecting the corresponding elements of SHE management as outcomes of certain patterns of SHE management practices, which are the dependent variables of the comparative analysis.

Patterns of corporate governance as explanatory variables are developed and operationalized to address the dimensions and constitutive attributes of corporate governance. This is achieved through the design of a set of structured-focused questionnaires to facilitate cross-firm comparison of changes in patterns of corporate governance. Corporate governance is regarded as the system by which companies are directed and controlled (Cadbury, 2000), and is largely concerned with what the board of a company does and, in particular, how it sets the values of the company (FRC 2010). The existing corporate governance literature has extensively addressed the control aspect of corporate governance by working on structural variables, i.e. corporate governance mechanism and power structure. The control aspect of corporate governance refers to compliance, accountability and transparency (MacMillan et al., 2004) and how managers carry out their functions through compliance with laws, regulations and codes of conduct (Cadbury, 2000). Corporate governance sets the tone for the organization, defining how power is exerted and how decisions are reached (Jamali et al., 2008). The literature has largely failed to address the direction and motivation aspects, which indicates a literature gap with respect to the ideational variable of corporate governance, i.e. corporate value orientation. Empirically, there is a constraint on the structural variable of corporate governance in explaining fully why a company should pay attention to SHE management. Only by introducing the ideational variable of corporate governance, and by examining the interaction of structural and ideational variables of corporate governance is it possible to fully explain the internal motivation of a company to focus on SHE management as a kind of pro-social value orientation and how it utilizes a structural control mechanism to achieve what is the aims that motivate it. A 2×2 matrix is developed to present various patterns of corporate governance subject to variations in the structural variable, with indications of the strength of governance mechanism and power structure, and in the ideational variable, with indications of the strength of pro-social corporate value orientation. The interaction between the structural and ideational variables of corporate governance generate, as an outcome, four patterns of corporate governance (i.e. Strongly Governed, Weakly Governed, Structurally Constrained, Ideationally Constrained) which represent the structures and processes of different models of corporate governance.

The patterns of corporate governance in the form of this 2×2 matrix and a developed explanatory framework provide theoretical prediction of patterns of causal links between corporate governance and SHE management practices. I declare my central argument that patterns of corporate governance have a fundamental effect on SHE management practices, with the effect varying among different organizations. When a strong corporate governance mechanism and power structure interact with a strong pro-social corporate value orientation, this leads to effective and substantial implementation of SHE management practices. There are implicit propositions associated with the theoretical explanatory framework and the 2×2 matrix of four patterns of corporate governance. These propositions guide the empirical comparative case study and are tested with the empirical data collected from the case studies of Company A and Company X. A comparative analysis of Company A and Company X regarding spatial and temporal variations within two specified time periods during 2007-2017 has been conducted for both patterns of corporate governance and SHE management practices in order to examine the causal mechanism and process that underlie the explanatory variable and outcome variable.

The overall research strategy for this project has a qualitative orientation to develop and expand theory through a comparative case study. A comparative case study is more suitable and advantageous than large-n analysis, single case study and other methods in terms of theory building from empirical inquiry. Company A and Company X are justified as suitably selected cases to support the "most similar system design" (Teune and Przeworski, 1970) to realize the "idea of control" through isolating the impact of other potential extraneous variables. Company A and Company X are in the private sector within the same industry with the same international exposure. They have the same or a similar customer group, the same product portfolio and a similar market position as two competitors in the same region. They are exposed to the same legal and regulatory settings, and face the same regulatory capabilities presented by the supervising authorities in eastern Chinese cities in the same province in the Yangtze River Delta area. Their operations are of the same size and they have been in existence for a similar length of time. Thus, I can isolate most extraneous factors as controlled variables and minimize the number of variables for the causal nexus analysis of the links between patterns of corporate governance and SHE management practices. The elements of "what", "why" and "how" to compare and the criteria for case selection for this comparative case study are fully addressed in the consideration of research methodology.

Both a cross-sectional analysis and longitudinal study have been designed for the comparative case study of Company A and Company X in order to investigate the spatial and temporal variations in patterns of corporate governance, and their causal effects on cross-firm variations and temporal changes in SHE management practices. The research design creates four units of analysis ("mini cases"), enhances the empirical grounding for theory building (Eisenhardt, 1989c), and offsets the deficiency of having only two cases in the comparative case study. Being guided by the central research question, the explanatory framework, and the comparative case study design, the data collection is conducted through document review, observation and interview. Multiple sources of evidence and multiple investigators are used to enhance the objectivity of the investigation and avoid any accusation of bias. Pattern matching techniques are adopted in the data analysis, mainly by using explanation building for the cross-sectional analysis of Company A and Company X, and the logic model analytic technique for the longitudinal study of Company A and Company X. The whole research design addresses triangulation from various angles: data triangulation, investigator triangulation, theory triangulation and methodological triangulation (Patton, 2015). This allows researchers to address a broader range of issues from different angles and supports the development of converging lines of inquiry, thus enhancing the validity and reliability of the investigation and improving the quality of the case study.

Case studies are conducted on both Company A and Company X, with empirical investigation of two periods for each company: the years 2007-2011 and 2012-2017 for Company A, and the years 2007-2010 and 2011-2017 for Company X. During the period 2012-2017 in Company A, the "Strongly Governed" pattern of corporate governance develops with a positive and substantial impact on SHE management practices, while during the period 2011-2017 in Company X, the "Weakly Governed" pattern of corporate governance emerges and brings a negative and insubstantial impact on SHE management practices. This explains the spatial cross-firm variations in SHE management practices between Company A and Company X. In the retrospective review of temporal changes, we find the "Structurally Constrained" pattern of corporate governance in the period 2007-2011 in Company A. Meanwhile, to a certain degree, there are characteristics of the "Ideationally Constrained" pattern of corporate governance in the period 2007-2010 in Company X. The temporal changes in the structural variable and/or ideational variable contribute to the formation and shifting of patterns of corporate governance over time in both Company A and Company X, which explains the temporal variations in SHE management practices in both companies.

These empirically observed and retrospectively reviewed patterns, with spatial and temporal variations in corporate governance practices, SHE management practices, and the causal nexus between them, match the theoretically predicted patterns and causal logic models, as illustrated in the explanatory framework. Rounding off the discussion, I conclude by claiming validity for the proposed theoretical explanatory framework and the central arguments, and confirm the propositions derived from the theoretical explanatory framework regarding the causal links between patterns of corporate governance and SHE management practices. There are four validated propositions: the "Strongly Governed" pattern of corporate governance, with both strong structural and ideational variables bringing positive and constructive effects on SHE management practices; the "Weakly Governed" pattern of corporate governance, with both weak structural and ideational variables bringing negative and destructive impacts on SHE management practices; the "Structurally Constrained" pattern of corporate governance, with a comparatively weak structural variable and relatively strong ideational variable, leading to an effect of constraint on the implementation of SHE management practices; the "Ideationally Constrained" pattern of corporate governance, with a comparatively strong structural variable and relatively weak ideational variable, leading to an effect of limitation on the implementation of SHE management practices.

This thesis is structured into seven chapters. Chapter One provides a brief introduction and overview of the research project, and includes the motivation for focusing on this research topic, the importance of SHE to firms, society and the environment, the observed variations in SHE management, the literature gaps in explaining these variations, the central research question and central argument, the outline of research design etc. Chapter Two introduces the theoretical background, addressing the detailed background of the issues related to this research through a comprehensive literature review. It focuses firstly on the evolution of SHE management in the international context, the current status and challenges of SHE management practices in China, the cross-firm variations in SHE management practices in general, and a comparative framework for conducting a structured-focused evaluation of SHE management practices. The chapter then looks at extraneous factors influencing SHE, corporate governance in general, the characteristics of corporate governance patterns in China, and the causal links between corporate governance and SHE management practices. These reviews identify the literature gaps and lead to the central research question. Chapter Three focuses on theoretical argument to answer the central research question with an exploration of theoretical explanations for cross-firm variations in SHE management, and on the development of the explanatory framework with a 2×2 matrix of patterns of corporate governance as valid explanatory factors to guide the study. Chapter Four concentrates on methodology, describing the research strategy and detailing the comparative case study research design and the rationales for such strategy and design. Chapter Five details the cross-firm variations in SHE management practices between Company A and Company X with empirical evidence, and presents the empirical results for patterns of corporate governance in Company A and Company X during the different time periods. Chapter Six focuses on the analysis of the causal effects of corporate governance on SHE management in Company A and Company X for these different time periods, and details the empirical findings to support the theoretical explanations of the causal links between patterns of corporate governance and SHE management practices. Chapter Seven is the concluding chapter, summarizing the outcome of the comparative case study with a validated theoretical explanatory framework, a confirmed central argument and testified propositions. It also indicates the contributions and implications of this study, and discusses the limitations of the research and implications for future research.

Chapter Two: Theoretical Background

2.1 Introduction

This chapter addresses the detailed background of issues related to this thesis with a comprehensive literature review to identify the gaps in the literature and current practices, and to develop the central research question. It starts with discussion of the evolution of SHE management in the international context. The integrated construct of SHE and the concept of SHE management are introduced, along with a summary of the development of SHE management and relevant international standards. The status, changes in, and challenges of SHE management and the regulatory requirements in China are elucidated with the introduction of cross-firm variations, along with evidence, in SHE management practices that are observed in general. A comparative framework, with selected dimensions and constitutive attributes, is developed to evaluate companies' SHE management practices. The literature review then moves on to examine the factors influencing SHE, corporate governance in general, the characteristic of corporate governance patterns in China, and the causal links between corporate governance and SHE management practices. These reviews form a solid theoretical background which leads to the identification of literature gaps and formation of the central research question, with a clear analytical objective of exploring the causal links between patterns of corporate governance and SHE management practices.

2.2 SHE Management

2.2.1 Evolution of SHE Management

SHE management, referring to safety, health and environmental management, is empirically associated with common laws, rules, regulations, policies, procedures, practices and activities relating to protection of employees' health and safety in the workplace, as well as to the protection of the environment. This integrated definition of SHE management remains empirical. In academic research, there are limited studies covering either environmental management or occupational health and safety management. Klassen and McLaughlin (1996) define environmental management as all of the efforts to minimize the negative environmental impact of a firm's products throughout their life cycles. Christmann (2000) introduces best practices in environmental management, including practices that simultaneously reduce the negative impact of a firms' activities on the natural environment and contribute to competitive advantage in product markets. Erickson (1996) and Reese (2003) summarize occupational health and safety as a broad discipline that concerns the following: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers; the prevention of departures from health and safety caused by working conditions; the protection of workers from adverse health and safety risks; the adaptation of the occupational environment to the physiological and psychological capabilities of workers.

SHE management is important to business and operations simply because accidents leading to environmental pollution and employee injuries are costly to enterprises, families and communities. In the worst cases, losses from a major accident can completely ruin a company, both financially and in terms of its reputation. People's awareness and the common understanding today of the importance of safety, health and environmental matters in workplaces are built on historically accumulated heavy learning from severe accidents, along with changing workplace conditions and the rise of mass production. These significant historical events have been catalysts in raising public consciousness about safety, health and environmental issues and in contributing to the evolution and development of modern SHE management, e.g. the Triangle Shirtwaist Factory fire in 1911, the Seveso disaster in 1976, the Bhopal disaster in 1984 and, most recently, the Deepwater Horizon disaster in 2010 (Luo et al., 2013).

Government authorities, enterprises, non-governmental organizations (NGOs), scholars and the public have started paying increasing attention to safety, health and environmental management. It has been noticed that, in both daily management and cases of incidents, personnel safety, occupational health and illness, environmental impact etc. are usually interconnected and often affect one another. The principles and methodologies in the management of safety, health and environment could be integrated due to their similarity, and this integrated "HSE" concept has emerged during the evolution of safety, health and environmental management. Shell's executive committee issued its Health, Safety and Environment (HSE) policy and guidelines in 1991, then published its HSE standards "EP92-01100" in 1992, and finalized its HSE integrated management system, known as "HSE-MS EP95-0000", in 1995 . The integrated "HSE" concept was accepted by most participants in the First International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production, held in The Hague, Netherlands. Other oil companies like BP and ExxonMobil have also published their own HSE management systems. In the development journey of safety culture and HSE management, DuPont has been recognized as one of the pioneers with the success of its safety culture and safety management concepts. DuPont's more than 200 years of successful experience, along with "DuPont Safety Resource" and "DuPont Sustainable Solutions", have helped many companies in the world with their safety, health and environment management.

The International Standardization Organization (ISO) started its HSE management system standardization work following requests from its member countries. The ISO/TC 67 technical committee issued a draft of the "ISO/CD 14690 Standard" in 1996 as guidelines for a "HSE management system for the petroleum and natural gas industry" (Luo et al., 2013). HSE as an integrated management approach to safety, health and environmental matters was then widely adopted by companies in the global petroleum and natural gas industry. The HSE concept has been spread to other industries and manufacturing settings, with different companies then structuring the management elements within their own safety, health and environmental management systems, variously naming them HSE, SHE, EHS etc. in daily management work. There have been different management models internationally, e.g. Shell, BP, DuPont, ISO Series (ISO 14001, ISO 45001) etc. (Luo et al., 2013); however, the principles and key elements are not very different.

Along with the launch of these international standards, guidelines and voluntary schemes for safety, health and environmental management, government agencies and authorities in different countries have laid down local laws and regulations to support the implementation of such standards, guidelines and schemes. The developing countries are learning and introducing SHE management practices from the developed countries. SHE management is becoming a global focus in the integration and globalization of the world economy, while SHE management practices are measured and benchmarked with local legal requirements, international standards and common industrial good practice. In this scenario, emerging markets, including China, are under close scrutiny.

2.2.2 SHE Management in China

China is one of the biggest developing countries and one of the most important economic entities in the world. Compared with the rate of economic development after the economic reform and opening-up of the economy, safety, health and environmental protection and accident prevention systems in China have developed at a much slower pace. Along with the rapid economic development in recent decades, very much similar to what the U.S. and Europe had experienced in their early economic development, in the safety, health and environment sphere, China has suffered severe accidents, which have brought tremendous economic loss, reputational damage, and significant societal and economic impacts. The entire society, from top to bottom, including government authorities, enterprises and the public, has come to recognize that safety, health and environmental problems are critical to the welfare of individuals, as well as to the sustainable social and economic development of the country. People have paid increasing attention to safety, health and environment issues, along with the increase in their living standards brought by economic development (Wei et al., 2008).

The Chinese government has systematically established legislation and applied new techniques to actively tackle the key safety, health and environmental problems. “The Law of the People’s Republic of China on Work Safety”, “The Law of the People’s Republic of China on the Prevention and Control of Occupational Disease”, and “The Law of the People’s Republic of China on Environmental Protection” are the main safety, health and environmental laws. These main laws, along with the associated sub-category of regulations and standards, form a systematic and comprehensive SHE regulatory regime governing safety, health and environmental matters in China. The Chinese government has been adopting the international standards and translating them into national standards, including the adoption of HSE management systems from Shell, BP, DuPont, ISO Series (ISO 14001, ISO 45001) etc. (Luo et al., 2013). The framework of safety, health and environmental legislation requires enterprises to develop and manage their own safety, health and environmental management systems and internal mechanisms to define, implement, evaluate and improve the measures and actions taken for incident prevention. In China, the HSE regulations and standards, and elements of management systems are written so that they are very similar or close to the international standards. However, converting the international standards and regulations to cope with the HSE regulations needed to support Chinese economic development has generated issues and huge gaps in terms of enforcement of these standards and regulations. There is thus a great challenge for the implementation of SHE management practices due to constraints in the political and governance mechanisms (Wang, 2013).

The government has integrated safety, health and environmental protection into the “Five-Year Plan for National Economic and Social Development” (Zhu et al., 2012). Incident reduction has been progressing; however, by the end of the “Twelfth Five-Year Plan” in 2016, during that whole year there were still more than 60,000 serious accidents, with about 41,000 deaths, as reported by the State Administration of Work Safety (SAWS, 2017b). On entering the “Thirteenth Five-Year Plan for National Economic and Social Development”, the determination of the central government to strengthen law enforcement in safety, health and environmental management was enhanced with the transformation of the safety, health and environmental regulatory regime and the reform of the safety, health and environmental supervision mechanism.

With these changes, enterprises in China are held responsible for what they are doing and have to bear the consequences. These consequences include penalties and business stoppages for enterprises if serious violations and illegality are detected by the authorities and no satisfactory corrective and preventive actions are implemented. They are borne by the owners, directors and managers of enterprises, who are held personally responsible for accidents and violations, and could be subject to criminal and administrative measures under the legislation. All of these changes and emerging challenges bring increasing pressures for Chinese enterprises to improve their SHE management. It is imperative for enterprises in China to do the right thing and to do it correctly for the sake of the sustainable development of the enterprises themselves and of the whole society, especially in the context of globalization of the world economy, in which enterprises are also facing international pressures and opportunities.

Strong motivation to improve SHE management also comes from enterprises' own initiative and self-interest. The cost-benefit picture becomes clearer and more important when enterprises compare the cost of poor SHE management to the benefits of good SHE management. The cost of accidents and irregularities due to poor SHE management informs us of the huge direct economic loss resulting from work-related injuries and damage to property. Meanwhile, the indirect and hidden costs could be much higher than we can imagine, including time lost from work by injured and other workers, loss of earning power and production from injuries and damage, loss to injured workers' families and other affected parties, costs of incident investigation and management of the setback, costs of corrective and preventive actions, costs of recovery and reestablishment, any uninsured losses, and loss of reputation, which, in some cases, are not measurable. On the contrary, sound SHE management can offer tangible benefits, which include, but are not limited to: lower claim and litigation costs from decreasing numbers of incidents and violations; absence of significant regulatory compliance issues, and fewer fines and penalties; lower cost of, and more easily available insurance, offering substantial savings; more market opportunities in terms of growing environmentally friendly and green technologies for sustainable and socially responsible businesses; increased credit for obtaining favourable debt financing; lower employee turnover rate and higher employee satisfaction; improved corporate image with suitable processes to match the reputation that the company aspires to. Good SHE management eventually becomes a competitive advantage for business and operations.

However, the implementation of good SHE management practices requires resources and investment, both technical and non-technical, which increases operational costs, with a short-term financial impact on the company. These cost concerns become a road block for companies in resolutely implementing actions to improve SHE management. Although there are very many good reasons for enterprises in China to improve their SHE management, major challenges remain in terms of substantial actions taken, which vary between companies. Despite all of the recent changes in China, and despite the challenges that Chinese enterprises are facing and the efforts they are making, it has been observed empirically that there are still significant cross-firm variations in the way SHE management practices have been implemented in Chinese enterprises.

2.2.3 Cross-firm Variations in SHE Management Practices

Cross-firm variations in SHE management practices exist, but not only in Chinese enterprises; variations also exist cross-country, cross-region and in different contexts. Mahto (2016) has claimed that cross-country variations demonstrate a strong correlation between national competitiveness and the national incidence rates of occupational accidents, based on data from the World Economic Forum and the Lausanne International Institute for Management Development, together with data from the ILO (ILO, 2006). From the ILO data, we can see better SHE performance, on average, in the developed countries than in the developing countries. By looking at corporate environmental performance through the lens of the legal approach, several scholars indicate that countries with common law-based legal systems have significantly higher CO2 emissions compared with countries with civil law-based systems. Furthermore, Kim et al. (2017) find that firms operating under civil law systems have significantly higher levels of corporate environmental performance than firms operating under common law systems.

Within the same country, there is empirical evidence of cross-industry and cross-firm variations in SHE management practices and performance, which I have personally witnessed in my industrial experience. It is easy to understand variations due to the different risk profiles in different industries, as companies in more hazardous industries (e.g. chemicals, mining, construction etc.) and less hazardous industries (e.g. light manufacturing, services etc.) usually have different incident rates and they implement different SHE management practices. Further, there are cross-firm variations within the same industry. In the construction industry, contractors' safety performance in terms of incident rates can differ greatly from each other. Chen and Jin (2011) have noted that differences in safety performance also exist in different regional offices of the same contractor, although the same requirements, programme and procedures are in place.

Cross-firm variations in SHE management practices and performance within the same industry in China have now received great attention because of recent major incidents in the chemical industry, for example the Tianjin Explosion in 2015, which had a significant adverse impact on society and the environment. The total estimated insurance payment exceeded 10 billion RMB. This case was one of the biggest insurance disasters in 2015, with explosions rocking the port of Tianjin, causing between $2.5 billion and $3.5 billion in damages (CBSNEWS, 2016). Investigation of this explosion has revealed causes relating to inadequate technical and engineering protection layers, misconduct and unsafe behaviour, poor management, lack of internal and external supervision, weak governance etc. Immediately after the Tianjin Explosion, an intensive nationwide safety inspection, focusing on dangerous goods management, was launched from late August to the middle of September 2015. The inspection was led by 16 supervision and inspection teams appointed by the Safety Committee of the State Council. In terms of outcomes, 926 persons were prosecuted for criminal liability, 1.566 million cases of illegal behaviour were cracked down on, 10,268 enterprises were asked to stop production for rectification, 2,550 enterprises were closed, and 5,798 permits were suspended (SAWS, 2015).

Following major incidents and the subsequent rigorous inspections and system checks by government authorities, which have usually revealed the significant cross-firm variations in SHE management practices and performance among companies operating in certain industries in China, companies with good SHE management have survived such inspections, while those engaging in improper management of SHE have received penalties up to, and including stoppage of business. These inspections have functioned as a filter and a kind of measurement of how a company is running their business and performing SHE management. Recently, as reported by the State Administration of Work Safety, as a result of July 2017's intensive nationwide inspection, 461 persons were prosecuted for criminal liability, 6,977 cases of serious illegal behaviour were cracked down on, 4,362 enterprises saw production being suspended for rectification, 1,382 enterprises were closed, 602 permits were suspended, 140 million RMB of financial penalties were applied, and 3,191 potential safety hazards were checked with action requests issued (SAWS, 2017a). Law enforcement initiatives by the Ministry of Environmental Protection to strengthen the implementation of the new Environmental Law have disclosed increasing numbers of cases in terms of day penalties, sequestration, production restriction/shutdown, administrative detentions and environmental pollution crimes from 2016 to 2017. These cases have indicated poor environmental management practices and performance in the affected companies, which have violated laws and regulations. However, they also reflect the good environmental behaviour and performance of other companies who have complied with such laws and regulations. There are clear cross-firm variations observed throughout the inspections and checks.

We understand that each company could put in place its own SHE management practices and system, with variations in the elements and components. There could also be variations in how these SHE management practices and systems are implemented and in the outcomes of such implementation. In daily operations, when no incidents or problems crop up, we may not be able to see clear variations in SHE management practices and their effectiveness. This is because, in many cases, it is not easy to measure or judge how “good” or “bad” a system is, or how effective SHE management practices are. Such measurement and judgments may not be convincing if there is a lack of a common measurement framework for evaluation and comparison. However, when major incidents call for stringent inspections and system checks by government authorities focusing on basic and fundamental requirements, with these requirements serving as the common standard and measurement, then variations in SHE management practices and performance emerge. This informs us that we need to establish a comparative framework with clearly defined measurement criteria for us to evaluate and analyse the SHE management practices in a company. This framework can be practically used in empirical work as a benchmark and evaluation tool in the business world to measure companies’ SHE management practices and conduct gap analysis to drive improvement and synergy. Meanwhile, these criteria can serve as a comparative analytical framework in academic studies to support my research in conducting cross-firm comparative analysis of SHE management practices.

2.2.4 Comparative Framework for SHE Management Practices

For the purpose of exploring variations in the way SHE management practices have been implemented in different companies, a set of analytical dimensions and associated constitutive attributes of SHE management practices needs to be developed to support the evaluation and analysis. In this research, I adopt a broad, rather than a narrow definition for "SHE management practices", which is linked closely to the dimensions and elements of a SHE management system when seen from the perspective of institutional mechanisms and processes used in a systematic approach, rather than just piece by piece practical application of management tools. Management practices are those management initiatives that are validly established, implemented and maintained on the shop floor, that can be easily seen and felt, and that can be subject to examination and audit. SHE management practices generally refer to SHE management initiatives that are established, implemented and maintained in the company. The roll out of SHE management practices reflects the extent and degree of actual establishment and enforcement of SHE policies, rules, procedures, management system requirements etc. It tells how much a company has met the requirements as set for a sound SHE management system in terms of the required elements. SHE management practices measure what a company has assuredly done with regards to safety, health and environmental protection, rather than what the company says it has done. To define the analytical dimensions and associated constitutive attributes of SHE management practices, consideration is given to both empirical and academic needs.

Empirically, the selected analytical dimensions and associated constitutive attributes form the criteria for SHE management practice evaluation, which can be used in the real world to measure the degree to which SHE management practices are implemented in a company. These dimensions and associated attributes address the SHE requirements as set by a robust SHE management system, and are based on a thorough review of existing international and Chinese safety, health and environmental management systems and standards, as well as reference to the existing SHE management practices adopted by various companies. It is essential that the selected analytical dimensions and constitutive attributes cover most of the key and common SHE management elements, but they do not necessarily need to provide full coverage of every aspect and element of SHE management systems and practices. This is because, in the business world, each company usually has its own SHE management system and practices that are based on its operational nature, risk profile and existing company structure. There is no single fit-for-all best management system and set of practices that can be applied effectively for all companies. The selected analytical dimensions and associated constitutive attributes of SHE management practices capture the key SHE management aspects and elements for all companies, and allow a certain degree of freedom for each company to arrange the detailed SHE programmes suitable for the organization. With this being met, the selected dimensions and attributes will then be good enough to serve as a set of evaluation criteria for SHE management practices and a benchmark tool to assess the common key aspects of SHE management practices in Chinese enterprises.

Academically, the selection of analytical dimensions and associated constitutive attributes of SHE management practices considers the need in my research to build the central research question based on the perceived empirical concerns, as well as to develop the central arguments and a fitting research methodology. Eventually, the selected analytical dimensions of SHE management practices will form a comparative framework of SHE management practices as the to-be-developed dependent variables in the analytical objective of my research. Again, in academic terms, the selection of analytical dimensions and associated constitutive attributes is not intended to comprehensively cover all the aspects and elements of SHE management systems and practices. It aims at seeking common management aspects and key elements of SHE management practices that can be commonly used in academic studies to conduct the comparative analysis of cross-firm variations in SHE management practices. Further, the selection of analytical dimensions and associated constitutive attributes focuses on those dimensions and attributes of SHE management practices that are expected to be influenced, and can be explained by the institutional mechanisms and processes associated with the to-be-developed independent variables. With this understanding, the to-be-developed analytical objective of this research can be met through exploring the causal links between independent variables and dependent variables via a case study.

With respect to the above-mentioned justifications to meet both empirical and academic needs, three essential analytical dimensions, “Leadership, Behaviour, Technique”, of SHE management practices with associated constitutive attributes are identified (refer to Appendix I). These three analytical dimensions and associated constitutive attributes are selected by myself, as researcher and SHE expert with over 25 years of practical SHE management experience across different companies and different industrial sectors, while my judgement is based on my best knowledge of the research project from an academic perspective after a comprehensive literature review of SHE management, coupled with the empirical evidence from my rich SHE management experience. Some peer review and empirical verification within the SHE professional network have also been conducted. The outcome is very positive regarding the selection of “Leadership, Behaviour, Technique” as the three essential dimensions, as well as with regards to their twelve associated constitutive attributes.

The “Technique” dimension refers to technical and/or engineering solutions and system tools as measures to ensure that physical protections are provided for people in workplaces as well as for the environment. During the period from the 1970s to the 1990s, system safety techniques increasingly became a subject of safety management studies and contributed to initial efforts to establish safety management systems (Collins and Dickson, 1989, Grose, 1971, Hammer, 1971, Holt, 1971, Lee et al., 1985, Pope, 1971, Weathers, 1982). The fundamental concept of inherent safety was well and extensively discussed by Kletz (1978) regarding lessons from the Flixborough disaster in 1974. Following a greatly revised and retitled 1991 version, the techniques and terminology of inherent safety have been further developed for plant safety design. Inherently safer design aims to eliminate or lessen hazards at the engineering design stage. Assessment of inherent safety remains an active topic of interest in the process safety design community. Process risk management is the application of a wide variety of techniques, procedures, policies and systems that can reduce process hazards and the probability of accidents (Rathnayaka et al., 2014). System safety tools and techniques can be used to analyse, identify and display potential hazards (Li and Guldenmund, 2018). This concept of the

"Technique" dimension has been extended beyond engineering solutions to also include the system tools aimed at providing a systematic technical approach to ensure the enforcement of safety, health and environmental management systems and practices.

A large part of the "Technique" aspect lies in the development and implementation of a HSE management system. Bentley et al. (1995) highlighted the "effectiveness of hazard-assessment techniques" during the design phase as an example of putting proactive performance measurement in place, and listed the "techniques for measurement of safety performance" as a key element of enhanced safety management. Safety management is the concept of the management of safety and uses the same concepts, principles and techniques as used in other areas of management. Li and Guldenmund (2018) claim that safety management activities can be designed in a systematic and scientific way by applying certain techniques (Leveson, 2011, Petersen, 2003), approaches (Dhillon, 2010, Petersen, 2001, Wu et al., 2010), and models (Gower-Jones and van der Graf, 1998, Hale et al., 1997). Safety management means the systematic control of worker performance, machine performance, and the physical environment (Heinrich et al., 1980), whereby methods, techniques and audit tools are also developed at the practical level and applied to the safety management system (Li and Guldenmund, 2018). Leveson (2011) illustrates certain techniques for engineering a safer world with systems thinking applied to safety, while Petersen (2003) explains a system approach to the techniques of safety management. The "Technique" dimension of SHE management practices has been essential in managing workplace health and safety risk, thus also in managing the environmental impact.

Along with pursuing inherent technical and/or engineering solutions and rolling out the system tools from the "Technique" perspective, people's behaviour plays another key role in incident prevention, as Geller (2000a) believes that behaviour and personal factors represent the human dynamic of occupational safety. Therefore, we need to shed light on the "Behaviour" dimension, which focuses on the behaviour changing programme in SHE management practices. Many studies in occupational safety have concluded that human behaviour was the main cause of occupational injuries (Geller, 2000b, Cooper, 2000, Johnson, 2003). Geller (2000b) stated that behaviour-based safety is the most effective approach to reduce occupational injuries. Safety behaviour is the key for reducing injuries at the workplace and indirectly influencing the outcomes of events before the injuries or accidents can occur (Johnson, 2003). As part of the behaviour-based safety programme, the results from safety observation processes have revealed that the effective solution for reducing accident rates is changing the behaviour of employees (Geller, 2000b). Heinrich (1931), in his book, *Industrial Accident Prevention, A Scientific Approach*, presents the empirical findings which have become known as Heinrich's Law. The work by Heinrich (1931) indicates that 88% of all workplace accidents and injuries/illnesses are caused by "man-failure", which is perhaps his most often-cited conclusion. DuPont claims that the behaviour factor contributes to the majority of workplace accidents and injuries. As Lemm (1996) indicates in his paper studying DuPont's SHE management practices, an important lesson learned in DuPont is that the majority of injuries are caused by unsafe acts and risky behaviour, rather than unsafe equipment or conditions. In several DuPont studies, it is estimated that 96% of injuries are caused by unsafe acts. Many other companies, institutes and government agencies have used similar studies. Studies of the root cause analysis of all incidents pinpoint behaviour as central to the discussion, claiming that unsafe acts are one of the main contributing factors to workplace accidents and injuries.

The safety management system is given real effect only through the activities and tasks established and maintained by people. It is people that effect and affect, positively and negatively, safety improvements (Bentley et al., 1995). It is hard to separate human factors, behavioural or psychological factors, and decision making from the actual causes of accidents (Li and Guldenmund, 2018). Accident proneness theory, which is commonly named as one of the earliest theories in the history of safety science, primarily show that a personal trait is an important cause of accidents (Khanzode et al., 2012). For in-depth research on human factors, behaviour-based safety management became increasingly popular after 1940 (Li and Guldenmund, 2018). Behaviour-based safety is more likely to be an important strategy of safety management rather than a causal factor (Fleming et al., 2002, Nascimento and Frutuoso e Melo, 2010, Salem et al., 2007). The success of behaviour-based safety in reducing injury rates needs people's commitment and involvement at each level of the organization (Miozza and Wyld, 2002). People's behaviour and engagement in SHE management practices are critically important, as SHE management is ultimately about protection of people and the environment. Without active engagement and involvement by, and a real focus on people, SHE management will lose its significance. Most workplace accidents and injuries happen and/or are made more likely due to interactions between people and machines during work activities. We need to devote the same amount of effort to managing the "Behaviour" aspect of SHE management, as we devote to the "Technique" aspect, and to manage the interaction between the "Technique" and "Behaviour" dimensions of SHE management practices.

The introduction of system safety techniques in the 1950s improved the reliability and effectiveness of machines and installations with the primary focus on engineering reliability and reinforcement of safety hardware systems. In parallel, safety behavioural activities were developed for the prevention of accidents (Li and Guldenmund, 2018). There have been incidents in chemical and other industries in which unexpected and unintended release of hazardous chemicals has happened, some of which were due to design deficiencies and some to human error (Kumar, 2014). Although process safety primarily emphasises inherent safety from the "Technique" perspective, it has started focusing more and more on people's behaviour, human error and operational discipline from the "Behaviour" perspective. Meanwhile, investigations into major accidental events have underscored leadership as an underlying contributory factor, as stated by Zuofa and Ocheing (2018). A solid example is the Baker report into the 2005 Texas City BP refinery explosion in which BP were found to have failed to provide effective leadership on, or establish the appropriate operational expectations regarding process safety performance at its U.S. refineries. The investigating panel believed that the lack of effective leadership was systemic, touching all levels of BP's corporate management with responsibility for their U.S. refineries. In managing offshore oil and gas projects, the role of senior managers and safety leadership can never be over-emphasized and, as per Zuofa and Ocheing (2018), it has been often argued that effective safety leadership can reduce human errors and incident rates. This notion is supported by the United States Occupational Safety and Health Administration (OSHA) through recognition of the power of leadership, and management leadership is identified as a key element in safety issues (Zuofa and Ocheing, 2018). The “Leadership” dimension is fundamental in providing strong commitment from the top to direct and guide the roll out of SHE management practices with the provision of the necessary resources. If the leadership team demonstrates commitment by providing the motivating dynamics and the required resources, an effective safety management system can be developed and sustained (Roughton et al., 2019).

As observed by Cleland and Gareis (2010), leadership in the organizational literature has been mainly approached in a context-free way. Commonly, leadership is defined as a process of social influence between a leader and a group of individuals in support of achieving a common goal (Northouse, 2015). The concept of leadership can actually be traced to antiquity; however, from a project management perspective, Cleland and Gareis (2010) defined leadership as a presence and a process carried out within an organizational role that assumes responsibility for the needs and rights of those who decide to follow the leader in accomplishing the project results. According to Reid et al. (2008), safety leadership is a sub-system of organizational leadership. Safety leadership is the process of interaction between leaders and followers, through which leaders exert their influence on followers to achieve organizational safety goals under the circumstances of organizational and individual factors (Wu et al., 2015). This process of interaction between the leaders and the followers affords an opportunity for sharing valuable insights on issues related to workplace safety (Zuofa and Ocheing, 2018). Throughout international and Chinese safety, health and environmental management systems and standards, leadership and commitment from the top are always highlighted as fundamental elements that are key to the final success of SHE management. DuPont flags this “felt leadership” up as the most important element and principle in its SHE management system and practices (Lemm, 1996). There is the same emphasis on “felt leadership” from Shell. Both ISO 14001:2015 and ISO 45001:2018 (converted from the previous OHSAS 18001:2007), as the most up to date version of international standards on SHE management systems, have been reframed in a new high level structure with a clear and renewed focus on the importance of the “Leadership” dimension in SHE management. Leadership and commitment have become an exclusively independent section (section 5.1) with fully stipulated requirements that the organizations adopting these two ISO standards must follow. The United Kingdom Health and Safety

Executive (HSE, UK) has stated that without effective leadership one cannot have good safety performance (HSE, 2003). The increasing attention being paid to safety leadership in various industries is evidence of the assumption that safety leadership will result in increased organizational safety effectiveness. The specific emphasis on leadership is to ensure that management are deeply involved in SHE management, making them accountable for it through requesting more substantial action which then has to be measured.

The "Technique" and "Behaviour" dimensions, like two wheels, play their roles in improving SHE management practices and preventing incidents. The "Leadership" dimension, like the driver in the driving seat, bears overall accountability for moving the two wheels, or for ensuring that the "Technique" and "Behaviour" dimensions of SHE management practices are running on the right track. The three dimensions of "Leadership, Behaviour, Technique" form an integrated framework providing essential principles to roll out SHE management practices in workplaces. Empirically and academically, the three dimensions of "Leadership, Behaviour, Technique" constitute the comparative analytical framework and evaluation criteria for SHE management practices and logically demonstrate a perfect match with the existing widely-used SHE management principles, elements, requirements and framework. They actually address more comprehensively the key aspects of SHE management practices, and can be commonly used as a benchmark for evaluation criteria to measure a company's SHE management practices.

The three essential principles of "*Leading health and safety at work*", published by the Health and Safety Executive, UK (HSE UK), clearly state the requirements for the successful health and safety management in a company: strong and active leadership from the top; worker involvement; assessment, enforcement and review (HSE, 2013). The approach of using the three "Leadership, Behaviour, Technique" dimensions is similar to that of the HSE UK's three principles. The management system includes every factor that affects the performance of safety barriers. For instance, the Eindhoven Classification Model classifies causes of incidents or accidents into technical, organizational, human and unclassifiable factors (Van Vuuren et al., 1997). The "Leadership, Behaviour, Technique" dimensions are very close to the organizational, human and technical factors and could also address the unclassifiable factors in the Eindhoven

Classification Model. Kumar (2014) addressed four steps in the implementation and sustainability of an effective process safety management system: establish a safety culture, provide management leadership and commitment, implement a comprehensive programme, and achieve operational excellence through discipline. These four steps clearly reflect the “Leadership, Behaviour, Technique” dimensions: culture, leadership and commitment are interconnected; a comprehensive programme means the system tools and technical solutions; operational excellence refers to shaping behaviour etc. Roughton et al. (2019) mentioned the basic core safety process elements: management leadership, employee involvement, risk hazard identification and assessment, hazard prevention and control, education and training, performance and measurement etc., which could be classified within the “Leadership, Behaviour, Technique” dimensions. Further, as I have read about the evolution of SHE management and experienced many firms’ SHE management system and practices, I find that all of the elements of SHE management, although they vary slightly across firms, can be classified within the “Leadership, Behaviour, Technique” dimensions. This has been tested and confirmed by peer review in the network of SHE professionals. These three “Leadership, Behaviour, Technique” dimensions are interrelated and well-connected, providing an institutional view of SHE management practices that I address in my research, which informs the importance and relevance of the three selected dimensions, both theoretically and managerially. This also explains why I do not consider other factors, components and dimensions, because they are less relevant in addressing systematically the cross-firm variations in SHE management practices as related to this research project. The interaction and interplay among the “Leadership, Behaviour, Technique” dimensions of SHE management practice are shown in Figure 1 and further illustrated in the following paragraphs.

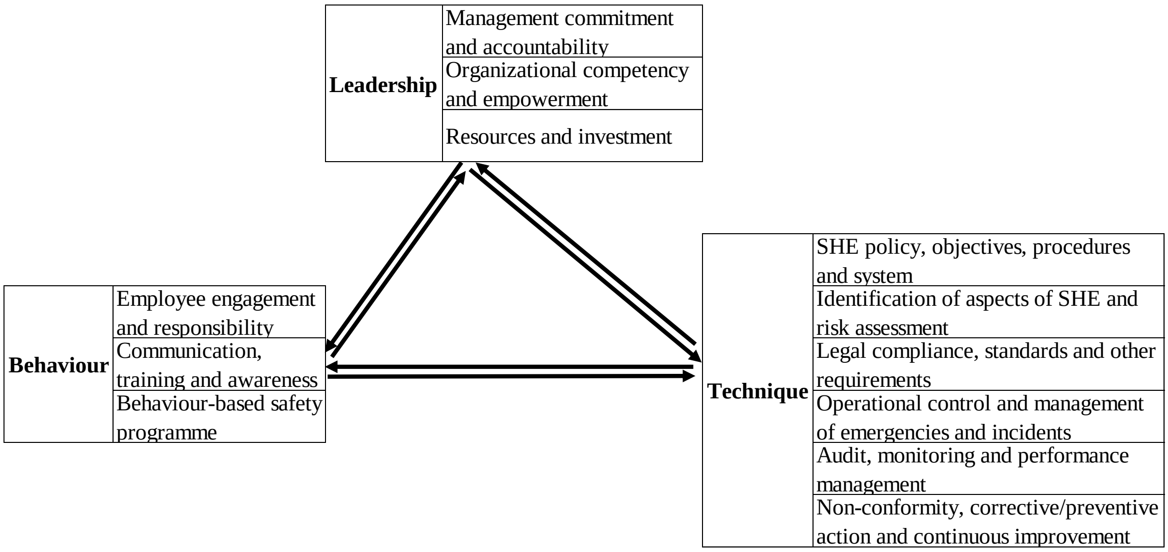


Figure 1 Interaction among the "Leadership, Behaviour, Technique" dimensions of SHE management practices

The "Leadership" dimension focuses on structural configuration and organizational routine to ensure leadership commitment and direction in terms of strategic goals, decision making and resource allocation, while the "Behaviour" and "Technique" dimensions focus on process from different perspectives. The "Behaviour" dimension focuses on the internalization process of norms, attitudes, behaviour, culture and interpersonal aspects to facilitate employee engagement and behaviour change through awareness promotion, communication and training etc. The "Technique" dimension focuses on the technical aspects of policy instruments, SHE processes, system tools, technical solutions, management mechanisms etc. The combination of "Leadership, Behaviour, Technique" in the comparative framework for SHE management practices addresses both structure and process aspects of SHE management, as well as the outcome, which is a long lasting pattern of SHE management practices. However, I am aware that there is no clear demarcation between the structure, process and outcome of SHE management practices, as "Leadership, Behaviour, Technique" are three integrated components of long lasting SHE management practices. The three dimensions interact with, and influence one another. In the short term, the strength of each dimension may vary; however, over the time scale of many years, these three dimensions will reach a balance in terms of strength. For example, a company may enhance SHE leadership in order to improve its SHE management practices, so the "Leadership" dimension becomes stronger than the other two dimensions, but then the "Leadership" dimension will interact and positively influence the "Behaviour" and "Technique" dimensions. After some time, the strength of the "Behaviour" and "Technique" dimensions will increase. Thus, for a company in a stable stage, if we assess its SHE management practices, we will often find that the strength of the three "Leadership, Behaviour, Technique" dimensions is very similar.

These three dimensions of SHE management practices are very relevant, particularly with regards to the perceived empirical concerns and the illustration of cross-firm variations in SHE management practices. Their relevance is further reflected in the prudently selected constitutive attributes and corresponding elements of SHE management practices, which are further illustrated in the following paragraphs, and which address the interactive natures of these dimensions and associated constitutive attributes. The cross-firm variations in SHE management practices are elucidated in detail through the selected constitutive attributes of each dimension and the corresponding elements of SHE management practices. My hands-on SHE management experience as a SHE professional in different business and institutional settings has driven me to focus on the three "Leadership, Behaviour, Technique" dimensions, a focus which is endorsed by the peer review within the SHE professional network. The extant literature on safety management addresses each dimension separately and recognizes the importance of these three dimensions in safety management. However, there is no existing literature which puts the three "Leadership, Behaviour, Technique" dimensions together into a framework in which interaction among these three dimensions is elaborated to measure SHE management practices. Thus, the comparative framework for SHE management practices, as shown in Figure 1 and illustrated in this section, is a contribution made by this research.

As mentioned, each of the "Leadership, Behaviour, Technique" dimensions have their associated constitutive attributes that address the corresponding elements of SHE management practices, which are illustrated respectively for each dimension in the following paragraphs, as well as in Appendix I. The justification for selecting the constitutive attributes for each dimension is based on a thorough review of most of the existing international and national standards relating to SHE management systems, and on the industrial best practice in SHE management as represented by DuPont, Shell, BP and the ISO Series etc., which have been widely adopted by many companies, both internationally and in China. Recently, Duijm et al. (2008) has reviewed issues in the management of health, safety and environment in process industries, with a focus on the integration of health, safety and environment into a single management system. The review by Duijm et al. (2008) provides insight into SHE-related standards and paradigms adopted by industry, e.g. ISO 9001 for quality management, ISO 14001 for environmental management, BS 8800 and OHSAS 18001 (now ISO 45001) for occupational safety, ILO-OSH 2001 for occupational safety, EMAS for environmental management, the HSE UK guidelines for "successful health and safety management", the Seveso Directive, the ICC charter for sustainable development, the UN Global Compact etc. The elements of these standards and SHE management practices have many similarities and commonalities, and are organized in slightly different ways to reflect the focus of each standard, regulation and code.

My selection of constitutive attributes and corresponding elements of SHE management practices is derived from these standards and screened using my professional judgement, and SHE expertise and experience. With further peer review by the SHE professional network to testify as to the adequacy and feasibility of the selection of the constitutive attributes for each dimension, they have been eventually proved as the indicators that can best describe and illustrate each dimension. The three "Leadership, Behaviour, Technique" dimensions and associated constitutive attributes are measurable and are operationalized in Appendix I for use in my field work research.

The "Technique" dimension measures the strength of technical aspects and the level of utilization of system tools in defining and implementing SHE management practices in workplaces. This dimension contains six constitutive attributes which represent six elements of SHE management practices: SHE policy, objective, procedures and system; identification of aspects of SHE and risk assessment; legal compliance, standards and other requirements;

operation control and management of emergencies and incidents; audit, monitoring and performance management; non-conformity, corrective/preventive action and continuous improvement.

The first three constitutive attributes are selected because they represent essential SHE management elements in the planning of an effective SHE management system and associated SHE management practices which support, as a minimum, compliance with laws, regulations, standards and other requirements (e.g. the requirements of customers, authorities and other stakeholders), and address all of the occupational health and safety (hereinafter referred to as OHS) hazards and environmental aspects associated with the business and operations, with appropriate risk assessment to be carried out. They also establish sound SHE policy, objective, procedures and programmes to ensure that adequate and appropriate SHE management planning for both compliance-based and risk-based SHE management practices is in place.

Moving to next constitutive attribute, operation control is at the centre of the application of technical solutions and system tools to manage identified SHE risks by following a hierarchy of control: a) elimination; b) substitution; c) engineering controls; d) signage/warnings and/or administrative controls; e) personal protective equipment etc. Different companies may adopt different control measures with variations in SHE management practices subject to the operation's nature and the risk profile of the company. In my research, I mainly focus on operation control processes and mechanisms rather than individual technical practices, examining why there are successes and failures, and investigating the contributing factors. Operation control includes not only the routine operations but also emergency situations and whenever incidents/accidents occur.

All operational control measures, including technical solutions and system tools, are subject to audit, monitoring and performance management. In this constitutive attribute, the functioning mechanisms for conducting inspections, checks and audits are essential in order to examine if the measures implemented meet what was planned, to determine how big the gap is if this is not the case, and to introduce effective mechanisms and processes of performance management to drive the concrete actions needed to close the gaps identified. This, then, is linked closely to the constitutive attribute of the SHE management element regarding non-conformity, corrective/preventive action and continuous improvement. The ways in which companies deal with non-conformities, gaps and corrective/preventive actions, ultimately determines the difference between companies in terms of their ability and momentum to drive continuous improvement in SHE management.

These constitutive attributes and corresponding SHE management elements are so closely interconnected and integrated that they form a systematic "Technique" dimension of SHE management practices. This dimension links to the "Behaviour" dimension because people are involved in the planning and implementation of all technical solutions and system tools; how they behave plays a role in supporting the successful roll out of the measures defined in the "Technique" dimension. System tools, as part of the "Technique" dimension, set the procedures, rules and management measures to regulate people's behaviour towards the implementation of SHE management practices. In addition, the "Technique" dimension links to the "Leadership" dimension, in that leadership support for the integration of SHE management with business decisions is necessary to ensure commitment from the top regarding the allocation of the resources needed to successfully implement all of the technical solutions and system tools.

The "Behaviour" dimension measures people's attitudes and behaviour towards SHE matters, as well as people's engagement and involvement in SHE activities. This dimension contains three constitutive attributes which represent three elements of SHE management practices: employee engagement and responsibility; communication, training and awareness promotion; behaviour-based safety programme. People's behaviour tells us if they take personal responsibility for what they do, and if they act in a responsible manner towards their own and others' safety, as well as towards the environment. The engagement and participation of workers and, where they exist, workers' representatives, is a key factor for the success of SHE management; the mechanism of appointing a worker's representative to decision making bodies can ensure workers' input and that their interests are being heard by management.

An effective upward communication mechanism is essential to ensure that management receives and responds to concerns from workers, as well as to suggestions for improvement in SHE management. Thus, the mechanisms, processes and activities with respect to SHE communication, SHE training and SHE awareness promotion greatly contribute to shaping people's behaviour through enhancing their knowledge, building their competency and raising their awareness of SHE management. This includes the provision of mechanisms to foster, promote and enable effective cooperation between managers and non-managerial employees, e.g. workers' safety delegates, selection of workers' representatives through trade unions or works councils, attendance at the SHE committee etc. Such mechanisms will protect employee benefits and welfare, including those related to health, safety and environmental protection. Efforts to remove or minimize barriers to employee participation are essential to ensure effective SHE management.

Specific behaviour-based safety programmes are now widely implemented in organizations after a clear recognition of the importance of the "Behaviour" dimension in driving change in SHE management and building SHE culture. The behaviour-based safety programme is a process of involving everyone in SHE improvement with a top-down leadership commitment and bottom-up engagement with the shop floor, a process that addresses risky behaviour as a factor in the causes of most injuries. It is an approach that supports the existing SHE management processes, which usually refer to the technical solutions and system tools, and is a proven mechanism to improve SHE management. Encouragement from the leadership for people's engagement and participation greatly supports the implementation of technical solutions and system tools; that is the "Technique" dimension. Again, these three "Leadership, Behaviour, Technique" dimensions are tightly integrated.

The "Leadership" dimension measures the strength of leadership and commitment from the top management with respect to SHE management. This dimension contains three constitutive attributes representing three elements of SHE management practice: management commitment and accountability; organization competency and empowerment; resources and investment. Leadership can be perceived and felt from management's attitude, behaviour, commitment and accountability towards SHE management. Commitment, awareness, responsiveness, active support and feedback from the organization's top management are critical for the success of SHE management. Therefore, top management in the organization have specific responsibilities, for which they need to be personally involved or which they need to direct, from personal endorsement of the organization's SHE policy to physical participation in SHE activities; i.e. leading by example or "walking the talk".

Further, it is essential to build SHE competency for the organization, not only in a professional and dedicated SHE management team, but also among line managers and employees at all levels. Besides, people (e.g. SHE managers, line managers, employees etc.) should be empowered to act accordingly, to promote SHE culture and to work on continuous improvement. The organization's competency in SHE management and the level of empowerment to act on SHE issues are heavily determined by leadership and commitment. SHE leadership is not limited to the top management and SHE managers, but is an essential personal quality requirement for line managers and people at all levels; thus, a dedicated SHE leadership programme helps to build up and sustain an organization's SHE leadership.

SHE leadership is reflected in decision making processes with respect to the integration of SHE management requirements into the organization's business processes, especially in cases in which there are conflicts of interest, and/or on occasions when allocation of financial and non-financial resources, and determination of capital investment and daily operational expenses on SHE management improvement are required. These are substantial indications of the role that SHE leadership plays in an organization, and of how people perceive the importance of SHE management in the organization. There needs to be appropriate mechanisms and processes to ensure the management team can discharge their responsibilities and commitment to SHE management. The "Leadership" dimension directly affects the "Technique" and "Behaviour" dimensions. Decision making and top-down communication from the leadership in an organization directly affect the enforcement of technical solutions and system tools. The leadership behaviour in an organization is most influential on employee behaviour, and also determines the organization's behaviour and company culture. The three "Leadership, Behaviour, Technique" dimensions are well connected, contributing to the effectiveness of SHE management practices in a company.

The definitions of the "Leadership, Behaviour, Technique" dimensions and the associated constitutive attributes in this research are centred around SHE management practices, which are extracted and summarized from the existing SHE management systems, industrial standards, legal requirements and SHE management best practice in industrial key players as mentioned previously. This has been testified to by my rich empirical experience and through further peer review from the SHE professional network. The selection of the three dimensions and the twelve associated constitutive attributes of SHE management practices is well justified. They are essential to the development of dependent variables as part of the comparative framework. The "Leadership, Behaviour, Technique" dimensions provide the labelling for the key dimensions of SHE management practices. In my research, this is managed through a structured-focused analysis to avoid the divergent extension of the definition of "Leadership, Behaviour, Technique" in organizational behaviour theories and other general management theories.

Both empirical and academic needs are taken into consideration in the development of the three-dimension comparative framework, and in the selection of the analytical dimensions, constitutive attributes and corresponding elements of SHE management practices. In academic terms, the three-dimension framework illustrates the variations in SHE management practices, which serve as the dependent variables that can be explained by the to-be-developed independent variables at an institutional level with associated mechanisms and processes. This fits well with the to-be-developed analytical objective of my research to explore the causal links and underlying mechanisms between independent variables and dependent variables. Empirically, the comparative framework and evaluation criteria for SHE management practices can address the variations in these practices among different companies. The SHE management practices evaluation criteria can be used to assess the SHE management practices at a company's own operation sites. They can also be used to evaluate the practices of a potential supplier or third party. Furthermore, they are suitable for the evaluation of SHE management practices in companies that are merger and acquisition targets during due diligence activities, and to facilitate the comparative analysis.

The SHE management practice evaluation criteria serve as a comparative analysis framework for SHE management practices. The comparative analysis is constructed and operationalized using a systematic approach; thus, the to-be-examined SHE management practices are not fragmented and scattered as individual stand-alone elements of practice, but are a coherently linked and connected set of systematic SHE management practices under the three-dimension framework of “Leadership, Behaviour, Technique”. The three “Leadership, Behaviour, Technique” dimensions and associated constitutive attributes are interactive and iterative in nature, fitting the explanation building process which, from a research methodology perspective, has the same interactive and iterative nature for the explanatory case studies and the pattern matching approach.

2.3 Factors Impacting SHE Management Practices

2.3.1 Macro-level Analysis

To seek a theoretical explanation for the cross-firm variations in SHE management practices, I have adopted a multilevel approach to analyse the factors impacting not only SHE management practices, but also environmental performance, health and safety performance, sustainability performance, CSR etc., either explicitly or implicitly. The multilevel approach allows me to group these factors by the appropriate level of analysis – macro-level (e.g. regional and national regulation, policy elements and international exposure), meso-level (e.g. sectoral or market factors, such as industrial characteristics, production structures, resource requirements and constraints), and micro-level (e.g. firm factors, such as size, history, infrastructure, ownership and governance structure). To identify the causes of differences in management practices across firms and countries, Bloom and Reenen (2007) focus on regulation, multinational status, market competition, ownership etc., which is a good example of multilevel analysis (e.g. regulation and multinational status as macro-level, market competition as meso-level and ownership as micro-level). In this study, to address the factors impacting SHE management practices, I pick several typical factors from the macro-level, meso-level and micro-level to examine for their capability to explain cross-firm variations in SHE management practices. The examination starts with the SHE regulatory regime and international exposure from macro-level institutional perspective.

The SHE regulatory regime in China provides a complicated and comprehensive set of requirements which is imposed on Chinese enterprises in all industrial sectors by the supervising authorities. Regulatory pressures are one of the main determinants of firms' environmental behaviours in many countries (Chan and Welford, 2012, Dasgupta et al., 1997, Irene et al., 1996, Sarkar, 2012), as is the case for SHE actions in enterprises. Usually, there are two types of requirements, as pointed out by Duijm et al. (2008). The first type of requirement is normative and must be fulfilled to guarantee the minimum legal requirements on safety, health and environmental protection, while the second type is performance-based, driving the obligation for continuous improvement. In China, the boundary between these types of requirements in many cases is blurred, which then leads to implementation issues, especially when there is a lack of supervision and enforcement from the supervising authorities. Recent disastrous accidents like the Kunshan explosion in 2014 and the Tianjin explosion in 2015 have awakened the supervising authorities in China. These two cases have revealed the flaws in supervision by governmental authorities, other relevant agencies and parties. These failures by the supervising authorities have led to serious violations in regulatory permissions and SHE requirements, which are among the critical contributing factors to the disastrous events.

The Chinese government understands the challenge and has started the transformation of the safety, health and environmental regulatory regime and reform of the safety, health and environmental supervision mechanism, putting greater regulatory and normative pressures on Chinese enterprises that are held fully accountable for, and bear the consequences of violations detected by local authorities. Berrone et al. (2013) indicate that companies that face greater regulatory and normative pressures regarding environmental issues are more likely to engage in environmental innovation. Kock et al. (2012) find that legal and regulatory systems are significant drivers of corporate environmental performance. We can see the same with companies' actions on SHE issues under more stringent SHE regulations. In this scenario, it becomes more important for Chinese enterprises to enhance their internal control and governance, and allow more autonomy in taking the initiative proactively to meet these SHE regulatory requirements.

The enhancement of the regulatory capability of supervising authorities and strengthening of the SHE regulatory regime to improve the enforcement of regulatory requirements, in general, has forced companies to examine their SHE gaps and take action to boost their SHE management practices. The factual data on safety and environmental supervision storms in recent years tell us about the typical effect of strengthening the regulatory capability of the supervising authorities with regard to its impact on SHE management practices in Chinese enterprises. However, this enhancement of regulatory capability and strengthening of the regulatory regime do not explain cross-firm variations in SHE management practices. The data actually give a much clearer picture of cross-firm variations in SHE management practices in terms of the ways in which Chinese enterprises respond and react to meet the regulatory requirements. In the same context of regulatory requirements, some companies take substantial and swift action to meet the requirements, while others just cannot catch up and fail to pass the supervisions and are ultimately shut down by the supervising authorities; some are even phased out completely. Facing the same regulatory requirements in the Chinese context, the responses from Chinese enterprises are different. These enterprises are subject to different internal governance and control mechanisms, including the motivation to take proactive action on SHE improvement to meet regulatory requirements, and the mechanisms to guarantee such actions are implemented. Companies' different internal regulatory and governance mechanisms determine these variations in SHE management practices.

Chinese companies are facing increased international exposure in the course of globalization. This has brought materialistic and cognitive pressures for Chinese enterprises. Some of these are "must have" actions to be taken, as required by the protocols with material effect, to ensure the companies' survival in global business, while others are "optional" actions required by cultural rules to be taken to enhance company competitiveness in the globalization process and to pursue idealistic or collective interests. International exposure in globalization processes offers opportunities to enterprises in China. Bloom and Reenen (2007) indicate two results in their research: first, foreign multinationals are better managed than domestic firms, presumably reflecting the selection effect that better managed firms are more likely to become multinationals; second, foreign multinationals seem able to partially "transport" their better practices abroad despite often difficult local circumstances. Burstein and Monge-Naranjo (2009) offer a model consistent with these findings. Thus, there is no doubt that companies with more international exposure have seen more advanced SHE management practices and understand the rationale for international standards and industrial best practice used by key international players. This is considered as an external factor that motivates companies to improve their SHE management practices.

People may have a perception, therefore, that companies with more international exposure have adopted better SHE management practices to improve their SHE performance. However, this perception is not always correct empirically and theoretically. Do the owners and management of these companies adopt these international practices or not? Do these practices provide the best fit for such companies? These remain questions deserving further detailed examination. Some companies do actively learn and take action to catch up in the adoption of best practice, as they think this will benefit them. But some companies may not. "I see it; I understand it, but I may not do it immediately until I have to, due to contractual requirements or legal pressures." This was stated by a general manager at a company supplying automotive parts to a famous international car manufacturer. I received this feedback during dialogue with a senior executive at a SHE management forum in 2016.

The recent shutdown of Shanghai Jielong Metal Wiredrawing Co., Ltd. (Jielong) as Schaeffler's (a German company with global operations) sole supplier of needle bearings because of their violations of environmental laws led to Schaeffler's supply chain crisis (MEP, 2017a), which is a real case illustrating that companies with good international exposure and international business partnerships with global multinational companies are not necessarily guaranteed to do well in regard to SHE management. In this case, Jielong, as the sole supplier and a good business partner to Schaeffler, had very good international exposure, but failed to uphold the SHE management standards needed to ensure SHE compliance and good SHE management practices in its plant operation. Schaeffler was liable for the lack of adequate supervision and monitoring of its sole supplier's SHE management practices. The same situation was found in the Kunshan explosion in 2014. The explosion occurred at Zhongrong Metal Production Company, an automotive parts supplier to a U.S.-based multinational automotive giant. Zhongrong Metal Production Company had good international exposure but largely failed to enforce good SHE management practices.

Theoretically, any materialistic and cognitive pressures from international exposure and associated external SHE requirements should pass through a company's own filter before acceptance and implementation. This filter is the company's internal governance and control mechanism. International exposure, as an externally oriented explanation, must be mediated by the internal governance and control mechanisms within companies, and international exposure does not automatically guarantee the adoption of international standards and SHE management best practice if there is a lack of alignment and commitment from companies. When commitment and alignment exist between external requirements and internal needs, acceptance of the materialistic and cognitive pressures and associated requirements by companies is not a problem. However, when there is a lack of commitment and there are conflicts between external requirements and internal needs, then the external requirements will not be accepted and enforced. With the same international exposure, the responses and reactions of different companies vary due to different levels of commitment, and different functioning of their internal governance and control mechanisms. Cross-firm variations in SHE management practices cannot be explained by companies' international exposure. There are internal determining factors, e.g. internal commitment, governance and control mechanisms. These internal factors determine strategic decision making, prompting different responses to the international materialistic and cognitive pressures and requirements, and leading to cross-firm variations in SHE management practices in Chinese enterprises.

2.3.2 Meso-level Analysis

The meso-level factors refer to sectoral and industrial characteristics, which include production structures, resource requirements, profitability, and competition as reflected in the market constraints. Industry sectors vary significantly in pollution intensity because of differences in abatement costs (Dasgupta et al., 2001). The industry within which a company operates may affect the level of environmental disclosure. Environmentally sensitive industries usually disclose more environmental information (Cho and Patten, 2007). Firms with strong environmental performance are more likely to operate in environmentally sensitive industries (de Villier et al., 2009). Companies in SHE-sensitive industries are expected to pay more attention to SHE management. Industrial profitability reflects levels of industrial competition and firms in profitable industries are more likely to promote strong environmental performance, whereas firms in more competitive industries are also more likely to search for a competitive advantage in areas such as environmental performance (Russo and Fouts, 1997). Profitability has given contradictory results in previous literature, with some studies finding positive associations (Al-Tuwaijri et al., 2004, de Villier et al., 2009), some studies finding negative associations (Chen and Jaggi, 2000, Laidroo, 2009) while others have found no relationship (Eng and Mak, 2003, Patten, 1991).

The primary objective of an enterprise is to gain profit through its business and production activities. However, social performance is becoming more and more important, especially with respect to employee safety and health, and to environmental protection. In many cases, profitability is increased by enhancing SHE management and accident prevention (e.g. preventing loss of production, human lives, capital resources etc.); in principle, there is no conflict between SHE management and profitability in the long run (Duijm et al., 2008). However, in reality, in the short term, the implementation of SHE management practices requires investment and resources. On one hand, the profits from business and production are to be maximized under the constraints of an acceptable environmental impact and an acceptable level of safety (Duijm et al., 2008). On the other hand, continuous improvement in SHE management progresses under constraints on profit maximization from production and business.

These market constraints associated with competition, profitability, nature of the industry, customer requirements, cost pressures of production etc. affect companies' implementation of SHE management practices.

Market competition affects management incentive, and therefore the efficiency of the firm. Strong product market competition can act to align managers' goals with achieving efficient productivity (Allen and Gale, 1999). This competition encourages a company's management to operate in a more cost effective way. Competitive pressure may, on the other hand, lead to a moral hazard. Shleifer (2004) argues that competitive pressure can lead to a variety of unethical practices in a more competitive environment because competition reduces operating profits. If a company uses unethical or illegal ways to gain a competitive advantage, then such competition may not lead to a desirable social outcome, which could jeopardize the roll out of SHE management practices in a company. The nature of industrial markets and specific customer requirements can affect the product margins and market competitiveness of a company. Under these constraints, the implementation of SHE management practices will be affected. Many enterprises adopt constraint-based management, whereby one seeks to achieve maximization of net profit, while simultaneously committing oneself to predefined goals with regard to the constraints (Duijm et al., 2008). However, in quite a few cases, the simultaneous achievement of balanced multiple goals is not possible.

There are variations in the ways that Chinese enterprises practise constraint-based management to achieve a balance between profit maximization and improving SHE management. Even in the same competitive business environment facing the same market constraints, the responses from different companies in terms of maintaining SHE management standards and implementing SHE management practices are different. Some companies focus on short-term gain and reduce spending on SHE management in order to reduce the unit costs of production, while other companies may choose to have a long-term view and insist on investment in SHE management. The balance point between profit maximization and investment on SHE management varies among Chinese enterprises when they are faced by market competition, cost pressures and resource constraints. The strategic decisions taken in different companies by top management determine that different companies focus more either on short-term earnings or on long-term sustainable development. In this decision making process, corporate governance plays a determining role affecting the variations in managing this balance point within companies, which leads to the different focus by companies on SHE management. We can conclude that sectoral and industrial characteristics associated with profitability, competition and market constraints do affect SHE management practices in companies, but this sector, industry and market-oriented explanation cannot provide the answer to the question of why there are cross-firm variations. Instead, corporate governance and the associated strategic decision making mechanisms are the determinants that explain cross-firm variations in SHE management practices.

2.3.3 Micro-level Analysis

Micro-level analysis examines firm-level factors such firm size, firm history, firm infrastructure, firm ownership, internal policy, governance structure etc. Many studies have identified the significant associations between firm size and corporate disclosure (Donnelly and Mulcahy, 2008, Eng and Mak, 2003, Gul and Leung, 2004, Ho and Shun Wong, 2001, Laidroo, 2009). Associations between firm size and environmental disclosure have also been identified. Larger firms are more likely to identify environmental issues as a separate management priority and to manage them effectively (Al-Tuwaijri et al., 2004, Clarkson et al., 2008, McKendall et al., 1999). As per de Villier et al. (2009), firm size is positively associated with the presence of strong environmental performance. A similar positive association is identified between firm size and environmental disclosure (Deegan and Gordon, 1996, Halme and Huse, 1997). Large facilities should find it less costly at the margin to undertake performance-improving measures, because the specialized resources can be spread over more units to bring down the unit cost Theoretically and statistically speaking, with other things being equal, big companies have more resources to implement SHE management practices than small companies. However, due to the higher complexity of large firms compared to small firms in terms of operation and business decision making, this seems not to be conclusive, as we can easily find large companies with poor SHE performance and small companies with good SHE performance.

Regarding firm history and firm age, compared to companies at an early development stage, companies in the mature stage, with a longer history, may have more stable business and operational environments, and thus may have a stronger economic foundation for implementing SHE management practices. Newer and younger companies usually prioritise earnings and financial growth. Older firms are more likely to possess the necessary infrastructure to manage environmental issues at a lower cost (Mohan-Neill, 1995). However, older firms usually have big challenges regarding old equipment and, in some cases, poor infrastructure, which often cause safety health and environmental issues that need to be managed. Firms with new equipment, on the other hand, are expected to employ the latest and cleanest technologies, which will allow better environmental performance (Clarkson et al., 2008), and to have a better infrastructural foundation for the next steps in SHE management improvement. We can see that the extant studies on the impact of firm age and firm history are controversial and inconclusive. These factors do have an influence on SHE management practices in a company, but they are not the determinants of the variations in cross-firm SHE management practices.

A firm's ownership, decision making processes, internal policies, and governance structures are internal factors that are grouped together and referred to as its corporate governance mechanism. Since corporate governance mechanisms are institution-based, and there are variations in these mechanisms, corporate governance is a useful perspective from which we can examine a firm's social performance in order to echo the call for multiple lenses (Aguilera et al., 2007). Among the factors influencing managers' decisions regarding the disclosure issue, as Hossain and Reaz (2007) indicate, an important role is assumed by corporate governance due to the need to meet current environmental challenges. Miroshnychenko et al. (2019) find that corporate governance has proved to be key in determining corporate environmental performance. Moreover, corporate governance mechanisms are an important driver of corporate environmental performance. Environmental governance has emerged as a recent perspective to explain the links between corporate governance mechanisms and environmental performance (Kock and Min, 2015). Extant studies have indicated that corporate governance, as an internal factor within a company, could be an effective determinant that explains cross-firm variations in SHE management practices.

Facing the same external environment and constraints in their daily operations, how much Chinese enterprises would like to, and can in reality implement effective SHE management practices is subject to management decisions and strategic planning, which depends on the leadership and commitment of top management. As long as there is commitment and determination to do this from the top, there will be no technical issues, because there will always be a solution. When leadership and commitment from the top falls short, then the consequences are severe. Thus, securing commitment from the top, as an internal governance issue, seems an important one for me to explore. As claimed in "*Leading health and safety at work*", published by the UK Health and Safety Executive (HSE), "[f]or many organizations, health and safety management is a corporate governance issue, the board should integrate health and safety into the main governance structure, including board sub-committees, such as risk, remuneration and audit" (HSE, 2013). Coupled with the changing regulatory landscape, OHS management is increasingly being treated as a key corporate governance issue. Lo (2012) tries to reveal the significant relationship between governance practices and investment decisions, as well as board level OHS engagement. Corporate governance appears to be a valid explanatory factor in determining cross-firm variations in SHE management practices among Chinese enterprises, when all other extraneous factors are controlled.

In conclusion, by adopting the multilevel approach to analyse the macro-, meso- and micro-level factors involved, many external factors, e.g. the SHE regulatory regime, international exposure, sectoral and industrial characteristics, market constraints etc., are examined and confirmed to be incapable of explaining the cross-firm variations in SHE management practices. This is also the case for some internal factors, such as firm size, firm age and history etc., all of which are treated as extraneous factors and shall be managed as the control variables. These extraneous factors and associated intervening variables affect the SHE management practices in each company, but they cannot explain cross-firm variations. In the business world, the significant variations in the SHE management practices between Company A and Company X during due diligence activity in March 2017 that I was personally involved in proved that the above-mentioned factors could not explain cross-firm variations. This difference was shown by the due diligence team's calculation that it would have needed €5.47 million of SHE-related investment to improve Company X's SHE management practices to the level of those in Company A. However, Company A and Company X, as two companies involved in a potential merger and acquisition deal, demonstrated a high degree of similarity in terms of regulatory pressure, industry, international exposure, product portfolio, profitability, market competition, customer requirements, location, size, and nature of operational risk. This has motivated me to explore further explanatory mechanisms. The extant studies mainly examine factors influencing some elements of SHE management and the relationship between them, but fail to provide a satisfactory explanation of cross-firm variations in SHE management practices. I declare that, when these extraneous factors are controlled, corporate governance as a valid explanatory factor provides the best explanation of cross-firm variations in SHE management practices.

2.4 The Causal Nexus between Corporate Governance and SHE Management

2.4.1 Corporate Governance in China

Corporate governance is a broad concept with many definitions. One important definition was initially put forward by Sir Adrian Cadbury (1992) in the influential *UK Report of the Committee on Financial Aspects of Corporate Governance*, which provides a fundamental but somewhat simplistic view of corporate governance as the system by which companies are directed and controlled (Cadbury, 2000). Various definitions of corporate governance have been advanced by scholars coming from dissimilar perspectives (Yang et al., 2011). Some focus narrowly from a financial perspective; for instance, Shleifer and Vishny (1997) define corporate governance as approaches in which financial suppliers assure themselves of earning a return on their company investments. Some maintain a broad view; for instance, Gillan and Starks (2000) argue that corporate governance is the system of laws, rules, and factors that control activities in a company. Despite the variety of definitions, researchers generally place corporate governance into two categories: internal and external governance (Yang et al., 2011). Internal governance is primarily constituted of ownership and control, characteristics and composition of the board of directors, and executive compensation; external governance, meanwhile, covers the production market, the takeover market, and the state regulatory system. As this research is performed in the context of China, it is essential to understand the unique characteristics of corporate governance in China.

As the largest transition economy, China has a unique and large, socialist, market-oriented economy, and has become a focus of corporate governance research in recent years, while the government has done much to improve corporate governance (Yang et al., 2011). However, research has shown that most of the governance instruments that are effective in developed nations are less effective in China. The main reasons for this ineffectiveness are the large stake that the state has in listed firms, strong political connections between listed firms and the government, and the lack of a truly independent judicial system (Yang et al., 2011). Over three decades, China's reforms and "opening-up" seem to have been successful in improving economic growth through perfecting institutional arrangements (Guo et al., 2013). As a major component of the transformation, enterprise reform has aimed to build and improve corporate governance in enterprises according to the characteristics of the modern enterprise system, with a focus on traditional SOEs (Peng, 2004). The objective of reforming corporate governance in China, as claimed by Guo et al. (2013), is to establish a fundamental framework for corporate governance that is based on the requirements of modern enterprises, with clarified property rights, clearly defined responsibilities and authority, the separation of enterprises from government, and internal management. However, it is apparent that, so far, corporate governance in Chinese companies remains far from ideal, as China remains in transition from a planned economy to a market economy.

Corporate governance is divisible into two aspects: corporate governance structures, which include ownership structure and board structure designed to discipline the behaviour of corporate governance actors (owners, directors and executive management); corporate governance processes, which refer to the interactions of governance actors based on governance structures (Guo et al., 2013). Government agencies in China have promulgated a large number of national laws and regulations in the attempt to perfect the framework of corporate governance.

These include the Company Law of the People's Republic of China (PRC) (revised in 2005), the Accounting Law of the PRC (revised 1999), the Securities Law of the PRC (revised in 2005), and the Code of Corporate Governance of Listed Companies issued by the CSRC in 2002 (Guo et al., 2013). Many of these laws and regulations have drawn upon the experiences and mechanisms of western corporate governance with the objective of improving the effectiveness of corporate governance practices in China. As evaluated by Guo et al. (2013), in comparison with western model of corporate governance, China has some unique governance characteristics in response to its economic situation as a transition economy and an emerging economy. We can see that the establishment of governance structures by following these laws and regulations is easy; however, the effectiveness of the governance processes takes some time. Further, these law and regulations address general principles only. In order to comprehensively assess corporate governance, it is important to understand institutional differences that give rise to governance arrangements that are suitable, not in a universal sense, but rather to the individual firm and the context in which it is situated (Guo et al., 2013). Hence, an astute appreciation of corporate governance should recognize that the governance arrangements in an individual company are situated in a historical, social and organizational context that is particular to that company (Hambrick et al., 2008, Yoshikawa et al., 2007). In this research, the historical, social and organizational aspects of the companies under study in the context of China shall be considered.

2.4.2 The Links between Corporate Governance, CSR and SHE

Corporate governance is a set of mechanisms that determines how and by whom corporations are governed (Hossein, 2016). The broad corporate governance concept is adopted in this research to emphasise the responsibilities of every business towards the different stakeholders that provide it with the necessary resources for its survival, competitiveness and success (MacMillan et al., 2004). As such, managers are primarily accountable to stockholders, whose wealth and fortunes are at stake. However, they also bear responsibility towards employees, suppliers, customers and communities, whose investments in the company are equally significant in other important respects. Thus, within this broader concept, the interests of all stakeholders are accorded due regard and consideration, and are posited as constraints on management action and shareholder rights (Jamali et al., 2008). This broad view of the corporate governance concept entails due regard to all stakeholders and ensures that firms are answerable to all their key stakeholders (Dunlop, 1998).

The validity of corporate governance as the explanatory factor for cross-firm variations in SHE management practices is grounded on the interrelationships among corporate governance, corporate social responsibility (CSR) and SHE. There is a growing body of literature on the causal links between corporate governance and CSR. The typical argument about the relationship between corporate governance and CSR is posited as follows: 1) Corporate governance as a pillar for CSR; 2) CSR as an attribute of corporate governance; 3) Corporate governance and CSR as coexisting components of the same continuum (Jamali et al., 2008). Bhimani and Soonawalla (2005) portray corporate governance and CSR as complementary constituents of the same corporate accountability continuum. Beltratti (2005) claims that corporate governance and CSR are therefore complementary in their shaping of the objective function and the constraints faced by corporations. Kang and Moon (2011) further use the concept of institutional complementarity to specify the nature of the relationship between corporate governance and CSR. Hazlett et al. (2007) highlight the importance of corporate governance as a critical element for driving excellence in CSR.

Corporate governance mechanisms can influence CSR strategies, policies and efforts (Govindan et al., 2020). Boards are increasingly seen as responsible for matters relating to CSR and sustainability (Ingley, 2008), which is addressed frequently in many studies (Elkington, 2006, Jamali et al., 2008, Kakabadse, 2007, Mackenzie, 2007), indicating that CSR is a critical item on board agendas and that boards have the main responsibility in achieving these objectives. The board of directors can have a significant role in promoting the need for a company to balance financial and non-financial goals (Liao et al., 2015) and to improve corporate CSR performance (Hussain et al., 2018). A considerable amount of evidence also exists suggesting that various board attributes can have a significant influence on CSR (Ayuso and Argandoña, 2007, Dunn, 2004, Johnson and Greening, 1999, McKendall et al., 1999, Webb, 2004). Board composition, as a key corporate governance structure, is an important factor in corporate decision making related to environmental and social performance (Post et al., 2011). With regard to board diversity (e.g. resource diversity, composition diversity, gender diversity etc.), even though it is limited, existing research suggests that board diversity, to a certain extent, can also influence social and environmental aspects of business (i.e. CSR) (Bear et al., 2010, Coffey and Wang, 1998, Ibrahim and Angelidis, 1991, Krüger et al., 2020, Post et al., 2011). However, results from studies of the effect of board diversity on CSR are mixed and inconclusive (Rao and Tilt, 2013). The majority of research has concentrated on why corporations become involved in CSR rather than on how the CSR decision making process actually takes place (Rao and Tilt, 2013). In other words, these studies focus on whether there is a relationship between corporate governance and CSR, but do not go any further to explore the underlying process of the causal nexus. In these studies, therefore, corporate governance mechanism refers mainly to the governance structure.

Due to the complementary nature and overlap between corporate governance and CSR, it has been noted that several theories are commonly used to provide theoretical perspectives on both corporate governance and CSR, e.g. stakeholder theory (Freeman, 1984, Jensen, 2001, Donaldson and Preston, 1995), agency theory (Jensen and Meckling, 1976), institutional theory (Scott, 1987), stewardship theory (Donaldson and Davis, 1991), resource dependence theory (Salancik and Pfeffer, 1978) etc. These theories are used mainly to support the explanation of the specific constructs or concepts related to corporate governance and/or CSR. In some cases, they may be used to illustrate the theoretical foundation for the complementary aspects of, and the interrelationship between corporate governance and CSR. This is especially the case with agency theory and stakeholder theory, which are two common representative, but competing explanations in terms of their importance regarding the corporate governance and CSR nexus (Jo and Harjoto, 2012). Based on agency theory, Rubin and Barnea (2006) consider CSR engagement as a principle-agent relation between managers and shareholders, and argue that affiliated insiders may choose to overinvest in CSR if doing so provides some private benefits in terms of reputation building at the expense of shareholders. Friedman (1970) argues from the agency perspective, asserting that managers use CSR as a means to enhance their own social, political or career agenda at the cost of the shareholders. Agency theory predicts that companies protect investors and act to reduce agency conflicts using control mechanisms, such as corporate governance structures (Jensen and Meckling, 1976). Stakeholder theory, on the other hand, presents a more positive perspective on how managers view CSR. As Freeman (1984) indicates, managers need to focus on fulfilling the demands of various stakeholders, such as customers, employees, suppliers and local communities, who have the potential to influence, or be influenced by companies' activities. Donaldson and Preston (1995) suggest that managers should take into account stakeholders' interests as well as achieving conventional corporate performance. In summary, stakeholder theory predicts that managers conduct CSR to fulfil their moral, ethical and social duties to their stakeholders and to strategically achieve corporate goals for their shareholders (Jo and Harjoto, 2012).

The evolution of the corporate governance literature has shown that its objective is the same as that of CSR. Both follow a strategic approach with the objective of maximizing the interests of shareholders and stakeholders. As Jouini et al. (2018) suggest, firms may improve social performance by adopting best practices of corporate governance that mitigate unethical behaviour. Agency theory and stakeholder theory can provide the same good theoretical foundation to address common aspects and, to a certain degree, the relationship between corporate governance and CSR. Agency theory and stakeholder theory are also two common theories that are used to understand the links between corporate governance and sustainability performance (Crifo et al., 2019, Hussain et al., 2018, Naciti, 2019, Shaukat et al., 2016). SHE management practices focusing on employee health and safety, as well as environmental protection, could be treated as part of CSR initiatives. Conceptually, employee health and safety, and environmental protection are respectively part of the internal and external dimensions of CSR in academic studies. SHE management performance is also part of corporations' sustainability performance. Thus, agency theory and stakeholder theory are useful theoretical foundations for understanding the links between corporate governance and SHE management practices. However, these theories cannot be used directly to illustrate the causal effect of corporate governance on CSR or SHE management in terms of the detailed underlying processes in explaining cross-firm variations. More rigorous theories are required to explore the causal nexus between corporate governance and SHE management practices.

Compared with CSR, which is a multidimensional construct, the integrated definition of SHE management, as described in Section 2.2.1, is much clearer and straightforward, as it addresses the tightly focused area of management of environmental impact, and employee health and safety at work. SHE management is operationalized through establishment of a comparative framework for SHE management practices, as covered in Section 2.2.4. This makes in-depth analysis feasible and theory building possible. Based on the institutional complementary nature of the relationship between corporate governance and CSR, and the fact that SHE management practices, from the perspective of employee health and safety, and environmental protections, are regarded as central elements in the framework of CSR, it appears to be a valid research approach if, at the institutional level, I can examine the relationship between corporate governance and SHE management practices. It is very clear and meaningful that corporate governance, as an explanatory factor, can be used to illustrate cross-firm variations in SHE management practices at the institutional level. However, to do this, we need a more appropriate and robust theoretical framework than the extant theories.

2.4.3 Extant Studies on Causal Links between Corporate Governance and SHE Management

To seek a suitable theoretical explanation for cross-firm variations in SHE management practices, a further literature review is conducted to explore studies on the specific links between corporate governance and SHE management. Unfortunately, in terms of academic study, the links between corporate governance and environment health and safety remain virtually unexplored. Further, there are no academic studies on the links between corporate governance and SHE management in which SHE management is treated as an integrated concept or construct. The limited existing studies that have been identified focus on environmental management and occupational health and safety management. This could be due to the nature of environmental management, with concerns about external impacts receiving more attention from scholars and practitioners, and the nature of occupational health and safety management, with concerns about internal impacts receiving less attention. There are no good academic studies on the links between corporate governance and OHS. This could be due to the sad fact that many organizations have delegated OHS as an operational issue that does not warrant a higher level of strategic discussion. Thus, not enough attention is given by scholars to this topic. Lo (2012) examines an OHS governance model proposed by the Health and Safety Executive (HSE UK) and how its principles complement the due diligence requirement under the harmonized Work Health and Safety Act (Australia). Lo (2012) argues that OHS should be integrated into corporate governance as part of the strategic planning and decision making processes in an organization. I can borrow this concept and claim that SHE management should be integrated into corporate governance as part of organizations' strategic planning and decision making processes. Empirically, this argument is valid in the business world.

The links between corporate governance and environmental protection have received better attention from scholars, although they are still very limited. Walls et al. (2012) explore the intersection between corporate governance and CSR in a tightly focused manner by considering the environmental dimension, and testing the effect of ownership, board and management governance variables against types of environmental performance (strengths and concerns). Research has uncovered many significant associations between corporate governance and environmental performance (Walls et al., 2012). Rodrigue et al. (2013) investigate whether environmental governance practices in companies are substantive or symbolic. The investigation reveals a result that is consistent with environmental governance mechanisms being predominantly part of a symbolic approach to manage stakeholder perceptions on environmental management, and having little substantial impact on organizations in terms of actual environmental performance improvement (Rodrigue et al. 2013). The investigation by de Villiers et al. (2011) reveals the relationship between strong environmental performance and board characteristics, capturing the monitoring and resource provision roles of boards. Berrone and Gomez-Mejia (2009) conduct a study on the relationship between environmental performance and executive compensation from an integrated agency-institutional perspective. McKendall et al. (1999) investigate the relationship between environmental issues and board governance. Both studies examine the relationship between board characteristics and the number of violations of environmental legislation, and document evidence of a positive relationship between environmental violation and the combined stock ownership of corporate officers and directors. Kock et al. (2012) show that a variety of good governance mechanisms leads to lower pollution levels. Rao et al. (2012) investigate the relationship between corporate governance attributes and environmental reporting of companies in Australia, while Sarivudeen and Sheham (2013) explore the similar relationship between corporate governance attributes and environmental reporting of companies in Sri Lanka. Liao et al. (2015) examine the impact of corporate characteristics (i.e. gender diversity, board independence, environmental committee) on voluntary greenhouse gas disclosure. These studies clearly indicate that there is a statistical linkage between corporate governance mechanisms and environmental protection dimensions.

The limited recent studies on the links between corporate governance and environmental performance, as shown in Table 1, all rely on archival measures and statistical analysis, with secondary data taken from KLD, EPA, TRI, SEC, Board Analyst etc. Some are supported by interviews as supplementary methods. The samples are mostly taken from firms listed in the U.S., a few from firms in other countries, and the secondary data are available in the relevant databases because public companies listed in stock markets are required to report data with regard to corporate governance practices, as well as social and environmental performance. The quality of secondary data is a concern because it may possibly be fragmented and the reporting by firms may not be accurate and precise enough. These studies usually lead to fragmented and contradictory empirical evidence, which makes theory building difficult. From the literature, we can see it is uncommon to study corporate governance and corporate environmental links in developing countries (Miroshnychenko et al., 2019).

Table 1 Academic studies on the links between corporate governance and SHE

Authors	Title	Year	Independent Variable	Dependent Variable	Method	Sample	Data Source
L. Liao, L. Luo and Q. Tang	Gender diversity, board independence, environmental committee and greenhouse gas disclosure	2015	Board Characteristics (Gender Diversity, Board Independence, Environmental Committee)	Greenhouse gas disclosure	Statistical Analysis	329 largest companies in UK	CDP Reports
M. Rodrigue, M. Magnan and C. H. Cho	Is Environmental Governance Substantive or Symbolic? An Empirical Investigation	2013	The existence of environmental committee; The proportion of environmentally aware directors; The presence of environmental incentives in executive compensation	Environmental regulatory performance; Pollution prevention performance,; Intensity of environmental capital expenditures	Statistical Analysis; Interview	219 environmentally sensitive firms (US, Listed)	KLD
A.L. Sarivudeen, A.M. Sheham	Corporate Governance Practices and Environmental Reporting: A Study of Selected Listed Companies in Sri Lanka	2013	Board Size; Board Independence; Female Directors; CEO Duality; Board Meetings	The existence of environmental reporting; Environmental disclosure; Proportion of environmental disclosure	Statistical Analysis	75 firms listed in Sri Lanka	CSE
J. L. Walls, P. Berrone and P. H. Phan	Corporate governance and environmental performance: is there really a link?	2012	Ownership, Board, Management Variables	Environment Performance (Strength and Concerns)	Statistical Analysis	313 firms from S&P 500 (US, listed)	KLD
Kathyayini Kathy Rao, Carol A. Tilt, Laurence H. Lester	Corporate governance and environmental reporting: an Australian study	2012	Board independence; Institutional ownership; Board size; Proportion of female directors	Environmental reporting	Statistical Analysis	96 firms listed in Australia	ASX; OSRIS
Carl J. Kock, Juan Santalo, Luis Diestre	Corporate Governance and the Environment: What Type of Governance Creates Greener Companies?	2012	Board of directors; Equity-based managerial incentive; Market for corporate control; Legal and regulatory system	Pollution levels (emission of waste and toxic waste)	Statistical Analysis	377 public companies (US listed)	IRRC, EPA
C. de Villiers, V. Naiker and C. J. van Staden	The effect of board characteristics on firm environmental performance	2011	Board Characteristics (Monitoring and Resource Provision)	Environmental Performance	Statistical Analysis	1216 firms (US, listed)	KLD; Board Analyst
P. Berrone and L. R. Gomez-Mejia	Environmental performance and executive compensation: An integrated agency-institutional perspectice	2009	Environmental performance; Long term pay	CEO total pay; Environmental performance	Statistical Analysis	469 firms (US, Listed)	SEC; TRI
G. Kassinis and N. Vafeas	Corporate boards and outside stakeholders as determinants of environmental litigation	2002	Boards (Board size; Board composition; Directorship; Inside Ownership) Outside stakeholders (Communities; Political/Legislative actors and regulators	The likelihood of environmental litigation	Statistical Analysis	209 firms (US, Listed)	EPA; SEC
M. McKendall, C. Sánchez and P. Sicilian	Corporate governance and corporate illegality: The effects of board structure on environmental violations	1999	Boards (Outsider dominance; Dual CEO-Chairperson Roles; Social responsibility committee; Attorneys on boards)	Environmental violations	Statistical Analysis	210 firms (US, Listed)	EPA; SEC

Fact-based inquiries into the links between corporate governance and environmental performance target the exploration of the correlation between selected dimensions of corporate governance as independent variables and selected environmental performance indicators as dependent variables. The environmental performance indicators selected as dependent variables are environmental strength, environmental concerns, environmental regulatory performance, environmental violations, likelihood of environmental litigation, pollution prevention performance, environmental capital expenditure, environmental reporting, environmental disclosure, and general environmental performance. These indicators are based on factual data reported to the EPA and TSI databases, as requested by the authorities, and only address environmental performance. The independent variables are mostly chosen from the internal mechanism dimension of corporate governance, with many related to board characteristics (board composition, board size, board independence, presence of an environmental or social responsibility committee, presence of environmentally aware directors or attorneys on the board, dual CEO-Chairperson roles etc.), followed by ownership structure and management control, executive compensation etc.

In each single study, there are only two to three specific dimensions selected as variables, rather than the comprehensive inclusion of all dimensions. From the selected corporate governance dimensions, we can categorize the studies into three groups: 1) Power and decision-oriented, which examine how decisions are made at the top and who influences the final direction, as well as how resources are allocated; this is about "doing the right thing". 2) Monitoring and control-oriented, which look at how the management is monitored to ensure that everything is done as per the will of the governing body; this is about "getting the thing done right". 3) Incentive and motivation-oriented, which check how executive compensation and managerial remuneration are designed to motivate the executive and top management to do the right thing. These independent variables mostly address the dimensions of the internal mechanism of corporate governance. The samples or cases used in these studies are mostly companies in environmentally sensitive industries that are listed companies in the developed countries. There is a clear limitation in existing studies on the links between corporate governance and SHE management. The existing literature appears unable to fully explain the causal effect of corporate governance on SHE management practices, thus unable to explain the cross-firm variations in SHE management practices in Chinese enterprises.

2.4.4 Literature Gaps, Central Research Question and Analytical Objective

The causal links between corporate governance and SHE management is an extremely unexplored area, in which there is no extant literature that can fully illustrate the underlying mechanism and causal nexus between corporate governance as an independent variable and SHE management as an integrated dependent variable. Although the study of links between corporate governance and environmental performance has attracted attention from the academic community recently, a detailed analysis of corporate governance and environmental performance literature by Miroshnychenko et al. (2019) reveals that past research has primarily examined, mainly through quantitative methods, the effects of internal corporate governance mechanisms on environmental performance. There is also a lack of research that investigates the effect of corporate governance on environmental performance in the context of developing countries to provide a more integrated view of the impact of corporate governance on environmental performance.

Regarding the two ends of causal links between corporate governance and SHE management practices, whether as independent variables or dependent variables, the existing studies address only the statistical linkage between some attributes of corporate governance and certain dimensions of SHE management. They do not provide a comprehensive and integrated explanation of how corporate governance affects SHE management. No studies shed light on the underlying mechanism and processes in order to understand the causal links in “why” and “how” corporate governance exerts an impact on SHE management practices. This appears to be one of the gaps in the literature. Other gaps also exist in terms of a theoretical explanatory mechanism, with no extant theory or theoretical framework being fully able to explain cross-firm variations in SHE management practices from the corporate governance perspective. Further, the extant corporate governance literature focuses mainly on governance structure which has limitations in providing a full explanation of cross-firm variations in SHE management practices. These literature gaps identified from the literature review, coupled with empirical concerns on the cross-firm variations in SHE management practices in Chinese enterprises, urge me to initiate a research project with the central research question: “Why do

Chinese enterprises differ with regards to their SHE management practices?" I claim that patterns of corporate governance are valid explanatory factors to illustrate these cross-firm variations in SHE management practices.

Considering the significant role that Chinese enterprises play in the development of the Chinese economy, and the importance of SHE management as part of social performance in supporting the business growth and sustainable economic development of the country, it is meaningful to examine the practices and processes of corporate governance and SHE management, and to investigate in depth, through case studies, the underlying mechanisms by means of sociological and behavioural measures. Thus, it is worthwhile to conduct exploratory studies of the causal links between corporate governance and SHE management practices. The research is conducted in the context of China with an analytical objective of exploring causal links between patterns of corporate governance and SHE management practices, in which patterns of corporate governance are explanatory/independent variables, and SHE management practices are outcome/dependent variables. To proceed with the study, it is essential to define, develop and operationalize a set of explanatory/independent variables with respect to patterns of corporate governance, and then to develop an explanatory framework.

2.5 Summary

This chapter has introduced the evolution of SHE management in the international context as a background, in which the integrated SHE (or HSE, EHS) construct, the concept of SHE management and the relevant standards are developed by international industrial players (e.g. Shell, DuPont etc.), governmental agencies, and international organizations and institutes. In China, converting these international standards and regulations to cope with the needs of Chinese economic development has generated issues and huge gaps in the enforcement of these standards and regulations. Empirically, there are obvious cross-firm variations in the way SHE management practices have been implemented in Chinese enterprises, even in companies from the same country, same region and same business sector. The empirical concerns with cross-firm variations in SHE management practices call for a comparative framework and a benchmark for evaluation criteria for SHE management practices in companies. Such a comparative framework is developed with the careful selection of the three "Leadership, Behaviour, Technique" dimensions and their twelve associated constitutive attributes, which represent common key elements of SHE management practices. In justifying the selection of the analytical dimensions and constitutive attributes, both empirical and academic needs have been considered.

To seek a theoretical explanation for cross-firm variations in SHE management practices, a multilevel (i.e. macro-, meso-, micro-levels) approach is adopted to analyse the factors impacting SHE management practices. Many external factors, e.g. the SHE regulatory regime, international exposure, sectoral and industrial characteristics, market constraints etc., are examined and confirmed to be incapable of explaining the cross-firm variations in SHE management practices. This is also the case for some internal factors, such as firm size, history etc. All these are treated as extraneous factors and are managed as control variables. The focus is on corporate governance as a valid explanatory factor to illustrate cross-firm variations in SHE management practices when the extraneous factors are controlled and everything else being equal. After a short introduction to the background of corporate governance and the specific characteristics of corporate governance patterns in China, the literature review focuses on studies of the relationship among corporate governance, CSR, SHE and the common theories used in these studies, such as agency theory and stakeholder theory, especially on studies of the links between corporate governance and SHE management, as well as those between corporate governance and environmental protection or health and safety issues. The literature review reveals clear gaps in terms of the lack of studies on the underlying mechanism and processes in order to understand the causal effects regarding "why" and "how" corporate governance exerts an impact on SHE management practices. There is also a lack of rigorous extant theory to support in-depth studies of these causal effects. Coupled with the empirical concerns of cross-firm variations in SHE management practices, especially in Chinese enterprises, a central research question is developed with the clear analytical objective of exploring causal links between patterns of corporate governance and SHE management practices.

Chapter Three: Theoretical Argument

3.1 Introduction

In this research project, I am seeking theoretical explanations for cross-firm variations in SHE management practices. The literature review identifies the literature gaps and confirms the need to develop an explanatory framework to be used in the research, in which corporate governance, as the valid explanatory factor, can provide the best answer to the central research question according to two dimensions, i.e. the structural and ideational variables. Patterns of corporate governance as explanatory variables are developed and operationalized to address the dimensions and constitutive attributes of the structural and ideational variables of corporate governance. The central theoretical argument is built upon these structural and ideational variables, the interaction between them, and how the patterns of corporate governance are expected to influence SHE management practices in Chinese enterprises. An explanatory framework is proposed as a theoretical foundation to guide the empirical case studies, for the purpose of answering the central research question.

3.2 Development of Explanatory Framework

In order to develop an explanatory framework to support the elaboration of the causal links between patterns of corporate governance and SHE management practices, it is essential to define patterns of corporate governance as the integrated explanatory variables. Here, the term "pattern" refers to a consistent and recurring characteristic or trait, a discernible regularity that helps in the identification of a phenomenon, which could serve as an indicator or model for prediction. Patterns of corporate governance refer to the distinctive features of corporate governance practices. Destefanis and Sena (2007) refer to patterns of corporate governance simply as the characteristics of corporate governance systems. In this research, in order to fully address the literature gaps, the patterns of corporate governance do not only include the explicitly expressed and published corporate governance structure as an essential framework that a modern corporation needs to establish. More importantly, these patterns also include how the corporate governance structure is implicitly deployed with the implementation of effective mechanisms and processes to guide corporate strategy setting and decision making with a sense of what is important and what is right. Within these mechanisms and processes, corporate value orientation as an ideational variable plays a vital role in interacting with the corporate governance mechanism and power structure as a structural variable. In most studies, corporate governance is regarded as a set of internal and external mechanisms that determine how and by whom the corporation is governed (Hossein, 2016), in which the internal mechanisms refer to the structural variables of corporate governance. If we examine corporate governance from a broader view, however, the patterns of corporate governance include not only structural characteristics, but also ideational features.

As stated in the UK corporate governance code, the purpose of corporate governance is to facilitate effective, entrepreneurial and prudent management that can deliver the long-term success of a company. To achieve this purpose, good ethics must be observed and corporate social responsibility must be considered. Therefore, corporate governance is largely concerned with what the board of a company does and, in particular, how it sets the values of the company (FRC 2010). The basic principles of corporate governance identified by Charkham (1994) recognize that enterprise and the pursuit of wealth creation should not be allowed to progress in an unfettered manner, but in recognition of the fact that effective accountability to stakeholders is necessary. Monks and Minow (2015) have cited the 2003 speech at the Washington Economic Policy Conference by William Donaldson, Chairman of the Securities and Exchange Commission:

"A 'check the box' approach to good corporate governance will not inspire a true sense of ethical obligation. It could merely lead to an array of inhibiting, 'politically correct' dictates. If this was the case, ultimately corporations would not strive to meet higher standards, they would only strain under new costs associated with fulfilling a mandated process that could produce little of the desired effect. They would lose the freedom to make innovative decisions that an ethically sound entrepreneurial culture requires. As the board properly exercises its power, representing all stakeholders, I would suggest that the board members define the culture of ethics that they expect all aspects of the company to embrace. The philosophy that they articulate must pertain not only the board's selection of a chief executive officer, but also the spirit and very DNA of the corporate body itself – from top to bottom and from bottom to top.

Only after the board meets this fundamental obligation to define the culture and ethics of the corporation – and for that matter of the board itself – can it go on and make its own decisions about the implementation of this culture."

In order to examine ethical obligation, corporate social responsibility, enterprise accountability, and corporate values and culture to measure the long-term success of a company, it is essential that we incorporate the ideational variable into a measurement scheme for corporate governance in addition to the often used structural variable. Corporate governance is regarded as the system by which companies are directed and controlled. As indicated by Cadbury (2000), a sound corporate governance system shall address the "control" aspect of corporate governance with a proper governance structure, as well as the "direct" aspect of corporate governance in setting the values orientation for a company. It is constructive and meaningful to introduce corporate value orientation as the ideational variable, along with the structural variable, to provide a more comprehensive understanding and measurement of patterns of corporate governance. The argument for the importance of the structural variable, ideational variable and their interaction is actually based on the common corporate governance and CSR theories, i.e. agency theory and stakeholder theory. This is because agency theory, to a certain degree, is oriented more toward the structure and "control" aspects of corporate governance, while stakeholder theory typically addresses the "direct" aspect and value orientation of the corporation. In this research, the point that differentiates it from previous studies is the use of agency theory and stakeholder theory as two common theories that provide representative but competing explanations regarding the corporate governance and CSR nexus (Jo and Harjoto, 2012). The structural and ideational variables, as two important aspects of the patterns of corporate governance, are intended to provide a comprehensive and complementary explanation of the causal nexus between corporate governance and cross-firm variations in SHE management practices when these two variables interact to generate different patterns of corporate governance.

Most studies of the causal impact of corporate governance practice tends to focus on the structural variable. The detailed analysis of literature on the links between corporate governance and environmental performance by Miroshnychenko et al. (2019) has revealed that past research has primarily examined the effects of internal corporate governance mechanisms, as the structural variables, on environmental performance, and secondarily examined the effect of external corporate governance mechanisms. Few studies have touched on the ideational variable and almost none have explained the combined impact of the structural and ideational variables of corporate governance. The corporate governance mechanism and power structure are important for sure, but they represent only the structural variable of corporate governance and cannot explain everything, especially for the purpose of exploring the causal links between corporate governance and SHE management practices. For this, we need to address in depth the underlying mechanisms and processes at the institutional level. In addition to the structural variable, there appears to be a need to also shed light on corporate value orientation as an ideational variable of corporate governance, which can support the explanation of companies' internal motivations to focus on SHE management. For the purpose of developing a more comprehensive and therefore more convincing argument, it is necessary to look not only at the corporate governance mechanism and power structure as a structural variable, but also at corporate value orientation as an ideational variable, and thus to develop the patterns of corporate governance as integrated explanatory variables. The central theoretical argument of this research is built upon the structural and ideational dimensions, the interaction between these two dimensions, and how the patterns of corporate governance are expected to influence SHE management practices in Chinese enterprises.

3.3 The Structural Variable of Corporate Governance

The structural variable of corporate governance refers to the corporate governance mechanisms and power structure. The OECD definition gives non-binding standards, principles and good practices for corporate governance, as outlined in the OECD Principles of Corporate Governance (2004). The principles include: ensuring the basis for an effective corporate governance framework; the rights of shareholders and key ownership functions; the equitable treatment of shareholders; the role of stakeholders in corporate governance; disclosure and transparency; the responsibilities of the board. The OECD report describes corporate governance broadly as a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined (OECD, 2004). In a transition economy, such as in China, the China Securities Regulatory Commission (CSRC) has developed a Code of Corporate Governance for Listed Companies in China, which has been enforced from January 2002. The code is mandatory for all listed companies and stipulates the rights and responsibilities of shareholders, directors, the management and stakeholders (CSRC, 2001).

Sets of principles and rules defined by the codes of corporate governance, such as OECD (2004) and CSRC (2001) etc., are mostly related to listed companies. The corporate governance debate has mostly focused on such companies, with the governance of unlisted companies usually being a neglected area of corporate governance studies and recommendations. However, unlisted companies make a major contribution to economic growth and employment in every country in the world. They are of particular importance in countries with emerging and less developed capital markets, where the vast majority of companies are not listed on a stock market or any other regulated market. Thus, the corporate governance of unlisted companies should receive some focused study and attention from scholars and policy makers. Due to the fact that unlisted companies encompass a wide variety of corporate ownership, financing and management structures, this renders the applicability of a standard code intricate. Furthermore, with the challenges of information availability and difficulties in accessing data because unlisted companies are not subject to as many regulations as listed companies, the study of corporate governance for unlisted companies has moved comparatively slowly, even though scholars and policy makers know the importance of exploring and closing such a gap.

The most important and latest work is the Corporate Governance Guidelines and Principles for Unlisted Companies in Europe, developed and issued by the European Confederation of Directors Associations (ecoDa). As proposed by ecoDa (2010), fourteen principles of good governance are presented on the basis of a dynamic phased approach, which takes into account the degree of openness, size, complexity and level of maturity of individual enterprises. Unlisted companies, such as founder- and family-owned businesses, can extract from this stepwise approach useful guidelines to enhance corporate governance practices and to promote their sustainability. The phased approach includes Phase I principles, applicable to all unlisted companies, and Phase II principles, applicable to large and/or more complex unlisted companies.

The guidance and the set of voluntary "best practice" principles provided by ecoDa (2010) are drawn from both the content of existing national and international corporate governance codes and the experience of good governance in individual unlisted enterprises. These principles should not be viewed as corporate governance codes, but rather as a set of proposals and a type of governance framework aimed at increasing the professionalism and effectiveness of unlisted companies. An effective governance framework establishes stable and accepted relationships between shareholders, the board, management and other stakeholders. It defines an agreed distribution of power between the main players involved with the firm, who are the shareholders, directors, management and stakeholders, as an essential prerequisite for the effective operation of a company. The design of a credible framework of corporate governance involves the linkage of the key corporate governance actors with a number of widely-accepted key concepts to ensure the foundations of good governance. These key concepts are: delegation of authority, checks and balances, professional decision making, accountability, transparency, conflicts of interest and aligning incentives (ecoDa, 2010).

The selection of dimensions and associated constitutive attributes of the corporate governance structural variable for my comparative case study needs to give consideration to the fact that the companies I consider as samples for case studies could be unlisted companies in China. The three-pillar corporate governance framework of non-listed companies proposed by Mccahery and Vermeulen (2008) has informed us of three areas to be the focus for review when we examine the corporate governance of non-listed companies. These areas are: company law, which is a one-size-fits-all vehicle for non-listed companies and can be treated as an external mechanism of corporate governance; contractual arrangements and mechanisms, which should be considered because the nature of non-listed companies' corporate governance frameworks is highly contractual; best practice principles, which help unlisted companies to organize and manage their business in the most effective manner. Mccahery and Vermeulen (2008) framework should be reviewed together with codes, guidelines and principles from the OECD, CSRC and ecoDa. The selection of dimensions and associated constitutive attributes should meet empirical and academic needs, so they can feasibly explain cross-firm variations in SHE management practices and can contribute to the development of the explanatory framework. They also fit well with the research methodology.

The framework to be adopted in my research takes lessons from the OECD and CSRC guidelines for listed companies, the ecoDa guidelines for unlisted companies and Mccahery and Vermeulen (2008) guidelines for non-listed companies, and is then tailored to fit the purpose of measuring the corporate governance practices of the companies selected for the case studies. From all of these studies and reviews, I have selected four dimensions of the corporate governance structural variable for my research, which form four components of the structural variable for measuring the corporate governance mechanism and power structure of selected companies: ownership structure and control; the board of directors; stakeholder influence; transparency and disclosure.

Ownership structure and control account for the major part of the corporate governance debate, because corporate governance mainly deals with the distribution of ownership in a company and the problems, if there are any, arising from the separation of the ownership and control of the corporation. Ownership structure is defined by the distribution of equity with regard to votes and capital, but also by the identity of the equity owners (Jensen and Meckling, 1976), which tells who owns the company and who is the final decision maker. This then determines the control of the company. The agency problem arises from the separation of ownership and control, which then creates an information asymmetry and agency costs (Fama and Jensen, 1983). Managerial behaviour does not necessarily serve the best interests of shareholders (Shleifer and Vishny, 1997) and management decisions can reflect managers' personal interests rather than shareholders' interests. Related to principle-agent issues, once directors and managers are appointed by the owners to fulfil the governance and management duties of the company, then monitoring and control of these appointed directors and managers to ensure the best interests of the owners/shareholders is a governance topic. There is a unique situation with owner-managers in many family businesses, also named as managerial ownership, in which there seems to be no explicit principle-agent problem. However, there is a challenge with monitoring, balance and checks in dealing with the combined role of owner and manager or, in other words, with potential “insider control”, which needs to be addressed. The ownership structure and control affect strategy setting and decision making in the company’s business and operations, because the ownership structure determines how the board of directors is set up.

Different ownership structures determine the incentives for, and ways of monitoring managers. This calls for a well-designed governance mechanism and power structure to realize a balance between value maximization and management of conflicts of interest between shareholders and managers, and between majority and minority shareholders. If the owners and shareholders of a company have a compatible approach to pursuing financial and social performance by taking into consideration stakeholders’ interests, then the agency theory approach (Jensen and Meckling, 1976) ensures principle-agent control can deliver the firm’s output with good financial and social performance. However, if the owners and shareholders of a company are profit-oriented, then the principle-agent control philosophy of agency theory (Jensen and Meckling, 1976) will be ignored, leading to profit chasing and value maximization for shareholders, while the SHE management practices, as part of corporate social activities, cannot be guaranteed. There are also important aspects of contractual arrangements to be considered and reflected in the ownership structure and control dimension.

In the dimension of “ownership structure and control”, I examine the degree to which corporate ownership is concentrated in the hands of a few people, and analyse the causal effects of concentrated and dispersed ownership structures on decision making processes, as well as how this affects the implementation of SHE management practices. I also examine the degree to which actual control is exercised by owners on issues regarding employees’ interests and SHE matters. These areas represent the constitutive attributes of the dimension of “ownership structure and control”, which provide a measurement of the strength of “ownership structure and control” and an explanation of how the ownership structure and control affect the ways SHE management practices are implemented in terms of the “Leadership, Behaviour, Technique” dimensions.

The board of directors is crucial in the overall corporate governance system, because the board of directors has been widely considered as a major player in corporate governance (Fama and Jensen, 1983, Jamali et al., 2008, Ees et al., 2009). Board composition is in general the primary internal governance mechanism (Walsh and Seward, 1994). The board of directors, as the governing body of a company, functions as the link between the owners and the management, and plays the key role in terms of setting principles and rules of governance, providing strategic guidance and decision making. From a governance theoretical perspective, the board of directors plays an important role in corporate governance and is responsible for monitoring and advising managers on behalf of shareholders (Guo et al., 2013). Examination of the functionality of the board of directors looks at a number of areas, the details of which are as follows: the board structure, including whether this is a one-tier board structure with independent directors, a two-tier board structure with a supervisory board, a combination of these, or, as in large organizations, there are sub-committees set up under the board, including an audit committee, compensation committee, nomination committee etc.; the board composition, which is about who sits on the board as decision makers and the appropriate governance structure to guarantee the effectiveness of board operations, which affects overall board performance; the roles and responsibilities of the board leadership structure, which ensure clear accountability for decisions by the board, absence of situations of duality (e.g. duality of chairman and CEO/general manager etc.), whether or not these have been defined to cover both financial and non-financial (e.g. socio-environmental etc.) aspects to ensure delivery of results that meet the expectations of both shareholders and stakeholders, and whether or not the responsibilities of board members, both legally required and given by the company, are being fulfilled.

In the dimension of “the board of directors”, certain constitutive attributes are selected and operationalized to support the investigation of causal links between corporate governance and SHE management practices. These attributes are: the degree to which members of the board of directors with pro-employee interests are fully represented in the board’s decision making processes; the degree to which the supervisory board exercises supervision and control over board decision making processes. These two aspects are examined to determine if there are board members who represent employee interests and act as ambassadors on SHE matters, and how much those members participate in board decisions. In addition, the extent to which the supervisory board functions in the board decision making processes in providing supervision, monitoring and control of the operation of the board. There are other board considerations, such as gender diversity and board diversity, the size of board etc., which could also possibly affect SHE management. The presence of female directors in top level positions has been linked to various outcomes resulting in mixed evidence (Rao and Tilt, 2013), while most research that examines the direct association between board diversity and CSR results in contradictory findings (Rao and Tilt, 2013). Board size should affect the information flow in the board and then the decision making process (Lau et al., 2016). However, these attributes are not my focus in the case studies of the process underlying the influence of boards of directors on SHE management practices. Thus, in terms of case selection, I consider control of variations in these attributes by selecting cases with the same or similar board size and diversity.

The board structure, board composition, responsibilities and competencies of board members, together with their education, expertise, experience, background and personal preferences greatly affect strategic interaction and decision making in a company's business and operations. These greatly affect SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. Especially when there is a conflict of interests, the board's decisions on the allocation of resources as well as on the setting of priorities for SHE management immediately affect the implementation of SHE management practices. These practices include the implementation of technical solutions and system tools for SHE management, the maintenance and sustaining of SHE awareness and behaviour among employees at all levels, leadership support for SHE management etc. When these dimensions fall short, especially when this indicates an emerging lack of leadership, then the power structure of corporate governance comes into play through enhancing the leadership of the board of directors to ensure SHE management is on the business and strategy setting agendas.

Stakeholder influence is grounded on stakeholder theory (Freeman, 1984), which is used to identify and model the groups of stakeholders in a corporation, and to describe and recommend methods by which management can give regard to the interests of those groups of stakeholders. The basic proposition of stakeholder theory is that the firm's success is dependent upon the successful management of all the relationships a firm has with its stakeholders – a term originally introduced by Stanford Research Institute to refer to those groups without whose support the organization would cease to exist (Freeman, 1984). It attempts to address the "principle of who or what really counts" (Freeman, 1984), and emphasizes the role of stakeholders in corporate governance and "attention to stakeholder concern" as one of the internal dimensions of corporate governance. When viewed as such, the conventional view that the success of the firm is dependent solely upon maximizing the shareholders' wealth is not sufficient because the firm is perceived to be a nexus of an explicit and implicit contract between the firm and its various stakeholders (Jensen and Meckling, 1976). Corporate governance calls on companies to assume their fiduciary, legal and moral responsibilities towards stakeholders (Jamali et al., 2008), which include employees, communities, authorities etc. In this research, stakeholder influence provides a stakeholder perspective to focus on employee safety, health and environmental management practices, which are more about stakeholders' interests rather than merely shareholders' wealth.

In the whole governance process, the importance of stakeholder influence cannot be underestimated. Further, it is crucial to put up an effective governance mechanism and power structure with respect to how the stakeholder influence can be ensured. Is there a platform and process to ensure that employees' voices can be heard and that their interests can be protected in terms of health and safety in the workplace and environmental protection? Do appointed employee representatives formally sit in the decision making bodies and have rights to vote? Are the stakeholders' interests receiving enough attention from the top management? These factors will directly affect SHE management practices in a company with respect to the "Leadership, Behaviour, Technique" dimensions.

Specific to the "stakeholder influence" dimension, the following constitutive attributes are examined: the degree to which employees are well enough organized in order to project their interests within the corporate decision making processes; the degree to which the trade union plays its role in the corporate decision making processes to protect employee interests. In the empirical studies, these two aspects are used to measure the level of involvement by employees in decision making on topics concerning employee interests and SHE matters, specifically to examine how the employee representative system is working in the company, and further to explore how the trade union serves the employees regarding their interests, which include health and safety in the working environment etc. The explicit and implicit contracts with various stakeholders are reflected in the strategic interaction and decision making processes. The stakeholders' presence in decision making processes, the bargaining power of the trade union and the power to influence of employee representatives determine the causal impact of stakeholder influence on SHE management practices.

Transparency and disclosure of information means the release of companies' financial and non-financial information completely, accurately, openly and in a timely manner to shareholders and stakeholders for the purpose of enhancing their participation and protecting their interests. Corporate governance is a process that improves the quality and transparency of corporate information disclosed by managers. As indicated by Hossein (2016), the important aspect of corporate governance is transparency of information, with transparent information being considered as one of the tools in managers' duties to be responsive. Improving the quality of information disclosure can eliminate information asymmetry, reduce the cost of capital and ease investors' concerns over possible risks of default (Verrecchia, 2001). Moreover, transparency and disclosure of information between managers and employees are essential to earn employee trust, engagement and commitment. These factors ensure accurate and timely reporting of activities, thus providing the necessary underpinning to facilitate the application of sound governance mechanisms (Cadbury, 2000). This is extremely important when it comes to SHE management practices, which are about open communication with stakeholders and interested parties.

In the dimension of "transparency and disclosure", the following constitutive attributes are examined: the degree to which information on SHE management practices is communicated between managers and employees within the company; the degree to which information on SHE management practices is disclosed to governmental regulators, customers and communities. These two aspects measure the level of transparency, both internal and external. Transparency and disclosure of information are important to ensure open discussion on SHE topics with good quality of data input, to promote SHE communication and awareness, to enhance trust between managers and workers, and among employees, stakeholders and interested parties at all levels. Timely and comprehensive information disclosure can help ease stakeholders' concerns over a possible risk of default, especially regarding the safety, health and environmental impacts, which are sensitive. Ultimately, transparency and disclosure enhance a positive SHE culture and therefore has a very positive impact on SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions.

In the course of selection of the analytical dimensions of the structural variable of corporate governance, I have excluded some dimensions of the corporate governance mechanism for various reasons. In the study of selected companies, if they are unlisted companies in the Chinese market, I may not be able to obtain accurate data on management remuneration and executive compensation, as these are very sensitive data, subject to privacy, confidentiality and data protection. Further, in the study conducted by Berrone and Gomez-Mejia (2009) on the relationship between environmental performance and executive compensation from an integrated agency-institutional perspective, statistical analysis of longitudinal data for a total of 469 U.S. firms gives the result that firms with an explicit environmental pay policy do not reward environmental strategies more than those without such as structures, suggesting that these mechanisms for executive compensation and environmental strategy play a merely symbolic role. For these reasons, I have decided to remove executive compensation from the dimensions of the corporate governance internal mechanism in my research. I still look at the incentive plan as part of the performance management scheme in SHE management practices, but I do not examine the specific links to the top executives' compensation as part of the corporate governance explanatory variables.

Considering that the study of external corporate governance mechanisms in terms of environmental performance has only recently been subject to growing attention, a comprehensive understanding of this topic is still to be obtained (Miroshnychenko et al., 2019). I have therefore decided not to include the external mechanism dimensions of corporate governance as alternative explanatory factors and to manage them as controlled variables; these dimensions include the market for corporate control, product market competition, legal infrastructure, law enforcement etc., because these are not able to explain cross-firm variations in SHE management practices, as illustrated in Section 2.3. The market for corporate control comes under the role of equity markets in facilitating corporate takeovers (Manne, 1965), in which managers compete for the rights of control over company resources. This is often referred to as the "takeover" or "divestiture" market, and is not applicable to unlisted companies, which are not exposed to the equity market. Further, in China, the "takeover" market is not well developed, due to the feature of state ownership. Prior to the reform of non-tradable shares, it was almost impossible for a company to gain control of another listed company through purchasing tradable shares. The same situation exists in companies in which the majority of shares are owned by family, corporate or other shareholders, whether for listed or unlisted companies. Mergers and acquisitions among companies in the private sector occur in most cases due to company owners' self-interest in maximizing market share in the business sector, or due to their motivation to switch their investment to another business sector. This occurs in most cases when both parties see opportunities for themselves, rather than due to "takeover" pressure in the equity market. Thus, the market for corporate control is ruled out. The other two external mechanisms, i.e. product market competition, and legal infrastructure and law enforcement, have been ruled out in the discussion on external factors in Section 2.3.

I conclude with the validity of my selection of governance mechanism and power structure dimensions, i.e. ownership structure and control, the board of directors, stakeholder influence, transparency and disclosure, and associated constitutive attributes. As illustrated above, the four dimensions of governance mechanism and power structure, as four components of the structural variable of corporate governance, have a hierarchical and complementary nature in supporting the explanation of causal effects between the structural variable of corporate governance and

SHE management practices. Ownership structure and control take up the major part of the discussion in the corporate governance debate, as this is about who owns and controls the company. However, ownership structure and control do not provide a full explanation of the governance mechanism and power structure. The board of directors, as a crucial internal mechanism of the overall corporate governance system and the governing body in a company, embodies the links between the owners and the management, and provides strategic direction for daily operations. The board of directors supplements the elaboration of the corporate governance mechanism and power structure. For the aim of providing an explanation of the causal effect between patterns of corporate governance and SHE management practices, stakeholder influence becomes important in emphasizing the role of stakeholders in the corporate governance mechanism and power structure. In addition, transparency and disclosure provide a kind of open communication platform and mechanism to address SHE matters in an organization.

The hierarchical and complementary nature of the four selected components of the structural variable of corporate governance facilitates the explanation of how the governance mechanism and power structure affect strategic goal setting, decision making and resource allocation in SHE management practices. The structural variable of corporate governance primarily builds the causal effect relationship with the "Leadership" dimension of SHE management practices; it also has a secondary effect on the "Behaviour" and "Technique" dimensions of SHE management practices. The governance mechanism and power structure dimensions and their associated constitutive attributes are operationalized within a set of structured-focused questionnaires to form the structural variable as part of the patterns of corporate governance, as shown in Appendix II. In the empirical study, each company, is classified as having either "Strong Governance Mechanism and Power Structure" or "Weak Governance Mechanism and Power Structure", depending on the degree of maturity of the corporate governance structure in favour of SHE management and the functionality of these mechanisms in the company being evaluated.

All of these governance mechanism and power structure dimensions, i.e. ownership structure and control, the board of directors, stakeholder influence, and transparency and disclosure, provide only the structural variable, which explains how the organizational configuration, governance mechanism and power structure are set up within the company to support the leadership on strategic goal setting, decision making and resource allocation. This solves the challenges with consideration of "doing the thing right". However, the structural variable of corporate governance does not explain the internal motivation and value orientation of a company in terms of the attention it pays to SHE management. The structural variable explains more about the "Leadership" dimension of SHE management practices from the structure perspective, but is less informative on the "Behaviour" and "Technique" dimensions of SHE management practices from the process perspective. As a simple example, if the directors and managers do not see the importance of SHE management and they only focus on maximization of financial value, the governance mechanism and power structure will deliver the pursuit of financial value maximization, while SHE management and social performance will be ignored, due to a lack of value orientation towards SHE matters. Ortiz-de-Mandojana et al. (2016) have suggested that the effectiveness of corporate governance structures in terms of environmental sustainability is stronger in societies that are highly concerned about environmental issues; conversely, corporate governance structures embedded in societies that do not value environmental issues limit firms' behaviours in complying with legal environmental requirements.

A corporate governance mechanism and power structure works effectively with the underpinning of a corporate value orientation. Corporate value orientation spells out what is important to a company and provides the foundation for a company to formulate its vision, mission, values, strategy setting, decision making etc., which affects SHE management practices with respect to the "Leadership, Behaviour, Technique" dimensions in conjunction with the corporate governance mechanism and power structure. In order to explore the causal links between patterns of corporate governance and SHE management practices, in which we need to address in depth the underlying mechanisms and processes at the institutional level, in addition to the structural variable, I also need to shed light on corporate value orientation as the ideational variable of corporate governance, which focuses on setting the right direction and doing the right things for an organization.

3.4 The Ideational Variable of Corporate Governance

When we think of our values, we usually think about what is important to us in our lives. Values are conceptualized as guiding principles that are important in a person's life (Rokeach, 1973, Schwartz, 1992, Rohan, 2000) and are treated as criteria for guiding action, and for developing and maintaining attitudes towards relevant objects and situations (Rokeach, 1968). Rokeach (1973) locates values in the realm of conceptions, defining them as constructs that transcend specific situations that are personally and socially preferable, and elaborating these notions to provide clearer guidelines for the operationalization of such constructs. He defines values as an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence (Rokeach, 1973). The clear guidelines for this operationalization is Rokeach (1973) value survey, which has received widespread use in recent decades for measuring personal and social values with 36 items to provide a comprehensive and representative coverage of the value domain. The 36 items representing 36 concepts are divided into two categories of values: terminal values and instrumental values. Terminal values cover 18 desirable end states of existence, the goals that a person would like to achieve during his or her lifetime. Instrumental values cover 18 preferable modes of behaviour or means of achieving one's terminal values. Rokeach was the first to study values systematically, with initial scientific research of the "values" concept from a psychologocal perspective focusing on the personal values of individuals (Malbasic et al., 2015).

For the interests of this research, understanding corporate values and corporate value orientation, which are different from personal or individual values, is more like understanding organizational values. Organizations on their own do not have values; however, organizations are composed of human beings whose personal values shape the values of those organizations. As Hultman and Ken (2003) state, organizations can be said to have values. It is therefore necessary to distinguish personal from organizational values: personal values of the members in an organization guide their personal decisions and actions, while organizational values provide norms that specify how an organization's members should behave and how the organization's resources should be allocated (Edwards and Cable, 2009). As such, organizational values may simply be understood as the accepted and shared values within an organization (Argandoña, 2003). Actually, as a derivate of Rokeach's definition of values, Enz (1988) defines organizational values as the beliefs held by an individual or group regarding means and ends that an organization ought to identify in the running of the organization, in choosing what business actions or objectives are preferable to alternative actions, or in establishing organizational objectives. In a much simpler approach, Collins (2004) determines organizational values as an organization's essential and enduring tenets – a small set of general guiding principles. Organizational values explain what an organization stands for and what it believes, and as such, they guide organizational behaviour and decisions. Finally, organizational values may be referred to as beliefs and ideas concerning the types of goals to be achieved by the organization's members, and ideas concerning the appropriate types of behaviour standards that they should adhere to for those goals to be achieved (Sikavica et al., 2008). The types of goals the organization pursues and the types of behaviour standards the organization adheres to indicate the organization's corporate value orientation, and this varies among organizations and companies.

The values theory defines values as desirable, trans-situational goals, varying in importance, which serve as guiding principles in people's lives. The crucial aspect that distinguishes among values is the type of motivational goal they express (Schwartz, 1994b, Schwartz, 2007). Each of the ten basic value types proposed by Schwartz (1992) can be characterized by describing its central motivational goal, i.e. self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence, and universalism. In addition to identification of ten motivationally distinct basic values, the values theory explicates a structural aspect of values with two orthogonal dimensions, i.e. self-enhancement versus self-transcendence, openness to change versus conservation (Schwartz, 1994a). This classification is modified by Stern et al. (1998) as four structures: altruistic, self-enhancement, traditional and openness to change.

Value orientation is defined as clusters of compatible values reflecting people's preferences in decisions on resource allocation for actions towards achieving objectives. Value orientation takes shape during socialization processes, and may affect people's beliefs, attitudes and behaviour (Stern and Dietz, 1994). Values are derived from one's membership in a culture, and along with attitudes, beliefs and behaviour, values combine to form a continuous spiral of community culture or organizational culture (Adler, 1986). There are many studies on the constructs of values, ethics, morals and culture, and their conceptual relationships, which are not the focus of my research. Thus, I do not shed light on these studies but stay focused on my research to avoid being distracted.

In some studies of environmental ethics, environmental concerns and pro-environmental behaviour, three types of environmental ethics, namely homocentric, ecocentric and egocentric, are identified corresponding to three classes of valued objects: other people, non-human objects and the self (Merchant, 1992). Stern et al. (1993) have identified three value orientations, social-altruistic, biospheric and egoistic that notably parallel Merchant's three ethics types. The concept has similarities to the concept of the altruistic, cooperative, individualistic and competitive value orientations, as applied in the "social dilemma game" and the "decomposed game" respectively by Messick and McClintock (1968) and Liebrand et al. (1986). Carroll (1979) has developed a framework, named the "organizational social performance model", which integrates all dimensions of social responsibility into the firm's corporate culture, on the one hand, which reflects corporate values and ethics, as well as, on the other hand, into the strategic integration and decision making processes, which determine the firm's "philosophy of social responsiveness", i.e. proaction, accommodation, reaction and defence.

After a thoughtful review of the previous studies on definitions and types of values, in this research, to streamline the understanding of corporate value orientation based on the concept and definitions of organizational values, and to make it easier for empirical analysis of corporate value orientation as the ideational variable of patterns of corporate governance, I adopt "Strong Prosocial" and "Weak Prosocial" as the classification of corporate value orientation. These two categories of corporate value orientation depend on the strength of prosocial values that are perceived in a company and verified through evaluation. The use of prosocial values and prosocial corporate value orientation is supported by the literature review, in which I found the terms “prosocials” and “proselfs” used in a study by Boone et al. (2010) to investigate how an individual’s social value orientation (SVO) interacts with explicit cooperative incentives on one hand, and intrinsic and extraneously induced trust on the other hand, to affect cooperative behaviour. I elect to use the term “prosocial” in this research, but not the term “proself”, because this study focuses on organizational values, corporate value orientation, but not on the social value orientation of individuals. Further, Weber et al. (2008) have proposed the concept of work-related prosocial orientations based on the theoretical outline of prosocial organizational behaviour by Brief and Motowidlo (1986). Becker-Olsen et al. (2006) have adopted the concept of profit-motivated versus socially motivated CSR initiatives to study their respective impacts on customer behaviour. These are the theoretical bases that I refer to in order to define and categorize prosocial values and prosocial value orientation in my research.

“Weak Prosocial” corporate value orientation refers to the context in which people seek to maximize their gains. Decision makers in an organization are more profit-oriented, aiming at the maximization of the shareholders’ value with less consideration of social wellbeing and the benefits of all stakeholders. “Strong Prosocial” corporate value orientation refers to the context in which people are also concerned with others’ gains and losses when pursuing their own gains. Decision makers in an organization are more socially oriented with a target of achieving both shareholders’ value and other stakeholders’ benefits, as well as social wellbeing. “Strong Prosocial” differs from “Weak Prosocial” in that the social-altruistic consequences are more salient and the egoistic consequences are less so (Gärling et al., 2003). A different categorization between “Strong Prosocial” and “Weak Prosocial” value orientation does not mean a clear cut difference, but just indicates the different degrees of prosocial focus within companies. A summary of the categorization of values types, value structures, social value orientations and corporate value orientations is presented in Table 2 for easy reference.

Table 2 Categorization of values and value orientations

Corporate Value Orientation	Motivational Types of Basic Values (Schwartz 1992, 1994, 2007)	Orthogonal Dimensions of Value Structure (Schwartz 1994; Stern 1998)	Value Belief Norm (VBN) Theory of Value Orientation for Proenvironmental Behavior (Stern 2000; Stern et al. 1993)	Social Value Orientation (SVO) in Social Dilemmas (Decomposed Game) (Messick and McClintock 1968)	Environmental Ethics / Environmental Concerns (Merchant 1992)	Philosophy of Social Responsivenes to Social Issues (Carroll 1979)
Weak Prosocial	Power Achievement Hedonism Stimulation Self-Direction	Self-enhancement Openness to change	Egoistic	Individualistic Competitive	Egocentric	Reaction Defence
Strong Prosocial	Universalism Benevolence Tradition Conformity Security	Self-transcendence (Altruistic) Conservation (Traditional)	Biospheric Social-altruistic	Cooperative Altruistic	Ecocentric Homocentric	Proaction Accomodation

Corporate value orientation, as the ideational variable of patterns of corporate governance, spells out what is important to an organization, and functions as a compass indicating where the organization stands and the routes it should and should not take, or as a filter screening out ideas and/or actions that could distract or even harm the organization. Corporate values, treated usually as part of an organization’s culture, are created and reshaped by the owners, founders, management and employees over time according to the business environment, as well as the organization’s vision, mission, goal, strategies etc. They reflect the scarcities and expectations of the different stages of corporate development, which are strengthened and consolidated through socialization over time. In a classical sense, corporate values can be defined as beliefs that help companies make choices from among available means and ends (Rokeach, 1973), or more technically, as the weight which corporate decision makers attach to alternative goals when making their decisions. Alternative goals can be profitability, market share, customer satisfaction, company growth, or measures of social performance (e.g. reputation, environmental impact, employee health and safety etc.) (Thomsen, 2004).

In the empirical world, a company’s corporate values are usually published in its value statement or mission statement. However, with all of its buzzwords, is the value statement meaningful or meaningless? Does the value statement reflect core values with deeply ingrained principles that guide the directions and actions of a company and serve as its cultural cornerstones? Or, does the value statement reflect certain aspirational values that a company needs to have but currently lacks? Or, does the value statement simply reflect the minimum behavioural requirement set for employees? Or, is it bland, toothless and just plain dishonest, as the company needs a value statement as part of corporate image? Or, is it simply an outcome of a consultant's advice? (Lencioni, 2002). In this research, I need to examine both what people say they value and what their individual and collective actions indicate that they value (Stern and Dietz, 1994). I also need to understand the actual and real situations associated with the recurring characteristics and discernible regularity of emerging patterns of corporate governance in order to detect if there are actual matches with those buzzwords that are advertised in official statements, annual reports etc.

In this research, I need to define the indicators that measure corporate value orientation. There are no extant measurement kits that can be used directly, so I need to develop constitutive attributes as indicators for corporate value orientation. Rokeach (1973) emphasizes means and ends in his definition of corporate values, which is identical in nature to measuring the corporate actions taken to meet corporate objectives. I look at this from two perspectives, i.e. from goal-oriented and action-focused perspectives, to measure the prosocial corporate value orientation with four indicators. These are as follows: the extent to which prosocial values are reflected in the vision and strategy of the company; the extent to which prosocial values influence the formulation of organizational goals; the extent to which prosocial values shape the attitude and behaviour of key stakeholders; the extent to which prosocial values are given priority in the development of SHE management practices. The first two indicators are more about measuring the goal-oriented perspective of prosocial values, as they measure the extent to which prosocial values can be perceived in the company's vision, strategy and goal. The other two indicators are more about measuring the action-focused perspective of prosocial values, as they measure the attitudes and behaviour of key stakeholders and the extent to which the key stakeholders give priority to the development of SHE management practices. The strength of prosocial values should be reflected in both the goal-oriented and action-focused perspectives, so that prosocial values not only indicate a wished-for status that a company says it wants to achieve, but are also supported by what a company does in terms of actions to achieve that status. These four indicators are the constitutive attributes that provide a complementary and integrated understanding of prosocial corporate value orientation.

The goal-oriented perspective of corporate value orientation describes the desirable end states of existence, spells out what companies consider most important as the ultimate destination that they would like to reach, and directs their vision and strategy, as well as the setting of their overall goals and targets. If the goal-oriented perspective of corporate values has the characteristic of strong prosocial orientation, the decision makers in a company are expected to include social performance, stakeholder benefits, and social wellbeing as part of the company's overall goals and targets. This then guarantees a clear strategic goal for safety, health and environmental matters and this strategic goal guides the establishment of policy and structure, and the implementation of SHE management initiatives. The goal-oriented perspective of prosocial corporate value orientation is expected to have a wholly positive influence on the "Leadership, Behaviour, Technique" dimensions of SHE management practices.

The action-focused perspective of corporate value orientation addresses the preferable modes of behaviour, means and actions required to achieve a company's ultimate destination. If the action-focused perspective of corporate values demonstrates the nature of a strong prosocial orientation, attitudes, behaviour and actions, from the top down to all levels of the company, are focused on moving towards prosocial delivery. The socialization process, whereby core values affect people's attitudes and behaviour, supports the achievement of company goals. In the socialization process, when there is a strong prosocial value orientation, the leadership behaviour, strategic planning and daily actions of directors, managers and employees naturally give consideration to safety, health and environmental matters. SHE management is integrated into each person's daily routine and decision making. The action-focused perspective of corporate value orientation has a fundamental impact on the ways in which priority is given in the development of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions.

The goal-oriented and action-focused perspectives provide the complementary view of corporate value orientation as the ideational variable of corporate governance. Corporate value orientation is associated with socialization processes, in other words with the processes of internalizing the norms and ideologies with regards to “what is important to the organization”. These processes have integrated causal effects on SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions. The ideational variable provides the effective complementary explanation of the causal linkage between patterns of corporate governance and SHE management practices.

Do these causal effects come from organizational influence or individual influence? I claim that causal effects of corporate value orientation on SHE management practices are more due to the organization’s influence. Directors and managers, as individuals, are embedded in the organization. They play the role of organizational actors and deliver value orientation and decision making through the vehicle of the organization. Anyone, as an individual, has his or her own personal norm or personal value orientation due to personal background, education, experience etc. As people living in society, they are influenced by social context, culture or social value orientation. When they work for a company, they are expected to live with the company’s corporate values as a guideline for their actions. Given the different layers of a value system, e.g. social context, personal norm and corporate values, if there is conflict, which one prevails? Are companies’ corporate values strong enough to shape their managers’ and employees’ beliefs, attitudes and behaviour with respect to the company’s common goal by minimizing the impact of managerial discretion and personal preference carried over from social context and personal norm? Is there a strong and effective enough corporate governance mechanism and power structure functioning to keep executives, managers and employees on the right track to maintain the corporate core values at all cost? In many cases, corporate core values are not compromised for short-term gain, for convenience or due to pressure etc.

In the case of strong corporate value orientation, individuals, as organizational actors, behave under the organizational umbrella. Even when a new decision maker (e.g. new CEO) joins an organization, he or she has to respect the current system and cannot make immediate changes to the current corporate value orientation, otherwise there would be resistance. It needs a long time for the internalization process to drive changes step by step until new corporate values emerge and are accepted by the organization’s population. In the context of weak corporate values, meanwhile, such as in a family business, the founder and family owner, as individuals, can have a huge influence on corporate value orientation, but in their roles as organizational actors, their individual value orientation is mostly regarded as the corporate value orientation as well, so their influence, in most cases, can be regarded as organizational influence.

3.5 Patterns of Corporate Governance as the Integrated Explanatory Variables

As explained above, the structural and ideational variables of corporate governance are both expected to influence the ways in which SHE management practices have been implemented in Chinese enterprises. However, these variables are not standalone, and their individual impacts on SHE management practices are not isolated. In many cases, there are interactions between the two variables, which then form patterns of corporate governance and have an integrated influence on the implementation of SHE management practices. As mentioned previously, most studies of the links between corporate governance and SHE management only focus on the structural variable of corporate governance; very few studies shed light on the ideational variable, and almost no studies elaborate the interaction between the structural and ideational variables. My research sheds light on the interactions between both variables, elaborates the patterns of corporate governance arising from these interactions, and examines their impact on SHE management practices.

In the traditional view, it is perceived that corporate values are based on the ethical standards of executive directors, managers and employees. Thomsen (2004) indicates that this traditional view seems true in smaller companies with founder-owners and owner-managers, because these people often play a pivotal role in shaping corporate values that influence companies for years to come. However, the traditional view seems not to be valid in larger companies, in which the ownership and control are separated, and managers and boards come to play powerful roles. Moreover, executive directors, managers and employees often hold their own personal values, but they are also influenced by the social context in which they operate. This traditional view seems not to have an answer for the interactive nature of the structural and ideational variables of corporate governance.

For organizations with existing deeply ingrained corporate core values, such as some companies with long histories (e.g. some multinational family-based companies that have been in existence for decades or centuries), the corporate core values usually reflect the values of the companies' founders, have been inherent and sacrosanct, and can never be compromised regardless of changes in the governance structures. These core values have provided the guiding principles to ensure such companies have done the right thing and stayed on the right track over the years. The business strategy, and even the organizational culture, might change with different generations of owners and directors to meet the need for sustainable development and growth, but the core values never change. These kinds of core values influence the corporate governance mechanisms and practices because they provide guiding principles to shape the values and behaviour of board members, executive directors, managers, employees and other stakeholders. The core values also somewhat determine the configuration of the corporate governance mechanism and power structure.

In the business world, we have seen too many buzzwords and meaningless statements about values, which are toothless or just dishonest, and do not reflect core values with deeply ingrained principles. Such meaningless statements are harmful to companies through the eroding of the foundation of the corporate governance mechanism and damage done to reputations. The point here is that we need a theory and a causal explanation to predict with any degree of confidence what values are likely to prevail in a given company. The theory should therefore aim to predict what goal variables might be influential in a given company (or in a given decision context) and what emphasis the decision makers might place on each goal (Thomsen, 2004). There is no theoretical framework in existence that can be used directly, and there are limitations in the potentially available frameworks. I need to develop an explanatory framework which contains explanatory variables giving consideration to both the ideational and structural variables of corporate governance.

In this research, I claim that the corporate governance mechanism and power structure, as the structural variable, together with corporate value orientation, as the ideational variable, describe the interactive nature of corporate governance variables from two perspectives. The structural and ideational variables are just like two sides of one coin; they interact in two ways to form patterns of corporate governance. Inherent and sacrosanct core values require, and eventually determine the configuration of an effective corporate governance mechanism and power structure to ensure there is no compromise on these core values in a company's daily strategic interaction and decision making. A well-established and functioning corporate governance mechanism and power structure empower the executive directors and managers of the company to implement company strategy in line with corporate values. Deeply ingrained corporate core values define how the corporate governance mechanism and power structure are configured to guarantee that a company's core values are adhered to without compromise in its daily business activities and operations. The core values provide the basic principles for a company's executives and managers to follow, and the company's actions are then guided in the right direction. The two-way interaction and interplay between the structural and ideational variables of corporate governance enhance corporate governance practices leading to effective strategic interactions and decision making, which emerge as patterns of corporate governance and exert impact on SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. The patterns of corporate governance are the explanatory variables in the explanatory framework.

With the operationalization of the ideational and structural variables, I formulate the patterns of corporate governance as the explanatory variables (i.e. predictor/independent variables). With the categories of "Strong Prosocial" and "Weak Prosocial" corporate value orientation, along with the categorization of the corporate governance mechanism and power structure as "Strong Governance Mechanism and Power Structure" or "Weak Governance Mechanism and Power Structure", this enables me to establish a 2×2 matrix to illustrate the integrated explanatory variables as patterns of corporate governance, and the different ways in which the structural and ideational variables interact to generate four different patterns of corporate governance, i.e. "Strongly Governed", "Structurally Constrained", "Ideationally Constrained", "Weakly Governed" (refer to Table 3).

Table 3 2×2 matrix for patterns of corporate governance

		Governance mechanism and power structure	
		Strong	**Weak**
Prosocial corporate value orientation	**Strong**	I Strongly Governed	II Structurally Constrained
	Weak	III Ideationally Constrained	IV Weakly Governed

Different patterns of corporate governance, as the outcomes from interactions between the structural variable (i.e. governance mechanism and power structure) and the ideational variable (i.e. corporate value orientation), lead to divergent SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. The explanatory mechanism facilitates the understanding of the causal effects of patterns of corporate governance on SHE management practices. However, we should be aware that there is no absolutely clear demarcation among structure, process and outcome for either patterns of corporate governance or SHE management practices. Instead, there is an integrated understanding of the complementary approach to seek an explanation of the causal links between patterns of corporate governance and SHE management practices.

3.6 Explanatory Framework

In Section 2.2.4, I have defined and operationalized the "Leadership, Behaviour, Technique" dimensions and associated constitutive attributes of SHE management practices, and have developed the comparative framework for SHE management practices, which serve as outcome/dependent variables. In Section 2.3, I have reviewed factors influencing SHE management with a multilevel (i.e. macro-, meso- and micro-levels) approach, and have examined many external factors, e.g. the SHE regulatory regime, international exposure, sectoral and industrial characteristics, market constraints etc., confirming that they are unable to explain cross-firm variations in SHE management practices. The same is true for some internal factors, such as firm size, history etc. In the case studies, I have considered fixing these extraneous factors as controlled variables during case selection for comparative analysis; thus, I can control and eliminate the impacts from these extraneous factors. I have examined the internal factors with a focus on the structural and ideational variables of corporate governance which are well defined and operationalized. After elaborating the two-way interactive nature of the two variables, I have claimed that their combination and interaction leads to the formation of patterns of corporate governance which serve as the valid explanatory variables that explain cross-firm variations in SHE management practices and answer the central research question.

I propose an explanatory framework, as shown in Figure 2, which appears capable of providing an integrated understanding regarding the impact of patterns of corporate governance on SHE management practices. This explanatory framework is to guide the empirical studies, e.g. interviews, field work, data collection and analysis etc., and is subject to revision during the empirical work. Ultimately, I aim to finalize a theoretical framework with an empirically validated central argument and propositions as outcomes from this research.

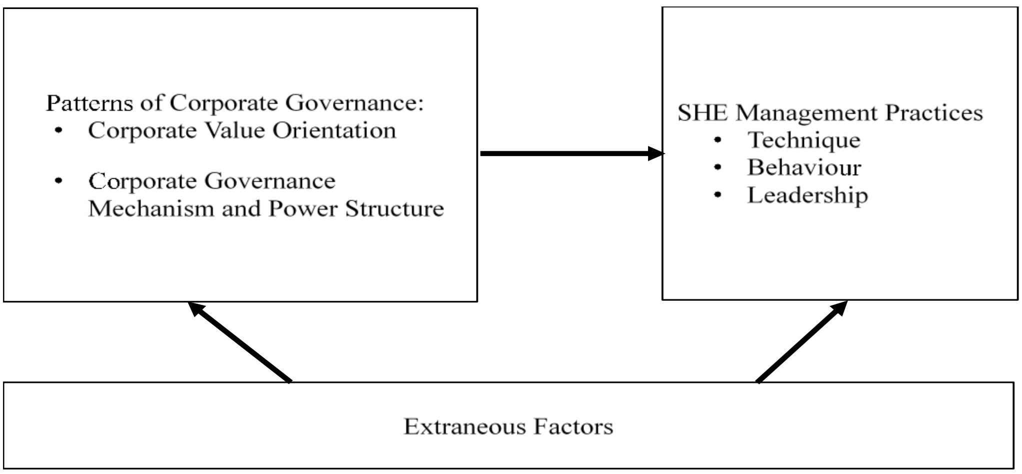


Figure 2 Explanatory framework

Theoretically, I put the structural and ideational variables together in a 2×2 matrix, as shown in Table 3, to elaborate the integrated explanatory variables. The different interactions between the two variables of corporate governance generate four different patterns of corporate governance which lead to divergent SHE management practices. Four implicit propositions associated with the explanatory framework are put forward to illustrate the causal effect of the four patterns of corporate governance on SHE management practices, i.e. "Strongly Governed", "Weakly Governed", "Structurally Constrained" and "Ideationally Constrained".

The "Strongly Governed" and "Weakly Governed" patterns are two extreme scenarios demonstrating how, in extreme cases, the patterns of corporate governance affect the SHE management practices in Chinese enterprises. The "Strongly Governed" pattern refers to corporate governance when a strong governance mechanism and power structure interact with a strong prosocial corporate value orientation. The impact of the "Strongly Governed" pattern of corporate governance on SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions is very positive and constructive. The "Weakly Governed" pattern of corporate governance refers to corporate governance when a weak governance mechanism and power structure interact with weak prosocial corporate value orientation. The impact of the "Weakly Governed" pattern of corporate governance on SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions is negative and destructive. The "Structurally Constrained" and "Ideationally Constrained" patterns are the other two patterns of corporate governance. The "Structurally Constrained" pattern of corporate governance refers to corporate governance when a strong prosocial corporate value orientation interacts with a weak governance mechanism and power structure, which leads to constraints on the implementation of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. The "Ideationally Constrained" pattern of corporate governance refers to corporate governance when a strong governance mechanism and power structure interact with a weak prosocial corporate value orientation, which leads to limitations in the implementation of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions.

3.7 Summary

With the central research question arising from empirical concerns and identified literature gaps, this chapter has focused on seeking a theoretical explanation for cross-firm variations in SHE management practices. An explanatory framework is needed to guide the research work in seeking the answer to the central research question, in which the central theoretical argument is put forward that corporate governance, as the valid explanatory factor, determines cross-firm variations in SHE management practices. To support the development of an explanatory framework, the focus of the work in the theoretical chapter is to define and operationalize the structural and ideational variables, and to develop patterns of corporate governance as the explanatory variables. I have shed light on the interactive nature of the structural and ideational variables, and have examined, with theoretical predictions, how these two variables interact to generate divergent SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. A 2×2 matrix is generated to elaborate the various ways in which the structural and ideational variables of corporate governance interact. Four different patterns of corporate governance, as explanatory variables, are illustrated, with a theoretical explanation of how different patterns of corporate governance exert an impact on SHE management practices. An explanatory framework is developed to support the empirical comparative case study.

Chapter Four: Methodology

4.1 Introduction

The empirical concern with cross-firm variations in SHE management practices, coupled with the identified literature gaps, pose the central research question: "Why do Chinese enterprises differ with regards to their SHE management practices?" An explanatory framework has then been proposed and operationalized, aiming to explain how patterns of corporate governance, as explanatory/independent variables, affect SHE management practices, as outcome/dependent variables. To achieve the research objective, my chosen research design and method are developed around, and structured by the central research question. Case study appears to be a more suitable research strategy to answer "how" and "why" questions, i.e. questions focusing on the underlying processes, on the causal nexus between the explanatory/independent variables and the phenomena to be explained (Kaarbo and Beasley, 1999). The whole research focuses on the comparative analysis of two cases, including cross-sectional analysis of Company A and Company X and longitudinal study of both companies. Thus, comparative case study is a more appropriate research method. The whole research design of this project follows the principles of comparative case study and aims to develop and expand theory.

This chapter illustrates the selection of, and rationale for the research strategy, as well as the research design of the comparative case study. Why is case study a more suitable research strategy? Why is comparative case study a more appropriate method, which appears superior to alternative methods (e.g. large-n analysis, single case study etc.)? This chapter gives an explanation of the central elements of the comparative case study approach, and of the steps in comparative case study research design. Further, there is a focused explanation of the consideration of case selection to understand why Company A and Company X are selected as the cases for comparative analysis, as well as an explanation of the strategies for data collection and data analysis. The limitations of the selected research strategy and methodology are addressed, including how the effects of these limitations have been minimized with the appropriate research design.

4.2 Research Strategy

The overall research strategy for this project has the qualitative orientation of seeking theory building through a comparative case study. Why is the case study approach a more suitable research strategy for my research? Why is comparative case study a more appropriate method, superior to other alternative methods, e.g. large-n analysis, single case study etc.? This is largely determined by the central research question and the analytical objective of my research.

I examine various research strategies but immediately rule out the large-n statistical study approach, because this is mainly used to test existing theory and is less used to develop new theory. The large-n statistical approach can be used to answer the research question through quantitative analysis and to examine causality using advanced econometric techniques and controlling all other factors (e.g. external factors, and internal factors such as firm size, age, profit, sector etc.). However, the difficulty in accessing data relating to corporate governance and SHE management practices of enterprises, especially for unlisted companies, and the challenges in measuring ideational variables or looking at more dimensions of corporate governance may lead to quantitative analysis being unfeasible. This approach does not support my research aim of developing and expanding theory through examining the interactive processes of corporate governance and SHE management practices. Large-n statistical study and case study are approaches that fit different research purposes. George and Bennett (2005) show how statistical studies may have tested the correlation between regime types and war, but how case studies have been needed to examine the underlying mechanisms and institutional processes that might explain such a correlation. Statistical study does not fit the purpose of my research, which is to examine the underlying mechanisms and institutional processes of the causal links between patterns of corporate governance and SHE management practices.

Case study, as defined by Yin (2014), is a form of empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident. In other words, we would want to do case study research because we want to understand a real-world case and assume that such an understanding is likely to involve important contextual conditions pertinent to our case (Yin, 2014). Given the nature of the case study strategy and its purported usefulness in “exploring new and emerging processes” (Hartley, 2004), it is more suitable for use as a research strategy for building theories from phenomena and observed empirical concerns, especially for exploratory studies in under-researched areas. In my research, to seek theoretical explanation of the causal effects of patterns of corporate governance on SHE management practices, case study is more suitable for empirical inquiry into the emerging phenomena of cross-firm spatial and temporal variations in SHE management practices, aiming to develop and expand theory in this under-explored area, in order to seek the explanatory mechanism to answer my central research question from a corporate governance perspective.

Closely related to his definition of case study, while discussing selection of different research strategies and methods, Yin (2014) has put forward three conditions to assess the relevant situations for different research methods, i.e. experiment, survey, archival analysis, history and case study. The three conditions are: (a) the type of research question posed, (b) the extent of control a researcher has over actual behavioural events, and (c) the degree of focus on contemporary as opposed to entirely historical events (Yin, 2014). These three conditions provide some criteria for researchers to quickly justify their selection of research strategy and method.

My research is initiated with a “why” central research question to investigate in depth the causal links between patterns of corporate governance and SHE management practices. This gives a focus on a contemporary set of events in a real-life setting with spatial variations and temporal changes, in which I, as researcher, have little or no control over behavioural events. Among the five research methods, survey and archival analysis cannot be used to answer “why” research questions, while experiment, history and case study can do so. Experiment requires control of behavioural events, although it does focus on contemporary events. History virtually requires no control of behavioural events, but the distinctive contribution of this method is in dealing with the “dead” past and not in focusing on contemporary events. The case study method, therefore, stands out as my choice of research method because it focuses on contemporary events and does not require control of behavioural events. In my research to seek a theoretical explanation for my central research question, case study appears more feasible than, and superior to the other methods.

In this research, I want to conduct a case study with in-depth investigation of a contemporary phenomenon to understand the causal mechanisms regarding how patterns of corporate governance lead to cross-firm spatial and temporal variations in SHE management practices. I want to understand the real-world cases of Chinese enterprises in relation to their patterns of corporate governance and SHE management practices, and the underlying structure, processes and outcomes in each case, as well as the causal links between the explanatory/independent variables and the outcome/dependent variables. To answer the central research question, “Why do Chinese enterprises differ with regards to their SHE management practices?” I seek theoretical explanations from a corporate governance perspective for the cross-firm variations in SHE management practices between Company A and Company X. Both the outcome/dependent variables and the explanatory/independent variables need to be described, measured, compared and contrasted, so that I can see the emerging patterns during the investigation work. Thus, comparative case study appears to be a suitable research method for my research. This is determined by the central research question because, in order to present the variations in SHE management practices among Chinese enterprises and then to explain these variations, I need to compare cases to seek empirical evidence for my central argument.

The comparative case study is the systematic comparison of two or more data points (“cases”) obtained through use of the case study method (Kaarbo and Beasley, 1999). The idea that comparison is a “good thing” is built into our sense of how we understand the world. Comparison sharpens our power of description and can be an invaluable stimulation for concept formation and contributes especially to the inductive discovery of new hypotheses and to theory building (Collier, 1993). Glaser et al. (1968) detailed a comparative method for developing grounded theory, which relies on continuous comparison of data and theory, beginning with data collection. In my research, the analytical objective is to explore causal links between patterns of corporate governance and SHE management practices through an in-depth understanding of the differences across Company A and Company X in terms of the explanatory/independent variables and the outcome/dependent variables. This is the comparison that Collier (1993) indicates as "[t]he third type of comparison for examination of two or more cases in order to highlight how different they are, thus setting the framework for interpreting the way different processes of change play out within each context". To answer the "why" central research question, the comparative case study serves as a valid approach to interpreting why different patterns of corporate governance lead to different SHE management practices, and then generating new propositions/hypotheses to be empirically verified in the process of theory building. Comparative case study, in this respect, is superior to single case study and multiple case studies.

Although any case study with a proper design can be used either for theory testing or for theory building, comparative case study is deemed more advantageous in building, developing and expanding theory than single case study or multiple case studies. Single case study is more a choice for theory and hypothesis testing in empirical studies, or for verifying findings to complement the use of other quantitative and statistical methods. In some research projects, when single case study is designed to develop theory, there often appears to be weakness in building contrast through spatial and temporal comparison. For example, in the often-used longitudinal single case study, there are no cross-sectional variations in data points, and the temporal changes could be caused by an impact from other causal factors that accumulate over time. So, there are limitations in the use of single case study in developing theory. For this research, the single case study approach simply cannot be used to answer the central research question which focuses on why there are cross-firm variations in SHE management practices. I need a structured comparative case study design to answer the central research question and to provide the theoretical explanation of cross-firm variations spatially and temporally.

Comparative case study can be deemed to be a distinctive form of multiple case study. Most commonly, multiple case studies are also used to test theory and hypotheses, or to verify findings as a complementary method for use alongside quantitative and statistical methods within a mixed methods approach. They can be designed to develop theory through a comparative approach by using more than two cases within the comparative framework. However, there are two challenges with the design of multiple cases in a comparative framework. Firstly, compared to using two comparative cases, using more cases dilutes the in-depth investigation of each case, especially within a limited word count as required in a research project. This research project, aiming at developing theory in the exploratory stage of an unexplored research topic, and at investigating underlying mechanisms and processes, involves a huge workload in terms of interviews with a group of people. It would not be feasible to go into as much depth if I had to use more cases. Secondly, using more cases brings the difficulty of isolating other extraneous factors and managing the rival and alternative explanations, which does not help to achieve the "most similar systems design", increases the complexity of the analytical work and, in some situations, could lead to the failure of comparative analysis. Ultimately, if two cases can offer sufficient variations and contrasts, and can achieve the "most similar systems design", it is not necessary to use more cases. In my research, it is more appropriate to conduct a comparative case study through cross-sectional and longitudinal analysis of Company A and Company X in order to address the spatial and temporal cross-firm variations in SHE management practices and seek a theoretical explanation from the corporate governance perspective.

To answer the central research question, it is appropriate that I adopt a case study research strategy with a qualitative orientation to develop and expand theory through a comparative case study design. A comparative case study appears more suitable and superior to large-n analysis, single case study and other methods. The key to the success of my research project is to have a sound research design for a comparative case study.

4.3 Research Design: Comparative Case Study

As Yin (2014) indicates, every type of empirical research study has an implicit, if not explicit, research design, which is the logical sequence that connects the empirical data to a study's initial research questions and ultimately to its conclusion. Between questions and conclusions, there are a number of major steps in research design. In case study research, five components of the required research design are case study research questions, propositions (if any), units of analysis, logic connecting data to propositions, and criteria for interpreting the findings (Yin, 2014). The research design of this project adopts the comparative case study method, aiming at theory development with a qualitatively oriented approach. The key elements of a comparative case study cover "what do we compare", "why do we compare" and "how do we compare" through case study, and include various steps in research design. There are six such steps: Step 1. Identify a specific central research question and dependent variables for comparison. Step 2. Identify the explanatory variables and develop an explanatory framework. Step 3. Operationalize variables for structured-focused comparison. Step 4. Confirm the case selection for comparative analysis. Step 5. Conduct data collection and create a case study database. Step 6. Perform data analysis and a theory-building review. These six steps of comparative case study research design do not stand separately from each other but rather, are integrated to provide a systematic approach to address "what" element we compare, and "why" and "how" we compare them in a comparative case study.

Steps 1, 2 and 3 of the research design for the comparative case study in this project have been properly covered in Chapter Two and Chapter Three. The central research question, "Why do Chinese enterprises differ with regards to their SHE management practices?", arises from the empirical concern of cross-firm variations in SHE management practices. A comparative framework for SHE management practices has been developed with the "Leadership, Behaviour, Technique" dimensions of the outcome/dependent variables being operationalized for structured-focused comparison. To answer the central research question, an explanatory framework has been developed, in which corporate governance is considered as the valid explanatory factor when other factors are controlled. Structural and ideational variables of the patterns of corporate governance have been operationalized for comparative analysis. In the research design, the evaluation of SHE management practices for Company A and Company X, and the illustration of cross-firm variations follow the combined approach of quantitative scoring and qualitative analysis according to the three "Leadership, Behaviour, Technique" dimensions and the twelve associated constitutive attributes. However, the comparative analysis of patterns of corporate governance and the whole project design, especially the core part of theoretical analysis of the causal nexus between corporate governance and SHE management practices, are highly qualitative. Thus, the comparative case study in this project is qualitatively oriented.

Steps 5 and 6 of the research design for the comparative case study in this project are illustrated in Sections 4.4 and 4.5 respectively. Step 4, "Case Selection", as the centre of comparative case study, is described here and it is explained why Company A and Company X are selected for the comparative case study. I further elaborate the research design of the cross-sectional analysis and longitudinal study to address the spatial variations and temporal changes in both patterns of corporate governance and SHE management practices. This strengthens the theoretical explanation of the causal nexus between independent variables and dependent variables.

As a vital factor in the success of this research project, the selection of cases is the most important aspect for building theory in a comparative case study. Traditionally, in hypothesis-testing research, case selection relies on statistical sampling and cases are selected from the population with the goal of obtaining accurate statistical evidence on the distribution of variables within the population. In contrast, the sampling of cases from the chosen population is unusual when building theory from case studies (Eisenhardt, 1989b). Such theory building research relies on theoretical sampling and, as Glaser et al. (1968) indicate, cases are chosen for theoretical and not statistical reasons. Cases may be chosen to replicate previous cases or to extend emergent theory, or they may be chosen to fill theoretical categories and provide examples of polar types. As Pettigrew (1990) noted, given the limited number of cases which can usually be studied during research, it makes sense to choose cases such as extreme situations and polar types in which the process of interest is "transparently observable".

This gives some concept of the "idea of control" for case studies, which is at the heart of systematic investigation. Control of the comparative case study is achieved through case selection, in which there are three important tasks that involve control: selecting comparable cases, selecting cases that vary on the dependent variables, and selecting cases across subgroups of the population to address alternative explanations (Kaarbo and Beasley, 1999). The selection of cases for building, developing and expanding theory should be based on the nature of the theory that is being constructed, rather than on a particular case that is otherwise of some interest to the researcher. In other words, cases should not be chosen for comparability on non-theoretically derived properties. As Kaarbo and Beasley (1999) pointed out, a prerequisite for choosing comparative cases is to define what a "case", or the unit of analysis, is for the investigation. Thus, choosing comparative cases directly follows from the first step of focusing on the central research question and identifying the class of phenomena that the question addresses.

Following the principles as set out in the "most similar systems design" (Teune and Przeworski, 1970), I aim to select cases that are as similar as possible to minimize the number of explanatory variables, and thus to enhance comparability. Without comparability, the researcher cannot know if the variations seen in the cases are due to the explanatory variables under consideration or to other differences between the cases (Lijphart, 1971). Company A and Company X are two companies identified in real business life settings. They are located in the same region (i.e. in second tier cities around the Yangtze River Delta area), with exposure to the same external governance and legislation environment, operate in the same legal and regulatory setting, and face the same regulatory capacity from supervising authorities in the same province. They have similar product profile and marketing position, because they are competitors and key players in the same region in the same market sector, in which they have similar customer requirements because their domestic and international customers are very similar. They operate in the same automotive supply chain manufacturing industry, with similar SHE hazards and risks associated with the same manufacturing setting. They have operated for similar lengths of time and have the same product portfolio, with similar profit margins from their products. The selection of Company A and Company X for comparative analysis can meet the criteria of "most similar case design" by realizing the "idea of control" in fixing the potential extraneous/control variables. Thus, I can reduce the number of variables and focus on elaborating the valid explanatory variables to explain the causal nexus between patterns of corporate governance and

SHE management practices. This therefore eliminates or minimizes the effects from extraneous variables on the causal links to be investigated.

Company A and Company X are two cases with clear variations in SHE management practices, which are the outcome/dependent variables, which have been observed in due diligence activities when Company A and Company X were involved in a merger and acquisition deal. These variations are illustrated further in the empirical comparative case studies in Chapter Five. The case selection meets the "most similar case design" rule for comparative case study, allowing the possibility of variations in the value of the dependent variables (King et al., 1994). Without such variations the researcher cannot make any causal inference about the phenomenon because the same explanatory variables may be present in cases in which the phenomenon is absent (Kaarbo and Beasley, 1999).

The selection of Company A and Company X also gives consideration to cases across subgroups of the population with alternative explanations in mind. The purpose of this is to demonstrate that the relationship holds across different subgroups of a population, which gives the researcher the opportunity to challenge alternative explanations (Kaarbo and Beasley, 1999). Company A and Company X are from different subgroups of the private business sector; Company A is a foreign investor-owned company and Company X is a local family-owned company. This case selection covers two major subgroups in the private business sector in Eastern China. This, therefore, ensures that investigation of causal links between patterns of corporate governance and SHE management practices holds across different subgroups of the private business sector, which offers opportunities for the researcher to challenge the alternative explanations. As illustrated in Chapter Three, I have ruled out the impact of extraneous factors on SHE management practices in companies from different subgroups of the private sector (i.e. Company A and Company X), and have concluded that patterns of corporate governance, as valid explanatory variables, are the determinants of the impact on cross-firm variations in SHE management practices, regardless of subgroups in the case population.

In this research, I only select two companies for comparative analysis, because research aiming at building, developing and expanding theory involves in-depth investigation and a huge amount of interview and qualitative data collection and analysis, which does not make it feasible to involve more companies for study and comparison. Also, more than two companies would make the project much more complicated and difficult to manage in terms of the variables and the interactions between them. Company A and Company X are two typical representative cases of the population groups of Chinese enterprises in the selected industry in the Yangtze River Delta area and fit the "most similar case design" requirement. Continuing with two cases for comparative analysis is well justified in "most similar case design" terms. The selection of Company A and Company X is based on the nature of the theory that is being constructed, focusing on the central research question, and on the analytical objective of examining the causal links between patterns of corporate governance and SHE management practices.

The profiles of company A and Company X are captured in Table 4. The unit of analysis is company entity at the factory level because SHE management practices are mainly implemented at this level, where all of the empirical data regarding SHE management practices can be collected. Company A is a subsidiary entity of ABC Group, and is a factory level company entity being operated in Yangtze River Delta area. ABC Group is a multinational manufacturing group making and selling various industrial products globally. Company X is the only factory level company entity of XYZ Group, which is a small family business with headquarters located in the Yangtze River Delta area. XYZ Group also owns two other trading company entities registered outside of the Yangtze River Delta area. In my comparative case study research design, I use both cross-sectional analysis and longitudinal study. Data collection procedures and the data collection plan are made available to ensure a triangular setup of multiple sources for data collection, i.e. semi-structured interviews, structured-focused questionnaires, observation, documents and review of archived records. The selection of Company A and Company X creates a perfect fit with the "most similar case design" for comparative analysis by fixing most of the extraneous variables to minimize their potential impact, which then facilitates the best comparative analysis of two companies to support the achievement of the analytical objective.

Table 4 Company profiles of the companies selected for comparative case analysis

Company Profile		Company A	Company X
	Location	Yangtze River Delta area	Yangtze River Delta area
	Industry	Manufacturing	Manufacturing
	Ownership Type	Corporate: Directly 30% by ABC China Investment Co., Ltd. and 70% by ABC Corporation	Family: Directly 100% by Mr. Zhang's Family, a family business
	Product	Reinforcement patch, 2D/3D parts, damping (butyl), and sound absorber etc.	Reinforcement patch, 2D/3D parts, water-proof film, damping (butyl), and sound absorber etc.
	History	* In 1993, started business as a local family business, owned by Mr. Zhu. * In 2006, ABC Group established JV with local business partner Mr. Zhu and built a JV plant which started operating in 2007, ABC Group owned 70% share, Mr. Zhu was apointed as the General Manager of Company A in addition to his role as the Deputy Chairman of the Board of Directors; * In 2012, ABC Group assigned General Manager to take over from Mr. Zhu to manage Comany A, Mr. Zhu functioned only as the Deputy Chairman of the Board of Directors; ABC Group started negotiation with Mr. Zhu on the acquisition of his 30% share from Mr. Zhu. * In 2015, ABC Group acquired all share from Mr. Zhu and wholly owned Company A, Mr. Zhu was phased out. ABC Group run the plant fully.	* In 1995, Mr. Zhang's father started business jointly with one other partner Mr. Chen through privitization of a state-owned institude and chemical plant, he owned and ran an old plant. * In 2007, Mr. Zhang resigned from bank system and joined his father's business supporting his father to manage the operation of the old plant, a company operating as the old Company X. * In 2010, Mr. Zhang took over the business from his father as chairman of the board (i.e. executive director), also fucntioned as the general manager, invested and built current new plant which started operating in 2011 as the new Company X.
	Number of Employee	130 in the business of named product	120 in the business of named product
	2016 Sales	11 MEUR	12 MEUR

It has taken quite a while for me, as the researcher, to screen, review, make a preliminary analysis of, and finally confirm the selection of Company A and Company X as the two cases for the comparative analysis. As the APAC SHE Director for the ABC Group, I have been in charge of SHE management of about 70 legal entities with about 40 manufacturing plants present in 13 countries in the Asia-Pacific region. Among these entities and manufacturing plants, there are fully foreign companies and joint ventures. In my role, I have the opportunity to interact with other companies in different industries, including those of customers, suppliers and competitors. I therefore had a large population of potential sample cases. Through screening, I cut this down to six short-listed cases, on which I performed a preliminary analysis to find out how these cases could fit the needs of empirical study aimed at building, developing and expanding theory. This preliminary analysis, through pilot projects, ruled out four of the six short-listed cases because they were unable to meet the criteria set for the “most similar case design" and the requirement for both cross-sectional and longitudinal empirical studies. It has been a quite complicated and challenging process to screen, review and preliminarily analyse the potential cases from the beginning of the conceptual design of my research project until March of 2017, when ABC Group started a merger and acquisition deal with Company X as the target. It was then when I found out and confirmed that Company A and Company X are the two best cases that I can use to construct the "most similar case design" and perform cross-sectional and longitudinal comparative case analysis with a great potential for perfectly supporting the theory building.

Cross-sectional analysis is a type of observational study that analyses data collected from cases to be studied at a specific point in time, i.e. cross-sectional data. The cross-sectional analysis starts with a structured-focused comparison of Company A and Company X through systematic evaluation of SHE management practices using a standardized set of evaluation criteria, as shown in Appendix I, supported with interviews, observation and document review. The analysis of the cross-sectional data consists of comparing the differences in SHE management practices between Company A and Company X. The specific point in time for the cross-sectional snapshot is Quarter One of 2017, because at this point, ABC Group conducted SHE due diligence activities in Company X, and I had full access to the company's cross-sectional data. The cross-sectional snapshot in Quarter One of 2017 is used to represent the contemporary cross-sectional data describing the evolution of SHE management practices during 2012-2017 for Company A, and during 2011-2017 for Company X, which supports my comparative analysis of Company A and Company X with respect to their SHE management practices and the spatial variations between the two companies.

In conducting the SHE management practices evaluation of Company A and Company X, I have involved two additional SHE professionals, i.e. the China SHE manager and the APAC occupational safety manager, who worked for me as part of the regional SHE team in ABC Group. Both professionals have more than ten years of working experience in SHE management, are well recognized SHE experts and have served as SHE professionals in several companies during their careers, with their latest experience being working for me in ABC Group. At the time they were involved in the field investigation work, they did not know that Company A and Company X were the cases selected for my comparative case study and they knew nothing about my central research question and research aim. They just conducted the evaluation of SHE management practices by checking procedures, documents and records along with their site observations, and interviews with managers and employees to verify their findings etc. They were asked only to conduct evaluations of SHE management practices with their expert input. They just performed their normal duties as SHE professionals engaged in SHE due diligence work to compare the SHE management practices of Company A and Company X. Their final report was submitted to me as their supervisor for review.

In a real-life setting, the involvement of the China SHE manager and the APAC occupational safety manager together with myself to carry out this SHE management practices evaluation constituted a good "multiple investigators" approach, which greatly enhanced the objectivity of the evaluation results, avoiding the accusation of bias. This, therefore, enhances the overall reliability and validity of my research. Eisenhardt (1989b) indicated two advantages of multiple investigators: Firstly, multiple investigators enhance the creative potential of a study, because two members often have complementary insights, which add to the richness of the data, and their different perspectives increase the likelihood of capitalizing on any novel insights which may arise from the data. Secondly, the convergence of observations from multiple investigators enhances confidence in the findings and increases the likelihood of surprising findings. I informed the China SHE manager and the APAC occupational safety manager about my research project only after the SHE management practices evaluation for Company A and Company X was completed. I expressed my thanks for their contributions and gave them the participant information sheet (Appendix III) and consent form (Appendix IV) to sign. They were asked to participate in the next step in the field studies, both as investigators, to further analyse SHE management practices, and as interviewees, to provide input and evidence to support the research from a participant's point of view.

After observing the cross-firm variations in SHE management practices, coupled with the identified literature gaps, I have raised the central research question, "Why do Chinese enterprises differ with regards to their SHE management practices?", have conducted theoretical reasoning through a literature review, and have proposed an explanatory framework, as illustrated in Chapter Three. The testing of the explanatory framework starts with the cross-sectional analysis of Company A and Company X. The data collection and analysis are conducted following the "Guide for comparative analysis of patterns of corporate governance and the effects on SHE management practices" (Appendix II), with both semi-structured interviews and structured-focused evaluation being conducted. For the cross-sectional analysis of SHE management practices, the specific time period of Quarter One of 2017 is taken as a snapshot to represent the contemporary cross-sectional data on the development of patterns of corporate governance during 2012-2017 for Company A and during 2011-2017 for Company X.

Although, in the research design, I collect the pooled cross-sectional data for March 2017, as a snapshot to represent contemporary spatial variations, and to reflect the average status during five to six years (i.e. during 2012-2017 for Company A and during 2011-2017 for Company X), these data support the spatial comparative analysis of SHE management practices and patterns of corporate governance. There is a concern that the effect of patterns of corporate governance on SHE management practices may take a longer time to develop and emerge, and that both the corporate governance mechanism and power structure, as the structural variable, and corporate value orientation, as the ideational variable, need more years to develop and demonstrate their impact on SHE management practices. There is a need for socialization and internalization processes, especially for the corporate value orientation as ideational variable. The cross-sectional data only indicate cross-firm spatial variations in both SHE management practices and patterns of corporate governance. It sounds less convincing to make an immediate conclusion that different patterns of corporate governance lead to different SHE management practices. The spatial variations do not describe in enough detail the underlying mechanisms and associated changes through the socialization and internalization processes. To enhance the internal consistency, validity and reliability of the explanatory framework and propositions, in order to provide a triangulation setup in the research design, I also conduct longitudinal studies of both Company A and Company X. Longitudinal study means studying a case at two or more different points in time. As Yin (2014) indicates, the theory of interest is likely to specify how certain conditions and their underlying processes change over time. The desired time intervals would presumably reflect the anticipated stages at which the changes should reveal themselves. These may be pre-specified time intervals, such as prior to, and then after some critical event, following a "before" and "after" logic (Yin, 2014).

The longitudinal studies for Company A and Company X are conducted retrospectively, looking back to 2007 to combine both the cross-sectional and time series data to examine how the changes in patterns of corporate governance have led to changes in SHE management practices over time. As desired intervals, there are two time periods for both Company A and Company X. For Company A, these are the years 2007-2011 and the years 2012-2017, while for company X, they are the years 2007-2010 and the years 2011-2017. The justification for defining two time periods for each company is based on the initial study of the ten-year histories of both companies, which identified major changes in 2011-2012 for Company A and in 2010-2011 for Company X. Four, five or six years as a time period in which to investigate the evolution of, and changes in both corporate governance and SHE management practices is suitable to meet the needs of longitudinal study. The ten-year longitudinal data (or panel data) offers the longitudinal studies (or panel analysis) the chance to examine the temporal changes in both the explanatory/independent variables and the outcome/dependent variables, as well as the nexus between these variables. This then enhances the explanatory power of the proposed explanatory framework and enhances the internal consistency, validity and reliability of my central argument. The longitudinal data are obtained through semi-structured interviews with the same group of interviewees, with additional interview questions designed, as in Appendix II, so that the information can be obtained together with the cross-sectional data collection. The longitudinal data are then included as part of the data pool for the temporal analysis to further support the structured-focused spatial evaluation of patterns of corporate governance for Company A and Company X, and the analysis of causal effects of patterns of corporate governance on SHE management practices.

Eisenhardt (1989a) suggests building theories from case studies using four to ten cases. With fewer than four cases, the empirical grounding of a theory is likely to be unconvincing unless the case has several mini-cases within it. In the research design of the comparative case study in my research project, conducting both cross-sectional and longitudinal analysis of Company A and Company X has generated four units of analysis ("mini cases"), which can then enhance the empirical grounding for theory building and offset the absence of two further cases for comparative case study. Methodologically, a comparative case study research design with cross-sectional and longitudinal analysis of Company A and Company X meets the criteria of "most similar case design" to support the research objective of developing and expanding theory, and to answer the central research question.

4.4 Data Collection

Case study is about investigating phenomena within real-world contexts. This has important implications for case study research design and data collection. If the data collection is not carried out properly, the entire case study can be jeopardized, and all of the earlier work in defining the central research question and case design could have been for naught. In order to conduct proper data collection, well designed field work procedures are essential because data are collected from people and institutions in their everyday situations, not within the controlled confines of a laboratory or the sanctity of a library. Thus, the researcher usually does not have control over the data collecting environment (Yin, 2014). In case study, it is important to integrate real-world events with the need for a data collection plan to ensure that a good quality of case study can be achieved with continuous interaction between the theoretical issues being studied and the data being collected.

The key to open the door for data collection is to gain access to the organizations and interviewees involved in the research project. I have full access to Company A in China at all times because Company A is a subsidiary of ABC Group, and I am the APAC SHE Director for ABC Group. I can conduct audits and contact Company A's management at any time that suits their convenience. I can then physically visit Company A for a site tour, to conduct interviews and review documents and records.

In the first quarter of 2017, ABC Group had targeted Company X for acquisition. I had led the SHE team to conduct due diligence, together with other work streams. Thus, I had full access to Company X during the due diligence period, although ABC Group in the end did not proceed with the acquisition of Company X due to the unsatisfactory outcome of the due diligence. There was a field visit to Company X for two full days during the due diligence period. I had the chance to directly observe operations at Company X, to conduct full interviews with all of the required managers and employees, together with a full review of the required documents and archival records. After the two days of due diligence activities at the manufacturing site of Company X, I was still able to call and visit Company X's management for clarification of points raised in the due diligence activities, which offered me access to complete the rest of the data collection, with notes taken on the company's SHE management practices and corporate governance practices. As a key member of the due diligence team, I also gained access to due diligence reports of other work streams, e.g. legal, finance, business, operations, human resources etc. In addition, I engaged in an internal review and discussion of Company X as the target company, in which I obtained all of the additional information needed for the research. I agreed with Company A and Company X to assure anonymity by using fictional names (e.g. ABC Group, XYZ Group, Company A, Company X) instead of the real company names. This assures the confidentiality of data for Company A and Company X and satisfies their ethical concerns in granting me full access.

The core of the case study protocol is the preparation of a set of substantive questions reflecting the actual line of inquiry. Yin (2014) indicates that the protocol questions, in essence, are queries for the researcher, helping to remind the researcher of the information that needs to be collected and why, though in some instances, the specific questions may also serve as prompts in facilitating data collection in research field work. I bear in mind the importance of the overriding principles of the data collection effort. One principle is to use multiple sources of evidence. In my research, the data collection plan involves a triangular setup with multiple sources of evidence, e.g. semi-structured interviews, structured-focused questionnaires, direct observations, review of documentation and archival records etc. In doing research, I usually start with the collection of documents and archival records to prepare background information for the case study, then perform physical direct observation to see what is going on, followed by conducting interviews with relevant persons by using prepared questions to gain an in-depth understanding. In most cases the various means of data collection go in parallel with an integrated approach. No single source of evidence has a complete advantage over others. Various sources of evidence are highly complementary with each other, converging towards the same findings to enhance construct validity and reliability. One analysis of case study methods indicates that those case studies using multiple sources of evidence are rated more highly in terms of overall quality than those relying on only a single source of information, because the multiple sources of evidence essentially provide multiple measures of the same phenomenon being studied (Yin, 2014).

Documents and archival records take many forms in covering the written documentary information relevant to the case study. In my research, these records include, but are not limited to, company written policy, procedures and records, articles of association, organization charts, meeting agendas and minutes, memoranda, letters, e-mails, announcements, personnel profiles, project reports, budgeting and investment plans, governmental approvals and regulations, published material and other written documentary evidence. Documentary information is usually stable, unobtrusive and specific, and comes in written form, providing good detailed reference material that can be reviewed repeatedly in the course of my research work, including preparation for doing field work and the implementation of reviews of field work afterwards. Documents and archival records are usually the first things that I, as the researcher, look for prior to proceeding with observation and interviews, because they provide some basic written background information. The challenge is that I may not have full access to all documentary information simply due to the sensitivity of the research topic and confidentiality concerns. Incomplete collection of documents creates issues with possible biased selectivity and concerns about quality. In my research, I tackle these challenges by introducing expert review of documents and investigation of part of the field work. This is done for the evaluation of SHE management practices for Company A and Company X by using a team of SHE experts as multiple investigators.

Case study usually takes place in the real-world setting of the case, which then creates the opportunity for direct observations, serving as another source of evidence in doing case study research that can range from formal to casual data collection activities (Yin, 2014). In this research, direct observations, as formal data collection activities, mainly occur in the research field work, in which the researchers need to assess the occurrence of certain types of behaviour and events in the course of the field work. These direct observations are "must have" aspects of evaluation criteria and need to be structured into the protocol of evaluating SHE management practices and patterns of corporate governance. Less formally, direct observations also occur throughout the field work, including observations of the field surroundings and the responses from people involved in the interviews, document reviews and other research activities. This observational evidence, although it can be collected in a casual way, is often useful in providing additional information about the research topics being studied (Yin, 2014). The observational evidence may even provide important indications and clues in the search for answers to the research question.

Interview is one of the most important sources of case study evidence. The interview process usually starts after review of the collected documents and physical direct observation, to cross-check and verify that what is written and what is observed are true. In my research, the semi-structured individual interview, mainly with selected managers and also some employee representatives, is the primary tool for data collection and pursuing the line of inquiry. The semi-structured interview format is considered as the most appropriate data collection method because it not only helps in maintaining flexibility but also helps in developing and expanding the theoretical framework (Black and Champion, 1976). By using a set of interview guides with open questions, the researcher can explore the broadly defined central themes of the research in a natural setting. The flexibility of data collection through semi-structured interview allows detailed exploration of complex questions, the making of clarifications and the ensuring of anonymity for the respondents, particularly with regard to sensitive questions (Rubin and Rubin, 1995). In my research, in order to explore the causal links between patterns of corporate governance and SHE management practices, the line of inquiry to the underlying process is extremely complex, touching on very sensitive questions, so there is no doubt that the semi-structured interview is the best option. Of the three types of interviews, structured, semi-structured and unstructured, the semi-structured interview allows researchers flexibility to refocus the questions, or to prompt for more information, and thus to understand the interviewees better (Baškarada, 2014). The semi-structured interview emerged as the most appropriate for this research since there are limited key and focused questions within the research scope which also allow interviewees to articulate their own responses and allow the researcher to explore unanticipated themes (James, 2013).

Although I pursue a consistent line of inquiry with a set of interview guides, my actual stream of interview questions is likely to be fluid rather than rigid (Rubin and Rubin, 1995). In my data collection design, several sets of structured-focused questionnaires are administered to the same group of interviewees, as shown in Appendices I and II. This setup of structured-focused questionnaires is similar to the survey interview, but it is not a survey. It is more like using a standardized set of structured-focused questionnaires to corroborate the findings from semi-structured interviews to deliver a more measurable output for the variables being investigated. The output from the structured-focused questionnaires provides the structured-focused comparison of the analytical dimensions, which then facilitates the comparative case analysis. These ethical and methodological considerations actually guide the process of data collection and analysis in my research project. Following the research design of the comparative case study, the data collection is performed in two stages. Stage one is to collect data for performing the evaluation of SHE management practices of Company A and Company X. Stage two data collection focuses on exploring the causal links between patterns of corporate governance and SHE management practices, as well as on an in-depth understanding of the underlying processes and mechanisms, which is the core of the whole research project. This includes firstly the in-depth investigation of temporal variations in SHE management practices in Company A and Company X, and then the empirical investigation of the causal effects of temporal changes in patterns of corporate governance on the temporal variations in SHE management practices in the two defined time periods for both Company A and Company X.

For stage one of data collection, the criteria for evaluating SHE management practices in Appendix I provide a set of structured-focused questionnaires to guide the data collection through the document and record review, field observation and interview process. In this stage, structured-focused evaluation and comparison are performed by a team of SHE experts (i.e. the ABC Group China SHE manager, the APAC occupation safety manager and myself) as multiple investigators, who have been involved in a great deal of work on technical and expert assessment of SHE management practices in both Company A and Company X. Interviews with relevant persons in both Company A and Company X are performed as needed to support the verification of evaluation items, which are not presented separately but are treated as an integrated approach in evaluating SHE management practices. The outcome of the structured-focused comparison, following the comparative framework in Appendix I, is presented overall as the empirical concerns indicating the cross-firm variations in SHE management practices between Company A and Company X. Quantitative scores and qualitative analysis are given for the three "Leadership, Behaviour, Technique" dimensions and the twelve associated constitutive attributes.

The structured-focused questionnaires, as a set of well operationalized evaluation criteria constituting the comparative framework for SHE management practices, as shown in Appendix I, are designed to collect data to examine and verify each single constitutive attribute and the corresponding element of SHE management practices. A Likert scale is used to rate the four statements/questionnaires for each constitutive attribute and its corresponding element as "strongly agree, agree, neutral, disagree, strongly disagree". The rating is quantified into "5, 4, 3, 2, 1" to indicate the extent and degree of implementation of each SHE management element as listed in the evaluation criteria. "Strongly agree" with score "5" indicates that the SHE management practices implemented on the floor are fully meeting the requirement as set out in the evaluation criteria. "Strongly disagree" with score "1" means that the SHE management practices implemented on the floor do not meet the requirement as set out in the evaluation criteria; in other words, not many practices have been effectively implemented. The scores "4, 3, 2" indicate a corresponding degree of implementation. The evaluation outcomes are summed up and averaged, and are then presented as a quantitative result for each constitutive attribute and its corresponding element in SHE management practices, and further as quantitative results for the three "Leadership, Behaviour, Technique" dimensions.

To support the explanation behind the evaluation criteria, Appendix I also includes a detailed qualitative description of the three "Leadership, Behaviour, Technique" dimensions and the twelve constitutive attributes, which serves as the research field work guide for the field workers and researchers to collect data. Along with the outcomes from observation and document review, semi-structured interviews with open questions are conducted, and the verification is arranged through structured-focused questionnaires. Field work continues the focus on examining actual SHE management practices and examples until the field worker can make an accurate evaluation of a company's SHE management practices after a counter check against the outcomes from observation and document review.

In stage two of data collection, document and record reviews, field observation, semi-structured interviews and structured-focused questionnaires are used as multiple sources from which to collect evidence to support verification of the validity of the proposed explanatory framework. Although these multiple sources of evidence supplement each other, the quality of data collection relies heavily on the primary data from the semi-structured interviews and structured-focused questionnaires. The semi-structured one-to-one interview is chosen as the main method of data collection because it helps to achieve the "in-depth and roundedness understanding" as required by the complexity of issues being investigated for which data are not feasibly available (Mason, 1996). Semi-structured interview is considered the most appropriate data collection method in case study because it not only helps in maintaining flexibility, but also helps in developing theoretical frameworks (Black and Champion, 1976), so that the central themes of the research can be explored in natural settings. The semi-structured interviews provide the best way to conduct comparative case study research, since a certain degree of structure is required in order to ensure cross-case comparability (Bryman and Bell, 2011). To further enhance the cross-case comparability, a set of structured-focused questionnaires is administered to the same group of interviewees to verify views from the interviewees regarding the structural and ideational variables of corporate governance. This strengthens the measurement of patterns of corporate governance qualitatively, as shown in the 2×2 matrix in Table 3, and supports the explanation of the nexus between patterns of corporate governance and SHE management practices. The structured-focused questionnaires, together with the semi-structured interviews, enhance the internal consistency and validity of the research, so that “what is said in one part of the narrative should not contradict what is said in another part” (Atkinson, 1998).

The governance mechanism and power structure dimensions and their associated constitutive attributes are operationalized into a set of structured-focused questionnaires to form the structural variable as part of the patterns of corporate governance, as shown in Appendix II. To facilitate the measurement and comparison of Company A and Company X, interviews are conducted with selected executive directors, managers and employee representatives in both companies. After obtaining the answers to each structured-focused questionnaire, each dimension and associated constitutive attribute is rated qualitatively as “high, considerable, some, limited, low” and scored quantitatively as “5, 4, 3, 2, 1” for each dimension of the structural variable. Overall evaluation of the outcomes from the structured-focused questionnaires then classifies the governance mechanism and power structure of corporate governance of Company A and Company X as “Strong Governance Mechanism and Power Structure” or “Weak Governance Mechanism and Power Structure”, depending on the degree of maturity of the corporate governance structure in favour of SHE management and the functionality of these mechanisms (refer to Appendix II). The scores are collected from all interviewees and an average score is calculated to represent the average strength of prosocial corporate value orientation in the company.

Answers to the structured-focused questionnaires on the structural variable of corporate governance are rated as “high” or “considerable” to indicate a “Strong Governance Mechanism and Power Structure”, and “limited” or “low” to indicate a “Weak Governance Mechanism and Power Structure”, while “some” is neutral. To quantify the evaluation results into two categories for a more straightforward comparative analysis in the research work, an outcome with a quantified score ≥ 3 is classified as “Strong Governance Mechanism and Power Structure”, while a score of < 3 is classified as “Weak Governance Mechanism and Power Structure”. The overall outcome then enables the structured-focused comparison of Company A and Company X in terms of the maturity and functionality of their corporate governance mechanism and power structure in favour of SHE management. This gives a clear picture of which is strong and which is weak.

Appendix II includes also the corporate value orientation dimensions which are operationalized into a set of structured-focused questionnaires to measure the ideational variable of the patterns of corporate governance. The measurement of the strength of prosocial corporate values is achieved through conducting interviews with selected executive directors, managers and employee representatives in both Company A and Company X by using a set of semi-structured interview guides and structured-focused questionnaires for comparative analysis. The interview questions and structured-focused questionnaires are designed with the purpose of measuring the organizations' corporate value orientations, by evaluating the outcomes of each structured-focused questionnaire and classifying the resulting measurements as "Strong Prosocial" or "Weak Prosocial", as shown in Table 2, depending on the degree of prosocial orientation detected. The outcomes from evaluation are qualitatively rated as "high, considerable, some, limited, low", and correspondingly quantitatively scored as "5, 4, 3, 2, 1" (refer to Appendix II). The scores are collected from all interviewees and average scores are calculated to represent the average strength of prosocial corporate value orientation in the two companies.

Ratings from the structured-focused questionnaires that are "high" or "considerable" are considered to indicate a "Strong Prosocial" corporate value orientation, and those that are "limited" or "low" are considered to indicate a "Weak Prosocial" corporate value orientation, while "some" is neutral. To quantify the evaluation of the results into two categories for a more straightforward comparative analysis in research work, outcomes with an overall quantified score ≥ 3 are classified as "Strong Prosocial", and < 3 as "Weak Prosocial". The overall outcome then enables the structured-focused comparison of Company A and Company X with respect to corporate value orientation. This indicates which company is "Strong Prosocial" and which is "Weak Prosocial". The sampled individuals are the selected executive directors, managers and employee representatives; however, the measurement of corporate value orientation is made on an organizational or company level, not on an individual level, as the unit of analysis for this research is the organization or company, not the individual or team. It is therefore important that the interview questions and structured-focused questionnaires are sufficiently well configured to measure the organization's corporate value orientation and not the personal or social value orientation of participants. To ensure the best outcome from the field research work, the semi-structured interviews with structured-focused questionnaires need to be conducted and completed on the conditions that the participants and interviewees fully understand the research intent, background, the interview questions and the structured-focused questionnaires, what to be measured etc. In order to achieve this, the participant information sheet (Appendix III) and consent form (Appendix IV) are provided to the participants and interviewees to gain their agreement to support this research project after they obtain the relevant information about participating in the research work. Further, as the researcher, I have to explain in detail the open questions in the semi-structured interviews and the structured-focused questionnaires. The forms and material used in the field work are in the language the participants can read and understand, typically in Chinese for most of the participants and interviewees from Company A and Company X, and several in English for some of the participants and interviewees from Company A. In the interpretation of the open questions and structured-focused questionnaires, I have to consider the participants' and interviewees' education backgrounds, experience, and job roles, and explain in language and terms that they understand, especially for some participants and interviewees from Company X. For instance, to allow the participants and interviewees to understand the meaning of "prosocial" value orientation before they can complete the questionnaires with correct ratings, I have to use some examples to illustrate what "prosocial" means.

The degree of participants' and interviewees' understanding of the open questions and structured-focused questionnaires affects the reliability of the scores for SHE management practices and corporate governance. Due to each individual's own and different experiences, benchmarks and expectations, the ratings for the evaluation of SHE management practices and corporate governance will vary. Some may rate relatively high and others may rate relatively low, while an identical rating may mean different things in different cases. Variations are understandable and are what the researcher wants to see. However, in some cases, I can see ratings that are logically wrong, and not on a reasonable scale, which I have to go back to double check with the participants and interviewees. With further explanation, I usually find that the respondents did not understand the questionnaire or they did not take the rating seriously. In some cases, the respondents themselves do not have a basis or the factual knowledge to support a rating. This occurs in the retrospective review of SHE management practices and corporate governance because rating something by memory in a retrospective review is not easy. In these cases, I would help the respondents with professional hints to analyse the facts captured in their memories and to guide them in deciding their own rating. This has been part of the interview process, meaning it could take much longer to complete an interview to achieve a more precise and objective rating. Eventually, the outcome is a better quality of data collection with more reliable score on SHE management practices and corporate governance; however, I would not influence the respondents' ratings with my input. For the SHE management practices scores, I actually use expert review and introduce multiple investigators to verify the quality of the SHE evaluation.

To arrange the interviews with key persons and to conduct field work and data collection, I had to cater to the interviewees' schedules and availability, not my own. The selection of interviewees is based on the needs of the comparative case study. Basically, I selected those people holding managerial positions who could provide answers to my inquiries. I also selected some employee representatives not in managerial roles. As my research topics are about the patterns of corporate governance and SHE management practices, people in the following positions in Company A and Company X are involved in the interviews: chairman of the board, board members, supervisor of the board, general manager, SHE manager, production manager, engineering/maintenance manager, quality manager, head of trade union, selected employee representative etc. The daily work associated with the above positions/roles is closely related to daily SHE management, decision making and corporate governance practices. This is mainly the case for the managerial positions because I focus on investigation of management and the underlying governance processes. I involve positions like head of trade union and selected employee representative so I can hear voices from the shop floor, as it is always important to understand how operators and non-managerial employees think about the company policies and decisions from the top. The positions/roles defined are the same for Company A and Company X in order to enhance comparability and avoid any accusation of bias. This is how I selected the interviewees to ensure the sampling was representative and comprehensive. Representativeness and quality in the interview responses for the specific research purpose were the two guiding principles used to select the interviewees (Alvesson and Ashcraft, 2012).

Each selected interviewee from Company A and Company X who was in position in 2017 is coded with a given interviewee code to respect confidentiality rules and to facilitate the easy citing of interview content in the research work (see Table 5). There are combined positions/roles in Company X, such as the chairman of the board also having the general manager role. In the citation of findings from the semi-structured interview content, this is written as A01/A04 because the individual interviewee is one person, and the same for the combined role of production manager and SHE manager A05/A06. However, the semi-structured interview and structured-focused questionnaires are completed for each different role that the individual plays to detect different responses according to each of those roles. The scoring system to evaluate the status of corporate governance for the four time periods in Company A and Company X follows the structured-focused questionnaires in Appendix II. Each interviewee, no matter if he or she had combined roles or not, submitted only one completed questionnaire, with the scores being collected and averaged to give an overall average score for the status of corporate governance for each specific time period in Company A and Company X. The interviewees in the same positions in 2017 completed the questionnaires for both time periods in Company A and Company X. There were eleven interviewees who completed eleven questionnaire sheets to give scores for the two time periods for Company A. Due to the combined roles in Company X, there were seven interviewees who completed seven questionnaire sheets to give scores for the two time periods for Company X. In this way, I have a good comparison between Company A and Company X. There are remarks regarding interviewees' profiles and notes with information about some of the positions in the history of Company A and Company X.

Table 5 Interviewee profiles and codes

Company A			
Interviewee Code	Job Title	Department/Function	Remarks
A00	Previous General Manager and Board Member	Previous Board (Year 2007-2011)	Who is the private local partner to form Joint Venture with ABC Group
A01	Chairman of the Board	Board	Who is also the ABC Group's China Country President
A02	Board Member	Board	
A03	Supervisor of the Board	Board	
A04	General Manager	Plant Management	Received delegation letter from Chairman of the Board regarding SHE matters
A05	Production Manager	Production Management	
A06	SHE Manager	SHE Management	Dedicated person
A07	Engineering/Maintenance Manager	Engineering & Facility Management	
A08	Administration Manager	Plant Administration	
A09	Head of Trade Union	Trade Union	
A10	Employee Representative	Production	
Company X			
Interviewee Code	Job Title	Department/Function	Remarks
X00	Previous Chainman of the Board	Previous Board (Year 2007-2010)	Who is the X01's father, the founder of the XYZ Group and Company X
X01	Chairman of the Board (Executive Director)	Board	Who is also XYZ Group CEO from 2011, was the General Manger for Company X during 2007-2010
X02	Board Member	Board	Who also act as the Supervior of the Board X03
X03	Supervisor of the Board	Board	The role is acted by the Board Member X02
X04	General Manager (Acting by X01)	General Management	Acting by the Chairman of the Board (Executive Director), combined roles from 2011
X05	Production Manager	Production Management	Who also act the SHE Manager
X06	SHE Manager (Acting by X05)	SHE Management	No dedicated person, acted by Production Manager, combined roles
X07	Engineering/Maintenance Manager	Engineering & Facility Management	
X08	Administration Manager	Plant Administration	Who was one of previous shareholders, board member and supervisor of the board during 2007-2010
X09	Head of Trade Union	Trade Union	
ABC Group			
Interviewee Code	Job Title	Department/Function	Remarks
ABC01	ABC China SHE manager	Regional SHE management	
ABC02	Head of Corporate Audit APAC	Corporate Audit	

The provision of interviewee codes is intended to protect the privacy and confidentiality of those involved in the case study. Meanwhile, I have obtained informed consent from persons participating in the case study. During the interviews, to respect the preferences of most interviewees, I have not used tapes or other recording devices. Instead, I have taken interview notes and fed this back to the interviewees after their interviews in order to gain their consent. I understand that tape recording can provide an accurate account of the dialogue, but this process can raise several ethical issues. Many interviewees may be comfortable with responding to the researcher's questions, but they might not be happy to have what they are saying recorded. They might therefore have been highly vigilant and very careful about what they might say to me, as well as being more likely to polish their words, so that I, as the researcher, would then be unable to have their real thoughts.

Due to the sensitivity of this research topic, I realize that some interviewees might not stick to my line of inquiry. This would be especially true if I always schedule interviews in a formal environment with the recording of the question and answer dialogue. I might, then, not be able to have the real answers, but might receive "official speech" from managerial interviewees. As we know, most senior managers and directors are well trained and skilful in delivering "official speech". I also realize that the interview process can be rather daunting for some respondents.

Thus, many of my interviews are in an informal environment with a pleasant and relaxing atmosphere and sufficient space for privacy, even while chatting freely about certain topics. I try to relate such chat to my interview questions. Sometimes I also conduct informal interviews over dinner or a drink. Within natural settings, I can usually obtain the real answers. I then write up field notes for each interview. To do this, in many cases, the interviews may have to be broken down into several small sections. I then review all of these field notes, collect them together, and feed a summary back to the interviewees afterwards.

The total time used per interview increased to more than two hours in many cases if I add up the time used for all of the break down sections. This exceeded my original plan, in which I assigned one hour to interview each interviewee. I adjusted the interview plan after completing the first two interviews. With two hours for each interview, I had some time to further explain the open questions and the structured-focused questionnaires to help the interviewees understand better how they were expected to answer. The workload in terms of transcription was also much more than I expected. Most interviewees are Chinese, so the initial data collection and transcription is in Chinese, but final analysis of data is in English. I adopted the strategy of conducting interviews and first level analysis in Chinese, with further analysis and results being processed in English. For a two-hour interview, it takes about eight hours to process the transcription. There were several interviews in English, and for these, the transcription, analysis and results processes were conducted directly in English.

Another important principle of data collection is to create a case study database to maintain a chain of evidence. A case study database is a formal assembly and a separate but orderly compilation of all the data from the case study, including field notes, documents, records, tabulated material etc. Such data go beyond narrative or numeric information and include all documents and other materials collected from the field (Yin, 2014). In my research, I do not use any computer-assisted qualitative data analysis software (e.g. NVivo, Atlas.ti, HyperRESEARCH, CAQDAS etc.), but just use routine Microsoft Office tools (e.g. Word and Excel) to arrange all of these data. The data are compiled to store evidence in an order matching the comparative case study research design. Thus, the database helps to preserve the collected data in a retrievable form with cross-referencing so that I, as researcher, can easily retrieve the data I need and can move from one part of the case study process to another. Also, a reader of the case study, if necessary, can easily follow the derivation of any piece of evidence from the initial research questions to the ultimate case study conclusions. As Yin (2014) indicates, the database helps maintain a chain of evidence, which increases the reliability of the information in the case study. The steps of the case study can be traced in either direction, e.g. from research questions to conclusions, or from conclusions back to the initial research questions.

To ensure research integrity and avoid any ethical issues in the research, before the field work for data collection, I have obtained approval from the research ethics committee at the University of Manchester. This was done through completing the University's ethical declaration in eProg by submitting the "research ethical declaration form" in July 2015 before I proceeded with my pilot study. At the point I completed my ethical declaration, the School was permitted to apply a light touch to ethics in doctoral studies. By way of the completion of the form by myself, endorsement by my supervisors, and ultimate authorization by the DBA director of my "Ethical Declaration Form" in eProg, it is confirmed that ethical approval has been granted at the due time for my research project. Coupled with the use of the participant information sheet and consent forms, there are no ethical issues in this research.

4.5 Data Analysis

Data analysis is an important but difficult part of case study. It is one of the least developed aspects of the case study approach, with few fixed formulas or recipes that can be straightforwardly used to provide clear guidance to the researcher, while the analysis techniques have still not been well defined. In this circumstance, to prevent the case study becoming stalled at the analytical stage, it appears critical that the researcher still needs to have a general analytical strategy as the best preparation for conducting case study analysis, and needs to decide the most appropriate technique to be used in the analysis of case study evidence. In this research, data analysis is not just a stage by itself but is an integral part of each phase of the research, along with the comparative case study research design, from formulation of the central research question to development of the explanatory framework, and from the whole design of the research and data collection to the final presentation of the findings. There are continuous back and forth interactions between empirical data and theoretical aspects in the researcher's mind. Thus, the data analysis in this project starts with questions, then "plays" with data to look for evidence that answers these questions, rather than only starting with the data set itself.

The overall design of this research is to use the comparative case study method to develop and expand theory. However, I do not adopt a "grounded theory" strategy and do not work on the data simply from the "ground up". Instead, through extensive literature review, an explanatory framework is proposed with a set of analytical dimensions developed to facilitate the research design and to guide the collection and analysis of empirical data. So, the data analysis strategy relies more on the proposed explanatory framework, with a set of initial implicit propositions that shape my data collection plan and therefore yield analytical priorities (Yin, 2014). The purpose of the analytical strategy is to link the case study data to some concepts of interest, then to have these concepts give a sense of direction in analysing the data (Yin, 2014).

Through the operationalized analytical dimensions of the independent and dependent variables, the proposed explanatory framework with a set of initial implicit propositions, in fact, provides some predicted patterns informing about the possible causal links between corporate governance and SHE management practices. Empirical data and findings from comparative case study generate certain empirically based patterns. For explanatory case study, the patterns may be related to the independent and dependent variables (Yin, 2014). Through structured-focused comparison, if the empirical patterns and predicted patterns appear to be the same, then we can conclude the final theoretical framework with a central argument and validated propositions as the outcome of the research. The analysis can follow another logic in which the pattern seen in the cases is matched against the pattern predicted by the proposed explanatory framework. This is the pattern matching technique, which is widely considered as the most desirable technique to be used in case study analysis; this is a key advantage of the case study method (Campbell, 1975, Collier, 1993).

To conduct data analysis for illustrating the causal links between patterns of corporate governance and SHE management practices, explanation building, a special type of pattern matching, is adopted as the analytical technique for cross-sectional comparative analysis of Company A and Company X. The explanation building process has an iterative nature for explanatory case study. As Yin (2014) indicates, the final explanation may not have been fully stipulated at the beginning of a study and may therefore differ from the pattern matching approaches previously described. As the case study evidence is examined, initial implicit propositions are revised, and the evidence is examined again from a new perspective in this iterative mode. Patterns observed in the cases can be compared to the single predicted pattern, alternatively, mutually exclusive rival patterns can be compared for their consistency with the patterns predicted. Thus, the explanation building procedure can become more compelling in comparative case study (Yin, 2014).

In the longitudinal study of Company A and Company X, I adopt another special form of pattern matching, known as the logic model analytic technique, to analyse the changes over an extended period of time, from 2007 to 2017. This focuses mainly on the changes during the transitions between the two time periods for Company A and Company X in the cause-effect patterns between corporate governance and SHE management practices. The ability to trace temporal changes is a major strength of longitudinal case study. The use of logic models consists of matching empirically observed events to theoretically predicted events. Empirically observed events are usually the interventions that could initially produce activities with their own immediate outcomes. These immediate outcomes could in turn produce intermediate outcomes, and in turn the intermediate outcomes are supposed to provide the final or ultimate outcomes (Yin, 2014). In this research, the logic model technique is used to trace the cause-effect patterns along with major events and changes in Company A and Company X during the two specified time periods; e.g. changes in ownership structure and control might bring immediate changes in patterns of corporate governance; changes in patterns of corporate governance then bring intermediate changes in strategic interaction and decision making processes; changes in strategic interaction and decision making in turn have an impact on the SHE management practices, with the events being staged in cause-effect-cause-effect patterns. Thus, the explanatory framework and the implicit propositions are corroborated through analysis of case study evidence using the logic model technique.

Pattern matching techniques (i.e. explanation building and logic model analysis) serve as suitable approaches to conduct the data analysis in cross-sectional analysis and longitudinal study. In this research, the objective of pattern matching is not only to illustrate that the patterns observed from empirical data have a good match to the predicted explanatory framework and initial implicit propositions, but also to show how the rival or alternative explanations cannot be supported by the findings from the spatial and temporal comparative analysis of Company A and Company X. The focus of pattern matching is not only on the patterns of explanatory/independent variables and outcome/dependent variables, but more on the emerging patterns of the causal nexus between these two sets of variables, both spatially and temporally. Specifically, how can the spatial variations in patterns of corporate governance, in terms of the structural and ideational variables, explain the spatial variations in SHE management practices between Company A and Company X? Further, how can the temporal changes in patterns of corporate governance, in terms of the structural and ideational variables, lead to the variations in SHE management practices? Do these empirically observed patterns of explanatory mechanisms and underlying processes match the theoretically predicted patterns, as illustrated in the explanatory framework? In the research design of the comparative case study, the pattern matching techniques are not only applied when we come to the data analysis stage; they also actually guide the data collection at an earlier stage, so that the researcher can ensure the data collected are sufficient and appropriate to support the pattern matching during the data analysis.

A streamlined codes-to-theory model for qualitative inquiry (Saldana, 2012) can be used to uncover emerging themes, concepts and patterns with provision of the insights and understandings from the various sources of the qualitative data collected. To process the text data after the transcription work is completed, the initial analytical step is to develop categories through an open coding system, screening the interview transcripts line by line. The initial coding attempts to reflect and elaborate issues through the interviewees' eyes (Kenealy, 2012). The next step is to link the codes, consolidate similar ones into high-level categories and create subcategories. The third step is to refine and select the categories, compiling them into a general analytical framework based on the guiding theoretical framework. However, in the actual data collection and analysis activities, the codes, themes and concepts are already defined in the well-designed semi-structured interview guides and the structured-focused questionnaires, as shown in Appendices I and II. The embedded codes, categories, themes and concepts in the interview guides, questionnaires and analytical dimensions have already defined the priority for what to collect and what to analyse. Data collection and analysis are guided by these pre-defined themes and concepts. Interaction between empirical data and the theoretical perspective shapes the themes and concepts, while the themes and concepts gradually become more focused and finally result in theory (i.e. a final theoretical framework with a central argument and validated propositions), which explains some of the relationships between the themes. So, my main data analysis work focuses more on pattern matching through explanation building and the logic model analytic technique, but less on "ground up" coding and categorizing.

In this research, I do not use any computer-assisted qualitative data analysis software (e.g. NVivo, Atlas.ti, HyperRESEARCH, CAQDAS etc.). These kinds of computer-assisted qualitative data analysis software can assist in document compilation work and "ground up" coding of the empirical data, but they cannot do the actual data analysis for the researcher. The researcher needs to study the output and determine whether any meaningful patterns are emerging (Yin, 2014). As assistants and tools, I simply use Microsoft office (e.g. Word and Excel etc.) to compile and store documents, which in many cases is easier to use than the dedicated data analysis software. Coding, as I explain above, is not my main data analysis task. The main data analysis work is pattern matching, in which computer-assisted data analysis software cannot provide much help. I note that it is a large job in itself to convert all of the data collected into an electronic format for uploading into the computer-assisted data analysis software so that they can be processed. In any case, I have decided not to use such computer-assisted data analysis software.

4.6 Summary

As determined by the central research question and analytical objective, this chapter has illustrated the rationale for selecting the case study research strategy, methodology and associated data collection and data analysis techniques. The whole comparative case study research design uses triangulation to enhance the validity and reliability of the case study. As is reflected in the data collection and data analysis processes, triangulation includes, but is not limited to the following approaches: multiple sources of evidence (e.g. semi-structured interview, structured-focused questionnaires, field observation, documentation review etc.); cross-sectional and longitudinal studies for comparative case study design to address spatial variations and temporal changes; multiple investigators for team evaluation of SHE management practices; case study protocol; development of a case study database and establishment of a chain of evidence; key informant review of their own interview output; peer review of the case study report; pattern matching, mainly through use of explanation building for the cross-sectional analysis and of the logic model analytic technique for the longitudinal study; addressing rival and alternative explanations. The whole research design addresses triangulation from various perspectives: data triangulation by use of multiple data sources; investigator triangulation by use of multiple investigators for certain inquiries; theory triangulation by use of different perspectives on the same data set; methodological triangulation by the use of various methods and approaches (Patton, 2015). The advantage of these kinds of research designs is that they allow researchers to address a broader range of issues from different angles and support the development of converging lines of inquiry, thus enhancing the validity and reliability of the investigation and improving the quality of the case study.

Nevertheless, I realize there are still limitations in the comparative case design. One common weakness for all case study research, not specifically for my research, is the limitation on generalizability of findings, arguments and propositions beyond the immediate study, which affects its external validity. However, the case study approach does not aim to achieve statistical generalization, but to achieve analytical generalization. A fatal flaw in case studies is to consider statistical generalization to be the way to generalize case study findings, because the case or cases are not "sampling units" and are also too small in number to serve as an adequately sized sample to represent any larger population (Yin, 2014). The proposed explanatory framework and the implicit explanatory propositions that go into the design of this comparative case study, after being corroborated and enhanced by the empirical findings, form the groundwork for analytical generalization (Yin, 2014) of the final theoretical framework. This framework has an argument and validated propositions for future research, which bring an end to this research project, and contribute to both knowledge and practical implications. Another limitation is that I only use two cases, as I explained in Section 4.1. However, this limitation is offset by the research design of cross-sectional analysis and longitudinal study of four time periods for Company A and Company X (two for each), which create four units of analysis ("mini cases") to enhance the empirical grounding for theory building.

Last but not the least, in selecting the research methodology and designing the research, potential ethical issues have been addressed to ensure a proper level of anonymity and confidentiality. Principles of informed consent and interview ethics are respected. There are a variety of strategies utilized to manage the ethical issues at all stages of the research, as described in this chapter. Overall, the research strategy, methodology and design are appropriate and of a high quality, which provides a good foundation for moving to the empirical sections of this case study.

Chapter Five: Empirical Results for SHE Management Practices and Patterns of Corporate Governance

5.1 Introduction

Case studies of Company A and Company X have been conducted to collect empirical data to support the testing and verification of the proposed explanatory framework. The data include the empirical results of SHE management practices as the dependent variables and patterns of corporate governance as the independent variables. An in-depth analysis of cross-firm variations in SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions between Company A and Company X was conducted to address the spatial variations with cross sectional data and temporal variations with longitudinal data. The empirical results for spatial and temporal variations in SHE management practices for Company A and Company X are presented quantitatively with scores for the "Leadership, Behaviour, Technique" dimensions and qualitatively with descriptions of the differences. With the definition of two time periods for Company A and Company X in the retrospective longitudinal study, in-depth examination of the patterns of corporate governance has been conducted for Company A in the years 2007-2011 and the years 2011-2017, and for Company X in the years 2007-2010 and the years 2011-2017. The status of patterns of corporate governance for each time period and the changes across the two time periods are presented respectively for Company A and Company X. These empirical results are fundamental to supporting an integrated empirical understanding of the causal linkage between patterns of corporate governance and SHE management practices.

5.2 Cross-firm Variations in SHE Management Practices between Company A and Company X

5.2.1 Spatial Variations in SHE Management Practices

ABC Group, a German multinational manufacturing group in both the industrial and consumer business sectors, has operated globally for more than 140 years and has a well-balanced and diversified portfolio. The group entered the Chinese market in the 1970s, established ABC

(China) Investment Co. Ltd. in 1995, and set up the ABC Group's Asia-Pacific (hereinafter also referred to as APAC) and China headquarters in Shanghai in 2001, with its business expansion being achieved through the establishment of JVs with local partners, or through global and local mergers and acquisitions. In 2006, ABC Group set up a JV, Company A, in the Yangtze River Delta area. As one of the early foreign investors in China, ABC Group continues to seek merger and acquisition opportunities in China as one of its growth strategies. In late 2016, Company X, a subsidiary of XYZ Group located in Yangtze River Delta area, was identified by ABC Group as a target company to be acquired as part of ABC Group's business expansion to strengthen its market share in acoustic and structural parts for the automotive industry in China. Company X manufactures and sells the same product as Company A, namely acoustic and structural products for the automotive industry, e.g. reinforcement patches, 2D extruded parts, 3D injected parts, damping (butyl), sound absorbers etc. So, Company A and Company X are actually competitors in the local market, and both are located in the same province in the Yangtze River Delta area. Company X is a family run business, and is privately owned by X01 (to respect confidentiality rules, an interview profile is established with an interviewee code assigned to people involved in this study in Table 5), who has been playing multiple roles in Company X, i.e. CEO in XYZ Group, and executive director and general manager for Company X.

SHE due diligence was conducted by ABC Group APAC regional SHE team on March 6-7 2017 by using criteria based on Chinese national and local legal requirements, as well as ABC Group's SHE standards. This was an important part of the investigations to identify the existing and potential safety, health and environmental risks or hazards associated with Company X's history and activities, and to propose a risk mitigation plan with pragmatic recommendations. I was the head of ABC Group APAC SHE function in the role of APAC SHE Director. I formed a SHE expert team of three to perform the SHE due diligence in Company X. I personally led the team and included two members from my regional SHE department, the China SHE manager and the APAC occupational safety manager, who are both experienced SHE experts. One of the purposes of the acquisition of Company X was to review the synergy potential with ABC Group's existing operation in the Yangtze River Delta area, i.e. Company A. Thus, a structured-focused comparison was essential.

In Company A, the ABC Group APAC regional SHE team had also conducted a SHE assessment as per national and local legal requirements, as well as ABC Group's SHE standards. The assessment was also conducted through a systematic audit by using ABC Group's SHE assessment tool. This was conducted by the China SHE manager and the APAC occupational safety manager and was reviewed by me, both as a researcher and as their direct manager. In order to achieve a structured-focused comparison, I reviewed the assessment results from previous audit reports of Company A, together with the China SHE manager and the APAC occupational safety manager, by using the evaluation criteria in Appendix I. I reassessed all elements of Company A's SHE management practices and presented the evaluation results by using the format of the SHE management practices evaluation form in Appendix I. This then provided a good basis for comparison with Company X. During the two day SHE due diligence for Company X, the China SHE manager, the APAC occupational safety manager and I conducted the whole SHE assessment following the due diligence tools provided. In the end, I inputted the SHE management practices evaluation results for Company A and Company X and proceeded with an apples-to-apples structured-focused comparison by using the criteria in Appendix I. This comparative analysis is conducted both quantitatively and qualitatively.

Quantitatively, the outcomes of the SHE management practices evaluations for Company A and Company X are shown in Table 6, revealing spatial variations, which indicate that Company A has implemented more effective and substantial SHE management practices within all three of the "Leadership, Behaviour, Technique" analytical dimensions and the twelve associated constitutive attributes with scores higher than Company X. Company A received an overall average score of 4.5, while Company X received only 2.5. Qualitatively, the SHE management practices evaluation and structured-focused comparative analysis reveal the cross-firm variations in SHE management practices between Company A and Company X with respect to the three "Leadership, Behaviour, Technique" dimensions and associated constitutive attributes, which reflects the differences in corresponding elements of SHE management practices between Company A and Company X.

Table 6 Spatial variations in SHE management practices: Company A versus Company X

SHE Management Practices Evaluation					
Dimension	**Constitutive Attribute**	**Result**			
		Company A		**Company X**	
Leadership	Management commitment and accountability	4.5	4.5	2.5	2.75
	Organizational competency and empowerment		4.5		2
	Resources and investment		4.5		2.75
Behaviour	Employee engagement and responsibility	4.5	4.5	2.5	2.75
	Communication, training and awareness promotion		4.75		2.75
	Behaviour-based safety programme		4.25		2
Technique	SHE policy, objectives, procedures and system	4.5	4.25	2.5	2.75
	Identification of aspects of SHE and risk assessment		4.5		2.5
	Legal compliance, standards and other requirements		4.5		2.25
	Operational control and management of emergencies and incidents		4.5		2.25
	Audit, monitoring and performance management		4.75		2.75
	Non-conformity, corrective/preventive action and continuous improvement		4.5		2.5
Average Score		**4.5**		**2.5**	

Variations in the "Technique" dimension of SHE management practices can be distinguished from six constitutive attributes which represent six elements of SHE management practices in regard to technical solutions and system tools for SHE management: SHE policy, objectives, procedures and system; identification of aspects of SHE and risk assessment; legal compliance, standards and other requirements; operational control and management of emergencies and incidents; audit, monitoring and performance management; non-conformity, corrective/ preventive action and continuous improvement.

This dimension covers activities regarding the setting of SHE policy and the establishment of objectives, programmes, processes, procedures and systems to deliver results in accordance with the organization's policy and expected goals. It includes activities for identifying OHS hazards and environmental aspects associated with the organization's business, operations, products, services, workplaces etc., as well as activities for performing risk assessments with the appropriate techniques and methodology to provide a risk base for developing SHE management practices to manage the risk associated with the identified OHS hazards and environmental aspects. It also involves considerable effort in the identification of applicable legal requirements, industrial standards and other SHE requirements (e.g. corporate, customer and other stakeholder requirements). Based on these, programmes, procedures and processes are developed, and operational control comes in with the implementation of effective measures to manage risks associated with daily operations and changes, thus preventing incidents/accidents and unexpected occurrences, and responding with counter measures to eliminate and/or mitigate the consequences of any incidents/accidents and emergency situations. Functioning mechanisms for inspections, checks and audits (e.g. internal audit and external audit) to monitor the effective implementation of SHE programmes, as well as a sound performance management programme, are essential to identify gaps and opportunities for improvement. Following this, the non-conformities and gaps identified are managed through corrective and preventive actions to be taken immediately by allocating technical and financial resources, thus pursuing continuous improvement in SHE management practices. Variations in the "Technique" dimension are clearly detected between Company A and Company X through the examination of their SHE management processes, technical aspects and system tools.

Company A has implemented an integrated management system (IMS), including ISO 9001, ISO 14001 and OHSAS 18001 (ISO 45001), which are certified by DQS (Deutsche Gesellschaft zur Zertifizierung von Management System), an international management system certification body based in Germany. The company also obtained a safety standardization certification, as required by the local Safety Bureau. There is clearly a written SHE management policy appropriate to the nature of Company A's business and operations. This policy is endorsed by Company A's top management, with consultation carried out to collect input from all levels of the organization when the SHE management system was being planned. The objectives, programme and procedures defined are closely associated with the nature and scale of the identified risks relating to aspects of safety, health and environmental issues, which are quite consistent with the management policy. The enforcement of policy and the implementation of programmes, rules and procedures has happened in a consistent way, as is detected on the shop floor. This conclusion is supported by observation, document review and interview.

The environmental aspects, OHS hazard identification and risk assessment are planned and carried out on a regular basis, and when changes are detected, thus keeping them up to date with valid documentation. Proper hazard identification techniques and risk assessment methodologies are introduced (e.g. process risk assessment, workplace risk assessment, job safety analysis etc.) in a comprehensive approach. Hazard identification and risk assessment are carried out by qualified and competent persons, including SHE professionals and engineers with subject matter expertise, as well as the involvement of concerned persons and/or affected persons from different work streams and functions.

As one critical element of SHE management practices, legal requirements, industrial standards and other SHE requirements (e.g. customer and corporate requirements and those of other stakeholders) are important inputs in the planning of the SHE management system and practices in Company A. These requirements are proactively identified and continually validated through the tracking of changes. In terms of legal compliance requirements which are regarded as the utmost importance and highest priority in Company A, obtaining all of the required permits and key licenses for their daily operations and other projects must be ensured, and the stipulated government processes must be followed, with no “bypass” from a special relationship, or “guanxi”, with the authorities.

Overall, the operational controls in Company A are effective, following the hierarchy below to manage the SHE risks identified in its daily operations as well as the changes in these risks: a) elimination; b) substitution; c) engineering controls; d) signage/warnings and/or administrative controls; e) personal protective equipment. This is seen on the shop floor with the implementation of a whole set of control measures, procedures and work instructions. There are MOC (management of change) processes implemented to manage risk from changes to operations and processes. There is an emergency response procedure in place, which is reviewed regularly with at least two drills every year to test its adequacy and effectiveness. In addition, there is a sound incident management procedure implemented to ensure incidents/accidents are notified, reported and investigated, and that corrective and preventive actions are conducted to prevent reoccurrences.

In Company A, there is a comprehensive checking and monitoring mechanism. This includes regular safety walk-arounds and SHE inspections within departments or company-wide, internal audits organized by the company, corporate audits by the regional and global SHE teams in ABC Group, external audits from DQS as the ISO 14001 and OHSAS 18001 (ISO 45001) certification body, and also the external inspections and audits by government authorities and customers. All of the findings and tracking of actions are managed via a dedicated audit and review database and the "SHEcom" online SHE reporting system, with SHE status being openly disclosed by anyone who has access to the database and online system, subject to supervision by the internal stakeholders.

Non-conformities and gaps are analysed and investigated, and a corrective and preventive action plan is defined. The notification of findings and action status to relevant responsible parties is configured into the system. Major non-conformities always receive immediate attention from top management, being discussed and reviewed in management meetings. Technical and financial resources can be obtained to implement the corrective and preventive actions. As part of performance management, SHE management practices and performance with respect to the objectives, targets, and KPIs (e.g. leading and lagging etc.) are reviewed at meetings of different levels of management, up to a formal management review by top management with specific focus on SHE topics. There are incentive plans and disciplinary measures, which are also considered as part of SHE performance management strategy. The gaps identified at the management review meetings are taken into consideration in the next cycle of SHE management improvement.

Company A has spent considerable efforts on establishing, implementing and maintaining a valid SHE management system and practices. This is done by the company's own dedicated professional SHE manager with guidance from ABC Group's regional SHE experts. Over the years, it has been proved that the "Technique" dimension of SHE management, including technical solutions and system tools, is adequate and sufficiently feasible to meet the needs of Company A's business and operations. Compared with Company A, Company X has not been doing well in managing its “Technique” dimension, in terms of its technical solutions and system tools for SHE management practices. It appears to have more of a reactive response to business needs in order to maintain a corporate image by doing the minimum required by the authorities and customers.

Company X has established ISO 14001 as its environment management system, certified by CCCI (China Certification Centre, Inc.). There is no OHSAS 18001 (ISO 45001) certification for its occupational health and safety management system. Instead, Company X has obtained the safety standardization certification required by the local Safety Bureau. Establishment and certification of management systems are mainly carried out by a third party consultant, with the ultimate purpose of achieving certification as soon and as cheaply as possible. There is a bundle of SHE management documents covering policy, objectives, programmes, rules, procedures etc., which is thick enough to contain everything that a company ought to do to have good outcomes from third party SHE management audits, including certification audits. In performing due diligence for Company X, the whole set of SHE management documents were examined and checked against what was observed on the shop floor during a physical walk-around of the site and the information that people provided through interviews. It was found that most of the SHE management documents, to a certain degree, remain as paper work for showing to customers and the authorities when they carry out audits and inspections. The policy statement is vague and general, and is not specifically supported by measurable objectives and subsequent programmes and initiatives on the shop floor.

In Company X, the identification of environmental aspects and OHS hazards, as well as risk assessments, are documented in a general format using the forms seen in most ISO certification management systems because these tools and associated forms are provided by the third party consultancy company. Similarly, for identification of legal requirements, industrial standards and other requirements, it was found that the relevant documentation was not up to date and lacked the latest legal requirements. Customer requirements had received attention from the top management, but these too were not well managed in terms of processes and documentation to ensure these requirements can be tracked.

In Company X, huge gaps were identified in the application of operational controls and provision of counter measures. Rules, procedures and work instructions were often ignored on the shop floor. For example, there was homemade lifting equipment being used in a manufacturing plant without obtaining certification, which certainly did not comply with legal requirements because uncertified lifting equipment is banned. Contractors were doing welding without a work permit and were not wearing proper personal protection equipment. Production equipment had no adequate machine guards etc. The emergency response plan existed on paper only, would not really work in case of emergency, and no drills had been conducted in the previous two years. There was a written incident management procedure, but the reporting of incidents was rare, with people only reporting serious injuries. Document review and interviews confirmed there had been only one serious contractor injury reported in the past two years. When this incident led to an insurance claim, and the injured person initiated legal proceedings, it received attention from the company's management. Managers admitted that there were quite a lot of small incidents not being reported and recorded since there were no insurance claims or any substantial impact involved. Investigation, and corrective and preventive actions have not been well managed.

Company X has established inspection, check and audit processes as part of its SHE management practices, but these appear to be more of a paper or box ticking exercise for the purpose of showing some documented records to external auditors for ISO 14001 certification and to local authorities for safety standardization certification. Because of this, the internal inspection and audit have usually not shown many findings, especially major findings. Other physical inspections and checks on site are arranged randomly but not in a well-planned and systematic approach. Findings and actions are tracked on an excel sheet but not in a well-organized manner. Quite a large number of findings, non-conformities and gaps have not been addressed with effective corrective and preventive actions within defined target dates, because the technical and financial resources needed to do so have not been allocated on time.

In Company X, the review of SHE management is mainly organized by a production manager who is also assigned as the acting SHE manager. One management review meeting is documented, with the purpose of achieving ISO 14001 certification and safety standardization, but other review meetings are held in an informal way or simply are not conducted. SHE performance management does not consider incentive planning and discipline measures to motivate people with respect to SHE improvement. KPI reviews are conducted but mainly focus on the lagging KPIs, and very much less on leading KPIs. There is a lack of proper mechanisms and processes to drive substantial continuous improvement in SHE management.

Variations in the "Behaviour" dimension of SHE management practices can be detected according to three constitutive attributes. These represent three elements of SHE management concerning people's attitudes and behaviour towards SHE matters, as well as their engagement and participation in SHE activities. The three attributes are: employee engagement and responsibility; communication, training and awareness promotion; behaviour-based safety programme. Active engagement from employees and other interested parties is essential to ensure the success of SHE management. Without this, SHE management targeted at the protection of people and the environment will lose ground. Further, every single individual involved in SHE matters is responsible for their own behaviour and decision making within the scope of their own area of responsibility, as well as for taking care of others. Open communication on SHE matters, SHE training and SHE awareness promotion activities are needed to bring people at all levels in the organization onto the same page to understand why and how a company seeks the improvement of SHE management. This helps people to change their behaviour towards SHE and helps to build up the company's SHE culture. A behaviour-based safety programme, if implemented properly, will accelerate behaviour changes and enhance SHE management improvement through enhancing bottom-up engagement from the shop floor. Variations in the "Behaviour" dimension are obviously observed between Company A and Company X.

In Company A, as a basic principle, each employee is responsible for their own safety. People are provided with timely access to clear, understandable and relevant information about the SHE management system and practices to support themselves to work safely. The communication on SHE topics from the top-down and bottom-up is quite open in Company A, covering both internal and external stakeholders. There are various kinds of SHE awareness promotion activities held regularly, e.g. safety days, SHE-related workshops, campaigns on specific topics etc. The SHE department prepares and implements, together with HR and line managers, the whole year's SHE training plan for different groups of people based on the SHE training need analysis for each position. The SHE training delivered is evaluated for its effectiveness, thus equipping people with the SHE competency needed for them to behave and perform their jobs safely. A SHE initiative named CBS (Culture-Based Safety) has been implemented successfully to greatly engage employees at all levels in doing the safety walk-arounds and behavioural safety observations. In addition, the CBS programme has engaged managers to conduct safety walk-arounds and behavioural safety observations with employees in order to discuss SHE matters on the shop floor with them.

Employees are actively involved in SHE matters and are encouraged by managers to provide opinions/input, e.g. performing risk assessments, developing work instructions, attending SHE meetings, receiving SHE trainings etc. In addition to the participation of the trade union, as set up in Chinese enterprises, there are employee representatives elected to join the SHE committee and provide input to the management for decision making on topics related to employees' benefit and wellbeing, especially those concerning health, safety and environmental protection. Employees in Company A are empowered to refuse work with an immediate risk and are encouraged to stop unsafe acts and behaviour, thereby taking care of each other. The "Behaviour" dimension is strong enough to support the overall SHE management strategy.

In Company X, however, the "Behaviour" dimension of SHE management practices appears insufficient. It is weak in driving the enforcement of personal responsibilities towards SHE and engagement on SHE matters from employees and other interested parties at all levels. There are no voices acting on SHE matters from the bottom-up, as the company culture seems not encourage this. There is no active participation from employees in performing risk assessments and defining work instructions. SHE communication and training are limited to the basics in order to meet the legal and customer requirements at a minimum "Ok" level. There are no specifically organized SHE campaigns like safety days etc., while there are only limited promotional activities, such as the banner and slogan displayed company-wide to accommodate "Safety Month" and "Environmental Day", as requested by local authorities for general country-wide campaigns, but without many substantial activities and programmes being rolled out.

There is a trade union in the company, but no dedicated and competent employee representative elected to sit in management meetings or on the SHE committee. In fact, there is no formal SHE committee being operated effectively. In management meetings, if there are employee-related issues, including those relating to safety, health and environmental protection, only the trade union chairperson will sit in, but does not really fully represent employees and workers' positions. There is no well-designed and fully run behaviour safety programme in Company X. There are limited safety walk-arounds and little open safety dialogue between employees in the workplace or between managers and employees to support behaviour change in building a culture of taking care of each other. In Company X, it is not common for people to remind one another about unsafe acts nor to encourage positive observations and constructive feedback on daily behaviour.

We can judge the variations in the "Leadership" dimension of SHE management practices from three constitutive attributes. These attributes represent three elements of SHE management practices concerning commitment and support from top management as well as the strength of organizational SHE leadership in the company; they are: management commitment and accountability; organizational competency and empowerment; resources and investment. Visible, active leadership from top management with strong commitment and accountability is essential to ensure the integration of SHE management with business decisions. If the top management does not lead effectively on SHE management, the consequences can be severe. A solid SHE competency in the organization (e.g. SHE professionals and other expertise) is important to enable the SHE management improvement ball to roll. In many cases, empowerment must be given to the SHE champions and change agents in the organization, typically the SHE managers, for them to drive the implementation of SHE management practices. Line managers and employees are also to be empowered to prevent unsafe acts and to promote SHE, which is perceived as part of SHE leadership by line managers and employees. How does management allocate the resources and investment for SHE management improvement? And how are decisions on SHE matters made in cases of conflicting interests? This sends out a message regarding the strength of SHE leadership in the organization. The variations in the "Leadership" dimension between Company A and Company X can be vividly perceived through interaction and interviews with management and employees at all level of both organizations.

In Company A, the management team gives considerably high priority to SHE management. SHE topics are always part of the agenda in major management meetings. It has been observed that managers lead by example in following SHE policy, rules, procedures etc., and that they actively participate in SHE activities. There is a dedicated SHE department comprising of a team of three led by a competent site SHE manager, who has over ten years of experience with good exposure to other international companies before joining Company A. The SHE manager reports directly to the general manager of Company A, as part of the management team, and is empowered to manage SHE programmes and SHE activities. With this commitment from management, we can say the resources are adequate in Company A to implement all of its SHE programmes and initiatives; these resources include human resources, infrastructure, technology, financial resources etc.

SHE investment can be obtained to close gaps that are identified against the established standards, especially for life critical and compliance-related SHE issues. As part of annual budget planning, a SHE investment budget is planned every year for the following year's SHE improvement projects and sustainability projects. There is a special initiative, "mission critical SHE investment", which is a special budget that the SHE manager is authorized to use when the need to improve SHE management is justified. Such justification does not need to consider the return on investment, because it is investment that is critical for SHE. The SHE manager is empowered to monitor the spending on SHE investment and the carrying out of SHE improvement projects by the project team. With the launch of this initiative, Company A allocated about €2 million for SHE investment in 2015 and 2016, and another €0.8 million was planned for further SHE investment in 2017.

Compared with Company A, Company X seems to lack visible commitment and accountability on SHE matters from top management. Managers do not really "walk the talk", and their focus is more on perception management regarding SHE matters rather than substantial improvement. The executive director and general manager of Company X indicated that they proceed with management system certification with the main purpose of meeting customer requirements and to show people that they have the certification. Company X has only obtained certification for ISO 9001 and ISO 14001 but not for OHSAS 18001 (ISO 45001), because no current customers require OHSAS 18001 (ISO 45001) certification. They therefore do not want this because any management system certification needs money in order to obtain and maintain it.

There is no dedicated SHE department and SHE manager, with the current production manager being assigned as acting SHE manager. Company X plans to recruit a safety officer reporting to the production manager. However, the role is still not filled, so there is a lack of SHE subject matter expertise in Company X. SHE management is a part time job for the production manager, and there appears to be some conflict of interests and somewhat of a compromise regarding the independence of the SHE management function. SHE topics are included within production topics in management meetings, and are usually set aside in the meeting, unless there are critical issues to be discussed and handled, such as incidents or new requirements or orders from authorities and customers. There is great concern about the organization's focus on SHE matters, as well as its SHE competency and empowerment.

Company X shows significant gaps in the fulfilment of its SHE plans, implementation of SHE programmes and execution of its SHE management processes. The allocation of resources and investment in SHE activities in Company X is clearly not adequate. SHE investment is limited to only maintaining the fulfilment of the basic requirements of authorities and customers. There is no dedicated SHE budget planning process; instead, it is included in overall planning of the annual production budget. To maintain its ISO 14001 certification and safety standardization certification, the company is required to present a number of SHE investments and budgets during the audit. However, how much has really been spent on SHE investment remains a question mark.

The variations in SHE management practices between Company A and Company X are illustrated clearly in terms of quantitative score and qualitative analysis of the three "Leadership, Behaviour, Technique" dimensions and the twelve associated constitutive attributes representing corresponding elements of SHE management practices. After the completion of SHE due diligence for Company X, a comparative analysis was conducted for Company X and Company A. It was estimated by the due diligence team that €5.47 million of SHE-related investment would be needed to improve Company X's SHE management practices to fully meet the relevant industrial standards, local legal requirements and ABC Group's expectations. This €5.47 million investment is needed to close gaps directly observed in infrastructure and engineering parts, and to take remediation on the associated SHE permit and approval processes, in order to minimise the adverse effect on SHE-related compliance and SHE standards in daily operations. These are the main direct costs, but the estimated investment does not include those indirect management costs (e.g. manpower and time resources) required for gap closure activities. The remediation cost informed ABC Group's management of the clear gaps in Company X's SHE management practices, which led to the final decision by ABC Group to give up the acquisition deal. The variations in SHE management practices between Company A and Company X leads to the following empirical puzzles: "Given that two companies are located in the same provincial area, are engaged in the same industry, are of similar size, and have similar products and customer groups, why do they have such big variations in their SHE management practices? What contributes to this difference?" These empirical concerns have eventually supported the formulation of the central research question of this research project.

5.2.2 Temporal Variations in SHE Management Practices

These cross-sectional variations in SHE management practices at a specific point of time, March of 2017, provide a clear view of the spatial dimension of cross-firm differences in SHE management practices between Company A and Company X. To also capture the temporal dimension and to give a full picture of cross-firm variations in SHE management practices, I have also conducted a temporal analysis of changes in SHE management practices over time in Company A and Company X, with a specific retrospective review of SHE management practices back to 2007 for both companies. The SHE management practices over the last ten years have changed gradually in the two companies, which can be roughly divided into two time periods longitudinally. The time periods to be selected, as per Yin (2014), are presumed to reflect the anticipated stages at which the changes should be revealed, usually prior to and then after some critical event. The rationale for selecting the time periods is further explained in Chapter Four, "Methodology". I have captured a snapshot of SHE management practices at two different points in time to represent the average level of SHE management in Company A and Company X in the two time periods selected, in order to analyse the temporal variations in SHE management practices; these are illustrated in Table 7 below.

Table 7 Temporal variations in SHE management practices for Company A and Company X

SHE Management Practices Evaluation									
Dimension	**Constitutive Attribute**	**Result**							
		Company A (2007-2011)		**Company A (2012-2017)**		**Company X (2007-2010)**		**Company X (2011-2017)**	
Leadership	Management commitment and accountability	3.25	3.5	4.5	4.5	2.75	3	2.5	2.75
	Organizational competency and empowerment		3		4.5		2.5		2
	Resources and investment		3.25		4.5		2.75		2.75
Behaviour	Employee engagement and responsibility	3.25	3.25	4.5	4.5	2.75	3	2.5	2.75
	Communication, training and awareness promotion		3.5		4.75		3.25		2.75
	Behaviour-based safety programme		3		4.25		2		2
Technique	SHE policy, objectives, procedures and system	3.25	3.5	4.5	4.25	2.75	2.75	2.5	2.75
	Identification of aspects of SHE and risk assessment		3.25		4.5		2.5		2.5
	Legal compliance, standards and other requirements		3		4.5		3.25		2.25
	Operational control and management of emergencies and incidents		3.5		4.5		2.25		2.25
	Audit, monitoring and performance management		3		4.75		2.75		2.75
	Non-conformity, corrective/preventive action and continuous improvement		3.25		4.5		3		2.5
Average Score		**3.25**		**4.5**		**2.75**		**2.5**	

The evaluation of historic SHE management practices in Company A for the years 2007-2011 and in Company X for the years 2007-2010 was conducted mainly through a review of records together with interviews, as it is not possible to observe historic events. I still used the SHE management practices evaluation criteria in Appendix I as guidance to do the evaluation but focused only on relevant key constitutive attributes. I also tried my best to score the SHE management practices quantitatively, based on the information I obtained in the interviews, thus facilitating the structured-focused comparison and the evaluation of the temporal changes in SHE management practices in Company A and Company X. The evaluation makes the spatial and temporal analysis for the comparison of SHE management practices between Company A and Company X very straightforward.

For Company A during 2007-2011, the retrospective review of historical records and interviews concluded with a quantitative average score of 3.25 in terms of the "Leadership, Behaviour, Technique" dimensions of SHE management practices, with variations being detected in the constitutive attributes for each dimension, which reflected the average level of implementation of SHE management practices in this time period. Compared with the maximum score of 5.0, the actual average score of 3.25 indicated that in 2007-2011 Company A implemented most basic SHE management elements but still had considerable room for further substantial improvement in terms of the "Leadership, Behaviour, Technique" dimensions of SHE management practices.

After the JV was established in 2006 and came into full operation in 2007, Company A started the stepwise implementation of the ABC SHE standards and requirements following ABC Group's integration plan. However, this had been proceeding very slowly. There was no effective action being taken until August 2010 when ISO 14001 and OHSAS 18001 (ISO 45001) for SHE management systems were established and integrated into the integrated management system (IMS), and certified by DQS (Deutsche Gesellschaft zur Zertifizierung von Management System) according to ABC Group's requirements. Before August 2010, Company A only maintained ISO 9001 and TS 16949 certification to meet customer requirements, and SHE management was conducted in a piecemeal fashion, and not in a systematic way, even though there had been some efforts in preparation for seeking ISO 14001 and OHSAS 18001 (ISO 45001) certification through a local certification body. After August 2010, when certification of ISO 14001 and OHSAS 18001 (ISO 45001) was achieved, the aspects of technical solutions and system tools were established and rolled out: SHE policy, objectives, procedures and system; identification of aspects of SHE and risk assessment; legal compliance, standards and other requirements; operation control and management of emergencies and incidents; audit, monitoring and performance management; non-conformity, corrective/ preventive action and continuous improvement.

Together with the introduction of SHE management practices and technical tools provided by ABC Group, as well as the support provided through APAC regional and China SHE expertise from ABC Group, the "Technique" dimension of SHE management practices started moving on the right track. However, there were no substantial changes regarding some areas of concern, especially those requiring investment. Up until the end of 2011, including after August 2010 when a certified SHE management system had been rolled out, Company A had been maintaining a status in which the aim of SHE management practices was to meet the basic requirements of customers, shareholders and stakeholders. With this status, there was no aim of seeking further substantial improvement beyond the basic requirements because of the constraints on resources and investment allocated from plant management for that purpose.

During the JV period in 2007-2011, driving changes in mind set, attitudes and behaviour to focus on SHE matters had been a huge challenge. Following the ABC Group's integration plan to drive behaviour change in the JV, some efforts had been made with initiatives focusing on the "Behaviour" dimension of SHE management practices: employee engagement and responsibility; communication, training and awareness promotion; behaviour-based safety programme. However, the outcome indicated that their effectiveness was far below ABC Group's expectation. These behaviour changing initiatives were supported by ABC APAC regional and China SHE team, but implementation on the shop floor relied heavily on the plant management team, whose leadership and commitment should have played the key role. This appeared not to be the case during 2007-2011 when A00 was leading the plant management team. Behaviour changes among the plant management team and employees moved very slowly in this time period.

During 2007-2011, organizational competency in SHE management was low and there was not much SHE expertise in the organization. The administration manager, A08, had been assigned to take additional responsibility and was appointed as site SHE manager in response to ABC Group's request that the JV has someone functioning as a point of contact for the site on SHE matters. With the JV's organizational configuration during 2007-2011, its strategic direction did not reflect the SHE focus, and the company's priority did not include SHE matters. This was detected in the JV's decision making processes in daily operations, especially in the first several years after the JV was formed. Thus, the allocation of resources to, and investment on SHE remediation works and SHE improvement initiatives were not adequate. The "Leadership" dimension of SHE management practices was very weak at the beginning of the JV setup and was improving in slow steps. Overall, Company A's average rating in this period as "not strong" and far below what ABC Group would have expected with respect to the following aspects: management commitment and accountability; organizational competency and empowerment; resources and investment.

For Company X during 2007-2010, the retrospective review of historical records and interviews concluded with a quantitative average score of 2.75 in terms of the "Leadership, Behaviour, Technique" dimensions of SHE management practices, with variations detected in the constitutive attributes of each dimension. This result reflected the average level of implementation of SHE management practices during 2007-2010 in Company X and supported the structured-focused comparison. Compared to a full score of 5, the actual average score of 2.75 indicated that Company X implemented some basic elements of SHE management during 2007-2010 but not with a systematic approach. There was much room for systematic improvement in terms of the "Leadership, Behaviour, Technique" dimensions of SHE management practices.

After the privatization, Company X largely carried over the routine SHE management practices inherited from the old state-owned company. Under the policy, "safety first, protect the environment, prevent incidents and pollution", SHE management practices were implemented in a piecemeal rather than a systematic approach. ISO 9001 quality management certification was achieved in 2009 to meet customer requirements, but no SHE management system equivalent to ISO 14001 and OHSAS 18001 (ISO 45001) was introduced. As described by X00, X08 and X01, only very basic SHE management practices were implemented to maintain compliance and safe operation of the company, and to meet the requirements of local authorities and customers. The most common practices in the company were routine SHE inspections with action plans to close the gaps identified, along with basic safety training and the launch of posters/slogans on safety issues, together with some focused efforts to maintain basic operating permits. However, we evaluated the system tools and technical solutions, as the "Technique" dimension of SHE management practices, and found systematic gaps in the following elements, which were missing, not comprehensive enough, or were not being substantially enforced: SHE policy, objectives, procedures and system; identification of aspects of SHE and risk assessment; legal compliance, standards and other requirements; operational control and management of emergencies and incidents; audit, monitoring and performance management; non-conformity, corrective/preventive action and continuous improvement.

Following the practices inherited from the old state-owned company, in Company X during 2007-2010 the implementation of basic SHE training, communication and awareness programmes proceeded without a good two-way communication process and feedback channels, so that the degree of engagement of employees in transferring SHE responsibilities to everyone in the company was not good. Further, there was no specific behaviour-based safety programme to focus on behaviour change among employees. There were inspections and safety walk-arounds, which focused more on finding gaps or unsafe conditions rather than proceeding with safety-based dialogue in order to understand the underlying reasons for safe or unsafe behaviour and to change the behaviour of employees. Overall, the behaviour changing initiatives and employee engagement efforts were not launched in a systematic and professional manner, and thus the effect was not good enough to drive behaviour change among employees. The "Behaviour" dimension of SHE management practices in Company X required some substantial improvement.

After the privatization, the chairman of the board of directors, X00, and his partner, X08, still retained much of the mind set and approach from the state ownership era in dealing with SHE management, which was reflected in the "Leadership" dimension of SHE management practices during 2007-2010 with respect to strategic planning, decision making and resource allocation. X08, as a previous shareholder, and as a board member and supervisor of the board during 2007-2010, was in charge of plant administration, human resources and general affairs. There was no dedicated SHE manager, but a coordinator in the administration department, without SHE expertise and technical background, took care of regular SHE affairs and reported to X08. The SHE competency of Company X during 2007-2010 was low, although there was a certain degree of independence in that the SHE function was put under the administration department and not under production or plant operation. Lack of SHE competency meant that the implementation of sound SHE management practices was very difficult and not handled in a systematic way. There was a challenge with the allocation of resources and investment from X00 to implement the SHE management system with a holistic approach, so that SHE matters were managed with more of a responsive and pragmatic approach. We could see that the level of management commitment and accountability was to maintain the perception of SHE management by doing some key "must do" tasks in a piecemeal approach, rather than to really pursue the systematic and substantial improvement of SHE management practices. Overall, the "Leadership" dimension of SHE management practices in Company X during 2007-2010 was not strong enough to support the roll out of the "Technique" and "Behaviour" dimensions with respect to the following aspects: management commitment and accountability, organizational competency and empowerment, resources and investment.

The effect of internal and external factors may bring changes or pulse impacts in the short term, so we might see short-term temporal variations in certain dimensions of SHE management practices and their constitutive attributes. However, changes in certain constitutive attributes of one dimension could lead to changes in other attributes within the same dimension or in other dimensions of SHE management practices. Due to this interactive relationship, within four, five or six years, empirical evidence showed that the implementation of the "Leadership, Behaviour, Technique" dimensions tended to reach a balanced and harmonized average status. The average scores within four, five or six years for the "Leadership, Behaviour, Technique" dimensions of SHE management practices in a company's specific time periods, i.e. Company A during 2007-

2011, Company A during 2012-2017, Company X during 2007-2010, Company X during 2011-2017, appeared to be the same or very similar for each dimension, while there were deviations in the scores for each constitutive attribute, as we can see in Table 7. We should be aware of the limitations of the five grade Likert scale system, in which a quantitative score actually represents a qualitative status of SHE management. The average scores were empirically understandable and were verified by SHE expert peer review.

In Company A, the average score for SHE management practices increases significantly from 3.25 to 4.5, which indicates a substantial improvement in SHE management practices over time in terms of "Leadership, Behaviour, Technique". However, in Company X, the average SHE management practices score decreases slightly from 2.75 to 2.5, which indicates no substantial improvement in SHE management practices. Instead, there is a slightly worsening trend over time in SHE management practices in terms of "Leadership, Behaviour, Technique" dimensions in Company X. Initially, during 2007-2010 for Company A, and 2007-2011 for Company X, Company A was performing slightly better than Company X with respect to SHE management, as we can see by comparing their respective scores of 3.25 versus 2.75. However, the gap has been widened according to the latest cross-sectional evaluation of SHE management practices in March 2017, with Company A demonstrating an overwhelming competitive advantage in SHE management over Company X, which is clearly illustrated in previous sections. The temporal changes in SHE management practices between Company A and Company X enhanced the following empirical puzzles: "Why do two companies with similar external exposures have such big variations in SHE management practices over time? What contributes to the temporal changes and spatial variations?" These concerns have facilitated the researcher to explore the internal factors that influence the variations, i.e. the changes in patterns of corporate governance respectively in Company A and Company B over time across two time periods, using the empirical evidence collected.

5.3 Changes in Patterns of Corporate Governance in Company A and Company X

5.3.1 Patterns of Corporate Governance in the Time Period 2007-2011 of Company A

Company A was established as a JV between ABC Group and a local family business partner, Mr. Zhu (A00), in 2006. Company A acquired the existing facility as a fixed asset from A00 and it was fully operational in 2007. From 2007 until 2011, before the major changes in 2012 (changes to be described in Section 5.3.2), Company A operated daily under the leadership of A00, who was appointed as the first general manager of the JV. In the period 2007-2011, the patterns of corporate governance for Company A in the period 2007-2011 were characterized by the structural and ideational variables of corporate governance and the interaction between these variables. The structural variable refers to its corporate governance mechanism and power structure, which includes the ownership structure and control, the board of directors, stakeholder influence, transparency and disclosure. The ideational variable refers to the corporate value orientation, specifically shedding light on the evaluation of the strength of prosocial values in the company.

The ownership structure of Company A at the time the JV was established and in the period 2007-2011 was described in the article of association for the JV (A, 2006) as follows: ABC Group owned 70% as the major shareholder, of which ABC Corporation Germany, as the parent company of ABC Group, owned 40%, and ABC China Investment Co. Ltd., as the affiliated holding company in China, owned 30%, while the local business partner, A00, owned 30% as the minor shareholder. As with most JVs in China, there was no formal shareholder committee designed into the corporate governance mechanism and power structure, and thus there is no mention of such a committee in Company A’s article of association. The board of directors was established through negotiation until a mutual agreement was reached among the shareholders on the following arrangement (A, 2006): ABC Group, as major shareholder, appointed A01 as the chairman of the board of directors; A00, as minor shareholder and local business partner, was appointed as the deputy chairman of the board of directors; ABC Group, as major shareholder, also appointed another board member, A02. Thus, a three-person board of directors was formed for the JV. There was no appointment of a supervisory board or supervisor for the board of directors. In addition to what was documented in the first version of the article of association issued in 2006, these facts were confirmed by board members A01 and A02.

The appointment of a general manager for the JV was decided by the board of directors. The first general manager role of the JV was taken up by A00, taking charge of the overall business and operations of Company A. This appointment was for five years, from January 01 2007 and ending by the end of December 30 2011. ABC Group appointed the deputy general manager in charge of finance. The general manager, being accountable to the board of directors, was authorized to make decisions in daily business and operations, except for some major decisions relating to the key business strategy, major investment and important changes in key management team members, which needed a board decision. In this setup, A00, as the general manager and deputy chairman of the board of directors owned the actual control and had full power to run the daily business and operations of the JV. The chairman of the board of directors, A01, was based in ABC China's headquarter in Shanghai, and also functioned as ABC's country president for all of its businesses and operations in China. Thus, he could only delegate duty and power to A00, who was the general manager and deputy chairman of the board of directors. In China, it is a well-known practice that general managers of JVs hold the real power in the daily running of the business, rather than the chairman of the board. This was confirmed by A01 and A02.

The corporate ownership was distributed between ABC Group and the local business partner, A00. However, the contractual agreement granted A00 the power to control Company A's business and operations during 2007-2011. This ownership structure, together with the weak board structure, could not provide adequate daily control to protect all aspects of the major investor ABC Group's interests. The weak structure could be perceived through detection of the degree to which the owners and their appointed board and managers have exercised actual control on issues regarding employees' interests and SHE matters. Further, A00 took the combined roles of deputy chairman of the board and general manager in the daily management of the company, while he, himself, was also a shareholder with a 30% share in the JV. This setup greatly diluted the effectiveness of the monitoring and control mechanism in tackling principle-agent issues, especially in this case, in which there was no supervisory board or supervisor setup for the JV. This could have led to issues with "insider control". The unique situation for Company A during 2007-2011 was that this "insider control" was exercised by A00 as the local business partner and minor shareholder of the JV, rather than by ABC Group as the major shareholder. However, this setup followed the contractual agreement between ABC Group and A00.

Under this specific contractual agreement and the configuration of the control mechanism and board structure, stakeholder influence could not be expected to be strong, and similarly for transparency and disclosure. The trade union was established only after October 2010 and did not function in terms of provision of a platform for employees to voice their concerns, so there was no mechanism to ensure employees could represent their interests in major company decisions. The degree of information sharing inside the organization and the level of transparency from the top down and the bottom up were still weak. The sharing of information on SHE management practices with governmental regulators, customers and communities was very limited. The company only disclosed the minimum information requested by external stakeholders. Evidence indicated that A00 had carried over his management style from his previous experience in running his family business. This was obviously observed, especially in the first two years of the JV operation. The majority of the local operation team for the JV were transferred from the previous operations team at A00's existing plant. As a conclusion, the governance mechanism and power structure, as the structural variable of corporate governance during 2007-2011, were weak.

In the contractual agreement, as written in the article of association, there was a special emphasis on the management principle that "JV shall follow ABC Group's guiding principles and policies on sustainability and safety health environmental management" (A, 2006). This set the tone that the prosocial corporate value orientation of Company A should meet ABC Group's expectation. Typically, from a goal-oriented perspective, the prosocial values were clear that the JV should follow ABC Group's vision and values, which included the following important element: "We are dedicated to sustainability and corporate social responsibility" (ABC, 2007).

This explicitly spelled out the ultimate destination and emphasized the desired ends regarding stakeholder orientation. In this setting, the prosocial values were well reflected in the vision, strategy and goal of Company A during 2007-2011.

It had been a normal practice for ABC Group to apply its vision and values from the beginning to new entities, including its fully owned operations, JVs and newly acquired operations. So Company A was expected to set its strategic goal to address the prosocial corporate value orientation as a desirable end state. This was verified in the JV's written value statement, which was a copy of ABC Group's statement; it was reflected in the written policy and procedure, and could be felt in the promotional events at the time when the JV was formed. These aspects were confirmed through interviews with A00, A01, A04; in their words, there was "no doubt that the JV, as part of an ABC affiliated company, set the ultimate goal with dedication to sustainability and corporate social responsibility as part of our values".

The action-focused perspective of prosocial values in Company A during 2007-2011 were reflected in strategic planning, daily action, routine operations, organizational behaviour etc., which could be perceived from the attitudes and behaviour of key stakeholders (e.g. owners, managers, employees). This action-focused perspective on prosocial values with regards to the priority given to the development of SHE management practices was not as strong as the goal-oriented perspective of the prosocial values that the company put forward. There was a socialization process associated with how the core values would drive the changes in attitudes and behaviour and turn this mind set into actions, which needed time. At the time the JV was set up, there were constraints on changes in behaviour, and this resistance was even detected at the beginning of the JV operation. This was somewhat impacted by the weak governance mechanism and power structure. However, with the integration work launched by ABC Group, on average the prosocial value orientation was relatively strong in Company A during 2007-2011.

Quantitatively, the status of corporate governance was presented via a scoring scheme for the indicators of both the structural and ideational variables. The scoring was done by eleven interviewees guided by the structured-focused questionnaire in Appendix II. As the researcher, I supported their scoring with a detailed explanation of all the indicators associated with the structural and ideational variables and ensured they all completed the scoring on the same basis. Overall, the eleven interviewees responded with reasonable scores, except A00 who gave a very high rating for corporate governance. As a researcher, I found that A00 did not take the scoring seriously and, in his eyes, the way he managed Company A during 2007-2011 was correct. I had to further explain the questionnaire to him, so that he completed it one more time before we finalized the scoring. Each interviewee submitted their own rating on the questionnaire sheet, and I calculated an average score to represent the status of corporate governance practices.

As an outcome, the ideational variable was rated at 4.0, while the structural variable received a score of 2.5. This quantitative score matched my qualitative analysis, reflecting the patterns of corporate governance with a relatively strong ideational variable and a comparatively weak structural variable for Company A during 2007-2011. I conclude that Company A, in the period 2007-2011, demonstrated clearly the features of a relatively strong prosocial corporate value orientation and a weak governance mechanism and power structure. When the relatively strong ideational variable interacted with the weak structural variable, the "Structurally Constrained" pattern of corporate governance emerged in Company A during 2007-2011.

5.3.2 Patterns of Corporate Governance in the Time Period 2012-2017 of Company A

The patterns of corporate governance for Company A in the time period 2012-2017 emerged with specific features along with the major changes that occurred in the governance mechanism and power structure, as well as the further enhancement of prosocial corporate value orientation. The changes have led to very strong structural and ideational variables of corporate governance.

The ownership structure of Company A in 2012 remained unchanged, with 70% of shares owned by ABC Group and 30% of shares owned by A00 (the local partner in the JV, deputy chairman of the board of directors, and previous general manager of the JV during 2007-2011). In 2015, however, A00 agreed to transfer his 30% share to ABC Group. The ownership structure was changed to 70% owned by ABC Corporation Germany and 30% owned by ABC China Investment Co. Ltd., so ABC Group owned Company A 100% from 2015. The major change in 2012 was the change in the actual right of control of Company A. Following contractual agreement, the previous deputy general manager appointed by ABC Group officially took over the general manager position from A00, while A00, as the minor shareholder of the company, only kept his board position as the deputy chairman of the board of directors and did not have any other positions in the company's plant management.

The change in the right of control, along with concentrating ownership in ABC Group, immediately led to the enhancement of the governance mechanism and power structure. There was absolute separation between the board of directors and the plant management team. The board members or shareholders were not personally directly involved in the plant's general management, which was taken care of by the new general manager who replaced A00. This ended concerns about "insider control", enhanced the management of principle-agent issues and ensured the effectiveness of principle-agent control. This change greatly enhanced the mechanism of "ownership structure and control" as well as the configuration of "the board of directors", which were the two important components of the structural variable of corporate governance in Company A during 2012-2015.

In 2015, after ABC Group used ABC Corporation Germany as a foreign legal entity and parent company to acquire the 30% share of Company A from A00, ABC Group fully owned and operated Company A, with 70% of shares owned by ABC Corporation Germany and 30% by ABC China Investment Co. Ltd. A00 was removed from the list of shareholders and from the board of directors (A, 2015). The article of association was updated in consideration of these changes, and of the requirements of ABC Group and the newly revised 2014 version of company law in China. The new setup of the governance mechanism and power structure included the shareholder committee, the board of directors, the supervisor, and the general manager of Company A (A, 2015). The governance mechanism and power structure were very strong with clearly demonstrated features of the German corporate governance system, based on the two-tier board prototype. Because ABC Group fully owned Company A, it made the changes in its governance mechanism and power structure according to its own global system of corporate governance.

The shareholder committee was formed by the two corporate owners, i.e. ABC Corporation Germany and ABC China Investment Co. Ltd. The board of directors was composed of three directors: A01, as a representative of ABC Corporation Germany, still headed the board as the chairman of the board of directors; A02, as a representative of ABC China Investment Co. Ltd., was appointed as the deputy chairman of the board of directors; in addition, there was a new board member nominated by ABC Corporation Germany (A, 2015). The principle-agent relationship between the shareholder committee and the board of directors became very clear. In 2015, A04 was transferred from another ABC China company and manufacturing plant to Company A, and was appointed as the current general manager of Company A. A04 was authorized by the board to be in full charge of Company A's daily business and operations. The principle-agent relationship between the board of directors and the plant general management was also very clear. In addition, a supervisor was appointed by the shareholder committee, who was nominated by the ABC China legal function to be in charge of providing advice to the board of directors as well as supervising and monitoring the operation of the board.

The patterns of corporate governance in Company A during 2012-2017, especially after 2015, followed its parent company, ABC Corporation Germany's, corporate governance system, which was a traditionally preferred stakeholder-committed model. This concept, derived from the German Co-Determination Act, delivered a clear stakeholder value orientation in ABC Group. The concept of co-determination was transferred to ABC Group's affiliated companies, although legally there might not be the exact same requirement. The trade union in Company A, after its establishment in October of 2010, began to function under the improved governance mechanism and power structure after 2012. Operators and shop floor employees had a platform to voice their concerns regarding their welfare, workplace health and safety, environmental protection, the interests of wider communities and the public, etc. Employee representatives were elected to sit on the working committees (e.g. SHE committee, welfare committee etc.) when there were major decisions which could affect the welfare and benefits of the employees.

A suggestion box was set up to collect input from employees. The suggestions and input collected were reviewed by plant management regularly (e.g. monthly) with feedback and replies. The stakeholder influence during 2012-2017 was much stronger than during 2007-2011.

Transparency and disclosure of information also became much better during 2012-2017. In addition to the routine meetings at different levels to exchange information and the facilitation of communication by posting of messages to relevant internal and external stakeholders, Company A introduced the practice of the quarterly "town hall meetings" just like the other ABC Group-affiliated companies in China. In these meetings, the top management, including sometimes the chairman of the board of directors, and the board members of Company A deliver financial and non-financial information directly to employees and answer their questions. There are more communication platforms, for example "ABC Life" magazine and web portal for ABC China-affiliated companies, web communication, the "Yammer" messenger system etc., through which the employees can obtain relevant information about the company and ABC Group. The corporate communication function has injected more communication initiatives in Company A during 2012-2017 than before, which has greatly enhanced the company's level of transparency and information disclosure.

In 2012, ABC Group launched the new version of its vision and values globally. As indicated in the sustainability report that it published (ABC (2012), "[we] are committed to the leadership in sustainability" was one of the components of ABC's corporate values. A clear sustainability strategy, "Achieving more with less", was rolled out with clear targets set to achieve its 2030 sustainability goal. These targets covered six focused areas in which SHE elements were included: more value for our customers and more value for ABC; safer workplaces and better health and hygiene; more social progress and better quality of life; less energy used and less greenhouse gases; less water used and less water pollution; less resources used and less waste generated (ABC, 2012). The updated corporate values and sustainability strategy further enhanced ABC Group's prosocial value orientation. The current corporate values statement, i.e. "We are committed to the leadership in sustainability" (ABC, 2012), sent out a stronger message than the previous one, i.e. "We are dedicated to sustainability and corporate social responsibility”(ABC, 2007, ABC, 2012).

As part of the global campaign to promote the updated ABC corporate values, Company A updated its plant level corporate values and sustainability strategy. This was done in a coordinated approach, with support from ABC’s corporate communication function, so that all the ABC-affiliated companies were equipped with the same corporate values and sustainability strategy, and were expected to commit to their part in the breakdown of targets to meet the global strategic goal. The goal-oriented perspective of prosocial values was further enhanced during 2012-2017, as reflected in the vision, strategy and organizational goal. The end state of achieving and maintaining the leadership position in sustainability as the strategic goal was very clear in Company A. Simultaneously, the action-focused perspective of prosocial values was explicitly reflected in the strategic plan, daily action, routine operation, organizational behaviour etc. with a solid commitment to achieving the leadership position in sustainability. These were detected from the changes in attitudes and behaviour of key stakeholders (e.g. owner representative, managers, employees etc.) and from how priority was given to the development of SHE management practices. Company A’s strong prosocial values were supported by the improved governance mechanism and power structure and were further enhanced and became very strong during 2012-2017.

A quantitative score was given to both the structural and ideational variables as a virtual indication of the status of corporate governance in Company A during 2012-2017. The scoring was done by the same group of eleven interviewees who did the scoring for Company A’s corporate governance status during 2007-2011, by using the same structured-focused questionnaire in Appendix II to support a comparative analysis of the temporal changes between the two time periods in the company. After the further explanation of the questionnaire to A00, his score for Company A during 2012-2017 appeared reasonable, as I could see a higher score for this time period than for 2007-2011, although the difference was not as obvious as for other interviewees’ scores. As I understood that A00 did not think there was a big change, and that this was his understanding, I needed to respect his opinion; therefore these data were accepted. An average score was calculated after I, as the researcher, reviewed the scores on the questionnaire sheets submitted by each interviewee. As a result, the score for the ideational variable increased to 4.5 while that for the structural variable increased sharply, also to 4.5. This quantitative score matched my qualitative analysis, reflecting the patterns of corporate governance, with very strong ideational and structural variables in Company A during 2012-2017.

As claimed by A01, the chair of Company A's board of directors, after the changes in the governance mechanism and power structure, and the launch of ABC's updated vision and values, the company had built up a stronger foundation for its sustainable growth. This view was verified by board member, A02, and the general manager, A04, and other managers and employees. I would conclude that Company A during 2012-2017 was characterized by its very strong prosocial corporate value orientation and very strong governance mechanism and power structure. With a strong ideational variable interacting with a strong structural variable, the "Strongly Governed" pattern of corporate governance emerged in Company A during 2012-2017.

5.3.3 Patterns of Corporate Governance in the Time Period 2007-2010 of Company X

Company X was founded in 1993 in the Yangtze River Delta area, China by Mr. Zhang's father (X00) as the major shareholder and Mr. Chen (X08) as the minor shareholder. From 2007 until 2010, before changes in 2011 (to be described in Section 5.3.4), Company X was run by X00, who was chairman of the board of directors and was in overall charge of Company X's business and operations. The establishment of Company X came through the privatization of a small state-owned chemical company which was a branch of the chemical plant belonging to Changchun Material Science Technology Research Institute. The patterns of corporate governance for Company X during 2007-2010 demonstrated a unique legacy feature in terms of the structural and ideational variables of corporate governance and the interaction between them. The legacy features revealed, to a certain degree, characteristics of a state-owned company's patterns of corporate governance.

The ownership structure of Company X during 2007-2010 remained the same as the shareholding structure when the company was founded in 1993 through the privatization of a state-owned company. There were two shareholders as co-founders of Company X, the major shareholder, X00, who owned an 80% share of the company, and the minor shareholder, X08, who owned a 20% of share from 1993 to 2010, when he sold his 20% share to X00 in 2010 and then took the job as administration manager from 2011 to 2017. X01, the son of X00, joined Company X in 2007 and worked as the general manager in charge of the operation of the company, but he owned no share of the company during 2007-2010. Company X's article of association was updated in 2007 when X01 took over the general manager role from X00. As stated in the article of association (X, 2007) regarding the corporate governance structure, X00 was the chairman of the board of directors, X08 was a board member functioning as the supervisor of the board as well as plant administration manager, while X01 was appointed as the general manager but was not a board member.

From X00, during 2007-2010 the ownership structure and board structure were quite simple and clear. There was a combination of shareholders and board members, which was understandable in a small private company. There was a good structure setup, with separation of the board of directors and general management and without the existence of dual governance and management. This setup with good principle-agent controls, could, to a certain degree, help avoid "insider control" in the centralized ownership structure. Although there were some concerns with the father-son relation between X00 and X01, they were, in any case, two different persons with different roles, rather than one person with combined roles. With this, the governance mechanism and power structure in terms of the ownership structure and control, as well as the setup of the board of directors, was comparatively strong in Company X during 2007-2010.

Under the specific contractual agreement between the shareholders and the configuration of a comparatively strong control mechanism and board structure, stakeholder influence demonstrated a certain degree of strength, and the same for transparency and disclosure. Although the major shareholder, X00, and his son, X01, took the dominating positions in the operation of the company, there was another co-founder, X08, the minority shareholder, who was a board member and supervisor of the board, as well as being in charge of plant administration, human resources and general affairs. This role provided the supervision of the board operation and plant general management, which ensured that considerable stakeholder influence, as well as transparency and disclosure were, to a degree, part of the structure. There was a certain degree of internal and external communication on SHE topics, although not highly effective and only of moderate quality, by following the practices from the previous state-owned model. There was a mechanism to represent the employees' and other stakeholders' interests, and to ensure engagement of employees through their participation in the trade union. Employees' voices could also be heard through the appointed employee representative. Although the head of the trade union, X09, was the daughter of X00, she reported to X08 regarding trade union work. X08 came from the state-owned company and had quite some experience and focus on trade union and employee representative work. X08, in his role as the board member functioning as supervisor of the board, had been working well during 2007-2010 to provide a certain degree of monitoring and control, checks and balances, and constructive input to the operation of the board. There existed some control over actions in favour of employee interests and SHE matters, which was exercised by X08. As per the structural design, X08, as a board member and supervisor of the board, to a certain degree, represented the employees' interests and SHE matters in the board's decision making processes, which contributed to the comparatively strong structural variable of corporate governance.

To understand the corporate values of Company X during 2007-2010, interviews with both X00 and X08, as the two co-founders of Company X, were conducted, along with a review of the old mission statement document, part of the old version of Company X's management manual. I could see the written expression of Company X's perceived corporate values, i.e. "Customer and quality first, serve the society with respect to the individual" (X, 2008). From checking further with X01, I found out that this values statement was simply a copy from the old state-owned company. When X00 and X08 established Company X through the privatization, they did not give much consideration to the company's vision and values, and did not put forward their own values statement specific for Company X between 1993 and 2007. After X01 joined Company X as the general manager, he decided to put forward a written management manual and mission statement from the plant management perspective. However, when X01 checked his proposed values statement with his father, X00, in the end they agreed just to copy the values statement from the previous state-owned company, since it sounded not bad and explicitly indicated in writing the company's ambitions and what it would ultimately pursue. The question was whether or not the written values statement reflected the actual values of Company X during 2007-2010; empirically, it appeared not to be a full match.

As also confirmed by X00, X08 and X01 in their interviews, although Company X's values statement, "Customer and quality first, serve the society with respect to the individual", indicated a certain degree of prosocial orientation to respect the individual and to serve society, the actual situation of recurring characteristics and discernible regularities, as detected from the daily operation of the company during 2007-2010, did not show a good match with the written words. The written values statement did not really reflect its core values with deeply ingrained principles to guide the actual direction and actions of the company. Thus, it did not serve as the cultural cornerstone of Company X, and was more a part of corporate image. There was a lack of prosocial values reflected in the vision, strategy and organizational goal. The corporate values of Company X did not demonstrate a strong prosocial value orientation as detected from daily decision making and perceived from managerial attitudes, behaviour and consideration given to the development of SHE management practices. Company X during 2007-2010 required some focused effort in the internalization of the written values statement into an embedded belief and grounded practices on the shop floor, but this did not proceed well during the whole period of 2007-2010.

Quantitatively, I concluded that the structural variable of corporate governance in Company X during 2007-2010 was comparatively strong overall with a moderate score of 3.25. This governance structure provided a mechanism of checks and balances, with a certain degree of supervision, empowerment and independence, which helped to protect the interests of relevant shareholders and stakeholders. However, if we check the extent to which prosocial values were reflected in the vision, strategy and organizational goals, as well as the extent to which we could perceive the attitudes, behaviour of key stakeholders (e.g. owners, managers, employees etc.)

and the priority given to the development of SHE management practices, these were all relatively limited, with a score of 2.5. The quantitative scoring was done by seven interviewees following the guideline for completing the structured-focused questionnaire in Appendix II. It took quite some effort for me, as the researcher, to explain again and again the questionnaire to the interviewees, as the selected Company X interviewees did not really have a good understanding of the meaning. Only X01 had a comparatively better understanding because of his background and education. This situation led to deviations in the scores, including some outliers. I received an acceptable quality of data from some of the interviewees after explaining the meaning of the questionnaire two or three times, especially to X00, but I reminded myself not to allow my opinions to exert influence on them in the course of such explanation.

With the final data collected, I would conclude that Company X during 2007-2010 demonstrated the unique features of a comparatively strong governance mechanism and power structure, in terms of the provision of a kind of monitoring mechanism, as well as checks and balances, but a relatively weak prosocial corporate value orientation, with embedded beliefs and motivation to drive social and non-financial performance. When the comparatively strong structural variable interacted with the relatively weak ideational variable, an “Ideationally Constrained” pattern of corporate governance emerged. The internalization of written corporate values, if it is to proceed well, is expected to ensure a match between buzzwords and reality, which can have a very positive impact on a company. On the contrary, if it moves in the opposite direction, this can have an adverse impact.

5.3.4 Patterns of Corporate Governance in the Time Period 2011-2017 of Company X

The shareholding structure changes in Company X in 2011 led to changes in the patterns of corporate governance with specific features emerging in terms of the structural and ideational variables and the interactions between them. The patterns of corporate governance in Company X were impaired during 2011-2017, with a weak prosocial corporate value orientation and a weak governance mechanism and power structure.

The ownership structure of Company X during 2011-2017 was changed along with the change in the shareholding structure in 2011. Company X doubled its registered capital in order to accommodate its business growth and the expansion of its production facility with the building of the new plant. This was supported by a bank loan, as X01 had a very good relationship with the bank due to his former banking job before joining Company X. X01 received the full ownership of the company from his father, X00. Company X was registered at the address of the newly built plant, and followed corporate legal practices in setting up a two-person shareholding structure and a two-person board structure. There were two shareholders, X01, who owned a 99.5% share as the dominant major shareholder, and his wife, X02, who emblematically owned a 0.5% share, as the minor shareholder. There was no formal setup of "The board of directors". Following the requirements of corporate law, X01 was the executive director of Company X, and his wife, X02, as a board member, functioned as the supervisor of the board, X03 (a combined role, X02/X03). This was a typical family company ownership structure with an executive director and a supervisor forming a two-person board (not formally called a board of directors). X01 himself worked as the general manager of Company X during 2011-2017. All of these ownership and board structure configurations were written into the updated article of association for Company X (X, 2011).

The ownership structure and right of control were centralized with X01, who held three combined roles: dominant major shareholder, executive director and general manager. This was a typical family business governance pattern, with the combination of shareholding, board governance and general management roles. It indicated the centralization of control with the family business owner, X01, without giving much consideration to the interests of stakeholders, including employees. This created major "insider control" concerns about the pursuit of maximization of the business owner's interests, while there was little control over actions in favour of employees' interests and SHE matters by other stakeholders. X01's wife, X02/X03, with the combined role of 0.5% shareholder and supervisor of the board, had a very weak structural influence on X01's decisions, especially when they were, in fact, in a husband and wife relationship. The family business ownership structure and board setup greatly weakened the checks and balances mechanism. In reality, there were no great principle-agent issues because X01 was the owner-manager. Also, there was no monitoring, and no checks and balances in the governance mechanism. X01 had dominant control of Company X. The presence of pro-employee interests in the board decision making processes was low. The “ownership structure and control” and “the board of directors” components of governance structure did not favour SHE management. This appeared as a typical family business style and not a modern corporate governance structure. The highly concentrated ownership was good for efficient decision making, but the lack of a checks and balances mechanism and processes to ensure employees’ interests meant that SHE matters were not given priority.

Under the family governance mechanism, the “stakeholder influence” and “transparency and disclosure” components of the structural variable of corporate governance also appeared very weak. There was still a setup, but the previous formality of an employee representative system was removed. X09, daughter of X00 and sister of X01, still held the position of trade union chairperson. She reported to the plant administration manager, X08. In many cases, X09 herself took on the role of employee representative involved in some company decisions. However, the functionality and effectiveness of the employee representative system were not really present. Structurally, X08 and X09 were not in good positions to exert substantial stakeholder influence on X01, the board and the plant management. The voice of the employees and other stakeholders could not really be heard by the management and there was no constructive feedback from the top. The level of transparency and information disclosure, internally and externally, in Company X during 2011-2017 was low in a highly centralized control mechanism dominated by the family governance system.

In order to support good business expansion by quickly responding to customers and the market, after taking over the business and operations of Company X from X00 and X08, X01 decided to make the structural changes in the corporate governance mechanism, just like most family companies in local communities, so that he had the full control rights and reduced the principle-agent layer, which helped drive the effectiveness and efficiency of decisions in responding to the market. X01 also updated the company management manual with a new corporate values statement in 2012: “Customer supreme, quality first, we operate with a high level of integrity to support steady growth” (X, 2012). The new corporate values statement clearly indicated a greater business orientation with a focus on customers, quality and business growth. No prosocial values were reflected in the vision, strategy and organizational goals. It expressed the expectation to gain a high level of integrity in the company's operations, which reflected, to a certain degree, the lack of this in Company X during that stage, and informed people that the company wished to pursue a high level of integrity to show a good corporate image. The empirical evidence for inconsistency and mismatch between what they said and what they did in terms of SHE management practices revealed in reality a low level of integrity. The corporate values were reshaped by X01, as the new owner of Company X, and his management team according to the business context, the company's vision, mission, goal, strategy and associated daily decision making activities. This determined the means to achieve the goal. Clearly, the corporate values statement did not inform the stakeholders of a strong prosocial values orientation. The corporate values spelt out what were important to Company X during 2011-2017, and gave a high priority to business expansion and commitment to customers, but a low priority to internal stakeholders and SHE matters. This also indicated the company's wish to achieve a high level of integrity to enhance its market competitiveness. Ideationally, the new corporate values showed us the weak prosocial value orientation.

The new corporate values, to a certain degree, reflected the new company owner, X01's business and financial performance-oriented ambition due to his educational background in finance and previous work experience in a local bank. When weak prosocial corporate value orientation interacted with the highly centralized, but weakly governed family control structure, this naturally drove Company X to focus on business development, customer orientation and maximization of benefits for the family shareholders, while social affairs, stakeholders' interests and SHE matters were not at the centre of strategic planning during 2011-2017. This model of corporate governance has appeared quite commonly in privately run family companies in their growth stages. From 2011 on, X01 was the designer and controller of how Company X would move forward to achieve its business success with expansion and quick responses to the market.

Quantitative assessment of the structural and ideational variables of corporate governance was conducted through the completion of the structured-focused questionnaire sheet in Appendix II by seven selected interviewees. The initial scores from the interviewees were reviewed by me, I found one outlier in the scoring which was from X01. I had to sit down with him to discuss and guide his understanding, and found that X01 actually understood the meaning of the questionnaire, but he intended to rate corporate governance during 2011-2017 with a very high score. I understood his intention to rate corporate governance highly especially during the time period when he was in charge of Company X, and that he wanted to sell Company X to ABC Group. I had to find a second opportunity to interview X01 two weeks later after ABC Group had decided to stop the acquisition deal. I explained to X01 that, purely as a researcher, I would like to have his support in doing a purely academic study. Finally, he opened his mind, gave a reasonable score, and also exchanged some of his real thoughts. I did spend more time on calibrating the scores for Company X, while remaining independent as a researcher, to dig out the interviewees' real thoughts but not to influence them with my own thoughts.

By averaging the final scores, I was given an indication of the status of corporate governance practices for Company X during 2011-2017. The structural variable was scored at 2.5 and the ideational variable at 2.0. These quantitative scores matched the qualitative analysis of patterns of corporate governance. I would conclude that Company X during 2011-2017 demonstrated clearly the features of highly centralized family control combined with a weak governance mechanism and power structure in terms of social matters, and a further weakened prosocial corporate value orientation compared to 2007-2010. When the weak structural variable interacted with the weak ideational variable, the "Weakly Governed" pattern of corporate governance emerged.

5.4 Summary

The empirical results are obtained through the field work, including document review, field observation, semi-structured interviews and structured-focused questionnaires. The arrangement of two stages of field work, with slightly different strategies, ensures that the best quality of data can be obtained in case studies; see Table 8. The first stage of field work focuses on the evaluation of SHE management practices for Company A and Company X by using a team of SHE experts as multiple investigators to minimize possible bias, the final scores for SHE management practices for the two time periods in Company A and Company X were provided by a team of SHE experts after they conducted overall assessments by evaluating the input from the interviews and comparing it with the document review, field observation etc. This process is very close to the standard practice of SHE management evaluation in the business world, and the empirical data are valid and reliable for research.

The second stage of field work focuses on collection of empirical data on the patterns of corporate governance for the two time periods in Company A and Company X, as well as on investigation of the causal links between patterns of corporate governance and SHE management practices. In this stage, the semi-structured interviews are conducted by myself, as the researcher. The quality of responses from interviewees for the corporate governance questionnaires is crucial in determining the patterns of corporate governance and then the causal links investigation and analysis. The structured-focused questionnaires are administered to the selected interviewees for them to provide input in terms of their assessment of patterns of corporate governance for each time period in Company A and Company X. Evaluation of their initial scores, adjustment, averaging, and finalization of scores was conducted to ensure their good quality and reliability. Due to the limited number of interviewees', the researcher would like to retain all of their input, and not remove any outliers. Possible outliers detected are further investigated to find the reason behind them. This involves a huge amount of work in explaining each questionnaire to the interviewees and detecting illogical scores for adjustment but without influencing the interviewees' own judgement. There are discussions on the methodology of the data collection in Section 4.4, and on the verification of the interviewees' scores in Section 5.3. All scores are ultimately agreed by the interviewees to ensure objectivity and reliability.

Table 8 Empirical results for SHE management practices and patterns of corporate governance for Company A and Company X

Organization	Time Period	Patterns of Corporate Governance		SHE Management Practices		
		Governance mechanism and power structure	Prosocial corporate value orientation	Leadership	Behaviour	Technique
Company A	Year 2007-2011	Structurally Constrained		Average Score 3.25		
		2.5 (Weak)	4 (Strong)	3.25	3.25	3.25
	Year 2012-2017	Strongly Governed		Average Score 4.5		
		4.5 (Strong)	4.5 (Strong)	4.5	4.5	4.5
Company X	Year 2007-2010	Ideationally Constrained		Average Score 2.75		
		3.25 (Strong)	2.5 (Weak)	2.75	2.75	2.75
	Year 2011-2017	Weakly Governed		Average Score 2.5		
		2.5 (Weak)	2 (Weak)	2.5	2.5	2.5

In Table 8, showing the empirical results for changes in patterns of corporate governance, and the spatial and temporal cross-firm variations in SHE management practices, we can see the causal relevance between the patterns of corporate governance and SHE management practices. This is reflected in the ideational influence and structural impact of corporate governance on SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. While this causal relevance is presented as an integrated and combined effect of corporate governance on SHE management practices, it is not a hard and fast demarcated one-to-one effect, which is illustrated in Chapter Six with detailed investigation and analysis of the causal effects.

Chapter Six: Causal Effects Analysis of Corporate Governance on SHE Management

6.1 Introduction

After collecting empirical data for SHE management practices and patterns of corporate governance for Company A and Company X, analysis is conducted with respect to the causal effects of patterns of corporate governance in terms of structural and ideational variables on SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions. This is done respectively for Company A and Company X with a focus on how the changes in patterns of corporate governance lead to the variations in SHE management practices over time across the two time periods for each company. The causal effects analysis supports the testing and verification of the proposed explanatory framework with an integrated empirical understanding of the underlying mechanisms and processes of the causal linkage between patterns of corporate governance and SHE management practices. A conclusion is made on how the actual patterns of corporate governance in the two time periods for Company A and Company X fit into the 2×2 matrix for patterns of corporate governance in Table 3. The validity of the explanatory framework is confirmed with support from empirical evidence.

6.2 The Causal Nexus between Patterns of Corporate Governance and SHE Management Practices in the Time Period 2007-2011 for Company A

The status of, constraints on, and challenges in the implementation of SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions during the JV period of 2007-2011 in Company A were attributed to the “Structurally Constrained” pattern of corporate governance during that period. There was a relatively strong prosocial corporate value orientation but a comparatively weak governance mechanism and power structure in Company A. The strong prosocial values that came from ABC Group, as the major shareholder of Company A, tended to direct the focus of the JV on SHE matters. However, this intention, motivated by efforts to focus on SHE due to the prosocial corporate value orientation, was hindered by the weak governance mechanism and power structure of the JV during 2007-2011.

The relatively strong ideational variable and comparatively weak structural variable of corporate governance, as well as the interaction between the two variables, had a fundamental impact on SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions. The causal linkages with respect to the underlying mechanisms and processes between the patterns of corporate governance and SHE management practices are elaborated below for both the ideational influence and the structural impact, as well as for their interactive effects. The explanation of causal links between the structural and ideational variables of corporate governance and the “Leadership, Behaviour, Technique” dimensions of SHE management practices are presented as the combination of the structural impact, the process impact and the integrated outcome of the causal nexus between the “Structurally Constrained” pattern of corporate governance and SHE management practices, as indicated in Table 9, with empirical evidence in the following paragraphs.

Table 9 Corporate governance and SHE management practices: causal effects analysis of Company A during 2007-2011

<table>
<tr><th colspan="2">Corporate Governance</th><th>Causal Links</th><th colspan="2">SHE Management</th></tr>
<tr><td colspan="2">Patterns of Corporate Governance</td><td rowspan="13">Integrated, combined and interactive causal effects</td><td colspan="2">SHE Management Practices</td></tr>
<tr><td rowspan="4">Corporate Value Orientation (Ideational Influence) (Score: 4.0 Strong)</td><td rowspan="4">Prosocial values (Score: 4.0)</td><td rowspan="3">Leadership (Score: 3.25)</td><td>Management commitment and accountability (Score: 3.5)</td></tr>
<tr><td>Organizational competency and empowerment (Score: 3)</td></tr>
<tr><td>Resources and investment (Score: 3.25)</td></tr>
<tr><td rowspan="3">Behaviour (Score: 3.25)</td><td>Employee engagement and responsibility (Score: 3.25)</td></tr>
<tr><td rowspan="8">Governance Mechanism and Power Structure (Structural Influence) (Score: 2.5 Weak)</td><td rowspan="2">Ownership structure and control (Score: 3)</td><td>Communication, training and awareness promotion (Score: 3.5)</td></tr>
<tr><td>Behaviour-based safety programme (Score: 3)</td></tr>
<tr><td rowspan="2">The board of directors (Score: 2)</td><td rowspan="6">Technique (Score: 3.25)</td><td>SHE policy, objectives, procedures and system (Score: 3.5)</td></tr>
<tr><td>Identification of aspects of SHE and risk assessment (Score: 3.25)</td></tr>
<tr><td rowspan="2">Stakeholder influence (Score: 2.5)</td><td>Legal compliance, standards and other requirements (Score: 3)</td></tr>
<tr><td>Operational control and management of emergencies and incidents (Score: 3.5)</td></tr>
<tr><td rowspan="2">Transparency and disclosure (Score: 2.5)</td><td>Audit, monitoring and performance management (Score: 3)</td></tr>
<tr><td>Non-conformity, corrective/preventive action and continuous improvement (Score: 3.25)</td></tr>
<tr><td colspan="5">Conclusion:
The status of, constraints on and challenges in SHE management practices implementation in terms of the "Leadership, Behaviour, Technique" dimensions in Comany A during the JV period of 2007-2011 was attributed to the "Structurally Constrained" pattern of corporate governance.</td></tr>
<tr><td colspan="5">Remarks:
* There is interaction between the structural and ideational variables of corporate governance and among the components of these variables.
* There is interaction among the three "Leadership, Behaviour, Technique" dimensions of SHE management practices and among the constitutive attributes of these dimensions.</td></tr>
</table>

The relatively strong prosocial values, as reflected in the long-term vision and strategy of company A during 2007-2011, indicated the strong positive ideational influence on the formulation of the organizational goals from a goal-oriented perspective, which had a causal ideational impact on the "management commitment and accountability" attribute of the "Leadership" dimension of SHE management practices. The ideational influence from strong prosocial values was expected to shape the attitudes, behaviour and actions of key stakeholders in Company A (i.e. owners, managers, employees) and to drive the management team to give priority in strategic planning and daily decision making to the development of SHE management practices from action-focused perspectives. However, this moved slowly due to the constrained ideational influence being impeded by the weak plant level governance mechanism and power structure. Because of this, there was an adverse structural impact and a constrained ideational influence on the means and processes to implement sound SHE management practices with respect to the "Behaviour" and "Technique" dimensions of SHE management practices. Again, this was also the case for the "Leadership" dimension of SHE management practices, specifically on leadership behaviour in decision making, strategic planning, organizational configuration, resource allocation etc. The technical solutions and system tools for SHE management were rarely put on the agenda for the board meetings, which then did not provide the structural guarantee to review the "Technique" dimension of SHE management practices. The same situation occurred with the behaviour changing initiatives. The details of technical discussions on SHE matters were left to the plant level operations management, in which A00, as the first general manager, was authorized to manage overall operations and business during 2007-2011. The plant level governance structure was weak, which had an adverse impact on SHE management practices.

The weak governance mechanism and power structure had a direct adverse structural impact on the "organization competency and empowerment" and "resources and investment" attributes of the "Leadership" dimension of SHE management practices. This obvious structural impact had clearly become a road block for the process of improvement in the "Behaviour" and "Technique" dimensions of SHE management practices, making the shop floor implementation of behaviour changes, and the roll out of system tools and technical solutions difficult. The components of the weak structural variable not only relate to the power structure and control, but also to the weak “stakeholder influence” and weak “transparency and disclosure”. The direct adverse impact on the “Behaviour” and “Technique” dimensions was obvious in terms of employee engagement, communication, monitoring, checks and balances processes etc. The “stakeholder influence” and “transparency and disclosure” had a negative structural influence on the “Leadership” dimension of SHE management practices, specifically on leadership behaviour in decision making, strategic planning, organizational configuration, resource allocation etc. The “decentralized” operational model of ABC Group during the period 2007-2011 also had an indirect negative impact, in terms of structure and processes, on the integration of corporate governance processes and SHE management practices. This is because the “decentralized” operational model somewhat weakened monitoring and control by the major shareholder in JV (i.e. ABC Group). Thus, the plant level management was in the position of dominating power and control of the JV’s operations.

As indicated in ABC Group’s sustainability report (ABC, 2007) and annual report (ABC, 2008), the governance mechanism and power structure, as well as the prosocial corporate value orientation of ABC Corporation, were very strong in terms of the structural and ideational variables of corporate governance, demonstrating a typical German corporate governance model. ABC Group also maintained world class standards for SHE management practices, indicated in the published ABC sustainability report (ABC, 2007). However, for the newly established JV in China during 2007-2011, corporate governance was not fully on the same page as ABC Group. It appeared relatively strong in terms of the ideational variable but weak in terms of the structural variable, while SHE management practices were “not strong” and in a stage of development. It took time for ABC Group to integrate, penetrate and consolidate the systems on the shop floor in the JV. Before 2012, ABC Group managed its group-wide businesses and operations according to a “decentralized” operating model, as indicated in ABC’s annual report (ABC, 2008). This means that under the umbrella of ABC Corporation the implementation of the global business and operational strategies at the region, country and local levels was the responsibility of the affiliated companies. The management executive committee at the region, country and local levels were empowered to run their businesses and operations and had a certain freedom in decision making. The executive bodies of the affiliated companies at these levels managed their businesses and operations in line with the relevant statutory regulations, supplemented by their own articles of association, internal procedural rules and the principles incorporated in the globally applicable management standards, codes and guidelines.

The "decentralized" operating model of ABC Group empowered the APAC and China executive bodies and granted them the freedom to define the corporate governance mechanism and power structure of Company A during the JV period in 2007-2011 through contractual negotiation with the JV's local partner and finalized in Company A's article of association. The local minor shareholder, A00, was appointed as the general manager and deputy chairman of the board of directors, and was fully authorized to run the business and operations for the first five years of the JV from 2007 to 2011. Company A, in the JV period of 2007-2011, did not fully follow ABC Group's corporate governance system and practices. It followed Chinese company law and the contractual agreement of the JV, demonstrating the "Structurally Constrained" pattern of corporate governance during that period, when there was a relatively strong prosocial corporate value orientation but a comparatively weak governance mechanism and power structure. From the interview with the chairman of the board of directors, A01, I understood the consideration ABC Group had given to the deal structure when setting up the JV with A00 in 2006.

"There was a strategic consideration to appoint A00 as the general manager and authorize him to run the business and operations for the first five years. ABC Group had been looking for a reliable local partner to get entry into the auto-part business of 'reinforced patch, 2D/3D parts, damping (butyl), sound absorber etc.' in an emerging market like China. A00's previous business profile and product portfolio fitted ABC Group's business strategy well. However, we did not have experience in this business in the Chinese market, thus we had to rely on A00 with respect to the technology, market and local relationship with authorities and customers. We authorized A00 to run the daily business and operations; step by step, our people could learn from him and get familiar with the business and operations. That was a five-year plan. We estimated that we from ABC Group would take full control of this business through full control of our operation in Company A from the year 2012. For this setup, there had been a special term regarding the share transfer as stipulated in the contractual agreement, that 'from the 6th year of JV, A00 would have the right to transfer his share out'. Again, we would like A00 to stay

with us at least for the first five years to ensure our strategic plan on setting up this JV is a success. However, the board of directors still hold the right to dismiss A00 if major issues were detected from his management that could significantly harm the JV. Other than that, we would authorize A00 to manage the business and operations of the JV for the first five years." (A01)

ABC Group, as the major shareholder, retained the right to take action to protect the interests of the JV and ABC Group, which included its interests in non-financial performance, i.e. SHE management practices, if there was a great deviation from the track of prosocial values. This was part of ABC Group's strategy to run the JV in the first five years and later, which the chairman of the board of directors, A01, expressed very clearly. As a Sino-foreign JV in the private sector and a non-listed company in the local market, its corporate governance framework was highly contractual. The JV had to comply with the company law of China, but did not need to follow any corporate governance codes and regulations for listed companies (i.e. CSRC in China). There was no immediate pressure for the JV to follow the codes and regulations of ABC Corporation, the major shareholder's parent company. The corporate governance practices of the JV were mainly subject to the contractual agreement between the shareholders while also meeting the legal requirements of company law in China. Board member, A02, commented as follows when interviewed:

"We could not enforce the ABC Corporation requirement on either corporate governance or SHE management practices fully in the JV at the beginning of JV operations. We had to respect the contractual agreements and obey the company law in China. Depending on the contractual agreement, one shareholder could pose the requirement and implement the corporate governance practices of its parent company, but this could not be a one-way push. The arrangement would be agreed by all shareholders of the JV. These contractual agreements then served as guidance and substantially affected the daily operation of management of the JV, including its corporate governance and SHE management practices." (A02)

ABC Group realized the challenges in the early stage of the JV operation and wanted to emphasize the focus on SHE management as part of its corporate prosocial value orientation efforts. This emphasis was agreed by the shareholders with contractual terms noted in the article of association as part of the management principle: "JV shall follow ABC Group's guiding principles and policies on sustainability and safety health environmental management" (A, 2006). This set out the expectation from ABC Group, as the major shareholder in the JV, on the prosocial corporate value orientation. In parallel, as part of the integration plan for the newly established JV, the promotion of ABC's vision and values was rolled out, which sent out the message that the JV was expected to follow the core values on SHE management, i.e. "We are dedicated to sustainability and corporate social responsibility" (ABC, 2007). These efforts had helped the JV to set a clear strategic goal to achieve the desired end states with strong prosocial values from a goal-oriented perspective, which was linked closely to the target of achieving world class SHE management practices in line with ABC Group's SHE standards. The strong prosocial values causally led to comparatively strong "management commitment and accountability" as one of the constitutive attributes of the "Leadership" dimension of SHE management practices, which was scored relatively higher than the other constitutive attributes (refer to the scores in Table 2).

"There was no doubt about the commitment and motivation from the board of Company A in striving for a high level of SHE management practices in line with ABC Group's global SHE standards. The JV's plant management at different levels, including A00 as the general manager, was informed of the commitment and accountability by the board. The challenges we had during 2007-2011 were that our intention and motivation could not be transferred quickly and smoothly to the floor. We could feel some resistance from the plant operation team to the changes and improvements in SHE management practices. It appeared that we needed some time for stepwise integration to bring the JV plant management on board with both our values and our SHE management standards. Further, our plant level governance mechanism and power structure were weak and were impeding the progress of integration and change, which then affected the substantial improvement of SHE management practices in a short period." (A01)

The message from the Chairman of the Board, A01, revealed Company A's relatively strong prosocial value orientation to achieve top SHE management performance as one of the strategic goals, but this intention was impeded by the weak governance mechanism and power structure at plant level. Another board member, A02, had similar comments. In Company A during 2007-2011, then, the interaction between strong prosocial values and the weak governance mechanism and power structure hindered the implementation of SHE management practices in terms of driving the behaviour changes and roll out of the system tools and technical solutions for process improvement in SHE management. The constrained prosocial values resulting from the weak governance structure, together with the structural variable, not only had an adverse impact on the process of implementing the "Behaviour" and "Technique" dimensions of SHE management practices on the shop floor, but also somewhat negatively influenced the plant management's ideation and behaviour in decision making and strategic planning, which is part of the "Leadership" dimension of SHE management practices. The ABC China SHE manager, ABC01, commented on this:

"The ultimate target to achieve the top SHE management as indicated by the board of Company A and expressed in the written policy and goals was no problem and actually very clear. The challenge was that the plant management, including the general manager, A00, was not on board with the prosocial ideation and there was not enough focus on SHE in plant level activities. There was no concrete strategic plan with breakdown initiatives to fully support the road map and achievement of the target. The decision making from the general manager, A00, and the leadership behaviour from the plant management didn't fully support the implementation of the system tools and the technical SHE improvement plan as well as the behaviour changing initiatives." (ABC01)

ABC China SHE manager ABC01 still remembered his meeting and discussion with the JV general manager, A00, in January 2008, about the integration of SHE management practices into the JV's strategic planning. This discussion was based on the fact that, after the establishment of the JV in 2007, ABC Group had found that there were many legacy issues relating to the local partner requiring SHE investment. These legacy issues included some SHE-related compliance challenges, e.g. permit and approval for upgrading some parts of the facilities, manufacturing processes etc. When the JV was established, it took over the existing buildings, facilities and processes, as agreed, from the previous local family business owner, A00. There were quite a number of legacy issues and gaps, such as non-availability of an up to date EIA (Environmental Impact Assessment), too short a distance between the factory buildings and the neighbouring village buildings contrary to the legal requirement, gaps in the plant firefighting system not meeting the new fire code, old equipment with a deficiency of safety features etc. These legacy issues, if not solved, could have been a road block for future expansion of the site operation, but closing these gaps required strategic planning and actions with significant SHE investment for the remediation.

"The gaps in SHE-related permits, e.g. EIA, gaps in the firefighting system in our facility, the

issues with too short a distance between our factory and the neighbouring village buildings etc., are compliance issues which could affect the expansion of our business and even have an impact on our current operation if the local authorities mean to enforce the legal requirements. Thus, we should consider the remediation plan with an investment budget to close these gaps step by step, especially when we have a new expansion project for our reinforcement patch product in late 2018. This will provide us a good opportunity to solve the legacy issues with the new project. We should consider this in our strategic planning in 2018. With this done, we will meet ABC's sustainability target and align with the corporate values." (ABC01)

"The so-called legacy issues have been existing with the buildings from 1993 till now. I know that this was not complying with the regulations, but we could not afford the investment for the remediation. It would affect our product unit cost after depreciation of the investment; this would then affect the competitiveness of our business. Further, to solve the EIA issue, together with our new expansion projects for the reinforcement patch product, it will take too long to get the full EIA done and approved. We will then not be able to catch up the timeline to get the required permits to meet the project schedule. Sorry that I could not afford the investment of €1-2million to remediate the mentioned legacy issues in 2008. And we need to deliver the expansion project on time; we can only consider solving the legacy issues later. Currently we can still handle these issues through the good relationship with the local authorities to manage them so they do not come and challenge us." (A00)

The discussions were ongoing with several rounds in formal management meetings and in a one-to-one conversation between the ABC China SHE manager, ABC01, and the general manager, A00. They debated the necessity of SHE investment to solve the legacy issues, but no agreement was reached; the prosocial values of ABC Group had not entered into A00's mind set. Ultimately, the legacy issues were not solved during 2007-2011 while A00 was the general manager in charge of the JV's operations. The ABC China SHE manager, ABC01, representing ABC Group, demonstrated the highly prosocial value orientation to drive this, but the decision was in the hands of A00, who represented the local power structure of the JV and was in charge of the JV's operations. We can see clearly the structural obstacles in translating ABC's strong prosocial values to the SHE management practices on the shop floor in the JV. The ideational prosocial values were translated into a statement and a manual on paper, but were not translated into actual practices due to the weak governance mechanism and power structure at plant level. The weak instrumental mechanism, including weak governance and power structure, failed to support the translation of the prosocial ideation from the top (i.e. the company's prosocial values) to concrete SHE management practices on the shop floor.

The causal effect of the weak governance mechanism and power structure on the “Leadership” dimension of SHE management practices was significant, mainly in its negative structural impact on the other two constitutive attributes of the “Leadership” dimension, i.e. “organization competency and empowerment” and “resources and investment”. If these two constitutive attributes were not supported by the structural variable of corporate governance, the translation of strong prosocial corporate values as ideation to influence the implementation of SHE management practices on the shop floor were not possible. The governance mechanism and power structure functions as an agency and/or proxy for achieving the strategic goals of a company. For the prosocial goal relating to SHE management, the governance mechanism and power structure determined the SHE management organizational configuration, strategic interaction, decision making, and resource allocation for the implementation and improvement of SHE management practices. In Company A during 2007-2011, the weak plant level power structure, with the right of control exercised by A00, had a negative causal impact and hindered the structural improvement of SHE management practices. This adverse structural impact of the weak governance mechanism and power structure on the “Leadership” dimension led to a chain effect on the “Behaviour” and “Technique” dimensions and restrained the process of improvement in SHE management practices during 2007-2011.

Under this weak governance mechanism and power structure, the plant SHE organizational configuration was also weak. The plant administration manager, A08, was appointed by the general manager, A00, to act as the site SHE manager in addition to his existing role as plant administration manager. The plant administration manager, A08, had been working with A00 in his family business before the JV was setup. He did not have an adequate skill set or the SHE expertise to work effectively as the site SHE manager, and could only deal with basic and routine tasks, including the maintenance of relationships with the local authorities to avoid trouble from their inspections. The site SHE manager’s job grade, within the HR system, was lower than the job grades of production manager, engineering manager etc. Thus, there were weak powers to influence and to have a structural impact due to the setup of this position. There were obvious concerns in the site SHE organizational setup, which were supported by comments from the ABC China SHE manager, ABC01, and the feelings expressed by the plant administration manager, A08, when he recalled his experience of acting as the site SHE manager during 2007-2011.

"There was a lack of SHE expertise in the JV. SHE management was not coordinated by a real SHE professional. Letting the administration manager also take the role of site SHE manager was a big problem. Compared to the other manufacturing plants fully owned by ABC, the setup of site SHE organization in the JV was not adequate in terms of resources, competency, expertise and empowerment. In addition, the site SHE manager was reporting to the general manager. There was a lack of independence in this role and not much power of argument from the site SHE manager since his job level was even lower than his peer managers. Everything was under the shadow of the general manger, A00. I had several discussions with the general manager, A00, on the need to recruit a professional site SHE manager. A00 seemed not to see the criticality and importance of this role and did not want to pay for a full headcount to take this role, so the recruitment of a dedicated professional site SHE manager for the JV was not done because the general manager, A00, had great autonomy in running the JV during 2007-2011 and he did not agree to do it." (ABC01)

"I had worked for A00 before we established the JV with ABC Group. At that time A00 focused on business development and I was helping him to deal with governmental issues relating to permits/approval and other matters. There was no dedicated SHE function. When the JV with ABC Group was established in 2006 and put into operation in 2007, A00 was the general manager who actually controlled the company. He continued his family business style of managing the company. Due to the request by ABC Group to have a SHE manager in the company, I was appointed by A00 as SHE manager, but was also taking care of the factory administration and other work. Frankly, in many cases, I felt very stressed with my past role as site SHE manager as I did not have a technical background and felt difficult working on SHE, but to keep my job I had no option and did not want to refuse A00's appointment. So I could only learn by doing with support from ABC APAC regional and China SHE team, to do the basic stuff, and could not go beyond that to drive substantial improvement on SHE management in a professional way." (A08)

Considering the weak SHE competency at the plant level of the JV, APAC regional and China SHE team had to facilitate ABC Group's SHE integration plan by supporting the JV management team and site SHE manager to identify gaps and opportunities and then formulate an action plan to improve the SHE management practices of the manufacturing site. The implementation of the action plan to close the gaps moved slowly because many actions requiring either capital investment or operational expense had not been approved by the general manager, A00. A typical example identified in early 2007 was the lack of machinery guards for the die cutting machines, which are items that are critical in terms of safety. The ABC China SHE manager, ABC01, had explained to A00 the urgency and criticality of these items. As is confirmed by the production manager, A05, the engineering/maintenance manager, A07, and the administration manager, A08, who also acted as site SHE manager, the plant level power structure really did not support the implementation of SHE management practices because the general manager, A00, had the final say during 2007-2011. The system gap on machine guarding safety was not closed, as it required a capital investment to upgrade the machines, or at least an operational expense to repair them. Then, one year later, in February 2008, an operator was injured by a die cutting machine which chopped off his index finger. The request for action to address the lack of machine guards was put on the table again. However, there was still a struggle over the investment, as the ABC China SHE manager commented during the interview:

"I understood the difficulties the site SHE manager was facing in his daily work to get the allocation of resources and investment for the gap closure actions. For the gap closure relating to machine guarding, in the end I had to report to my supervisor, the APAC SHE Director, who had to report to the chairman of the board of directors, A01. With the direction and pressure from the chairman of the board of directors, A01, A00 finally accepted the action request and gave the order to the site maintenance manager to fix the machines with guarding and interlock. However, the action taken was only for the die cutting machine that hurt the operator. It did not cover all other machines with similar gaps in machine guarding. The machine guarding of equipment and safety protection for operators were simply operational management issues which, as part of decision making by A00 as the general manager, were to be addressed at plant level. It was unusual to involve the chairman of the board of directors, A01, in intervening in a plant level operational decision. And frankly, we in the SHE function could not always use the chairman of the board of directors, A01, to push the plant general manager, A00, on SHE matters as daily plant operational issues. There appeared some issues with the plant level governance on SHE matters. There were huge challenges to get committed investment for the implementation of system tools, technical solutions and behaviour changing initiatives." (ABC01)

Although it was agreed in the contractual terms in the article of association that the "JV shall follow ABC Group's guiding principles and policies on sustainability and safety health environmental management" (A, 2006), when it came to shop floor implementation, the decision making process did not actually guarantee that these contractual requirements would be met due to the constraints resulting from the governance mechanism and power structure. We could see this from the discussion between the ABC China SHE manager, ABC01, and the general manager, A00, on the strategic planning and investment to close the legacy gaps. The outcome was not positive. The production manager, A05, and the engineering/maintenance manager, A08, confirmed the fact of limited SHE investment in the period 2007-2011, especially in the case of the request for investment in machine guarding improvement.

"I joined the company in July of 2008 as production supervisor one and a half years after the JV came into full operation. Since most manufacturing equipment was transferred from the previous family run business owned by A00, much of it was not in a good condition and some of it was missing safety protection features like machine guarding and interlock. I raised a request for the upgrading of equipment to improve production efficiency and safety of operation. The request went to the previous production manager (my predecessor, I took the production manager role in 2013) and the maintenance manager for them to submit to the general manager, A00, for approval. Feedback was slow and it turned out to be either not approved or approved only for cases of critical equipment maintenance, which counted for about 30% only. However, I know we had an incident with a finger being cut off in early 2008, just before I joined." (A05)

"I joined the company in September of 2007 as a maintenance engineer and was promoted to the current position as engineering/maintenance manager in 2012. I had actually experienced the hand injury incident and was involved in the investigation with the APAC regional and China SHE teams etc., and later on led the action to fix the die cutting machine. The challenge was that learning from the incident remained only for a short time, and the actions to improve machine guarding were limited only to this one die cutting machine, but did not cover other machines which appeared to have similar gaps in machine guarding. I understand the APAC regional and China SHE teams did require plant-wide machine guarding improvement, but the final decision of the general manager was to hold back the investment. Actually, in the budget planning every year from 2007 to 2011, there was always a discount made by the general manager on the maintenance budget allocated to SHE improvement." (A08)

Discussion on machine guarding improvement and solving legacy SHE-related permit issues (e.g. EIA, firefighting etc.) were just some examples. The JV's weak governance mechanism and power structure, together with its impact on constraining the internalization of prosocial values during the period 2007-2011 were affecting the SHE management organizational configuration, strategic interaction, decision making and resources allocation. The commitment and accountability regarding prosocial orientation and SHE management from the board did not fully reach plant management and shop floor employees. The daily operation of the JV was actually controlled and managed by the general manager, A00, while SHE organizational competency and empowerment were limited by constraints, and the resources and investment were not enough to support SHE improvement. The combined structural and ideational impact on the "Leadership" dimension had a clear chain effect with an adverse process impact on the "Behaviour" and "Technique" dimensions of SHE management practices.

SHE organizational competency, power structure, resources and investment were not enough to support the implementation of system tools and technical solutions to improve various aspects of SHE management practices: fulfilling SHE policy, objectives and procedures on the shop floor; identifying aspects of SHE and risk assessment; complying with legal requirements, SHE standards and other requirements; putting in place effective operational control and management of emergencies and incidents; conducting systematic audits and effective monitoring of performance via management review; addressing non-conformity, corrective/preventive action and continuous improvement etc. The JV's weak governance mechanism and power structure, together with the constraint on prosocial values due to the weak structural variable during the period 2007-2011, also affected the implementation of behaviour changing programmes, and communication, training, and awareness promotion concerning SHE and employee engagement activities etc., as these initiatives would require the same degree of commitment, competency and resources in order to put them into practice.

The weak structural variable of corporate governance in the JV during 2007-2011 also revealed the weakness in stakeholder influence, and in the transparency and disclosure mechanism, which had a direct adverse impact on the "Behaviour" and "Technique" dimensions of SHE management practices, e.g. employee engagement, communication, monitoring, checks and balances process etc. As components of the structural variable of corporate governance, the stakeholder influence of employees, and transparency and information disclosure on SHE matters in the JV were specifically constrained by the weak plant level governance mechanism and power structure. Below are some facts, confirmed by production manager, A05, employee representative, A10, head of the trade union, A09, and the current administration manager, A08 who acted as site SHE manager during 2007-2011, which hindered the progress of behaviour changes and the process of improvement in SHE management practices (e.g. programmes, initiatives, system tools, procedures etc.) during 2007-2011. The trade union at the JV was only established in October of 2010 and its contribution to SHE matters and employee welfare during the period 2007-2011 was very limited. Plant operators and employee representatives had no chance to formally sit on the SHE committee to provide a voice from the shop floor. The mechanism for a voice from the bottom up and open discussion involving all levels of employees was not actually established and was not functioning, although this had been a request from ABC Group. The information sharing on SHE matters came from the APAC regional and China SHE teams encouraging cross-site learning and information sharing on SHE topics in the region. However, at the plant level in the JV, due to the constraint on allocated resources and lack of sufficient training and SHE communication activities, the level of transparency and openness on SHE matters did not reach ABC Group's expectation. There was no active platform built and run to encourage open discussion of SHE topics and engagement of all levels of employees.

A00, as the local shareholder in the JV, also functioned as the JV's general manager and deputy chairman of the board of directors. These combined roles led to a unique "insider control" situation. A00 almost had the full power to run the daily operation and business, and was apt to make decisions to maximize his benefits in the company as a shareholder. To avoid the potential conflict of interests and governance concerns with this unique "insider control", ABC Group had made additional efforts in terms of control and monitoring of financial and business aspects, with the assignment of a full-time deputy general manger sitting in the Company A manufacturing site in charge of finance for the JV operation. With this setup, during the JV period of 2007-2011, there were no big issues or fraud in terms of the JV's financial aspects. This supported ABC Group's business strategy in ensuring business success for the JV in the transitional period.

However, the governance efforts by ABC Group in terms of monitoring the JV's non-financial aspects, including social and SHE matters were much weaker, which was reflected in the plant level weak governance mechanism and power structure. The decision making by the general manager, A00, tended to focus more on the maximization of the economic profit for the JV and paid less attention to social performance, including SHE management. The board structure without a supervisory board or other supervisory arrangement, and the combined roles of deputy chairman of the board of directors and general manager had facilitated this tendency in business focus during 2007-2011. This certainly appeared to be a challenge for the principle-agent problem in ensuring protection of the principle (i.e. the major shareholder, ABC Group) regarding the social performance and SHE matters. There was a lack of an effective monitoring mechanism or checks and balances function due to the "decentralized" operating model in which ABC Group gave the JV a high degree of autonomy as per the contractual agreement. However, this "decentralized" operating model weakened the control from the top.

In ABC Group's "decentralized" operating model before 2012, the corporate function reporting lines to the regional, country and local executive bodies can be represented by strong solid lines, while those to the corporate function heads can be represented by weak dotted lines. During 2007-2011 in Company A, intervention from ABC Group corporate functions, e.g. corporate compliance, corporate internal audit, corporate SHE, corporate communication etc., was limited to when it was absolutely necessary. These APAC regional and China corporate function staff were all based at the ABC APAC and China headquarters in Shanghai, and not at the JV manufacturing site. Intervention by, and influence of corporate functions concerning the JV were quite weak. This did not help the quick and smooth roll out of global initiatives from the top down, such as the integration of ABC Group's corporate governance and SHE management practices within its JV. The "decentralized" structure was weakening the effectiveness of corporate functions in doing their jobs to provide a checks and balances function. In turn, this weakened corporate central control and had an adverse impact on the continuous improvement process of enhancing SHE management practices through audit and monitoring.

In the "decentralized" operating model, as the APAC regional SHE director, I received from my subordinate, the China SHE manager, ABC01, an escalation regarding the status of, and challenges in the implementation of SHE management practices in the JV. If the issues were beyond my power to influence, what I could do was to try to inform the chairman of the board of directors, A01, and ask him to put pressure on A00. However, being bound by the contractual agreement, A01 had to consider matters and balance them with respect to the JV's operation. In some cases, his decision might not fully support my position on SHE. When there was a conflict of interests, I had no further governance support from the upper SHE function which was the next level of escalation. In the "decentralized" operating model, as APAC regional SHE director, the link between my function and the ABC Global SHE group was a very weak dotted line. They could therefore provide little substantial governance support to me if there was a conflict of interests on SHE matters between the regional SHE function and other regional stakeholders, e.g. business, operations etc. The decision would then usually be made by a regional executive body, such as the board of directors of the JV. The weak governance structure did not support movement in the integration of SHE standards and ABC Global SHE management practices within the JV during 2007-2011. Other corporate functions encountered a similar situation, as claimed by the head of ABC APAC regional Corporate Audit (ABC02):

"ABC Corporate Audit usually performed a full audit covering business and operations. From a governance perspective, there was also a SHE audit by Corporate Audit focusing on process checking, in addition to ABC Global SHE's expert audit. For the fully owned ABC entities and manufacturing plants, our regular audits were planned and carried out very smoothly. However, for the newly established JV, there was always some argument on when the audit should be done; should ABC Group give the JV more time for integration and gap closure before the launch of the formal SHE audits by the Corporate Audit function. There had been several discussions on the audit plan, which had been delayed again and again till 2010. It was agreed to have the formal SHE audit by the Corporate Audit function in June of 2011. We understood the concern of the general manager, A00, that the formal audit could identify more gaps and opportunities for improvement in SHE management practices. Since Corporate Audit would report the audit result to the CEO and the board of ABC Group, the corporate audit could bring great pressure on the JV requiring investment and actions to close gaps. The intention to drive SHE improvement through corporate audits was not supported by the plant level management. The structural obstacles of corporate governance became a road block to translating the prosocial ideation and values to SHE management practices on the shop floor." (ABC02)

From 2009 until the end of 2011, I had a good deal of interaction with the general manager, A00, about the improvement of SHE management practices in the JV. I recalled some historic events and A00's responses in previous interactions between A00 and others (e.g. the ABC

China SHE manager, ABC01, and the head of ABC APAC Corporate Audit, ABC02). In order to have a better understanding of A00's views to support my research project, in March 2017 I booked his time for an interview when he had already left Company A and was running his own company. A00 commented on his cooperation with ABC Group and the governance and SHE management practices during 2007-2011 when he was running the JV as the general manager and the deputy chairman of the board of directors.

"I respected ABC Group's values with focus on SHE management practices. However, as a local market player for years in this business sector, with a deep understanding of the fierce competition in the auto part supply business, I had my own view that a JV should ensure its business success as a priority. In the discussion on cooperation with ABC Group in 2005-2006, I had strongly raised the request that I would run the business and operations for the first five years of the JV as I needed autonomy to ensure business success. A long discussion, but ABC Group in the end finally agreed my request for the setup of the plant level governance mechanism and power structure. No doubt that I also liked to ensure safety and health for employees and environmental protection for our operation, but the immediate introduction of a full SHE programme to the JV would become a heavy burden for the JV, as it would require money to maintain the full programme, which could jeopardize the business success of the JV. I think, after the five-year transition period, ABC Group could then consider its way to operate the company. Anyway, I think the cooperation with ABC Group was a success." (A00)

From the comments by general manager, A00, we see some crucial reasons for what happened in the transition period of the JV during 2007-2011. The chairman of the board of directors, A01, in a review of the JV's operation in its first five years, had commented that ABC Group did give the local partner, A00, too much authority and freedom to act. Unluckily this setup of the plant level power structure did not really help the implementation of SHE management practices and other social progress programmes for ABC Group, and it deviated from ABC Group's highly prosocial corporate values. The structural and ideational variables of the "Structurally Constrained" pattern of corporate governance and the interaction between them had a clear causal impact on the implementation of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. A00 and the plant management were learning from the processes of JV operation during 2007-2011. However, this learning and associated action could not catch up in terms of the improvement needed in SHE management practices. Thus, there was a need for change in the plant level governance mechanism and power structure to drive substantial improvement in SHE management practices and to support the sustainable development of Company A.

6.3 The Causal Nexus between Patterns of Corporate Governance and SHE Management Practices in the Time Period 2012-2017 for Company A

There were some major changes in the governance mechanism and power structure of the JV in 2012 and 2015, which enabled ABC Group to have full control of company A. Along with the launch of an updated vision and values from ABC Group in 2012 to enhance its prosocial value orientation, Company A, as an ABC Group affiliated company, rolled out the same corporate values. Both the structural and ideational variables of corporate governance in Company A were greatly enhanced. All these changes led to changes in patterns of corporate governance as well as changes in SHE management practices. The underlying mechanism and processes were explored to find empirical evidence to support the understanding of how changes in patterns of corporate governance were leading to changes in SHE management practices in the period 2012-2017 in Company A.

The significant improvement in SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions during 2012-2017 was a result of the "Strongly Governed" pattern of corporate governance during that period, when the prosocial corporate value orientation and the governance mechanism and power structure were both very strong. The changes in the structural and ideational variables of corporate governance, and the interactions between them has had a positive causal effect in terms of substantial improvement in SHE management practices with respect to the "Leadership, Behaviour, Technique" dimensions. The strong ideational and structural variables have both facilitated the translation of prosocial ideation (i.e. prosocial corporate values) from the top into the SHE management practices on the shop floor. The effects of the causal linkages between the "Strongly Governed" pattern of corporate governance and significantly improved SHE management practices on the underlying mechanisms and processes are elaborated below, through a focused analysis of the ideational and structural influence, as well as the interactive effects of corporate governance on SHE management practices. The causal analysis reveals the combination of the structural impact, the process impact and the integrated outcome, as summarized in Table 10.

Table 10 Corporate governance and SHE management practices: causal effects analysis of Company A during 2012-2017

<table>
<tr><th colspan="2">Corporate Governance</th><th>Causal Links</th><th colspan="2">SHE Management</th></tr>
<tr><td colspan="2">Patterns of Corporate Governance</td><td rowspan="13">Integrated, combined and interactive causal effects</td><td colspan="2">SHE Management Practices</td></tr>
<tr><td rowspan="3">Corporate Value Orientation (Ideational Influence) (Score: 4.5 Strong)</td><td rowspan="3">Prosocial values (Score: 4.5)</td><td rowspan="3">Leadership (Score: 4.5)</td><td>Management commitment and accountability (Score: 4.5)</td></tr>
<tr><td>Organizational competency and empowerment (Score: 4.5)</td></tr>
<tr><td>Resources and investment (Score: 4.5)</td></tr>
<tr><td rowspan="9">Governance Mechanism and Power Structure (Structural Influence) (Score: 4.5 Strong)</td><td rowspan="3">Ownership structure and control (Score: 5)</td><td rowspan="3">Behaviour (Score: 4.5)</td><td>Employee engagement and responsibility (Score: 4.5)</td></tr>
<tr><td>Communication, training and awareness promotion (Score: 4.75)</td></tr>
<tr><td>Behaviour-based safety programme (Score: 4.25)</td></tr>
<tr><td rowspan="2">The board of directors (Score: 4)</td><td rowspan="6">Technique (Score: 4.5)</td><td>SHE policy, objectives, procedures and system (Score: 4.25)</td></tr>
<tr><td>Identification of aspects of SHE and risk assessment (Score: 4.5)</td></tr>
<tr><td rowspan="2">Stakeholder influence (Score: 4.5)</td><td>Legal compliance, standards and other requirements (Score: 4.5)</td></tr>
<tr><td>Operational control and management of emergencies and incidents (Score: 4.5)</td></tr>
<tr><td rowspan="2">Transparency and disclosure (Score: 4.5)</td><td>Audit, monitoring and performance management (Score: 4.75)</td></tr>
<tr><td>Non-conformity, corrective/preventive action and continuous improvement (Score: 4.5)</td></tr>
<tr><td colspan="5">Conclusion:
The significant improvement in SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions in Company A during the time period 2012-2017 was attributed to the "Strongly Governed" pattern of corporate governance.</td></tr>
<tr><td colspan="5">Remarks:
* There is interaction between the structural and ideational variables of corporage governance and among the components of these variables.
* There is interaction among the three "Leadership, Behaviour, Technique" dimension of SHE management practices and among the constitutive attributes of these dimensions.</td></tr>
</table>

Company A during 2012-2017 demonstrated the features of a very strong prosocial value orientation. The enhancement of the prosocial value orientation in Company A was attributed to the global launch of the new version of ABC Group's vision and values. "We are committed to the leadership in sustainability" (ABC, 2012) was one of the core components of ABC's new corporate values. The core values expressed two layers of meaning. One layer was the desired end state of "leadership in sustainability" that ABC Group set as its strategic goal. This expressed the goal-oriented perspective of ABC Group's prosocial values. The other layer of meaning was the means and/or proxies for that desired end state, which expressed ABC Group's ambition and commitment to achieve its strategic goal and to be the "leadership in sustainability" as an action-focused perspective of its strong prosocial values. The very strong prosocial values reflected in the vision, strategy and formulation of the organization's goals were supported by the tangible sustainability strategy that came along to support the new version of the corporate values. The strong prosocial values of ABC Group were fully transferred to Company A, as an affiliated company of ABC Group, through a globally standardized approach of intensive corporate education from ABC Group, e.g. a top down communication package, eLearning, local workshops, campaigns etc. Education about prosocial values for key stakeholders (e.g. owner representatives, managers, employees etc.) shaped the changes in their attitudes and behaviour towards the improvement of SHE management practices. These changes were then reflected in decision making by giving priority to SHE matters.

From the prosocial values of Company A and the associated sustainability strategy, we can see the clear linkage between the strong prosocial corporate value orientation and the strategic goal and breakdown of targets, including the SHE elements. The ABC corporate values, i.e. "We are committed to the leadership in sustainability" (ABC, 2012), clearly addressed strategic targets in six focused areas, with four of these relating to SHE elements: safer workplaces and better health and hygiene; less energy used and less greenhouse gases; less water used and less water pollution; less resources used and less waste generated (ABC, 2012). Compared to the previous version of the ABC vision and values, in which there were many more competing values and strategic targets, thus diluting the SHE-focused targets, the new vision and values provided much more focused and carefully selected core values and strategy targets. The prosocial value orientation was further enhanced with a focus on SHE topics. With these, Company A's prosocial values during 2012-2017 were rated as very strong, and their impact on improvement in SHE management practices was very positive.

ABC's updated sustainability strategy demonstrated clearly focused areas and tangible instruments for implementation. The sustainability and SHE targets were cascaded down to all ABC affiliated companies, including Company A. The causal linkage revealed the positive ideational influence from very strong prosocial values on the “management commitment and accountability” attribute of the “Leadership” dimension, and then the positive impact on leadership behaviour in decision making, strategic planning and resources allocation to SHE investment etc. Without the leadership commitment, there was no way to achieve the sustainability and SHE targets. Further, there was a process impact from the strong prosocial values on the “Technique” and “Behaviour” dimensions of SHE management practices with respect to the roll out of system tools and technical solutions and the driving of the behaviour changes. Only successful roll out of system tools and technical solutions, coupled with the behaviour changes, can eventually ensure the achievement of a sustainability target by focusing on SHE areas. Company A, as an affiliated company, was required to report the status and action plan to achieve its targets. There were tangible short-term five-year targets and long-term twenty-year targets. Further, break downs of annual targets were set for affiliated companies to support their implementation of ABC Group’s strategy.

The “Leadership” dimension of SHE management practices, in terms of the “organizational competency and empowerment” and “resources and investment” attributes, was more significantly impacted by the strong governance mechanism and power structure. The changes in Company A’s governance mechanism and power structure in 2012 had a fundamental causal effect on SHE management organizational configuration, strategic interaction, decision making and resources allocation for the implementation and improvement of SHE management practices. With the strong governance power structure as the instrumental mechanism, the prosocial ideation from the top (i.e. prosocial value orientation) was smoothly translated into SHE management practices on the shop floor. The strong structural impact on the “Behaviour” and “Technique” dimensions was very positive. The behaviour changing initiatives, the technical solutions for critical SHE issues, the management system certification, risk assessments for major activities, the investigation of serious incidents etc. received attention from the board and were considered as part of the agenda in board meetings. The general manager was required to report to the board on specific SHE topics. ABC Group, as the corporate owner, and the board of Company A exercised control over issues relating to employee interests and SHE matters, which provided a good mechanism to monitor and guarantee the implementation of SHE management practices in Company A during 2012-2017.

There was a big change in SHE management organization in Company A with the hiring of a full-time dedicated site SHE manager, A06, to replace the administration manager (acting SHE manager), A08, and to establish a team of three in the site SHE department. The resources and investment intended for SHE management improvement were allocated accordingly. These changes were attributed to the leadership support from the general manager in 2012 after he replaced A00. Without the changes in governance mechanism and power structure, it would not have been possible to establish such a strong site SHE team. This structural impact of the strong governance mechanism and power structure on the "Leadership" dimension of the SHE management practices has had a positive chain effect and process impact on the enhancement of the "Behaviour" and "Technique" dimensions of SHE management practices. The change to a "centralized" operating model in 2012 to support the launch of the new vision and values, as well as the sustainability strategy for ABC Group, had greatly strengthened top down monitoring and control by ABC Group with respect to its affiliated companies, including Company A. This brought the structural impact that enhanced the corporate governance processes and SHE management practices.

The impact of the structural and ideational variables of corporate governance on the "Leadership, Behaviour, Technique" dimensions of SHE management practices was not isolated in a standalone one-to-one relationship. Rather, they are an integrated and interactive causal nexus between the various components of the independent and dependent variables, with both individual and combined effects, because there is no 100% clear demarcation between the structural and ideational variables of corporate governance, as well as there being no black and white demarcation among the "Leadership, Behaviour, Technique" dimensions of SHE management practices. The interactive nature of the "Leadership, Behaviour, Technique" dimensions of SHE management practices was explained in Figure 1, with the process being described in Section 2.2.4, while the interactive relationship between the structural and ideational variables of corporate governance was elaborated in Section 3.5. Table 10 also indicates the integrated and interactive nature of the causal links between patterns of corporate governance and SHE management practices.

As the APAC regional SHE director for ABC Group, I have been personally involved in the SHE functional management work of Company A. As a practitioner, I have witnessed the changes in the structural and ideational variables of corporate governance, as well as the changes in SHE management practices in Company A during 2012-2017. These changes were key elements for analysing the causal links between the "Strongly Governed" pattern of corporate governance and the improved SHE management practices. The focused field work including participation observation and interviews with selected interviewees has provided further empirical evidence to explain these causal effects.

"The newly updated ABC corporate vision and values with one of the core elements to strive for 'the leadership in sustainability' has sent out a very strong message to all the ABC affiliated companies worldwide. This very strong prosocial value orientation serves as the cultural cornerstone and reflects the core values with deeply ingrained principles that guide the directions and actions of affiliated companies, including Company A. It shows, both explicitly and implicitly, the company's focus on SHE matters and sustainability affairs. The positive causal effect of highly prosocial corporate value orientation on the enhancement of SHE management practices is demonstrated clearly with an integrated and interactive approach." (A01)

The message, as illustrated by the chairman of Company A's board of directors, A01, was well received by the company's plant management team. In 2012 and 2013 there was an overwhelming number of promotion activities (e.g. town hall meetings, workshops, posters etc.) in Company A to facilitate people's understanding of the new ABC vision and values as well as the sustainability strategy. Following these promotion activities, there has been subsequent intensive discussion on the action plan to achieve the sustainability target, which has clearly covered the SHE-related goals: safer workplaces and better health and hygiene; less energy used and less greenhouse gases; less water used and less water pollution; less resources used and less waste generated (ABC, 2012). The programme of education around these values, which aimed to shape people's attitudes and behaviour, was supported by the strong governance mechanism and power structure. Thus, there were no obstacles to translating the prosocial ideation (i.e. prosocial corporate value orientation) into SHE management practices on the shop floor.

The strategic sustainability goals reflecting the prosocial values were cascaded down from ABC Group to the affiliated companies with clear measurement in terms of the reduction of incidents and the improvement of the manufacturing footprint (e.g. energy, water and waste reduction). Company A has a clearly defined annual SHE working plan as the means to achieve the strategic goals through achievement of each single broken down annual target for Company A, which included zero lost time injury (LTI) cases, zero occupational disease cases and a 3% reduction annually in water and energy consumption as well as in waste generation. As confirmed by the general manager, site SHE manager and the ABC China SHE manager, these SHE improvement targets and associated SHE working plans informed us of a clear leadership commitment. This was closely linked to the "Behaviour" and "Technique" dimensions of SHE management practices, in relation to the implementation of detailed system tools, technical solutions and behaviour changing initiatives to drive substantial SHE management improvement. This was causally driven by the very strong prosocial corporate values in Company A during 2012-2017.

"ABC Group's new vision, values and sustainability strategy are so demanding on the safety health environmental performance and social progress with measurable delivery required from each affiliated company. The target for achievement of SHE and social performance has been set into the overall performance appraisal for each level of management for Company A, from me, as the chairman of the board of directors, to the general manager of the plant operation. There is no way to play around like before. The plant level management structure and the company's governance mechanism must be adjusted to fit the purpose of driving the delivery of SHE and social performance." (A01)

Exactly as stated by the chairman of Company A's board of directors, A01, the inherent and sacrosanct core values required an effective corporate governance mechanism and power structure to implement company strategy in line with corporate values. The changes in Company A's structural variable in 2012 and 2015 occurred at the right moments, ending concerns about "insider control" and establishing a crystal clear principle-agent relationship among the shareholders, the board of directors and the management. The improved governance mechanism and power structure, together with clearly defined roles and responsibilities, empowered the executive directors and managers in Company A to follow the principles of prosocial corporate value orientation as guidelines for the daily strategic interaction and decision making. In this way, the company's sustainability strategy was implemented in line with the prosocial corporate core values. The immediate outcome of causal impact was the change of SHE organization in Company A, as commented on by the ABC China SHE manager, ABC01, and site administration manager, A08, who acted as site SHE manager during 2007-2011.

"After the replacement of general manager, A00, the first topic I brought up with the new general manager was the restructuring of site SHE organization of Company A. To achieve the SHE and sustainability targets as set under the new sustainability strategy in the context of a very strong prosocial value orientation, it was an absolute need to establish a dedicated and professional site SHE team, who were empowered to plan and implement the concrete SHE improvement programme. The general manger understood and realized the huge amount of work on SHE improvement in Company A and he did not want SHE performance to fall behind. The decision was made to hire a professional full-time site SHE manager with additional SHE engineers to form a strong site SHE organization to drive the improvement of SHE management practice. I was happy to see the change, because this change has paved the path by building up the organization's SHE competency and empowerment mechanism to drive the substantial SHE improvement during 2012-2017. This had not been possible in 2007-2011 under the weak plant level power structure." (ABC01)

"For me, I was more than happy to hand over the site SHE manager job to a dedicated professional. We did need a dedicated SHE organization to manage all the SHE matters because the requirements and demands from ABC Group on SHE performance have been increasing under the new sustainability strategy and new corporate values. There was a standardized site SHE master plan launched by the regional SHE function to ensure all the SHE requirements could be met. Acting in the role as site SHE manager without additional resources, like before, could not work out. There was too much pressure for me; I wanted to return to my normal life by doing my job as the site administration manager. I believed the changed governance structure and enhanced prosocial corporate values, with the new sustainability strategy, could help the substantial improvement in SHE management and the sustainable growth of Company A. And they did, as I have witnessed the changes and improvement in the past years' performance during 2012-2017." (A08)

The strong structural variable of corporate governance, together with the strong ideational variable, has had a highly positive impact on the "Leadership" dimension of SHE management practices in terms of strategic planning, decision making and resources allocated to SHE investment, which was vital for the substantial SHE improvement and implementation of the "Behaviour" and "Technique" dimensions of SHE management practices. The ABC China SHE manager, ABC01, and the new site SHE manager, A06, confirmed that the resources were generally adequate in Company A to implement all the SHE programmes and initiatives; these resources included human resources, infrastructure, technology, financial resources etc. From 2015, after the current general manager, A04, came on board, with his operations background and strong sense of SHE, the SHE investment in Company A to close legacy SHE gaps has been accelerated, with the launch of a special "mission critical SHE investment" initiative.

"After I joined Company A in 2015, the ABC China SHE manager, ABC01, approached me for a discussion of the strategic SHE improvement plan. I understood his frustration with the previous general manager, A00, and I realized there were several big legacy gaps that required major SHE investment. I had been working for years in other ABC plants before I joined Company A. With respect to ABC's vision and values, I would not accept the legacy SHE gaps in Company A, as that could become the road block for the company's sustainable development and could affect the achievement of the sustainability targets. Thus, I launched a special initiative named 'mission critical SHE investment', which allowed special budget allocation to close life-critical and compliance-threatening SHE gaps without an investment return calculation being needed for justification. The site SHE manager, A06, has been empowered to provide the justification of the 'mission critical SHE investment' and functioned as process owner to monitor spending, while the plant engineering/maintenance manager, A07, has been the action owner to implement the projects to close major SHE gaps. With the launch of this initiative, Company A has allocated about €2 million in SHE investment in 2015 and 2016 with a focus on closing the SHE legacy gaps, with another €0.8 million planned in 2017 for further SHE investment." (A04)

As confirmed by the engineering/maintenance manager, A07, the production manager, A05, and the site SHE manager, A04, the €2 million SHE investment in 2015 and 2016 mainly went to close the previous legacy SHE issues and gaps from the JV period. This included spending on the upgrade of relevant facilities to obtain an up to date EIA (Environmental Impact Assessment), upgrade of the site waste water treatment and sewage system, upgrade of the plant firefighting system and upgrade of plant-wide machine guarding for machinery and equipment with deficiencies in terms of safety features etc. The €0.8 million planned for 2017 was to upgrade the plant VOC (volatile organic compounds) treatment system to meet the increasingly stringent regulatory requirements. The allocated budget addressed the relocation of some houses in the neighbouring village with compensation paid to villagers, thus ensuring the distance from the manufacturing plant to the remaining villagers' houses meets the legal requirement. In addition to the special budget for "mission critical SHE investment", they also confirmed that the routine annual planning of the base budget has included SHE operational spending that addresses the daily SHE budget for routine operational needs.

"The significant improvement in SHE management practice implementation in Company A, with committed investment and resources after 2012 and 2015, was simply because of the changes in the plant level governance and power structure. Clearly, the new general manager, A04, and the new plant management team were on board with strategic planning for SHE matters under the forceful SHE-oriented value orientation from the top. The strong structure and instrumental mechanism made the translation of SHE-oriented values to the implementation of substantial SHE management practices possible. With the legacy SHE gaps closed, Company A will be on track towards its sustainable development and, no question, it will deliver its sustainability targets." (ABC01)

As commented on by the ABC China SHE manager, ABC01, the strong ideational and structural variables of corporate governance have had a positive ideational influence and structural impact on the "Leadership" dimension of SHE management practices in terms of the "management commitment and accountability", "organizational competency and empowerment" and "resources and investment" attributes. These are the foundational instruments to support the roll out of SHE management system tools, technical solutions and behaviour changing initiatives, ensuring that prosocial ideation and consideration of SHE are embedded in daily business and operational decision making. The combined positive impact of the ideational and structural variables of corporate governance has also brought a chain effect with a positive process impact on the "Behaviour" and "Technique" dimensions of SHE management practices.

The chain effect of the ideational and structural variables of corporate governance on the "Leadership" dimension, and then on the "Behaviour" and "Technique" dimensions of SHE management practices has revealed the interrelationship between all three dimensions, as indicated in Figure 1 in Section 2.2.4. Meanwhile, there is a combined effect, with a direct process impact from prosocial corporate value orientation and the power structure of corporate governance which, after further enhancement and changes in 2012 and 2015, has had a continuous positive impact in enhancing the “Behaviour” and “Technique” dimensions of SHE management practices.

This enhancement has supported the implementation of system tools and technical solutions addressing various aspects of SHE management practices. These aspects include the following: fulfilling SHE policy, objectives and procedures on the shop floor; performing identification of aspects of SHE and risk assessment; complying with legal requirements, SHE standards and other requirements; putting in place of effective operational control and management of emergencies and incidents; conducting systematic audit and effective monitoring of performance via management review; addressing non-conformity, corrective/preventive action and continuous improvement. The positive impact has also affected the implementation of behaviour changing programmes and employee engagement activities, as well as communication, training, and awareness promotion concerning SHE, since these initiatives require the same degree of commitment, competency and resources allocation to be successful. With the formal launch of the Culture-Based Safety (CBS) programme after 2013 to support the safety behaviour change in Company A, matching the new enhanced prosocial corporate value orientation, managers and employees were more engaged in safety walk-arounds, safety dialogue etc. These changes were actually driven by the strong ideational and structural influence from corporate governance, which was not possible in the old JV period.

The strong structural variable of corporate governance in Company A during 2012-2017 also indicated the strong stakeholder influence, as well as the transparency and disclosure mechanism, which have also had a highly positive direct impact on the “Behaviour” and “Technique” dimensions of SHE management practices, e.g. employee engagement, communication, monitoring, checks and balances process etc. As specific components of the structural variable of corporate governance, stakeholder influence of employees, and transparency and information disclosure on SHE matters in Company A have been greatly supported by the strong governance mechanism and power structure. This has appeared as a clear ABC way of operating after Company A had been fully integrated by ABC Group during 2012-2017. The feedback from the head of the trade union, A09, and the employee representative, A10, provided some good evidence for positive stakeholder influence and active employee participation in SHE matters.

"The trade union in Company A started getting more active from 2012, which offered a platform for employees to somewhat address their concerns on workplace health, safety and environmental protection as well as employees' welfare. The voice from the shop floor was able to go through the employee representative or through me, as head of the trade union, and reach the plant management. Several employees had brought up the remaining machine guarding issues in 2010, but it was not fully addressed by the plant management under the leadership of the previous general manager, A00, in the JV period. We continued to bring this up after 2012, and finally the machine guarding issues have received full attention from the new general manager, A04, and we got the issues solved by the end of 2015. The workers were very happy to see this. During 2012-2015, the trade union had been participating in the review of several policy changes relating to employee's safety and welfare, e.g. overtime work management, personal protective equipment policy etc. The trade union started functioning due to the enhanced SHE-oriented corporate values with a focus on employee welfare, and health and safety issues. Meanwhile, we have a new general manager appointed by ABC Group to support these initiatives. This was not possible without the changes in the plant level governance mechanism and power structure." (A09)

"After the establishment of the new site SHE organization, the site SHE committee was set up with regular monthly meetings held and, in some cases, there were ad hoc meetings as well. As the employee representative, I became a formal member of site SHE committee and attended every meeting. To function as the bridge between plant management and shop floor employees in communication about SHE topics, I had to prepare these topics by asking my fellow employees and bringing the topics up on the agenda in the meetings for discussion and decision by the SHE committee. On the other side, I represented the interests of employees and had to convey messages and decisions from the site SHE committee to my fellow employees. I worked closely with site SHE team and, in some cases, I also worked closely with the trade union." (A10)

The ABC China SHE manager, ABC01, also commented that the functionality of the trade union and the employee representative in Company A was deeply rooted in the stakeholder-committed model in Company A, derived from the German Co-Determination Act. This delivered a clear stakeholder value orientation, transferred from ABC Group to Company A. Especially after 2015, Company A has been operating with a fully German governance pattern. The participation of employees in decisions on those topics relating to their interests, welfare, health and safety, as well as environmental protection, was ensured through the platform of the employee representative and trade union. The two-way communication on decisions between the plant management and employees functioned well. The Employee Shareholding Programme (ESP), open to employees in ABC's fully owned affiliated entities, was launched in Company A from 2015. This gave employees options to purchase ABC Group shares in the German stock market, with an additional bonus scheme of 30% of what they purchased. The amount the shop floor employees could purchase was 3-5% of their salaries depending on their positions and job grades. This mechanism has somewhat enhanced the ownership of the employees and encouraged their participation in company activities including the SHE and social events etc.

As confirmed by the general manager, A04, site SHE manager, A06, head of the trade union, A09, and the employee representative, A10, these mechanism and processes were supported by the enhanced prosocial corporate value orientation and improved plant level power structure. With the stakeholder orientation, the mechanism of transparency and disclosure of information relating to employee health and safety in the workplace, as well as the environmental protection of the community, have been working very well. Sharing of SHE-related information, learning from incidents and discussion of SHE matters among employees have been very popular in Company A. The strong stakeholder influence and mechanism of transparency and information disclosure have had a very positive impact on the "Behaviour" and "Technique" dimensions of SHE management practices in terms of launching behaviour changing initiatives and rolling out system tools, technical solutions etc.

The strong governance mechanism and power structure of Company A during 2012-2017 also included the appointment of a supervisor of the board, A03. She was a lawyer from the ABC China legal function with a background in providing legal advice and supervision to the board and the company management (A, 2015). This was one of the big differences from the previous board setup, providing an even stronger mechanism of supervision and monitoring. The supervisor of the board, A03, confirmed her role as offering advice and monitoring the progress of board decisions although, in reality, there was not much daily "supervision" of the board members because of the professionalism and good competency of the board members. In making decisions on SHE-related topics, especially those relating to legal compliance, A03's legal background did help in detecting potential issues allowing the board, in some cases, to amend decisions. For example, there had been some discussion by the board and decisions taken on investment in upgrading Company A's SHE-related permission issues in 2015. Obviously, the advising and supervising role of the supervisor of the board helped in enhancing the governance mechanism regarding decisions relating to SHE matters, especially when she was equipped with legal knowledge and a strong awareness of compliance issues. This structure setup really helped the improvement in the company's SHE compliance.

Along with the launch of the new vision and values, and the new corporate strategy in 2012, ABC Group changed its operating model from "decentralized" to "centralized". The purpose was to enhance central control and reinforce the standardization of business processes to realize the "One ABC" way of doing business and serving its customers and stakeholders. The standardization and integration of business processes also covered the corporate governance and SHE management processes, and affected all affiliated companies, including Company A. The corporate functions played important roles during these standardization and integration processes. In the "centralized" operating model, the corporate functions have more power to do their job and fulfil their responsibilities in providing a checks and balances function to monitor the implementation of business process standardization and integration. As defined in the "centralized" operating model, the corporate functions, e.g. corporate compliance, corporate internal audit, corporate SHE, corporate communication etc., at different levels changed their solid reporting lines to their upper level function heads and then to the corporate function heads at the global level. There remained dotted reporting lines to the regional, country and local executive bodies, but this was much weaker than the solid reporting line to corporate function heads. The "centralized" operating model has greatly strengthened the ABC Group's top down monitoring and control of its affiliated companies, including Company A. This has had a positive structural impact, enhancing the corporate governance processes and SHE management practices.

In the "centralized" operating model, the SHE team has been empowered to be a more independent function, which has allowed them to support the business and operations, while retaining their principles when performing their duties of SHE governance and monitoring of compliance, thus avoiding compromise with business and operations. As the head of the regional SHE team, I had experience in handling several cases involving my team in discussion and decisions on SHE-related matters for Company A, in which there was conflict of interests with business and operations. From the case described below, we could see how the strong governance power structure supported the translation of strong prosocial ideation (i.e. prosocial value orientation) into SHE management practices on the shop floor.

In 2016, Company A launched a small expansion project to meet a customer's demand for a new sound absorber product with a very tight time line. The expansion project, although small, still required completion of the EIA (Environmental Impact Assessment) before it could start and, after that, required the local environmental authority's acceptance to start production. However, the EIA process took quite a long time and delayed the project implementation. The project team had then argued with the site SHE manager, wanting to skip the EIA process, as they thought the expansion project was small and the authority might not come to check. This was stopped by site SHE manager, and the argument had been escalated up to the business leader and the chairman of the board of directors, A01. My subordinate, the ABC China SHE manager, was involved and insisted on the required EIA process. Due to the urgent customer need for the product, the chairman of the board of directors, A01, tended towards deciding to bypass the EIA. In this scenario, I jumped in and clearly expressed the SHE team's position to ensure 100% legal compliance. After a hot discussion, I finally had to involve my line manager, the global SHE function head, so the issue was escalated again and the final decision from global was to have the project team stick to the EIA process and ensure 100% legal compliance. The business leader had to communicate with the customer to seek understanding for the delay in product delivery due to the EIA and legal requirements for completing the expansion project.

This case is a good example to illustrate the governance role of SHE professionals, the importance of the SHE function's independence, and how the "centralized" operating model made the checks and balances work when there was a conflict of interests. If this case had happened during 2007-2012, when there was a weak governance mechanism and power structure in the setting of the "decentralized" operating model, the outcome could have been totally different. The decision making process might have stopped at the plant level or at Company A's board level, and would not have been escalated upward to the regional and global levels of ABC Group. This case tells us that the checks and balances mechanism design of constructive conflict between business, operations and corporate functions to achieve the best outcome for the company's sustainable development, is especially important to ensure that the interests of SHE are addressed. My professional experience has told me that, without interplay between a proper governance mechanism and power structure in an organization, in many cases, SHE interests would be easily omitted or ignored by business and operations. Even though the business and operations leaders might have good SHE awareness with a prosocial value orientation, there is still a need to ensure a governance mechanism and power structure to allow the translation of ideation and values, especially when there are conflicts of interest. Other corporate functions, like the corporate internal audit, had the same feelings after their experience of the changes in Company A before and after 2012, as expressed by the head of ABC regional Corporate Audit, ABC02.

"Our previously agreed plan to conduct corporate SHE audit in June 2011, as aligned with previous general manager, A00, was still not done due to A00's request again for a postponement. After 2012, when there was a change in plant level governance mechanism and power structure, our SHE audit plan was finally agreed by the new general manager and implemented in October 2012, with another follow up audit done in November 2015, a three-year interval. Everything became much easier with the improved governance structure and enhanced SHE-oriented corporate values. The 'centralized' operating model provided much more empowerment to the corporate internal audit team to perform their duties. The concept of audit for improvement was accepted by the general manager, A04, and plant management team. The outcome of systematic audits generated improvement opportunities for SHE management practices. I would conclude that it was the combination of forceful SHE-oriented values and improved governance power structure that led to the improvement of SHE management practices in Company A and the changes in people's mind sets and behaviour." (ABC02)

Along with the full integration of corporate governance and SHE management practices from 2012, a new process of "SHE Duty Delegation" has been launched by ABC Group for all its affiliated companies, including Company A. The general manager of each affiliated company received a "SHE Duty Delegation" letter, in which they were delegated responsibility for the employer's duties in the field of safety, health and environmental protection required by applicable regulations and official directives. The general manager was also authorized to utilize resources and take action to implement sound SHE management practices to fulfil these delegated SHE duties. This process was required to be updated when there were personnel changes. The document review confirmed that the latest "SHE Duty Delegation" letter to the general manager of Company A was agreed and signed by the general manager, A04, as the person taking over the duties, and by the chairman of the board of director, A01, who was the legal representative of Company A, as the person transferring the duties. The general manager, A04, has taken this "SHE Duty Delegation" process very seriously, as he commented during interview.

"With the 'SHE Duty Delegation' to me, I feel fully obliged and fully authorized to take the ownership of actions to implement SHE management practices. I did the same 'SHE Duty Delegation' to my direct subordinate managers and, further, I had let the HR manager and SHE manager work on the integration of the SHE duties into the written job description of each position, from manager to operator. SHE is everyone's responsibility, no matter if you are a manager or an operator. Everyone needs to understand, commit and be accountable for it, while we still need the mechanism and process to ensure the engagement. This is how close the causal links are that I can see between corporate governance and SHE management practices. I think the 'SHE Duty Delegation' process is a good reflection of strong SHE-oriented values and strong governance power structure, which do effectively support the roll out of SHE management practices on the shop floor." (A04)

All of the document review, interviews and participant observation in Company A during 2012-2017 have confirmed my argument that the significant improvement in SHE management practices was attributed to the major changes in governance mechanism and power structure, as well as the further enhancement of prosocial corporate value orientation. A clear "Strongly Governed" pattern of corporate governance, with very strong ideational and structural variables, and interaction between these variables, has had a fundamentally positive impact on the substantial improvement of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions.

6.4 The Causal Nexus between Patterns of Corporate Governance and SHE Management Practices in the Time Period 2007-2010 for Company X

The status of SHE management practices and the limitations in implementing them in Company X in terms of the "Leadership, Behaviour, Technique" dimensions during 2007-2010 were attributed to the "Ideationally Constrained" pattern of corporate governance during that period, when there was a comparatively strong governance mechanism and power structure, but a relatively weak prosocial corporate value orientation. Company X, as a private company established through the privatization of a state-owned company, had carried over to a certain degree the inherited attributes of corporate governance and SHE management practices from the old state-owned company during 2007-2010 under the leadership of the two co-founders, X00 and X08. Despite the inheritance of a comparatively strong governance mechanism and power structure, as the structural variable of corporate governance, there was a lack of prosocial core values and deeply ingrained principles, as the ideational variable of corporate governance, to direct the actions of Company X towards a consistent prosocial orientation. The outcome of the interaction between the structural and ideational variables of corporate governance failed largely to support the implementation of solid SHE management practices on the shop floor. The ideational influence, structural impact and the interactive effects of the "Ideationally Constrained" pattern of corporate governance on SHE management practices were presented as the combination of structural and process impacts, and the integrated outcome of the causal nexus between patterns of corporate governance and SHE management practices, as illustrated in Table 11.

Table 11 Corporate governance and SHE management practices: causal effects analysis of Company X during 2007-2010

<table>
<tr><th colspan="2">Corporate Governance</th><th>Causal Links</th><th colspan="2">SHE Management</th></tr>
<tr><td colspan="2">Patterns of Corporate Governance</td><td rowspan="13">Integrated, combined and interactive causal effects</td><td colspan="2">SHE Management Practices</td></tr>
<tr><td rowspan="3">Corporate Value Orientation
(Ideational Influence)
(Score: 2.5 Weak)</td><td rowspan="3">Prosocial values
(Score: 2.5)</td><td rowspan="3">Leadership (Score: 2.75)</td><td>Management commitment and accountability (Score: 3)</td></tr>
<tr><td>Organizational competency and empowerment (Score: 2.5)</td></tr>
<tr><td>Resources and investment (Score: 2.75)</td></tr>
<tr><td rowspan="9">Governance Mechanism and Power Structure
(Structural Influence)
(Score: 3.25 Strong)</td><td rowspan="3">Ownership structure and control
(Score: 3.5)</td><td rowspan="3">Behaviour (Score: 2.75)</td><td>Employee engagement and responsibility (Score: 3)</td></tr>
<tr><td>Communication, training and awareness promotion (Score: 3.25)</td></tr>
<tr><td>Behaviour-based safety programme (Score: 2)</td></tr>
<tr><td rowspan="2">The board of directors
(Score: 3.25)</td><td rowspan="6">Technique (Score: 2.75)</td><td>SHE policy, objectives, procedures and system (Score: 2.75)</td></tr>
<tr><td>Identifiction of aspects of SHE and risk assessment (Score: 2.5)</td></tr>
<tr><td rowspan="2">Stakeholder influence
(Score: 3.25)</td><td>Legal compliance, standards and other requirements (Score: 3.25)</td></tr>
<tr><td>Operational control and management of emergencies and incidents (Score: 2.25)</td></tr>
<tr><td rowspan="2">Transparency and disclosure
(Score: 3)</td><td>Audit, monitoring and performance management (Score: 2.75)</td></tr>
<tr><td>Non-conformity, corrective/preventive action and continuous improvement (Score: 3)</td></tr>
<tr><td colspan="5">Conclusion:
The status of and limitation in SHE management practices implementation in terms of the "Leadership, Behaviour, Technique" dimensions in Company X during 2007-2010 was attributed to the "Ideationally Constrained" pattern of corporate governance.</td></tr>
<tr><td colspan="5">Remarks:
* There is interaction between the structural and ideational variables of corporage governance and among the components of these variables.
* There is interaction among the three "Leadership, Behaviour, Technique" dimensions of SHE management practices and among the constitutive attributes of these dimensions.</td></tr>
</table>

The weak prosocial values, with buzzwords only, and without substantial inherent motivation and clear vision, strategy and goals from the founders, led to weak and inconsistent commitment from the board level to achieve a high level of SHE management practices. This indicated a negative ideational influence from these weak prosocial values on the “management commitment and accountability” attribute of the “Leadership” dimension of SHE management practices. The same negative ideational impact of weak prosocial values without focused actions and means to achieve goals was imposed on the processes of implementing sound SHE management practices with respect to the “Behaviour” and “Technique” dimensions. The weak prosocial values shaped the attitudes and behaviour of key stakeholders (e.g. owners, managers, employees etc.) and had a negative influence on the “Leadership” dimension of SHE management practices in terms of management behaviour in decision making, strategic planning, organizational configuration, resources allocation etc. These actions indicated the extent to which prosocial values were given priority in the development of SHE management practices. Eventually, without deeply rooted prosocial corporate values, there was a lack of foundation and motivation to drive the substantial and systematic implementation of SHE management practices in Company X during 2007-2010.

The comparatively strong governance mechanism and power structure was supposed to bring some positive structural impact on the “organizational competency and empowerment” and “resources and investment” attributes of the “Leadership” dimension of SHE management practices. This positive structural impact was evidenced by the fact that A08, as the board member functioning as the supervisor of the board, was leading the SHE management effort with a part time SHE coordinator reporting to him, which demonstrated a certain degree of independence of the SHE function and its involvement in the decision making process. However, this positive structural impact was countervailed by the weak prosocial corporate value orientation. In the end, the positive structural impact from the comparatively strong governance mechanism and power structure was greatly limited and constrained, not only in terms of “organizational competency and empowerment” and “resources and investment” attributes of the “Leadership” dimension, but also in terms of the whole set of attributes associated with the “Behaviour” and “Technique” dimensions of SHE management practices. The owners and the board of Company X did not show strong motivation to review the detailed behaviour changing initiatives and comprehensive technical aspects of SHE management practices, e.g. risk assessment, incident investigation, emergency response, management system certification etc. This then failed to guarantee a systematic approach to implement SHE management practices. Instead, a piecemeal approach was chosen by the owners and the board of Company X to manage SHE matters in the so called “feasible and practical” way that the owners, X00 and X08, practiced during their time in the old state-owned company.

Besides the “power structure and control” component, this weakened structural impact of the weak prosocial value orientation applied also to “stakeholder influence” and “transparency and disclosure”, as two other components of the structural variable of corporate governance. This then led to a limitation on the positive structural impact on the “Behaviour” and “Technique” dimensions of SHE management practices in terms of employee engagement, communication, monitoring, checks and balances processes etc. “Stakeholder influence” and “transparency and disclosure”, as components of a comparatively strong structural variable of corporate governance, were weakened by the weak ideational variable, and their positive impact on the "Leadership" dimension of SHE management practices with respect to management behaviour, decision making, strategic planning, organizational configuration and resources allocation etc. was greatly reduced and impaired. Over time, as an outcome of the interaction between the comparatively strong structural variable and relatively weak ideational variable of corporate governance, the ideational influence and structural impact of corporate governance had the combined and integrated effects of limiting the implementation of SHE management practices. Therefore, only limited and fragmentary key practices were implemented to maintain compliance and the safe operation of Company X, but there was no a systematic, consistent and substantial roll out of SHE management practices.

Obviously, the weak prosocial corporate value orientation and comparatively strong governance mechanism and power structure determined the way the chairman of Company X and his team were managing SHE matters during 2007-2010. Both co-founders, X00 and X08, had not fully realized the importance and value of SHE management. The values of the co-founders, which were embedded in their belief systems that had evolved over a long time period with their experience in the previously state-owned company, had significantly determined the values of Company X in the specific socio-political environment. Also, the influence of the major shareholder, X00, was much stronger than that of the minor shareholder during the course of the development of Company X's values. There were clearly things that X00 valued and believed that the Company needed to do and other things that he did not think needed to be done. This was then reflected in the governance structure setup, strategic planning and decision making processes. As claimed by X00, the founder and major shareholder of Company X:

"After the privatization of the state-owned company, we only implemented those key tasks relating to SHE management by following the existing practices of the state-owned company, because we got used to what the company were doing on SHE since we had been working for the state-owned company for years, and there seemed not an imminent request from either local authorities or customers for us to implement a full SHE management system in a holistic and systematic approach. With this, we had more time to focus on the business development of our company as the priority after the privatization of a state-owned company. Basically, we had not really taken safety, health and environmental matters into strategic planning with serious

consideration as part of our corporate values, although the written corporate values statement did say: 'Customer and quality first, serve the society with respect to the individual', but this statement was simply copied from the one used in the previous state-owned company." (X00)

What was written as a corporate values statement did not reflect the actual values of Company X during 2007-2010, but what is described by X00 and what was embedded in the managerial behaviour and decision making process reflected the actual corporate values of the company. With the weak prosocial value orientation, there was no strong motivation for the company to do anything more than the routine practices inherited from the previous state-owned company, especially when there were no external requests or external pressure to do more. In addition, there was a lack of internal motivation to pursue substantial and systematic improvement. Company X only implemented ISO 9001 to meet customer requirements, but did not implement ISO 14001 and OHSAS 18001 (ISO 45001) for SHE management. However, it was good that Company X did implement some key SHE management practices on the shop floor, specifically those which both X00 and X08 thought important and necessary in order to keep the business and operations running. Since those practices had existed in the previous state-owned company, they wanted to retain and reinforce their shop floor implementation. For example, these practices included, but were not limited to the following: maintaining key operating permits/licences to ensure there was no challenge from local authorities; performing regular inspections on SHE matters to detect potential major issues and develop gap closing action plans; maintaining basic SHE communication and SHE training for employees to engage them in SHE matters, which at least demonstrated "respect to the individual"; the role of the trade union and plant administration department in launching these initiatives.

The comparatively strong corporate governance structure, with X08, as a board member and having the board supervisor position, leading the SHE coordination and supervising the implementation of SHE management practices, and with its independence from the production department, had a positive impact in supporting the implementation of those initiatives as listed above, which were agreed by the board and which were therefore considered important by X00. This comparatively strong structural variable of corporate governance contributed to the implementation and maintenance of these important basic, but fragmentary SHE management practices. However, these contributing effects were impeded and weakened by the weak prosocial value orientation in Company X during 2007-2010, because the company and its owners tended to invest only in those measures that they valued. This weak prosocial corporate value orientation, therefore, limited the motivation for the company to implement systematic and robust SHE management practices. X08 expressed his view during the interview as follows:

"We kept up to date with those key licenses for plant operation, including those SHE-related permits. This was done through close cooperation and a good relationship with local authorities. This was managed by the plant administration department, which was independent from the production and engineering departments. So, for those agreed and valued by the board and the chairman, X00, we really enforced them quite well. Practically, this worked well, even if we did not implement a systematic compliance review like those required by ISO 14001 and OHSAS 18001 (ISO 45001). We had thought about introducing a system to evaluate all the applicable laws and regulations and review the compliance status for a further deep drive on specific compliance topics in a proactive approach, but we were not able to do that as that required a dedicated SHE professional to maintain the system. Our chairman of the board of directors, X00, did not see the value in introducing this system and adding a SHE professional to do so. He preferred simply to ask the local authorities about the requirements and to take actions as asked by the local authorities. I was quite constrained in pushing forward on systematic improvement in SHE management." (X08)

As the person in charge of plant administration and acting as the SHE management representative, X08 recalled how they managed the key permits, licences and SHE-related compliance issues during 2007-2010. Due to the weak prosocial value orientation, the administration department was asked to manage the SHE-related permits and licenses by working closely with local authorities and to do what was asked by the local authorities. There was no support from X00 for having a dedicated SHE professional, nor for implementing a compliance management system to ensure a proactive approach to reviewing potential compliance gaps and acting on them. This practical approach seemed to work well to maintain the major permits and licenses under the circumstances of X00 maintaining a good relationship with local authorities. However, there were gaps in SHE compliance issues that might not even have been detected by, or known to the plant management since there was no systematic gap analysis being conducted. In the view of X00, if there were no challenges and pressure from local authorities, then everything was fine. At least the company was maintaining its major operating permits and licenses well, so he thought that legally there were no problems. From this, we could see there was a positive structural influence on pushing the roll out of SHE management practices, but we could also see clearly how the weak prosocial corporate value orientation had adversely influenced the commitment, strategic planning and resources allocation attributes of the "Leadership" dimension and therefore the technical solutions and system tools aspects of the "Technique" dimension of SHE management practices.

The weak ideational variable of corporate governance had an adverse impact on SHE management investment. There was not only a lack of investment on the management system, but also a lack of adequate physical investment on the maintenance and upgrade of facilities to ensure their safety. An example of an issue with no such investment included the existing fire-fighting facilities in the old workshops, one of the legacy issues from the previous state-owned company. Both X00 and X08 realized there were physical gaps in the functionality of the fire-fighting facilities which needed repair and upgrade. They paid for the minimum maintenance needed to keep it running and to pass the inspection by the local authorities, but did not invest to ensure the fire-fighting facilities could really work in the event of a fire. A test of the site's fire hydrant found that the water pressure was too low. This was actually a serious compliance issue with a high potential risk but X00 seemed not to worry about this since the company had already had the fire-fighting facilities certified and accepted by the local authorities on paper. Working closely with local authorities was a double-edged sword. On one hand, it helped to make the plant operation and running of the business easier; on the other hand, it failed to maintain standards and to a certain extent it compromised the SHE management practices which potentially could cause huge issues for the company over time. This was somewhat of an indication of the problem with corporate governance and its adverse impact on SHE management practices.

The adverse impact of the weak ideational variable on SHE management investment was also reflected in the investment in building SHE competency and the setup of SHE organization in Company X. There was a comparatively strong structural variable of corporate governance, which led to the structural setup of SHE organization with a certain degree of independence, with a part-time SHE coordinator appointed by the administration department to report to the plant administration manager, X08, the minor shareholder and board member functioning as supervisor of the board. This organizational setup was better than in many other local companies, in which the SHE persons reported to the production department, creating great concerns about conflicts of interest. However, this comparatively strong structural variable, being affected by the weak ideational variable of corporate governance, failed to bring substantial positive effects for the implementation of SHE management practices, because the part time SHE coordinator under the plant administration manager, X08, was not a well enough educated, experienced and competent SHE professional, as recalled by X08.

"The problem we had was that the part-time SHE coordinator reporting to me was not a professional and was lacking in technical SHE competency and skill set, and I, myself, was not technically educated as a SHE professional, which made the performance of his duty and my duty very difficult and ineffective. I had discussed with the chairman of the board of directors, X00, regarding hiring a professional SHE engineer to enhance SHE competency and strengthen the SHE organization. I had even suggested recruiting a highly capable dedicated SHE manager, fully independent and reporting to the general manager, to further enhance the position and structural empowerment of SHE organization. This was not approved due to cost concerns about investment in enhancing SHE organization, because the chairman of the board, X00, did not see the value of adding this professional SHE engineer to the organization, since there was no pressure from local authorities or customers to strengthen the SHE organization. Frankly, without the proper SHE competency and resources in the organization, we were lacking in the capability to work in detail and move the implementation of SHE management practices ahead. Thus, the gaps in the fire-fighting facilities and lack of investment on SHE improvement actions were all causally linked to what was valued by the final decision maker, X00, and the company. This was reflected in the daily decision making processes." (X08)

The decision on how the SHE function was configured clearly reflected the weak prosocial value orientation as the ideational variable of corporate governance in Company X as well as the comparatively strong structural variable. Ideationally, Company X did not value SHE and social matters enough during 2007-2010. The weak prosocial value orientation of the board and the plant management (e.g. X00, X08, X01 and other managers) was translated to all levels of the organization, from top to bottom, and thus the whole organization, including people at different levels, did not value, or give enough attention to SHE matters, which then made it difficult for the SHE function to roll out SHE management practices through engaging people in the process. It was understandable that people would be motivated to do something that they value, rather than spending considerable effort on something they do not value or deem important. Being constrained by the weak ideational variable of corporate governance, without a professional and competent SHE department, and with the low level of resources committed by the board, the movement to implement SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions was stumbling.

The comparatively strong structural variable of corporate governance, with its moderately positive but constrained structural influence, did support the implementation and maintenance of certain basic SHE management practices, typically those valued by the organization, although these practices were somewhat fragmentary. The SHE function under the plant administration department was independent from the production department, which provided a good mechanism to supervise and monitor the implementation of SHE management practices in the production and operations departments. The major SHE activities in Company X during 2007-2010 were those related to production and operations, for example routine and ad hoc safety inspections, internal audit, and the control of permits to work on the plant's own activities or those of contractors working in the plant. During supervision and monitoring of compliance with SHE procedures, conflicts and arguments were often seen between the appointed part-time SHE coordinator and the production and engineering departments. In many cases, the part-time SHE coordinator failed to convince the production or maintenance supervisor and did not win the argument, although what he had done in trying to enforce the standards was correct and a part of his job. Even when conflicts were escalated upward to upper management for discussion and decision, the outcome was usually negative and not in favour of SHE, especially for those SHE matters which were not recognized and valued by the company. SHE management was usually compromised in these conflicts and it was difficult to further advance the implementation of systematic SHE management practices.

X08, as the manager of the part time SHE coordinator, told me some stories of how the SHE coordinator was doing very well on performing routine safety inspection, maintaining the plant operation permits, working with local authorities and conducting basic safety training, as all of these were agreed by the chairman of the board, X00, and the general manager, X01. However, when he wanted to raise the standard to enforce operational controls on those operational risks requiring an engineering solution and investment (for example, to correct the deficiency in machine guarding), or tried to stop some dangerous activity (for example, stopping welding maintenance work in the production workshop due to the lack of a hot work permit) that affected the production schedule, then conflicts emerged. With escalation upward, in most cases, he did not receive supportive feedback from top management. There were several factors in this game: the part-time SHE coordinator was not a technically competent enough professional; he was not empowered enough as his position in the company was lower than his peers (e.g. the production and maintenance managers/supervisors etc.); there was a lack of resources for SHE implementation (e.g. human resources, physical resources and investment). The root cause was the weak prosocial value orientation in Company X during 2007-2010, which indicated a low level of motivation and intention to really improve SHE management, as concluded by X08.

"We could not blame the SHE guy, as he had been trying to do his best to facilitate the implementation of SHE management practices. We put him in this position, but we did not provide him with enough power, resources and training to support him to do his job. Even for myself, when I brought up the SHE issues as escalated by the SHE coordinator, I also had challenges to convince X00, X01 and the board to make a positive decision in favour of SHE improvement, because from a value orientation perspective, the company tended to focus more on business and production. Actually, X00, X01 and I all understood what was happening; we had to admit that we did not value SHE and social matters enough, which led to the challenges we had in improving our SHE management practices. If we wanted to change, we absolutely needed to strengthen our corporate values with more of a SHE orientation. But this would take quite a while for values building and SHE cultural transformation." (X08)

The compromises on SHE implementation, as seen during conflicts between the SHE coordinator and production operation people regarding the enforcement of SHE procedures (e.g. SHE audit, control of permits to work, machine safety etc.) were just some indications of the adverse effects of the interaction of the ideational and structural variables of corporate governance on SHE management. Being constrained by the weak prosocial value orientation, ideationally the commitment towards investment, resources and organizational competency in Company X was not strong enough to support the implementation of system tools and technical solutions to drive the systematic improvement in various aspects of SHE management practices. Such practices included the following: fulfilling SHE policy, objectives and procedures on the shop floor; identification of aspects of SHE and risk assessment; complying with legal requirements, SHE standards and other requirements; putting in place effective operational control and management of emergencies/incidents; conducting systematic audit and effective monitoring of performance with management reviews; addressing non-conformity, corrective/preventive action and continuous improvement.

The weak ideational variable of corporate governance did not provide the long lasting motivation to drive the behavioural changes towards forming a positive SHE culture. There was a lack of effort in the communication, training and awareness promotion of SHE matters and employee engagement activities etc. As the roll out of these initiatives required the same degree of commitment, competency and resources, it turned out to be impossible without a strong prosocial value orientation as a backbone to support the implementation. The comparatively strong structure did not work well when ideation was weak. When a company does not actually value SHE matters, they do not include SHE management in the strategic planning process of board decisions. This then affects the implementation of the "Leadership, Behaviour, Technique" dimensions of SHE management practices. In his interview, X08, as the minor shareholder and supervisor of the board overseeing SHE work, claimed:

"We were positioned in structure to propose the roll out plan for system tools and technical solutions, as well as the behaviour changing initiatives to improve SHE management practices, and then to monitor their implementation. We did try our best to propose to the board and plant management to make a decision to move on the implementation of SHE management practices, including some proposals to use third party consultants to help us, as we knew our limitations in competency and resources. However, the proposals were not approved by the board and plant management, simply because the decision makers did not see the value of rolling out the initiatives. Thus, the implementation of a SHE programme did not get support from the leadership. We could only do a very minimal job to roll out those basic and essential SHE management practices in a fragmentary manner. Also, there were no grounds for systematically improving SHE management practices in Company X because of the weak SHE-oriented values. Although I was a board member and one of the decision makers, there was a constraint in people's mind sets, including the mind set of the big boss. So, in many cases, in my role as a board member and supervisor of the board I did not succeed in convincing the board on

decisions in favour of SHE management. If Company X wanted to improve SHE management, we needed to strengthen the SHE-oriented values and focus on building values in favour of SHE matters." (X08)

The structural setup of the stakeholder influence, as well as the transparency and information disclosure mechanism, were comparatively strong. This was partially an inheritance from the previous state-owned company's practices, with a comparatively strong structural variable of corporate governance. There was a trade union and safety committee setup which was in line with the legal requirement. However, the trade union and safety committee did not actually function as well as expected to effectively drive the improvement of SHE management practices, because the stakeholder influence, and transparency and information disclosure mechanism were impaired by the weak ideational variable of corporate governance. In an organization with a weak prosocial value orientation and weak SHE culture, we could expect to see neither strong stakeholder influence from the employees, nor open and transparent information disclosure on SHE matters. The head of the trade union, X09, recalled the status of the trade union and how the safety committee had been run in Company X during 2007-2010.

The trade union and safety committee had been formally established and run very much following the formation and style of the previous state-owned company, and there were regular meetings. However, the agenda very rarely addressed SHE matters. There was a lack of an effective bottom up mechanism to encourage shop floor voices and open discussion on SHE issues, simply because SHE was not really valued as a strategically important matter, and people did not have enough interest in, or pay enough attention to SHE matters; thus SHE matters did not come up in the meetings. An employee representative was appointed to sit on the safety committee, but there were few contributions from this representative on SHE improvement ideas and actions. In trade union meetings, there was discussion of employee welfare, social benefits etc., but rarely any discussion of SHE issues. In the safety committee meeting, there were usually only routine follow up of issues identified during safety inspections and review of responses to the requirements of local authorities or customers, but no in-depth discussion of specific SHE issues for systematic and holistic improvement. Very rarely were new topics reported by employees. During interview, X08, as the manager in charge of the operation of the trade union and safety committee, commented:

"We should have strengthened employees' and the whole organization's motivation to address SHE issues through the enhancement of corporate value orientation towards SHE matters. Otherwise, the structure of the trade union and safety committee did not really have a positive impact on forming a constructive platform for discussion and review of SHE matters, because there was a lack of climate and cultural setting, and employees did not sense a commitment and focus on SHE matters from top management. We did not see a change in values happening in the short term, because the formation of SHE-oriented values would take a long time. It takes time to change people's mind sets and behaviour." (X08)

As the general manager of Company X, joining the company in 2007 to support his father's business, X01 did consider putting forward a new written corporate values and mission statement for the company's management manual. However, the two co-founders, X00 and X08, did not want to change the original values statement inherited from the old state-owned company. The inheritance of practices in terms of corporate governance structure and corporate values from the old state-owned company that X00 and X08 had acquired through privatization had determined the comparatively strong structural variable but relatively weak ideational variable of corporate governance during 2007-2010. Structurally, Company X seemed in a good position to implement SHE management practices. However, ideationally, the weak prosocial corporate values did not provide a good grounding to support the systematic and holistic improvement of SHE management practices. As an effect of the "Ideationally Constrained" pattern of corporate governance, the interaction between the structural and ideational variables of corporate governance had then causally impacted on the "Leadership, Behaviour, Technique" dimensions of SHE management practices as illustrated above. As the general manager of Company X, although X01 could not change board decisions, he seemed to have his own view regarding how corporate governance practices should be designed in terms of structural and ideational variables.

"I think the corporate governance practices in our company during 2007-2010 could not meet the needs of the business and operations in modern company management practices. As a private company, at least after the privatization of the state-owned company, some changes were needed to ensure the private company could better respond to the market and customers in a more flexible and quicker manner, especially when we were growing with a bigger business

volume in a more competitive business environment. In 2007-2010, I was not the chairman of the company; I did not have the final say, so as the general manager, I followed the strategy of my father, X00, who was the chairman of the board, and his partner, X08. From 2011 on, we had some ownership structural changes which led to some changes in the company governance structure and corporate values, as I became the main decision maker of Company X. We made our company more business- and market-oriented." (X01)

It was clear that X01, as the new generation of company management, wanted to make changes and it appeared that he was more ambitious in terms of business growth than the older generation. However, I felt X01 was much more business- and market-oriented, and thus I had concerns that the changes he made in terms of the structural and ideational variables of corporate governance might not have any positive effects on the improvement of SHE management practices, which has been explored in the analysis of Company X for the period 2011-2017, when X01 took to the stage as family owner, executive director and general manager of Company X.

6.5 The Causal Nexus between Patterns of Corporate Governance and SHE Management Practices in the Time Period 2011-2017 for Company X

There were some major changes in the shareholding structure of Company X at the end of 2010, when X08, the co-founder and minor shareholder, decided to sell his 20% share to the major shareholder, X00, as he needed money to support his son's investment in another business in Shanghai. X08 was not a shareholder or a board member of company X anymore, but he still worked in the company as the plant administration manager, as he wanted to stay in his hometown rather than go to Shanghai to live with his son. Due to their good relationship and long years of business partnership, X00 wanted to have X08 working in his company to support his son, X01. In 2011, Company X had a major investment to build a new plant to support its business growth. X00 had transferred his entire share of the company to his son, X01, and worked only as a consultant for Company X from 2011 on. X00 and X01 decided to switch their business and operations to the new plant which was built and came into use at the end of 2011; they then closed the old plant. The major change in the shareholding structure in

Company X in 2011 brought some changes in the patterns of corporate governance in terms of the structural and ideational variables, which then had subsequent causal effects on the SHE management practices with respect to the “Leadership, Behaviour, Technique” dimensions. The underlying mechanism and processes were explored for empirical evidence to support an understanding of how the changes in patterns of corporate governance led to the variations in SHE management practices during 2011-2017 for Company X.

The status of SHE management practices and the deterioration in the implementation of the “Leadership, Behaviour, Technique” dimensions during 2011-2017 were attributed to the “Weakly Governed” pattern of corporate governance during that period, when both the structural and ideational variables of corporate governance were weak. The changes in the structural and ideational variables of corporate governance, and the interactions between them have had negative causal effects, with an impairment of SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions. The causal links in terms of the underlying mechanisms and processes between the “Weakly Governed” pattern of corporate governance and the deteriorated SHE management practices have been elaborated with a focused analysis of the structural and ideational influence, as well as of the interactive effects of the structural and ideational variables of corporate governance on SHE management practices. The causal analysis looked at the structure, process and outcome of corporate governance and investigated the combined effect of the structural and ideational variables of corporate governance on SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions, as illustrated in Table 12.

Table 12 Corporate governance and SHE management practices: causal effects analysis of Company X during 2011-2017

<table>
<tr><th colspan="2">Corporate Governance</th><th>Causal Links</th><th colspan="2">SHE Management</th></tr>
<tr><td colspan="2">Patterns of Corporate Governance</td><td rowspan="13">Integrated, combined and interactive causal effects</td><td colspan="2">SHE Management Practices</td></tr>
<tr><td rowspan="3">Corporate Value Orientation (Ideational Influence) (Score: 2 Weak)</td><td rowspan="3">Prosocial values (Score: 2)</td><td rowspan="3">Leadership (Score: 2.5)</td><td>Management commitment and accountability (Score: 2.75)</td></tr>
<tr><td>Organizational competency and empowerment (Score: 2)</td></tr>
<tr><td>Resources and investment (Score: 2.75)</td></tr>
<tr><td rowspan="9">Governance Mechanism and Power Structure (Structural Influence) (Score: 2.5 Weak)</td><td rowspan="2">Ownership structure and control (Score: 3)</td><td rowspan="3">Behaviour (Score: 2.5)</td><td>Employee engagement and responsibility (Score: 2.75)</td></tr>
<tr><td>Communication, training and awareness promotion (Score: 2.75)</td></tr>
<tr><td rowspan="2">The board of directors (Score: 2)</td><td>Behaviour-based safety programme (Score: 2)</td></tr>
<tr><td rowspan="6">Technique (Score: 2.5)</td><td>SHE policy, objectives, procedures and system (Score: 2.75)</td></tr>
<tr><td rowspan="2">Stakeholder influence (Score: 2.5)</td><td>Identification of aspects of SHE and risk assessment (Score: 2.5)</td></tr>
<tr><td>Legal compliance, standards and other requirements (Score: 2.25)</td></tr>
<tr><td rowspan="3">Transparency and disclosure (Score: 2.5)</td><td>Operational control and management of emergencies and incidents (Score: 2.25)</td></tr>
<tr><td>Audit, monitoring and performance management (Score: 2.75)</td></tr>
<tr><td></td><td>Non-conformity, corrective/preventive action and continuous improvement (Score: 2.5)</td></tr>
<tr><td colspan="5">Conclusion:
The deterioration in SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions in Company X during 2011-2017 was attributed to the "Weakly Governed" pattern of corporate governance.</td></tr>
<tr><td colspan="5">Remarks:
* There is interaction between the structural and ideational variables of corporate governance and among the components of these variables.
* There is interaction among the three "Leadership, Behaviour, Technique" dimensions of SHE management practices and among the constitutive attributes of these dimensions.</td></tr>
</table>

The changes in the corporate values statement of Company X in 2011 enhanced its business orientation but weakened its prosocial value orientation, which had been embedded over time in the beliefs, attitudes and behaviour of managers and employees, and led to very weak commitment and motivation from the board level to substantially improve SHE management practices. This aggravated the negative influence posed by the even weaker prosocial values of corporate governance on the “management commitment and accountability” attribute of the “Leadership” dimension of SHE management practices, which then further diluted the consideration given to SHE matters in the formulation of the company’s vision, strategy and organizational goals. The same aggravated adverse ideational impact from the weaker prosocial values was exerted on the means and processes involved in improving SHE management practices with respect to the “Technique” and “Behaviour” dimensions. There was a lack of focused actions giving priority to the development of SHE management practices. The weaker prosocial values also badly influenced the “Leadership” dimension of SHE management practices in terms of leadership behaviour in decision making, strategic planning, organizational configuration and resources allocation. Compared with the values statement during 2007-2010 with a weak prosocial orientation, Company X launched an even weaker prosocial corporate values statement during 2011-2017. The foundations and motivation to drive materially substantial SHE management practices improvement were further weakened, which led to the impairment of SHE management practices in all dimensions.

The weak governance mechanism and power structure in this highly shareholder-oriented family business, with control rights centralized in the family business owner, X01, and with a prominent "insider control" concern, not only directly posed a negative structural impact on the "organizational competency and empowerment" and "resources and investment" attributes of the "Leadership" dimension, but also had a clear adverse influence on the whole set of the "Technique" and "Behaviour" dimensions of SHE management practices. In the end, these adverse structural effects made the shop floor implementation of behaviour changes, and roll out of system tools and technical solutions very difficult. There was no detailed discussion on technical aspects of SHE matters and behaviour changing initiatives in the board meetings held by X01. Such SHE matters were usually discussed in production meetings led by the production manager, who also acted as the SHE manager. X01, as the business owner, executive director and general manager, spent less time on SHE topics, which could have been due to his educational background and previous work experience in the area of finance, and his main focus was on business development. The lack of attention to the "Technique" and "Behaviour" dimensions of SHE management from the owners and the board, i.e. X01, did not provide effective principle-agent control, monitoring or support for his managers in the way that SHE management practices were implemented on the shop floor. As a result, the SHE management in Company X during 2011-2017 remained superficial and conceptual but not substantial.

Besides the adverse effects of the weak "power structure and control" with respect to the components of ownership and board structures, the negative effects from two other weak structural components, "stakeholder influence" and "transparency and disclosure", were also obvious in their adverse impact on the "Behaviour" and "Technique" dimensions in terms of employee engagement, communication, monitoring, checks and balances, implementation of system tools etc. The weak “stakeholder influence” and “transparency and disclosure” attributes also exerted a negative structural influence on the “Leadership” dimension of SHE management practices, specifically on management behaviour in decision making, strategic planning, organizational configuration and resources allocation. Simultaneously, the weak prosocial corporate value orientation was exacerbating the negative ideational influence on SHE management practices. Finally, the outcome of the interactive effects from the weak structural and ideational variables of corporate governance aggravated the impaired roll out and implementation of SHE management practices on the shop floor.

In strategic planning, the general manager, X01, felt that Company X was facing the need to put more focus on business development, with a more efficient and quicker response to the market and to customers. He had discussed this with the co-founders of Company X, X00 and X08, after he joined the company and worked as the general manager during 2007-2010. He wanted to make some changes to the values statement of the company. However, his proposal was not agreed by X00 and X08. Only after he took over full control of the company from his father, X00, in 2011 did he make the changes in the corporate values statement, and added it to the updated company management manual. Due to his educational background in finance and previous work experience in a bank, the new family business owner, X01, wanted to create a more business-oriented and customer-focused culture through launching the new corporate values statement. He wanted to drive people’s mind sets towards the focus on growth in terms of the business, customers and finance. To support the revised values statement, X01 changed the governance structure to a highly shareholder-oriented, centralized form of control by himself in order to make quick but dominant decisions for a fast response to the market and to maximize shareholder value for himself as the family business owner of Company X. These changes had banished SHE management practices to a corner instead of having them on the agenda for strategic planning of the business and operations. This was due to the weak prosocial value orientation and weak stakeholder-oriented governance structure. During his interview, X01 expressed his consideration of SHE management as follows:

“One of the important considerations about doing the SHE management was mainly to aim at

building a good image with our non-financial performance. We wanted recognition from our customers and the local authorities, but I needed to control the investment in this area because SHE investment did not directly contribute to financial numbers in the short term. I have admitted that we did put more effort into perception management because, in my view, perception management was more important for us. With this, we needed the whole set of SHE management system documents so that, on paper, we have the SHE management system to show the company profile to our stakeholders." (X01)

Under the ideational influence of the family business owner, X01, and of the updated, more business-oriented corporate values, i.e. "Customer supreme, quality first, we operate with a high level of integrity to support steady growth" (X, 2012), the prosocial value orientation was very weak. "To operate with a high level of integrity" was just a wish, which directly affected the leadership behaviour of X01 and his management team in terms of strategic planning, decision making and resources allocation for SHE management practices, with the preferred direction being to prioritise perception management regarding SHE matters rather than to focus on substantial implementation. This causal effect was evidenced by the gaps between the whole set of SHE management system documents and the physical implementation on the shop floor, and the fact that the planning and decision processes, when the company was managing its ISO 14001 certification, had the ultimate purpose of meeting customer requirements.

Due to the fact that customer and market orientation was at the centre of everything that Company X did, the investment on SHE management was also reduced to those aspects that were mandatory and/or necessary to support its business, like the ISO 14001 certification by a third party consultant, which was done quickly to create a "value added" action through gaining good perception from the customers. However, the management did not care much about the adverse impact of two separate layers of documentation. There was inconsistency between the certification document prepared by the third party consultant and the working document used on the shop floor, which created the serious situation of the set of SHE management documents being divorced from the reality of shop floor practices. There was a clear adverse causal effect of the company's weak prosocial values on the impairment of SHE management practices. This impairment was aggravated by the weak corporate governance and power structure in the family business. All dimensions of SHE management practices in Company X during 2011-2017 were worsening due to the interactive effects of the weak ideational and structural variables of corporate governance, which was evidenced by empirical case study.

There were big compliance gaps in the permit and approval processes for construction of the new plant in 2011 and other expansion projects during 2011-2017. Typical gaps were those related to the EIA (Environmental Impact Assessment), approval of the fire-fighting system, occupational health assessment etc. These permits were not obtained in time according to the project timeline, but the construction projects were started and went ahead without permits. As per the legal requirements, these violations could potentially have led to the stoppage of the projects and company X's operations. However, the violations were managed by the general manager, X01, and his team by relying on good relationships with local authorities. They wanted the projects and construction work to move quickly in order to control the overall project budget and to meet the project completion timeline. The root cause of these violations was the weak prosocial value orientation and weak stakeholder-oriented governance structure in Company X during 2011-2017. The company was taking a risk to meet the needs of its business growth to catch up with the competition in the market. However, this was quite short-sighted behaviour. It created a big problem for the sustainable development of the company, as some non-compliance issues became legacy issues. The company has faced, and continues to face even now a big challenge to correct these issues. Because the permit and approval processes were closely linked to a certain timeline for the project, if they were not handled properly in the planning and implementation phases of the project, later remediation would become very costly and, in some situations, would become impossible. This partially explained where the estimated €5.47 million remediation cost came from and why ABC Group decided not to buy Company X as an outcome of the due diligence in March 2017. In the interview, the plant administration manager, X08, informed me about some of the background to what happened in Company X during 2011-2017.

"X01, as the family business owner, executive director and general manager, wanted to put more focus on business expansion. From the update of the corporate values statement and the promotion of the idea as he put it forward to his management team, we could easily feel what he wanted to achieve. Investment in a new plant and subsequent expansion projects were some

of the major steps in his business expansion strategy. This strategic planning did not actually consider much about SHE matters. I had tried to remind him to pay attention at least to the major compliance topics, such as permits and approval. He did not care much, as he believed good relationships with local authorities would help him to settle any issues. On the contrary, to support his business expansion ambition, he started the organizational restructuring with a central control directly under him, which was linked to a pure family business governance structure. In addition, he decided to move the SHE function from the plant administration department to the production department, and another part-time SHE person was appointed in the production department, reporting to the production manager. I was not in charge of the SHE function anymore; thus, I could not provide any more effective advice and could not monitor the compliance of the company's operations and projects. This structural change had actually weakened the stakeholder involvement, monitoring, and checks and balances function of SHE, as there was somewhat of a conflict of interests between SHE and operation/project management." (X08)

Once the part-time SHE coordinator began reporting to the production manager who was acting as site SHE manager as well as project manager for the various expansion projects, the independence of the SHE function was lost. The governance mechanism and power structure to protect SHE interests was becoming very weak. To verify the background stories provided by X08, I had an interview with the general manager, X01, to find out why he made these changes. He explained to me his thoughts back in 2011 and what his current thoughts were:

"I found the previous setup of the SHE function reporting line to the plant administration department could possibly slow down the progress of projects, as I very often saw the arguments between the part-time SHE coordinator and people in the production/engineering/project team. There was often an escalation of SHE conflict issues upward for decision. This was not what I wanted to see, because it slowed down the project. I decided to put the SHE function under the production department and expected the production manager to take ownership and full responsibility for SHE in addition to his normal responsibility in operation/project management. In 2011, I could not see a problem with this setup, as I focused too much on getting the new plant constructed and getting the expansion projects launched. But now, I have realized the issues with this setup, as this setup did not provide a constructive conflict management mechanism with checks and balances, which created huge legacy issues such as the permits and approval problem which have become more prominent now in the context of more stringent legal requirements by local authorities. I relied too much on the government relationship to manage the SHE permit issues, but this seems not to be working now and we have to in the near future inject resources and investment to get this corrected." (X01)

As the owner and general manager of Company X, X01 has now actually realized the issues and has understood the adverse causal impact of the weak ideational and structural variables arising from his decision in 2011. The problem was created when there was too much focus on business expansion and there was no governance structure to monitor his behaviour as the dominating business owner, executive director and general manager. The "insider control" issues made him the dominant decision maker with full control rights. The role of his wife, X03, as the supervisor of the board and a very minor shareholder, existed in name only and she could not practically perform her function, as they were a couple. X03's role as supervisor of the board and very minor shareholder was simply listed in the article of association as a structural setup to meet the requirement of corporate law.

The part-time SHE coordinator in the production department lacked SHE expertise and competency to perform his job. When the role came under the production department, the structural configuration of the SHE function was very weak, making the role very difficult to perform due to the lack of necessary resources and empowerment to work independently when there was a conflict of interests. This setup for the SHE function was driven by the changed corporate governance structure and reflected the weak prosocial value orientation because the SHE function was obviously not sufficiently valued nor correctly positioned in the organization. In addition, there was no intention and commitment from the top to invest in SHE resources and SHE competency building. Being causally affected by the weak structural and ideational variables of corporate governance, the implementation of SHE management practices substantially deteriorated during 2011-2017.

As part of the March 2017 due diligence and investigation process, a plant-wide physical check on the status of SHE management implementation was conducted. Observation was performed on the contractors' work in the fabrication and installation of a cargo lift in the warehouse. Significant gaps identified in this work indicated that it was completely lacking in SHE control and prevention measures as follows: the cargo lift under fabrication was an illegal home-made product, made by the contractors on site simply by welding steel bars and steel plates together, which was not certified and was not allowed to be used as a lift; the welding process on site was missing hot work permit control; the two contractors were not equipped with proper personal protective equipment (e.g. safety shoes, safety helmets, safety glasses and/or welding shields etc.); just next to where the welding was being done, there was extensive storage of combustible material (e.g. cardboard, lubricants etc.); the contractor received no safety induction for performing the task. I questioned the production manager, X05/X06, who was also acting as site SHE manager; he did not even know about this contractor's activity on the site. X05/X06 then called the engineering/maintenance manager, X07, and the SHE coordinator under him. It was confirmed that the fabrication and installation activity had been started three days previously. The contractors were local, brought in by an engineering/maintenance supervisor under X07 after the warehouse manager had submitted an order for work to fix a cargo lift. However, there was no safety training, no notification and no involvement of the relevant departments (e.g. production, SHE, warehouse, maintenance etc.). There was also no work permit issued to the contractor, and no equipment inspection for contractor entry. Physical safety control measures and processes were not in place at all. However, on the same morning the investigators also reviewed the company's SHE procedures and documentation, and found that everything relating to what should be done to manage contractor work was written in the documents.

This case indicated significant deviation and departures between the written SHE management document and the actual implementation of SHE management practices on the shop floor. The failure to implement the SHE control and prevention measures for contractor activities was rooted in the failure of the governance mechanism for SHE matters. Frankly, the part-time SHE coordinator under the production manager and acting SHE manager, X05/X06, was in a lowly position, with a job grade lower than the engineering/maintenance supervisor and warehouse supervisor. He had his normal job in the production department, with SHE coordinator being just an additional part-time job for him. He was lacking in the technical knowledge and professional training to do this job, while his reporting line to the production manager, X05/X06, did not give him the required independent position to perform his duties. After the investigation, I understood that the part-time SHE coordinator did try to stop the contractor work on the first day due to these violations, but he failed to convince the engineering/maintenance supervisor and warehouse supervisor, who insisted that they wanted to get the cargo lift installed as soon as possible to avoid any impact on the warehouse operation. They ignored the request from the SHE coordinator and bypassed him, allowing the contractor to continue the installation work. During his interview, the production manager and acting SHE manager, X05/X06, as the manager of the part-time SHE coordinator, commented as below:

"I realized the organizational and competency gaps in SHE resources. I had made a request to the general manager to add a professional SHE engineer to my department but unfortunately this request was not approved. Historically, there were similar situations of conflict which were escalated upward for a management decision, but the decisions from the group plant management and general manager did not support action in favour of SHE management. Time and time again, the part-time SHE coordinator gave up in his efforts, which led to the failure in the monitoring and control of physical site work." (X05/X06)

I could feel the awkward and embarrassed situation that X05/X06 had run into. As the production manager and acting site SHE manager, having two combined and conflicting roles, but without being given resources, he claimed that the failure in site SHE control revealed the failure in the "Leadership, Behaviour, Technique" dimensions, which was attributed to the failure of corporate governance, both structurally and ideationally. Ideationally, Company X did not value SHE management practices due to its weak prosocial value orientation. Structurally, Company X did not establish a proper governance mechanism and power structure, which could have ensured sound mechanisms and processes to guarantee stakeholder involvement and the implementation of SHE management practices on the shop floor. The gaps in managing contractor work was just one example; the physical walk-around and site observation actually discovered more areas in which gaps revealed deviation in the implementation of system tools and technical solutions which were typically associated with the "Technique" dimension of SHE management practices. These included gaps in the following: SHE policy, objectives, procedures and system; identification of aspects of SHE and risk assessment; legal compliance, standards and other requirements; operational control and management of emergencies and incidents; audit, monitoring and performance management; non-conformity, corrective/preventive action and continuous improvement. During the walk-around, I saw the clear physical gaps in machinery and facilities. These gaps and their cause were also confirmed by the engineering and maintenance manager, X07, who commented as below:

“We understood there were also big gaps in machinery integrity, which indicated a lack of investment in equipment upgrade and maintenance. The idea that the warehouse used an illegal home-made cargo lift is extremely bad, informing us how crazily people wanted to save investment and sacrifice safety. We had many cases in the plant; for example, the machine guard equipment, the fire-fighting facility, the warehouse racking system, the VOC (volatile organic compounds) control facilities etc. all required investment for their repair, maintenance and upgrade. Every year, I had collected the requests from each department, especially the production and engineering departments and submitted them to the general manager, X01, but in most cases, the annual budget had been reduced and cut, especially for those SHE-related projects.” (X07)

As claimed by the maintenance manager, X07, almost every year, a big part of the SHE investment requested was being shifted for use in business expansion and/or optimization of operations. The big gaps between what was on paper and the shop floor implementation of SHE management practices, as evidenced above, were rooted in the weak ideational and structural variables of corporate governance, which affected leadership behaviour in terms of commitment, strategic planning, decision making and resources allocation, which then affected the implementation of system tools and technical solutions.

There was no substantial behaviour changing programme implemented to drive individual and organizational behaviour changes towards building a positive SHE culture. There was a lack of efforts made in terms of communication, training, promoting awareness of SHE matters, and employee engagement initiatives. The weak ideational variable of corporate governance, with a lack of prosocial value orientation, did not provide the long lasting motivation for the organization to consider the roll out of behaviour changing initiatives in the building of a positive SHE culture. Structurally, the weak governance mechanism and power structure failed to enable any behaviour changing programme towards building a positive SHE culture. There was a lack of structural platform for employees to voice, exchange and formally discuss SHE matters to draw the attention of management. Because there was no functioning safety committee, the committee was combined with the production meetings simply because the production manager was acting as the site SHE manager and did not want to set up another meeting to specifically discuss and review SHE issues.

Meanwhile, the "stakeholder influence" and "transparency and disclosure" components of the structural variable of corporate governance also appeared very weak, which affected the "Technique" and "Behaviour" dimensions of SHE management practices. The trade union was headed by X09, who was X01's sister, reporting to the plant administration manager, X08, and there was no election of employee representatives. When there was a need for an employee representative in the name of discussing some employee-related topic, X09 usually sat in instead of an employee representative. However, X09 could not, in reality, represent shop floor employees due to her identity as a manager and X01's sister. The changes after 2011, in terms of the updated weak prosocial corporate values statement and the family style shareholder-oriented centralized governance mechanism and power structure, intensively drove the business orientation without any reasonable consideration being given to SHE matters. X08, as head of the plant administration, expressed his concerns as below.

"There was a lack of motivation, mechanisms and processes to drive the improvement of a behaviour changing programme towards building a strong SHE culture for the organization. On the contrary, being influenced by the new business-oriented corporate values and weak stakeholder-oriented governance structure of the family business, the behaviours of individuals and the organization were changed more towards a business focus, a customer focus and a market focus. These changes meant communication about SHE, SHE training, and employee SHE engagement activities remained for perception only without actual implementation on the shop floor. There were no functioning platforms for employees and stakeholders to openly discuss SHE matters to drive a bottom up interaction with managers for SHE improvement. And there was a lack of an effective checks and balances mechanism. I felt the SHE climate and culture were getting worse if I compared with the status during 2007-2010. Stakeholder influence, transparency and disclosure, SHE information sharing etc. were very weak." (X08)

The family business governance structure with a combination of shareholding, board governance and general management roles centralized on X01 supported efficient decision making and absolute control over business direction. This had brought certain benefits in terms of business development in the short term when this structure interacted with the strongly business-oriented corporate values. However, it created a big concern regarding "insider control", in which the family business owner, X01, as the dominant controller of company X, operated the company with the intention of maximizing the financial benefit of the business owner but minimizing other stakeholders' interests including employees' SHE-related benefits. X01's wife, X02/X03, held the combined roles of 0.5% shareholder and supervisor of the board. She had almost no structural influence on X01's decisions and exercised no supervision of the board at all, as they were a couple having the same family goal. This "insider control", with no principle-agent mechanism and an impaired checks and balances function indicated the weak stakeholder influence and, to a great extent, failed to support the delivery of stakeholder value. This structure, when interacting with the weak prosocial corporate value orientation, had clear adverse impacts on the implementation of stakeholder-oriented initiatives and SHE management practices.

After X08 sold his 20% share to X00, who then transferred all of his share to his son, X01, a typical family business type of governance structure emerged with control rights centralized on X01. Checks and balances, and monitoring by other stakeholders became very weak. Since X08 was still working as the plant administration manager, and with his previous experience in charge of SHE during 2007-2010, he had tried to advise X01 to implement some substantial SHE management practices, to hire a full-time SHE professional, to empower the SHE function, to not only manage perception and paper work, but to at least manage the major risks with substantial actions. X01 listened but did not take the advice; he understood this but he had his views and his strategy, which supported his plans for business growth in the specific time period of 2011-2017. Other checks and balances, and monitoring mechanisms also largely failed, e.g. the board supervisor, the trade union, the employee representative etc. The plant administration manager, X08, expressed his concerns but felt helpless:

"In the short term, the strongly business-oriented corporate governance practices did support the general manager, X01, to expand the business of the company. However, in the long term, they did not support the sustainable development of the company. In recent years, during 2011-2017, due to the failure in focusing on SHE matters, SHE management practices have further deteriorated with several legacy issues created which required remediation at huge cost. Frankly, I understood why X01 wanted to sell his family business in 2017 by negotiating with ABC Group for a possible deal. When the regulatory regime and legal requirements exerted greater pressure on all companies, a company with big SHE gaps could face huge challenges

ahead, which could have a substantial adverse impact on the business." (X08)

Lack of engagement of stakeholders in the consultation and decision making processes relating to SHE matters, lack of transparency, weak stakeholder influence, the family style of centralized insider control, lack of a checks and balances mechanism etc. contributed to the weak governance mechanism and power structure regarding implementation of SHE management practices, which interacted with the business-oriented weak prosocial corporate value orientation from time to time. Over time, this outcome led to adverse effects on leadership behaviour, decision making, organizational configuration, strategic planning and resources allocation in favour of the implementation of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions. This top down ideational and structural impact on SHE management practices was obviously negative. The causal effects on leadership behaviour spread from the executive director and general manager, to the plant management team and then to employees, which created further chain effects from ideation to behaviour and actions. In the end, the implementation of the "Leadership, Behaviour, Technique" dimensions of SHE management practices deteriorated. The production manager and acting site SHE manager, X05/X06, expressed his feelings regarding this:

"Frankly, I understood the potential negative effects from the family style governance structure and the business-oriented corporate values. As middle management in the company, we had to follow the strategy from the boss, X01. We understood what he wanted and he had communicated clearly with us his ambition and strategy for business growth. As the hired managers, we were measured and paid by a set of KPIs to support the achievement of the business growth, among which there was no substantial SHE improvement KPI. Some tasks relating to SHE, like 'pass ISO certification' and 'no major findings by customer and local authorities' were there, which actually led to the perception management approach from middle management in order to achieve their tasks. Specifically for me, as the key person holding both production manager role and site SHE manager role, I had to figure out how I could meet the targets for both which, to a certain extent, sounded conflicting. Realistically, I could only do my best to maintain the certification and avoid findings from customer audits and local authority inspections, but really did not have enough motivation or resources to focus on substantial implementation of SHE management practices on the shop floor." (X05/X06)

As the APAC regional SHE director of ABC Group, in March 2017 I participated in the due diligence activities for the potential merger and acquisition deal between ABC Group and

Company X. I had quite a few interactions with the company owner, X01, especially regarding the review of the due diligence report, in which huge gaps in SHE management practices were found, with an estimated remediation cost of about €5.47 million. In the end, the gaps in SHE management in Company X became part of the road block to the deal. I understood that X01 had a strong motivation to sell his business and associated facilities to ABC Group. In the subsequent review and discussion after the due diligence in March 2017, and especially when I interviewed X01 again for my research project, he expressed his thoughts as follows:

"Frankly, it was quite a pity that we did not agree a deal with ABC Group. However, after the due diligence, I had a review with my management team of the SHE management status of Company X. We appreciated ABC Group for their efforts in the provision of an objective SHE assessment of our operation and facilities. The view from a foreign company and a potential buyer alerted us and woke us up. When I took over the business and operations of Company X in 2011, I did have an urgent need for business growth in order to maintain our competitiveness in the market in terms of financial performance. I understood that we were not doing enough on the implementation of SHE management practices. However, I did not feel the urgency to make any changes until we had had in-depth contact and interaction with ABC Group. This was a lesson for us. I started realizing that we, as a family business, needed to catch up in competitiveness on non-financial, social performance, especially on the improvement of SHE management practices. Coupled with the much more stringent SHE requirements and greater pressure from various stakeholders, I would need to consider some further changes in our business and operating model by giving more focus to SHE management." (X01)

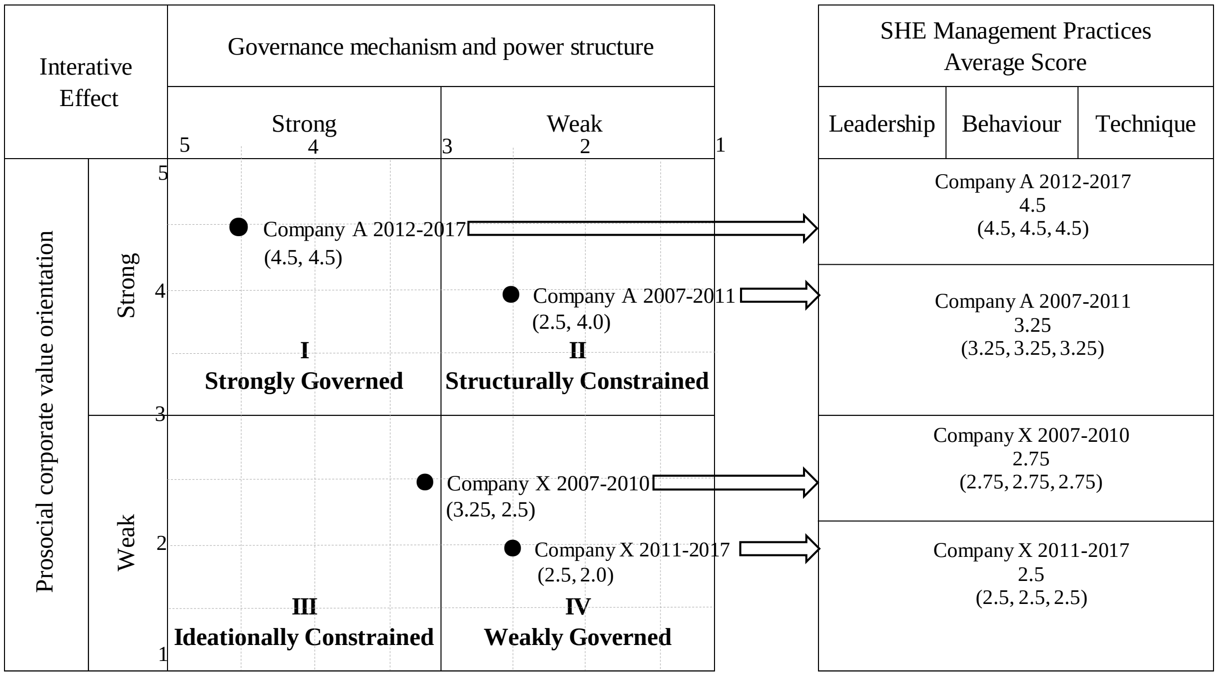
Finally, X01 also realized the adverse impact of the changed structural and ideational variables of corporate governance on SHE management practices during 2011-2017. He mentioned he was considering the next changes to support real sustainable growth of Company X, both financially and non-financially, hoping these changes he was considering to make would be positive for the improvement of SHE management practices in Company X. Theoretically, if the business owner, X01, really realized the importance and value of SHE management and started driving the change of corporate values towards a strong prosocial value orientation, with the centralized family control structure, he should be able to have a quick positive impact on SHE management practices. During the due diligence by ABC Group in March 2017, X01 informed the investigator that he planned to recruit a full-time SHE professional to enhance competency, resources and empowerment of SHE functions. However, in reality this had not happened when the investigators from ABC Group followed up with X01 on the action status in Q2 2017. This proved that changing values was not easy, especially for a private family business during its development and expansion stages. If the corporate values could not change to a strong prosocial orientation and be embedded in the organization, followed with structural changes in governance to guarantee these values changes, then it would not be possible to substantially change the status of SHE management practices in Company X.

I can conclude that, through the document review, interviews and participant observation in Company X during 2011-2017, I have confirmed my argument that the status of SHE management practices and the deterioration of the implementation of the "Leadership, Behaviour, Technique" dimensions during 2011-2017 are attributable to the "Weakly Governed" pattern of corporate governance during that period when both the structural and ideational variables of corporate governance were weak. The changes in the structural and ideational variables of corporate governance in 2011, and the interactions between them during 2011-2017 contributed to the negative causal effects, with impairment of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions in Company X.

6.6 Summary

The causal effects analysis of corporate governance on SHE management practices in different time periods of Company A and Company X has revealed the causal impact of different patterns of corporate governance on SHE management practices. As illustrated in Table 13, there are four patterns of corporate governance that emerged empirically in the four time periods associated with Company A and Company X, with different combinations of structural and ideational variables, which impose the structural impact, ideational influence and interactive effect on SHE management practices and lead to the variations in SHE management practices in terms of "Leadership, Behaviour, Technique" dimensions.

Table 13 Comparative causal effect analysis of patterns of corporate governance on SHE management practices for Company A and Company X



In Company A, the temporal changes in patterns of corporate governance from "Structurally Constrained" in 2007-2011 to "Strongly Governed" in 2012-2017 has causally led to the significant improvement in SHE management practices. The causal effects of the variations in structural and ideational variables, and their interaction on the changes in SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions was substantial and proceeded in a continuous interactive way. The pulse change effects on corporate governance in 2012 and 2015 have led to significant changes in SHE management practices. After each pulse change, the impact continued in an interactive way. The causal effects between temporal change in corporate governance and SHE management practices have been obvious. In Company X, the temporal changes in patterns of corporate governance, from "Ideationally Constrained" in 2007-2010 to "Weakly Governed" in 2011-2017, has causally led to the deterioration in the implementation of SHE management practices. The actual pattern changes observed empirically in Company A and Company X, in both corporate governance and SHE management practices, fully matched the theoretically predicted patterns, as shown in the explanatory framework in Figure 2. The causal nexus between patterns of corporate governance and SHE management practices has been fully supported with the empirical evidence from the case study of Company A and Company X by using pattern matching and logic model techniques. I would conclude that the causal nexus between patterns of corporate governance and SHE management practices has been fully supported by the empirical evidence in the study of Company X with pattern matching and logic model techniques.

Chapter Seven: Conclusion

7.1 Introduction

This chapter summarizes the empirical findings from the research, which provides the theoretical explanation to answer the central research question: “Why do Chinese enterprises differ with regards to their SHE management practices?” and testifies to the proposed theoretical framework. The chapter also discusses the theoretical contributions of this research and the managerial and policy implications. In addition, there is discussion on the limitations of the research and directions for future research.

7.2 Findings

This research has investigated empirical concerns to understand the question: “Why do Chinese enterprises differ with regards to their SHE management practices?” under the overall qualitative orientation of the research strategy with a comparative case study method. The theoretical explanation for the cross-firm variations in SHE management practices starts from a multilevel (i.e. macro-, meso-, micro-levels) approach to examine the most likely extraneous factors which might impact the SHE management practices in Chinese enterprises, which include many external factors such as the SHE regulatory regime, international exposure, sectoral and industrial characteristics, market constraints etc., and some internal factors such as firm size, history etc. A critical evaluation of these extraneous factors with respect to their strengths and weaknesses in explaining why and how Chinese enterprises differ in their SHE management practices has led to the conclusion that these extraneous factors and associated intervening variables could not answer the central research question. Specifically, they could not explain the spatial and temporal variations in SHE management practices between Company A and Company X.

When all the extraneous factors are controlled, or everything else being equal, the internal factors, such as the governance mechanisms, strategic planning and decision making processes etc., which are factors associated with the patterns of corporate governance, appear to be valid explanatory factors to illustrate cross-firm variations in SHE management practices. The literature review has concluded that the existing studies on the causal links between corporate governance, as the independent variable, and SHE management, as the dependent variable, could not provide a comprehensive and integrated explanation of how corporate governance affects SHE management practices. There is no existing study shedding light on the underlying mechanism and processes to understand the causal links for “Why” and “How” corporate governance impacts on SHE management practices. To facilitate the understanding of these causal links, it is essential to develop an explanatory framework (refer to Figure 2) with patterns of corporate governance as explanatory/independent variables and SHE management practices as outcome/dependent variables. The central thrust of this research project is to testify to the proposed explanatory framework, using empirical evidence from the comparative case study of Company A and Company X.

Patterns of corporate governance refer to the consistent distinctive features of corporate governance practices as the integrated explanatory variables, which include not only the explicitly expressed and published corporate governance mechanism and power structure. More importantly, these patterns also include how the governance structure is implicitly deployed with effective mechanisms and processes implemented, in which corporate value orientation, as the ideational variable, plays a vital role in interacting with the corporate governance mechanism and power structure, as the structural variable, to guide corporate strategic planning and decision making with respect to what is important, what is right and how to do it correctly. Introducing the ideational variable and shedding light on the interactive nature of the structural and ideational variables to explore the integrated causal effects of patterns of corporate governance on SHE management practices are the essence of the proposed explanatory framework, which has provided a new theoretical perspective to illustrate the causal links between corporate governance and SHE management.

The corporate governance mechanism and power structure, as a structural variable, along with corporate value orientation, as an ideational variable, are derived from two perspectives describing the interactive nature of corporate governance variables. The two-way interaction and interplay between the structural and ideational variables of corporate governance shown in Figure 2 illustrates the integrated explanatory variables with different patterns of corporate governance emerging as outcomes of different ways in which these variables interact. Four patterns of corporate governance are drawn from this interaction, as illustrated in the 2×2 matrix in Table 3, i.e. “Strongly Governed”, “Structurally Constrained”, “Ideationally Constrained” and “Weakly Governed”. These different patterns of corporate governance, as outcomes of the interactions between the structural and ideational variables, lead to the divergent SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions.

The explanatory mechanism facilitates the understanding of the causal effects of patterns of corporate governance on SHE management practices. Due to the interactive nature of, and lack of absolutely clear demarcation among structure, process and outcome for both variables of patterns of corporate governance and dimensions of SHE management practices, over time the combined causal influence of the structural and ideational variables of corporate governance is sound and logical with integrated effects on all SHE management practices with respect to the “Leadership, Behaviour, Technique” dimensions. The comparative studies, with structured-focused causal effect analysis of the patterns of corporate governance on SHE management practices during different time periods of Company A and Company X, have provided empirical evidence to support my theoretical argument that patterns of corporate governance, with different combinations of and interactions between structural and ideational variables, causally determine the variations in SHE management practices. Thus, the changes in the patterns of corporate governance result in the variations in SHE management practices. As illustrated in Table 13 in Section 6.6, there are four patterns of corporate governance that emerged empirically for the four time periods associated with Company A and Company X, with four propositions of causal effect between patterns of corporate governance and SHE management practices. These propositions are validated by the empirical evidence through elaboration of the structural impact, ideational influence and interactive effect of corporate governance on SHE management practices from the structured-focused comparative analysis of Company A and

Company X.

The first proposition, concerning the causal effect of the “Strongly Governed” pattern of corporate governance on SHE management practices, is validated by the empirical evidence from the case study of the period 2012-2017 in Company A. The significant improvement in SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions during 2012-2017 in Company A was a result of the “Strongly Governed” pattern of corporate governance during that period, when the governance mechanism and power structure, as well as the prosocial corporate value orientation, were both very strong. The “Strongly Governed” pattern of corporate governance with the interaction between the strong structural (rated at 4.5) and the strong ideational (rated at 4.5) variables has had a highly positive and constructive effects on SHE management practices (average score of 4.5).

The second proposition, on the causal effect of the “Weakly Governed” pattern of corporate governance on SHE management practices, is validated by the empirical evidence from the case study of the time period 2011-2017 in Company X. The further deterioration of SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions during 2011-2017 in Company X was caused by the “Weakly Governed” pattern of corporate governance during that period, when the governance mechanism and power structure, as well as the prosocial corporate value orientation, were both very weak. The “Weakly Governed” pattern of corporate governance with the interaction between the weak structural variable (rated at 2.5) and the weak ideational variable (rated at 2.0) has brought merely negative and destructive effects on SHE management practices (average score of 2.5).

The third proposition, about the causal effect of the “Structurally Constrained” pattern of corporate governance on SHE management practices, is validated by the empirical evidence from the case study of the time period 2007-2011 in Company A. The status of, constraints on, and challenges for the implementation of SHE management practices in terms of the “Leadership, Behaviour, Technique” dimensions during the JV time period of 2007-2011 in Company A was attributed to the “Structurally Constrained” pattern of corporate governance during that period, when the relatively strong prosocial corporate value orientation was hindered by the comparatively weak governance mechanism and power structure. The "Structurally Constrained" pattern of corporate governance with the interaction between the comparatively weak structural variable (rated at 2.5) and the relatively strong ideational variable (rated at 4.0) has brought an effect of constraining the implementation of SHE management practices (average score of 3.25).

The fourth proposition, relating to the causal effect of the "Ideationally Constrained" pattern of corporate governance on SHE management practices, is validated by the empirical evidence from the case study of the time period 2007-2010 in Company X. The status of, and limitation on the implementation of SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions during 2007-2010 in Company X was due to the "Ideationally Constrained" pattern of corporate governance during that period, when the comparatively strong governance mechanism and power structure encountered the relatively weak prosocial value orientation. The "Ideationally Constrained" pattern of corporate governance with the interaction between the comparatively strong structural variable (rated at 3.25) and the relatively weak ideational variable (rated at 2.5) has had the effect of limiting the implementation of SHE management practices (average score of 2.75).

In the comparative case study of Company A and Company X, with the "most similar case design" to fix potential extraneous factors and associated external interventions, the explanatory power with respect to the causal effect of the patterns of corporate governance on SHE management practices is strong and solid. Two contrasting patterns of corporate governance, i.e. "Strongly Governed" versus "Weakly Governed", have perfectly explained, from the cross-sectional perspective, the empirical spatial variations in SHE management practices between Company A during 2012-2017 and Company X during 2011-2017. Longitudinally, the evolution of patterns of corporate governance, from "Structurally Constrained" to "Strongly Governed", has accounted for the temporal variations in SHE management practices across the time periods 2007-2011 and 2012-2017 in Company A, in which positive changes in the structural and ideational variables of corporate governance led to the significant improvement in SHE management practices in Company A. In addition, the longitudinal evolution of patterns of corporate governance from “Ideationally Constrained” to “Weakly Governed” in Company X has resulted in the temporal variations in SHE management practices, in which the negative changes in the structural and ideational variables of corporate governance led to the further deterioration of SHE management practices in Company X.

The proposed theoretical explanatory framework, as shown in Figure 2, has been empirically validated by the structured-focused analysis of Company A and Company X through comparative case study, and has been proved as a valid explanatory framework, capable of explaining the spatial and temporal variations in SHE management practices in Chinese enterprises.

7.3 Theoretical Contributions

Given the central research question addressed in this research, the theoretical contributions of the research are obvious and solid, as its purpose, namely to develop and expand theory through qualitative comparative case study, has been achieved. The outcomes of this meaningful research have been an empirically proved theoretical explanatory framework, as shown in Figure 2, and confirmation of a central argument with a set of validated propositions. These results contribute to the current debates and discussions on the organizational and managerial consequences of different patterns of corporate governance and their causal effects on SHE management practices. This closes the gaps in the literature on the study of the causal links, with underlying mechanisms and processes, between patterns of corporate governance and SHE management practices. Especially with the introduction of a theoretically fresh ideational variable of corporate governance alongside the more often discussed structural variable of corporate governance, the new concept of patterns of corporate governance provides a perspective on the interactive nature of both variables of corporate governance which can also serve as an explanatory mechanism to explain other dependent variables beyond SHE management practices.

The theoretical contributions in terms of closing gaps in the literature are based on the following gaps. Most existing studies on corporate governance focus only on the structural variable of corporate governance, i.e. governance mechanism and power structure; very few studies look at the ideational variable of corporate governance, i.e. corporate value orientation. Those that do look at this ideational variable, such as some studies on values systems or values orientation etc., do not regard it as part of the dimensions of corporate governance. Further, there are no studies, at least none that I can find in reviewing the literature, that shed light on the combination and interaction of the structural and ideational variables as two dimensions of corporate governance. All of these gaps in the literature have been filled with this research.

In this research, a comparative framework for SHE management, with the newly proposed “Leadership, Behaviour, Technique” dimensions, derived from literature review and summarized from empirical experiences with input from the network of SHE experts, contributes to an under-researched area (i.e. SHE management practices) with theory building based on the patterns of SHE management practices. This offers a new perspective for those who are interested in the study of, and research on SHE management practices to adopt in their future research. I would conclude that the theoretical contributions of this research are multifaceted.

7.4 Practical Implications

By answering the central research question through a strong grounding in empirical concerns, the findings and practical implications of this meaningful empirical research are significant and highly transferable. The practical implications include both managerial implications and policy implications because the findings provide huge value in terms of learning for both enterprise executives/managers and policy makers in organizational, governmental and social contexts.

The findings from this research can be applied empirically in corporate organizations, in which the learning can be adopted by enterprise executives/managers to improve companies’ corporate governance and SHE management practices. With the validated central argument that patterns of corporate governance with different combinations of structural and ideational variables causally determine variations in SHE management practices, the four empirically testified propositions have informed us that driving companies towards the “Strongly Governed” pattern of corporate governance, with strong structural and ideational variables, is the right direction to go if a company wants to substantially improve its SHE management practices. Enterprises should conduct an assessment of the status of their patterns of corporate governance and SHE management practices. Those companies falling into the “Structurally Constrained”, “Ideationally Constrained” and “Weakly Governed” patterns of corporate governance should define an action plan to enhance either their governance mechanism and power structure, as the structural variable, or their prosocial corporate value orientation, as the ideational variable, or should make changes in both variables. Over time, these positive changes towards the “Strongly Governed” pattern of corporate governance will lead to substantial improvement of SHE management practices.

In the empirical world, the 2×2 matrix, with its four patterns of corporate governance, can be generally applied to assess companies’ patterns of corporate governance through the structured-focused analysis using the set of criteria in Appendix II. Any company can be categorized into one of the four quadrants of the 2×2 matrix. I ran this assessment informally for some other companies, including another four companies which I had tentatively short listed as potential candidates for my case selection together with Company A and Company X. At the same time, I also ran informal assessments on the SHE management practices, using Appendix I, for the same group of companies. Empirically, there were quite good matches between the different patterns of corporate governance and the variations in SHE management practices. It appears that there is generally good applicability for this theoretical framework and the findings from this research.

For company executives/managers, it is not what is said or what is written on paper that determines if the company is complying with the law and standards, but what is really happening on the shop floor. It is the pattern at this level associated with the governance mechanism and prosocial values orientation that account for the status of SHE management practices. In order to substantially improve SHE management practices, company executives/managers should focus on the construction of a sound pattern of corporate governance with strong structural and ideational variables. For those companies with a "Weakly Governed" pattern of corporate governance, there is no doubt that urgent action with a strong remediation plan is needed to prevent the negative and destructive impact on SHE management practices caused by the weak structural and ideational variables of corporate governance. Empirically, the status of too many companies reflects a "Structurally Constrained" or an "Ideationally Constrained" pattern of corporate governance. These companies have the opportunity to move to either the "Strongly Governed" or "Weakly Governed" pattern of corporate governance. The direction of movement depends on how the structural and ideational variables interact and which variable prevails over time. This then provides good hints for companies to navigate the direction of their patterns of corporate governance by allowing them to play around with the ideational and structural variables, managing their interaction, thus clearly guiding the strategic direction of SHE management practices.

For the "Structurally Constrained" pattern of corporate governance, if the strong ideational variable is maintained or enhanced, it will ultimately prevail to raise the level of the structural variable, pushing companies towards the "Strongly Governed" pattern of corporate governance. This mostly happens in JVs during their transition periods. However, in cases in which a strong ideational variable is being hindered seriously by a weak structural variable, there will then be a step by step movement towards the "Weakly Governed" pattern of corporate governance. In these cases, company executives/managers should, as soon as possible, change and improve the structural variable while continuing the enhancement of the ideational variable. For the "Ideationally Constrained" pattern of corporate governance, due to the constraints of a weak ideational variable, there is a danger that companies could easily slip into the "Weakly Governed" pattern of corporate governance if, over time, the ideational variable does not show a positive trend. In these cases, executives/managers should focus on ideation construction and prosocial value internalization, while maintaining the strong structural variable in favour of the implementation of SHE management practices. The change from an "Ideationally Constrained" pattern to a "Strongly Governed" pattern of corporate governance will usually take a long time due to the time required for the internalization of ideation and values.

In addition to the managerial implications as illustrated above, the findings from this research are also very meaningful for policy makers, who can take lessons to improve policies and regulations that support enterprises to improve their corporate governance and SHE management practices. As discussed in this research, the internal mechanisms associated with strategic planning and decision making processes are the determining factors for enterprises in accepting and adopting the external requirements of the regulatory regime, international exposure, industrial and market constraints etc. The current regulatory systems dealing with both corporate governance and SHE management have gaps in terms of effectively addressing the underlying mechanisms of causal links between corporate governance and SHE management practices. This becomes a direction that policy makers can consider when upgrading existing regulations and/or introducing new regulations in order to affect the basis of these underlying internal mechanisms in enterprises. This could be done specifically through some enhanced regulatory regime that could drive and force enterprises to take action to enhance their structural and ideational variables of corporate governance, thus focusing on enhancing their governance mechanism and building prosocial values orientation, as associated with the strategic planning of, and the decision making process for SHE matters. For example, policy makers could set out clear and strict legislation with a normative requirement for enterprises to establish the “Strongly Governed” pattern of corporate governance with strong structural and ideational variables, and could conduct audits on these processes and their functionality, with clear management of the consequences, to be applied to all kinds of enterprises, e.g. state-owned, foreign-invested, private sector including family-run businesses, the various kinds of joint ventures etc. This kind of institutional support from policy makers on the governance of SHE matters would drive enterprises to really be proactive regarding internal mechanisms and processes, rather than simply looking at only the ends and handling issues reactively. This is the meaningful policy implication from the outcome of this research.

7.5 Limitations and Future Directions

The limitations of this research arise primarily from the common weakness of the qualitatively-oriented research strategy for building, developing and expanding theory through comparative case study, specifically the innate limitation on the generalizability of theory, which affects external validity. This innate limitation of the case study approach cannot be totally avoided, but its impact can be minimized through enhancement of the validity and reliability of the investigation and improvement of the quality of the case study. This is addressed with the triangulation setup in various aspects of the research design: data triangulation by using multiple data sources; investigator triangulation among multiple investigators for certain parts of the inquiry; theory triangulation with different perspectives on the same data set; methodological triangulation by adopting various approaches etc. (Patton, 2015). The case study approach does not target the achievement of statistical generalization; rather, it aims to achieve analytical generalization. The transferability of findings, central argument and validated propositions of this study are very good, although we may not be able to generalize the findings as a generally applied theory at the current stage.

Another limitation is the small sample size of cases, with only two companies used and only one industry studied. As explained in the methodology chapter, this is part of the research design to meet the "most similar case design" condition to fix the most of the potentially extraneous factors. However, this limitation is offset with the research design of both cross-sectional analysis and longitudinal study of four time periods for Company A and Company X (two for each), which creates four units of analysis ("mini cases") to enhance the empirical grounding for theory building.

The outcome of this research, with the proven theoretical framework, confirmed central argument and validated propositions, has formed a good foundation for future research in this still under-explored area. The limitations of the research open up opportunities for future researchers, who could use the theoretical framework generated from this research to conduct further studies in other industries or in other settings, through single case study, comparative case study or multiple case studies, to test the theoretical framework. Further, when sufficient data are collected, and with a large enough sample size, a large-n analysis could be run to pursue the statistical generalization of the theory. The directions for future research are clear.

7.6 Summary

To answer the central research question with the analytical objective of seeking theoretical explanation of the causal links between patterns of corporate governance and SHE management practices, a comparative case study of Company A and Company X was conducted to collect the empirical evidence to back up the central theoretical argument.

The empirical case studies of Company A and Company X provide the comparative analysis of spatial and temporal variations in SHE management practices in terms of the "Leadership, Behaviour, Technique" dimensions between the two companies. Focused explanation of the variations in SHE management practices leads to the conclusion that patterns of corporate governance are the valid explanatory factors when all the extraneous factors are controlled. This is supported by the empirical evidence collected from case study of Company A and Company X. The theoretical explanation focuses on how the structural variable (i.e. governance mechanism and power structure) and ideational variable (i.e. corporate value orientation) of corporate governance, and the combination of and interaction between these two variables causally affect the implementation of SHE management practices. A 2×2 matrix is reproduced with four patterns of corporate governance elaborated through empirical evidence from Company A and Company X to prove that changes in patterns of corporate governance have causally led to the spatial and temporal variations in SHE management practices.

As a conclusion, the proposed theoretical explanatory framework has been testified to, with an associated central argument and propositions validated as the answers to the central research question: "Why do Chinese enterprises differ with regards to their SHE management practices?" There is an indication of the theoretical contributions of this research and its managerial and policy implications, as well as discussion on its limitations and on the directions for future research.

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Appendices

Appendix I: Criteria for SHE management practices evaluation and field work evaluation guide

SHE Management Practices Evaluation									
Dimension	**Constitutive Attribute**		**Result**						
Leadership	**1**	**Management commitment and accountability**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**	**Score**	**Comment**
	1.1	Top management defines and endorse SHE policy in line with company's strategic direction, and promote a positive SHE culture.							
	1.2	SHE is given priority by the management, no compromise on SHE for business and operation where there is conflict of interests.							
	1.3	The management always lead by example to follow SHE policy, rules and procedures etc., and actively participate in SHE activities, e.g. safety walk-arounds, safety meetings etc.							
	1.4	Managers are holding SHE accountabilities and the management decision always consider employee's opinions/input relating to working environment, and health safety issues etc.							
	2	**Organizational competency and empowerment**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	2.1	There is dedicated and independent SHE function with competent team members to manage SHE matters. SHE manager is at high rank and empowered with independent SHE leadership providing strong influence on decision making.							
	2.2	Line management at different levels are equipped with necessary skill sets to understand SHE issues and is empowered to implement SHE rules and procedures in the areas of their responsibilities.							
	2.3	Non-managerial employees and workers can refuse to do something unsafe and raise concerns, and are empowered to take actions in their areas of responsibilities to prevent incidents.							
	2.4	There is SHE leadership programme designated to improve the SHE leadership at all levels of management in the organization, the program is run in regular basis.							
	3	**Resources and investment**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	3.1	Management ensures the availability of resources essential to implement SHE management system, resources include human resources, infrastructure, technology and financial resources etc.							
	3.2	With leadership support, SHE investment can be obtained to close identified gaps against established standards, especially for life critical and compliance related SHE issues.							
	3.3	As part of annual budget planning, SHE investment budget is planned and reviewed by management every year for next year's SHE improvement projects, this is endorsed by leadership.							
	3.4	Investment on sustainability projects (e.g. energy, water and waste reduction) and SHE related technology upgrade is supported by leadership.							
Behaviour	**4**	**Employee engagement and responsibility**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**	**Score**	**Comment**
	4.1	Employees are responsible for his/her own safety behaviour, and taking care of others by offering reminder and help on SHE related issues.							
	4.2	Employees are provided with timely access to clear, understandable and relevant information about SHE management system and practices.							
	4.3	Operators are involved in SHE related matters, e.g. performing risk assessment, developing work instructions, attending SHE meetings etc.							
	4.4	Employees are actively involved in provision of opinions/inputs relating to working environment, and health safety issues etc.							
	5	**Communication, training and awareness promotion**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	5.1	Open communication top down and bottom up in workplaces, meetings and events etc. provide opportunities to discuss and deal with SHE issues effectively.							
	5.2	There are adequate communication on SHE matters to internal stakeholders and external interested parties.							
	5.3	All people including management and operators are given adequate SHE training to keep their competency to perform their work safely.							
	5.4	There are regular SHE awareness promotion activities conducted in the company, e.g. Safety Day, SHE workshop, SHE campaign etc.							
	6	**Behaviour-based safety programme**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	6.1	Company implements a behaviour-based safety programme as an approach that supports existing safety management processes, with effective outcome.							
	6.2	Behaviour-based safety programme helps to shape people's values, beliefs, attitudes and behaviour changes in long run, gaining commitment from top and engagement from bottom.							
	6.3	Behaviour-based safety programme involves everyone in SHE improvement with focus on encouraging safe behaviour and addressing at risk behaviour.							
	6.4	Behaviour-based safety programme engages employees and workers to refuse to do something unsafe and raise concerns, thus enhance open discussion on SHE issues to prevent incidents.							

Technique	7	**SHE policy, objectives, procedures and system**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**	**Score**	**Comment**
	7.1	SHE policy in written is appropriate to the nature of business and operations, and is adhered to.							
	7.2	SHE Objectives are set to achieve specific results consistent with the SHE policy.							
	7.3	Rules, procedures and work instructions are established as part of SHE management system to support managing OHS hazards and environmental aspects, and are enforced on floor.							
	7.4	SHE management system is certified to ISO 14001 and ISO 45001 (OHSAS 18001) and reviewed internally for continuous improvement at least in annual basis.							
	8	**Identification of aspects of SHE and risk assessment**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	8.1	The environmental aspects/OHS hazards identification is adequate to the nature of operation and up to date by capturing the changes in a timely manner.							
	8.2	Risk assessment technique and methodology are established and used to catch operation risk related to OHS hazards and environmental aspects.							
	8.3	The results of environmental aspects/OHS hazards identification and risk assessment are used to determine controls or consider changes to existing controls to reduce risks.							
	8.4	Trained and qualified persons from relevant functions and work streams are involved in the process of environmental aspects/OHS hazards identification and risk assessment.							
	9	**Legal compliance, standards and other requirements**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	9.1	The business and operations meet legal requirement, industrial standards and other SHE requirements (e.g. customer requirement etc.)							
	9.2	The operation always maintains valid and up to date permits, licenses and approval etc.							
	9.3	New projects, expansion projects and other projects comply with legal requirement on project permits, licenses and approval as needed in different project phases.							
	9.4	Obtaining permits, license and handling violation of permit requirement follow government required process, but not rely on relationship with relevant authority officers or "Guanxi".							
	10	**Operational control and management of emergencies and incidents**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	10	Operation controls in following hierarchy are implemented to ensure system technical integrity and to manage the identified SHE risks: a) elimination; b) substitution; c) engineering controls; d) signage/warnings and/or administrative controls; e) personal protective equipment etc.							
	10	Management of change is considered as part of operation control strategy to manage SHE risks associated with changes in business and operations.							
	10	An adequate emergency preparedness and response programme is maintained up to date with regular testing and drills conducted to verify the effectiveness.							
	10	An adequate incident management programme is implemented to ensure incident notification, reporting, investigation and corrective/preventive actions are done properly.							
	11	**Audit, monitoring and performance management**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	11	Inspection, checking and internal audit are conducted on a regular basis to monitor the effective implementation of SHE programme internally.							
	11	External audit 3rd party audits are implemented on a regular basis to ensure an independent evaluation and monitoring of SHE management effectiveness.							
	11	SHE performance and the objectives, targets, KPI etc. are reviewed at different levels of management.							
	11	Incentive plan and disciplinary measures are considered as part of SHE performance management strategy.							
	12	**Non-conformity, corrective/preventive action and continuous improvement**	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**		
	12	Major non-conformity always receive immediate attention from top management.							
	12	Non-conformity is investigated and followed up with corrective action and preventive action plan, effectiveness check of actions are reviewed.							
	12	Necessary resources both financial and technical are provided to ensure the implementation of corrective and preventive actions.							
	12	Gaps identified in management reviews are closed in a timely manner with actions defined to pursue continuous improvement.							
Average Score									

The criteria for SHE management practices evaluation contains three analytical dimensions, "Leadership, Behaviour, Technique", and twelve associated constitutive attributes, which represent the twelve corresponding key elements of SHE management. The "Leadership" dimension contains three constitutive attributes, which represent three elements of SHE management practices: management commitment and accountability; organizational competency and empowerment; resources and investment. The "Behaviour" dimension contains three constitutive attributes, which represent three elements of SHE management practices: employee engagement and responsibility; communication, training and awareness promotion; behaviour-based safety programme. The "Technique" dimension contains six constitutive attributes, which represent six elements of SHE management practices: SHE policy, objectives, procedures and system; identification of aspects of SHE and risk assessment; legal compliance, standards and other requirements; operational control and management of emergencies and incidents; audit, monitoring and performance management; non-conformity, corrective/preventive action and continuous improvement. This is a comprehensive guide for field work evaluation of SHE management practices, which researchers and/or evaluators can use to conduct semi-structured interviews, structured-focused questionnaires, document reviews, and observation to verify the extent to which the existing SHE management practices of a company have met the requirements. There are four statements designed to describe each constitutive attribute, and thus to describe the status of the implementation of the corresponding element of SHE management practices. Below is a brief description of each constitutive attribute and corresponding element of SHE management practices, so that evaluators have a baseline and criteria against which to assess. Scores and comments are given accordingly to each constitutive attribute to rate the degree of agreement with each statement, from "Strongly Agree" to "Strong Disagree" with corresponding quantitative score, and the results with averaged scores being documented on the accompanying form, which is provided to the researcher or reviewer to further evaluate the status and trend of the three "Leadership, Behaviour, Technique" dimensions of SHE management practices in a company.

1. **Management commitment and accountability:** Top down commitment from management and their accountability are vital to the success of SHE management. To

demonstrate leadership and commitment, there are specific responsibilities related to SHE management, in which top management should be personally involved or should provide direction. Top management should demonstrate, by example, their commitment by being visible in initiatives taken for the continual improvement of SHE management. Top management may delegate responsibility for these actions to other competent persons, but it remains accountable for ensuring the actions are performed. SHE management should be given priority by the management and there should be no compromise on safety, health and environmental protection for the business and operations when there is a conflict of interests. A visible SHE leadership should be demonstrated by management through their always leading by example in following SHE policy, rules and procedures etc., and in actively participating in SHE activities and "walking the talk", e.g. safety walk-arounds, safety meetings etc. Top management should develop, lead and promote a positive SHE culture in the organization that supports the implementation of SHE management practices and systems. SHE leadership is not limited to the top management and SHE managers, but is an essential quality requirement for all line managers and people at all levels, so there should be a dedicated SHE leadership development programme which would support the building and sustaining of the organization's SHE leadership. SHE leadership can be more easily detected in the decision making processes with respect to the integration of SHE management requirements into the organization's business processes, especially when there is conflict of interests. To evaluate this constitutive attribute, the record of participation from top management in safety meetings, safety walk-arounds, safety inspections, training and other SHE-related activities, the meeting minutes for decisions on SHE matters, the policy and procedures with a signature from top management, the letter of "SHE duty delegation" etc. shall be obtained. Further, face to face interviews with top management shall be conducted to verify if what they say matches what they do. This is a good way to double check with employees at all levels to gain their feedback on the top management's fulfilment of their SHE duties, commitment and accountability.

2. **Organizational competency and empowerment:** Organizational competency refers to the overall competency of an organization in terms of continuous improvement in safety,

health and environmental management through the effective implementation of SHE management systems and practices. Organizational competency includes the competency of persons at all levels working under the organization's control, who should be equipped with the required knowledge and skills to properly address the hazards and SHE risks associated with their work and workplace, and should be empowered to fulfil the responsibilities defined by their roles, and to take decisions and actions to manage risks through implementing the SHE management system. Education, training, qualifications and experience could contribute to the development of competency from the perspective of ability and capability to do a job. However, competency also includes motivation and self-knowledge being associated with a set of individual performance behaviours and individual characteristics, which result in the job being done effectively. To implement an effective SHE management system, a dedicated and independent SHE function, with competent team members, to manage SHE matters is essential. The SHE manager should be of a high rank, or be at least reasonably positioned in the organization, and the SHE team should be empowered to manage SHE matters with the necessary authority. Line management at different levels should be equipped with the necessary skill sets to understand SHE issues and should be empowered to implement SHE rules and procedures in the areas of their responsibilities. The same applies to non-managerial employees and workers, who should be competent in what they are doing, should be entitled to the right to refuse to do something unsafe, and should be willing to raise concerns. They should also be empowered to take actions in their areas of responsibilities to prevent incidents. To have an assessment of this constitutive attribute, the evaluator shall acquire a copy of the company's organization chart, especially the SHE organization chart, shall also understand the education background and professional SHE training status of the management team and the SHE team, and shall further verify findings with interviews and observations to check the practical SHE management skills in key positions, to see how people understand and handle daily SHE routine work, actions in emergency responses etc.

3. **Resources and investment:** Management should ensure the availability of the resources that are essential to effectively implement and improve SHE management systems.

Resources include human resources, natural resources, infrastructure, technology and financial resources. Human resources include sufficient manpower with adequate competency and specialized skills and knowledge, such as a dedicated SHE professional team, engineering team etc. Infrastructure resources include the organization's buildings, facilities, equipment, utilities etc. Technological resources include know-how, intellectual property, expertise etc. that can be turned to productivity or used to solve technical problems. Financial resources refer to the money allocated to SHE-related activities, including the annual budget, investment etc. It is essential to afford robust SHE management, with the necessary SHE investment obtained to close gaps that are identified against the established standards during audit or self-assessment. SHE investment is critical, especially for the remediation of life critical and compliance-related SHE issues. Normal plant investment is also important in maintaining safe production including the upgrade of the infrastructure. We have often seen how some manufacturing plants are run down to the ground without investment, which then leads to safety incidents. As part of annual budget planning, a SHE investment budget and an engineering maintenance budget for SHE-related equipment should be planned every year. Money should be reserved for the following year's SHE improvement projects. The ultimate use of the budget for SHE investment is best monitored by the SHE department to ensure the dedicated funds are not being used somewhere else for other purposes. The SHE manager should have the authority for final approval of SHE investment projects. The organization should also consider investment on sustainability projects, e.g. energy, water and waste reduction and social progress projects. To evaluate the resources and investment that a company puts into SHE management, the annual budgeting plan shall be reviewed to see if there is a dedicated SHE investment budget to maintain the plant operation. There is also a need to check project investment to see if an adequate SHE budget is part of the investment. Further, the investment on building SHE competency shall be reviewed, including provision of an adequate number of SHE professionals in the organization, the investment on routine SHE awareness promotion activities etc. It would also be good to check some of the meeting minutes related to decision making on allocation of resources and investment to see if SHE has been ignored or not. Finally, always talk to people to see how they feel about the investment and resources the company provide to enhance SHE management.

4. **Employee engagement and responsibility:** Employee involvement in SHE matters should happen at all levels of an organization with a clear understanding and fulfilment of individuals' roles and responsibilities in relation to the implementation of SHE management practices and systems. Individually, SHE responsibility is usually clearly defined in job descriptions or in specific documents for allocating and communicating roles and responsibilities. Employees, including the shop floor operators, should be involved in SHE matters and should be encouraged to provide opinions/input, e.g. conducting risk assessments, developing work instructions, attending SHE meetings etc. Employees' representatives or trade union representatives, in order to contribute to the decision making process and to protect employees' interests and welfare, should be encouraged to participate in management meetings where management decisions are expected to consider employees' opinions/input relating to the working environment, to health and safety issues etc. There should be an effective upward communication mechanism to ensure management receive concerns from workers and suggestions for improvement of SHE management. Employees should be provided with timely access to clear, understandable and relevant information about SHE management systems and practices. Channels should be open to encourage the engagement of employees. This engagement in return enhances employees' ownership and individual responsibility towards SHE management. An effective way to assess this constitutive attribute is to have more interviews with employees, to find out how they understand SHE management and their duties, how they rate the SHE management of the company, and if they can actively speak out or not. With this, the evaluator could detect the SHE culture of the company as reflected by the engagement and participation of employees. Training records for each employee should be reviewed, and minutes of SHE management meetings should be obtained to find out if the employees' representatives are present and if employees' interests and welfare topics are being discussed.

5. **Communication, training and awareness promotion:** Communication on SHE matters should provide a flow of information upwards, downwards and horizontally within the

organization. This should include information related to: OHS hazards and environmental aspects; SHE policy, objectives and performance; incidents/accidents and lessons; roles and responsibilities; compliance obligations and status; continuous improvement plans etc. Communication should ultimately cover all elements of the SHE management system. SHE communication can take place through various approaches, whichever are suitable and effective for the scenario and target persons. It can come via SHE management meetings, town hall meetings, incident and near miss reporting, training, emails, bulletins, signs and posters, face to face discussion, team talks, awareness promotion events etc. An organization should have open and transparent communication from top down and bottom up in its workplaces, meetings, events etc., where opportunities are provided for people to be informed of what is happening, to discuss SHE topics freely, and to offer their opinions/input for SHE improvement. Organizations should consider adequate communication on SHE matters not only for internal stakeholders, but also for external interested parties. A strategy for communication with the most appropriate levels and extent of detail, as well as approaches to communication with the public and certain groups or individual interested parties, should be considered to ensure effectiveness. Training is considered as one of the essential approaches to build competency and also serves as a formal means of communicating knowledge and skills to people who need it for their jobs. Training should be done in a timely and systematic manner with comprehensive content and agendas. It should be appropriate and effective and should be based on the training needs of individuals. Everyone, including management and operators, should be given adequate SHE training to maintain their competency for performing their work safely. One of the purposes of SHE communication and SHE training is to raise and sustain the SHE awareness of the organization and the people working within it, and thus their ability to directly know, perceive, feel, be conscious of, or be cognizant of SHE-related events. To enhance this awareness, it is necessary for the organization to organize regular SHE awareness promotion activities, e.g. Safety Day, SHE workshops, SHE campaigns etc., which can be related to specific SHE topics. To evaluate this constitutive attribute, records of SHE training, SHE management workshops, SHE campaigns, SHE promotion, SHE communication etc. are key documents to be reviewed. Interviews shall be conducted to verify the effectiveness of SHE communication, training and awareness promotion activities, and to obtain feedback from employees.

6. **Behaviour-based safety programme:** Behaviour-based safety programmes have been successfully applied in the industrial setting to reduce unsafe acts, and hence reduce workplace accidents and injuries. They focus on intervention on observable behaviour, and directing and motivating managers and workers through “activators” and “consequences” by following the activator-behaviour-consequence (ABC) principle (Geller, 2000a). The behaviour-based safety programme is a process of involving everyone in SHE improvement with top down commitment from the leadership and bottom up engagement from the shop floor. It is a process that addresses risky behaviour, as a factor that causes most injuries, through engaging people in conducting job observation and safety dialogue. Has the company introduced this programme as an approach to support existing SHE management processes and to drive behaviour change? Has the programme achieved its desired effects with a positive outcome, such as increased engagement from the bottom up, with enhanced support from the top down? Are more unsafe acts and unsafe conditions being reported and openly discussed for improvement, and are fewer accidents and injuries occurring? Are there trends of more positive than negative observations as time goes on? Do people tend to take care of each other, working in a self-directed work team approach (SDWT), rather than working under close supervision? These are points to check for the status of implementation of behaviour-based safety programme and its effectiveness. To evaluate how a company implements a behaviour-based safety programme, firstly the evaluator shall obtain a copy of the procedure or process describing the steps in the implementation of the behaviour-based safety programme. Secondly, the evaluator shall obtain the record of safety observations as a key part of the behaviour-based safety programme to see the status of engagement from all levels of employees in the organization in this programme. Thirdly, interviews with managers and employees shall be held to evaluate the effectiveness of the programme, coupled with some on site observations.

7. **SHE policy, objectives, procedures and system:** SHE policy is a set of principles, stated

as commitments, in which top management outlines the intentions and long term direction of the organization to support, enhance and continually improve its safety, health and environmental performance. The SHE policy should be appropriate to the nature and scale of risks that have been identified relating to safety, health and environmental aspects of operations and business. The organization should put objectives, rules, procedures and a management system in place to define, document and endorse its SHE policy. The objectives are the results to be achieved, which can be strategic, tactical or operational, as related to safety, health and environmental goals. The rules, procedures and SHE management system are established to support the management of OHS hazards and environmental aspects in order to achieve the objectives. These should be enforced on the shop floor and not just on paper. It is preferred that policy, objectives, procedures and system are in writing, but it is not mandatory for everything to be written. It is more important that they are implemented and are effective. The effectiveness of policy, procedures and system are reflected in the continuous improvement of SHE performance, and reduction in safety, health and environmental risks related to the operations and business. Effectiveness can also be detected from the behaviour of people in the organization at all levels. People are expected to actively participate, understand and embrace SHE, and treat SHE as an integrated part of daily activities and decision making. The organization should seek certification of its SHE management system against international standards, such as ISO 14001 and OHSAS 18001 (ISO/DIS 45001), and the system should be reviewed internally for continuous improvement on a regular basis, at least annually, as a common practice. To evaluate this constitutive attribute, a copy of the set of written policy, objectives, rules, procedures and management system shall be reviewed to see if the content is appropriate to meet the requirement of a SHE management system. The evaluator shall also check how the policy, objectives, rules, procedures and management system are implemented through checking relevant records, conducting field observation and interviews etc.

8. **Identification of aspects of SHE and risk assessment:** Aspects of SHE refer to OHS hazards and environmental aspects associated with the organization's activities, products,

services and workplaces, which should be adequately identified according to the nature of the operation. The identification of aspects of SHE should take into account, but is not limited to, routine and non-routine activities and situations, emergency situations, incidents, actual and proposed changes associated with a product, processes, infrastructure, human factors etc. Identification of aspects of SHE should begin at the conceptual design stage of any new workplace, facility, product or organization. It should then be an ongoing initiative during the project or plant's life cycle to reflect current, changing and future activities. Aspects of SHE should be captured in a timely manner, maintained up to date, assessed regarding their impacts, prioritized for implementation of control measures to manage the risk down to a level that is as low as is reasonably practical. Risk assessment techniques, methodologies and tools should be comprehensively established and used to capture the SHE risk associated with the business and operations. Typical risk assessment tools include workplace risk assessment, process risk assessment, job safety analysis, chemical risk assessment and other specific subject matter risk assessments. The outcome of the identification of aspects of SHE and risk assessment provide the basis for implementation of SHE management practices. This is usually recognized as a risk-based approach SHE management to determine the appropriate and most effective controls over the existing processes, products, services etc. This applies to the "management of change" process in enhancing SHE management at work by minimizing the introduction of new OHS hazards or environmental aspects/impacts to the workplace and/or people when changes occur. Risks to be managed could be due to changes in technology, equipment, facilities, raw material, formulas, work practices, procedures, design specifications, staffing plans, standards, regulations etc. It is essential that trained and qualified persons from relevant functions and work streams are involved in the processes of identifying aspects of SHE and risk assessment. This should include the persons carrying out the activities or doing the actual jobs, such as operators and shop floor workers. To evaluate this constitutive attribute, the evaluator shall obtain the procedure and process of hazard identification and risk assessment to understand the methodology, and review the working of hazard identification and risk assessment to judge if they have full coverage of processes, installations and activities. Finally, the evaluator shall conduct a sample check of the quality of the hazard identification and risk assessment, supported by interviews and field observation.

9. **Legal compliance, standards and other requirements:** The organization should establish and maintain arrangements to ensure identification and access to all of the current and emerging legal and other requirements, standards and guidance that are applicable to the OHS hazards and aspects of environmental protection that are associated with its activities. Legal requirements include legislation, decrees and directives, orders issued by regulators, permits, licenses or other forms of authorization. Other requirements include the organization's own requirements, its customers' requirements, contractual conditions, agreements with employees, authorities and other stakeholders. Standards include international, national and industrial standards, codes of practices and technical specifications. Business and operations should ensure they meet these legal requirements, standards and other SHE requirements. This is critical to always maintaining valid and up to date permits, licences and approvals to ensure compliance by business and operations. This is especially the case for new projects, expansion projects and other projects, for which the process of complying with legal requirements in terms of project permits, licenses and approvals for different project phases is complicated but absolutely necessary. It is also important for organizations to follow the processes required by government in applying for, and obtaining permits and licenses, and in handling violations, rather than seeking short cuts or relying on illegitimate relationships, or "guanxi", with the relevant authorities, because that will usually compromise the compliance requirements and lead to irregularity in permit processes. Organizations should establish, implement and maintain a process for conducting regular reviews and evaluations of compliance with all legal requirements, standards and other SHE requirements. To conduct the assessment of this constitutive attribute, the evaluator shall understand the company's process for identifying the legal and other requirements, and the process for ensuring compliance. In addition, the list of applicable legal regulations focusing on SHE-related permits, licenses and approvals should be obtained, and the level of compliance should be checked through document review and interviews of persons in charge. The assessment shall also cover relevant standards and other requirements maintained by the company, for which there shall be an

updated list for the evaluator to review.

10. **Operational control and management of emergencies and incidents:** The organization should establish, implement, control and maintain the processes and criteria needed to meet the requirements of the SHE management system, which covers not only the organization's own activities, workplaces and employees, but also those of contractors, visitors, and affected internal and external stakeholders. The type and extent of operational control depend on the nature of the business and operations, the risks and opportunities, OHS hazards and environmental aspects, and compliance obligations. The organization has the flexibility to select the types of operational control, individually or in combination, that are necessary to ensure these processes are effective. The following hierarchy should usually be followed to manage SHE risks: a) eliminate the hazards; b) substitute with less hazardous material, processes, operations or equipment, or those with less adverse SHE impacts; c) implement engineering controls to achieve intrinsic protection; d) use administrative controls, e.g. signage/warnings or procedures; e) provide and ensure use of adequate personal protective equipment etc. Management of change should be considered as part of the operational control strategy to manage SHE risks associated with changes in business and operations. This includes changes, such as those in technology, equipment, facilities, raw materials, formulas, working practices, procedures, design specifications, staffing plans, standards, regulations etc. Occurrence of emergencies and incidents/accidents should also be considered within the scope of operational control. It is the responsibility of an organization to ensure an adequate state of preparedness for emergencies and that a response programme is established, implemented and maintained up to date, with regular testing and drills conducted to verify its effectiveness, so that emergency situations are managed in a manner appropriate to the organization's particular needs. An organization should establish and implement an adequate incident management programme to ensure incident/accident notification, reporting and investigation, and that actions are taken properly and in a timely manner. To evaluate this constitutive attribute, a company's operation control procedures, work instructions, incident management and emergency response procedures shall be checked to see if they are in place. Field work

shall be done together with interviews of managers and employees to verify the implementation of these procedures. Evidence shall be obtained through checking the operation scenario, emergency scenario, incident cases and changes to judge if the actual control and management match the processes described in the procedures.

11. **Audit, monitoring and performance management:** Audit is a systematic, independent and documented process for obtaining evidence and evaluating it objectively to establish the extent to which relevant criteria are fulfilled. In SHE audits, the audit criteria are a set of requirements as defined in the SHE management system. SHE audits include formal external third party audits, internal systematic audits, focused or random inspections and checks etc., all of which serve as tools to monitor the compliance level of SHE management system implementation and to determine the status of a system, a process or an activity. Inspection, checking and internal audit should be conducted on a regular basis to monitor the effective implementation of SHE programmes internally. External third party audit should be organized on a regular basis to ensure an independent evaluation of SHE management effectiveness. Many enterprises now adopt ISO 14001 and OHSAS 18001 (ISO/DIS 45001), and pursue ISO certification. Regular third party certification audit is then a must for maintaining such certificates. Audit and monitoring are important parts of performance management, offering the input for management review and performance evaluation. Performance refers to measurable results. SHE performance, with its objectives, targets and key performance indicators (KPIs), should be reviewed in management meetings at different levels. SHE performance indicators include lagging indicators and leading indicators. Lagging indicators measure outcomes, e.g. lost time injury rate (LTIR), number of process safety incidents, number of environmental incidents etc., while leading indicators measure the actions taken in terms of incident prevention and performance improvement, e.g. number of inspections done, training hours, closure rate for actions etc. Incentive plans and disciplinary measures are considered as part of SHE performance management strategy. Management reviews by top management should be organized at planned intervals to ensure that all aspects of the SHE management system are reviewed, and that their continuing sustainability, adequacy and effectiveness are assured. To conduct

the assessment of this constitutive attribute, the evaluator shall understand the audit, monitoring and performance management process through the relevant procedures, obtain samples of audit reports, performance review reports and meeting minutes, and check the actual processes against the written procedures. The evaluator shall also conduct interviews and field checks to collect evidence to verify the degree to which the audit, monitoring and performance management processes have been implemented.

12. **Non-conformity, corrective/preventive action and continuous improvement:** Non-conformity is non-fulfilment of a requirement, a deviation from a specification, standard or expectation. In SHE management systems, non-conformities are classified into different categories according to the degree of deviation and the potential consequences, e.g. major non-conformity, non-conformity, observation etc. A non-conformity identified in daily observation, self-assessment, audit, incidents etc. should be treated seriously. The organization should react to it in a timely manner by taking immediate action to control and correct it, and to deal with the consequences, while a major non-conformity should receive immediate attention from top management. All non-conformities should be evaluated with the participation of relevant interested parties, especially the workers on the shop floor who are most closely involved, to determine the causes and if similar non-conformities exist or could potentially occur. Corrective and preventive actions should be implemented to prevent possible recurrence of the non-conformity, and this should be followed up with checking and reviewing the effectiveness of such actions after their implementation. This requires an organization to provide necessary resources, both financial and technical, to implement effective corrective and preventive actions. Non-conformities, for which action has been taken and lessons have been learnt, may trigger changes to the SHE management system, if necessary, in order to achieve systematic prevention and improvement. One of the key purposes of a robust SHE management system is to act as a tool for prevention and improvement. The gaps identified in management review of the system should be closed by taking action, with the review triggering the next cycle of continuous improvement. To evaluate this constitutive attribute, non-conformity reports, the corrective/preventive action plan and the continuous improvement plan shall

be obtained from the company for the evaluator to conduct sample checks against the established processes. The evaluator shall also check the effectiveness of the non-conformity management and corrective/preventive action management processes through examining the resources allocated to support the continuous improvement of SHE management. The evaluation will also need to involve field observation and interviews of relevant managers and employees.

Appendix II Guide for comparative analysis of patterns of corporate governance and the effects on SHE management practices

______________ Name: _________________ Positions: _______________

This guide includes two parts. Part I is the semi-structured interview guide for cross-sectional and longitudinal studies of Company A and Company X. Part II is the structured-focused questionnaire to provide measurement of patterns of corporate governance.

Part I Semi-structured interview guide:

- Could you share your understanding of your company's corporate values?
- Do you think your company's corporate value orientation is strongly prosocial and takes into consideration stakeholders' interests, or is it weakly prosocial, considering shareholders' interests in value maximization alone, or at least more than stakeholders' interests? Why do you think so?
- Do you think your company's core values are ingrained and will not be easily changed? Do you really see people living with these values? Why?
- What factors do you think will influence these corporate values?
- Could you tell me your knowledge of the links and interactions between corporate values and corporate governance structure?
- Could you share your understanding of corporate governance practices, especially their internal mechanism, in your company?
- What is the ownership structure of your company? And how is control exercised to ensure managers act according to the owner's will and on the right track?
- What are the board structure, board composition and other considerations in the setup of the board of directors? Does this setup work well for your company? If yes, why? And if not, why not?
- How are stakeholders' interests being protected and their rights respected? What initiatives are taken by the company to ensure stakeholders' influence, and especially workers' interests and participation, in the decision making processes?
- How will you assess your company's performance regarding honesty, transparency and

disclosure?

- Overall, do you think your company's corporate governance structure is well developed? Which area can the company do better in?
- Do you think corporate value orientation and corporate governance structure have a joint integrated impact on SHE management practices? Could you share more about your views on the mechanism and underlying processes that explain these causal effects?
- Could you recall the changes you have experienced in the corporate governance structure, corporate value orientation, people's mind sets and behaviour, as well as the changes in SHE management practices in your company? Specifically, before and after any major events since 2007 until now, were there any major activities and socialization processes that you think have had an impact?
- Could you share some examples or concrete cases you have experienced? In your opinion, do you agree that there are causal effect patterns between corporate governance and SHE management practices over time? What is your justification?

Part II Structured-focused questionnaires:

Patterns of Corporate Governance									
Analytical Dimension			**Result**						
Ideational variables: Corporate value orientation	**Prosocial values**		**High (5)**	**Considerable (4)**	**Some (3)**	**Limited (2)**	**Low (1)**	**Score**	**Comment**
	1	The extent to which prosocial values are reflected in the vision and strategy of the company.							
	2	The extent to which prosocial values influence the formulation of organizational goals.							
	3	The extent to which prosocial values shape the attitudes and behaviour of key stakeholders.							
	4	The extent to which prosocial values are given priority in the development of SHE management practices.							
Average Score									
Structural variables: Governance mechanism and power structure	**1**	**Ownership structure and control**	**High (5)**	**Considerable (4)**	**Some (3)**	**Limited (2)**	**Low (1)**	**Score**	**Comment**
	1.1	The degree to which corporate ownerhship is concentrated in the hands of a few persons.							
	1.2	The degree to which owners exercise actual control on issues in regard to employee interests and SHE matters.							
	2	**The board of directors**	**High (5)**	**Considerable (4)**	**Some (3)**	**Limited (2)**	**Low (1)**		
	2.1	The degree to which members of the board of directors with pro-employee interests are fully represented in the board decision making processes.							
	2.2	The degree to which the supervisory board exert influence over board decision making on SHE matters.							
	3	**Stakeholder influence**	**High (5)**	**Considerable (4)**	**Some (3)**	**Limited (2)**	**Low (1)**		
	3.1	The degree to which employees are well organized to project their interests in the corporate decision making processes.							
	3.2	The degree to which the trade union plays its role in the corporate decision making processes.							
	4	**Transparency and disclosure**	**High (5)**	**Considerable (4)**	**Some (3)**	**Limited (2)**	**Low (1)**		
	4.1	The degree to which information on SHE management practices is communicated between managers and employees.							
	4.2	The degree to which information on SHE management practices is disclosed to governmental regulators, customers and communities.							
Overall Assessment									

Appendix III Participant Information Sheet

NB: the information described in this template should be adapted, where necessary, for children, adults with learning difficulties or non-English language speakers. If applicable, alternative means of providing the same information through a different medium should be described.

Corporate Governance and SHE Management: A Comparative Analysis of Chinese Enterprises

Participant Information Sheet

You are being invited to take part in a research study [as part of a student project – participants should be told about the overall aim of the research and whether it will be for a degree]. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

Who will conduct the research?

Mr. Hong Zhi Zhang, a DBA (Doctor of Business Administration) student from Manchester Business School, University of Manchester, Oxford Road, Manchester, M13 9PL

Title of the Research

Corporate Governance and SHE Management: A Comparative Analysis of Chinese Enterprises

What is the aim of the research?

This research project aims at exploratory comparative study of the causal links between patterns of corporate governance and SHE (Safety Health Environmental) management practices in Chinese enterprises, with a focus on the study of the underlying mechanism and process to understand the causal links in why and how the corporate governance impacts SHE management practices in terms of policy, structure, practices, outcome etc. This is a DBA research project for a DBA degree.

Why have I been chosen?

The research will be conducted involving comparative case studies, data collection through documentation review, record review, elite interview etc. Relevant participants are selected from those key positions relating to corporate governance and SHE management in an organization, e.g. chairman of the board, board members, supervisor of the board, general manager, SHE manager, production manager, engineering/maintenance manager, quality manager, head of the trade union, selected employee representative etc. They are all identified from existing positions in the selected companies. You are chosen as a participant due to the consideration that you are an appropriate person that will be a key contributor to this research.

What would I be asked to do if I took part?

As a participant, you will be involved in the data collection process, mainly the elite interview, as an interviewee, which means you will be interviewed on topics relating to corporate governance and SHE management to provide your insight and opinion. You may also be involved in supporting documentation review, expert peer review, record review and other aspects of the case study during data collection and analysis. There are very limited risks, pain or discomfort that you may experience.

What happens to the data collected?

The data collected will be used in this research, which is purely and completely academic as a DBA project, and has no commercial purposes and implications. I will respect the confidentiality and data protection policies to protect the participants' and organizations' interests and reputations.

How is confidentiality maintained?

Data will be processed lawfully and ethically, secured and kept for a reasonable period as per the needs of the research project, but for no longer than necessary. This includes data from interviews, whether audio- or video-taped, documents, records etc. Data protection and confidentiality policies will be fully respected to ensure anonymity by using fictional names (e.g. ABC Group, XYZ Group, Company A, Company X, job title) but not real company names or real participant names, and an interviewee code is given to each interviewee.

What happens if I do not want to take part or if I change my mind?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and will be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason and without detriment to yourself.

Will I be paid for participating in the research?

As a DBA research project with no commercial purposes and implications, no payment, reimbursement of expenses, incentives or benefits will be made to the participants. However, the contributions from participants in this project are highly appreciated and recognized.

What is the duration of the research?

The research project will last for five years, with semi-structured interviews and structured-focused reviews with participants in formal and informal settings, and possible breaking down into different stages of study, including some feedback and involvement in data analysis and agreement on input to the research paper etc.

Where will the research be conducted?

As this project involves comparative case study of Chinese enterprises, the field work in the research will mainly happen in China, with the selection of two cases, Company A and Company X.

Will the outcomes of the research be published?

Since this project is a DBA research project, it is not intended for publication. However, the disclosure of the thesis will be subject to the rules and regulations of the University of Manchester, and to instruction from supervisors regarding publication if the outcomes from the research bring significant and good quality contributions and/or implications for academics, which will be decided in the final stage when the research is completed.

Criminal records check (if applicable)

Not applicable.

Contact for further information

For further information, please contact the researcher:

Name: Mr. Hong Zhi Zhang

Email: hongzhi.zhang@postgraduate.manchester.ac.uk

Mobile: +86 15921756383

What if something goes wrong?

The researcher for this project (Mr. Hong Zhi Zhang) will be the contact for any agency which might provide assistance if the participant subsequently wants help or advice, with the above-mentioned contact information. In the case of vulnerable subjects, a specialist agency may be considered, which is unlikely in this project.

If a participant wants to make a formal complaint about the conduct of the research they should contact the Head of the Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL.

Appendix IV Consent Form

NB: the information described in this template should be adapted, where necessary. You should take into consideration issues that participants must be made aware of which should be included as separate items that participants should initial individually when giving consent. Examples include:

- Use of video/audio recording.
- Data being passed on to other researchers.
- Vulnerable adults or children being unable to give consent themselves.

Corporate Governance and SHE Management: A Comparative Analysis of Chinese Enterprises

CONSENT FORM

If you are happy to participate please complete and sign the consent form below.

Please Initial Box

1. I confirm that I have read the attached information sheet on the above project and have had the opportunity to consider the information and ask questions and had these answered satisfactorily. ☐

2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason and without detriment to any treatment/service. ☐

I agree to take part in the above project

Name of participant	Date	Signature
Name of person taking consent	Date	Signature