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Sustainable Development of Mixed-Ownership Enterprises Based on Stakeholder Governance

YUAN Zhengfu

Doctor of Management

Supervisors:

PhD Virginia Trigo, Professor Emeritus,

ISCTE University Institute of Lisbon

PhD Teng Ying, Professor,

University of Electronic Science and Technology of China

June, 2023



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Jury:

PhD Diana Elisabeta Aldea Mendes, Associate Professor,
ISCTE University Institute of Lisbon

PhD Wang Jincheng, Director,
Instituto Confúcio – Universidade de Lisboa

PhD Xiao Wen, Professor,
University of Electronic Science and Technology of China

PhD Álvaro Augusto Rosa, Associate Professor with Habilitation,
ISCTE University Institute of Lisbon

PhD Virgínia Maria Trigo, Emeritus Professor,
ISCTE University Institute of Lisbon

June, 2023

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Signed: Yuan Zhengfu 袁征福

Date: 2023.6.20

Name: YUAN Zhengfu

作者申明

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作者签名: Yuan Zhengfu 袁征福

日期: 2023.6.20

姓名(拼音): YUAN Zhengfu

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Abstract

Mixed-ownership enterprises in China are growing rapidly and are important to research for their sustainable development as the main strategy for the economic development in the new era based on stakeholder governance. In this research, interviews were conducted toward directors and senior managers to empirically research their opinions on sustainable development in the context of mixed-ownership-enterprises. First of all, the research model herein was proposed from three aspects of common governance, green governance, and data governance based on stakeholder governance theory. Next, these three aspects of stakeholder governance were discussed to address their relationship with corporate dynamic capability, human capital appreciation, and corporate sustainability. Finally, the corresponding research propositions were put forward based on arguments and existing research findings. Interview responses were analyzed using the deductive approach to systematically and empirically investigate the contents, verify, and explain the propositions. The analysis found that common governance, green governance, and data governance have a positive influence on facilitating the corporate dynamic capability, human capital appreciation, and sustainable development in mixed-ownership enterprises according to our formulated propositions. In the interview content analysis, goals and models of corporate governance were represented to deepen the research further. This research can shed light and deepen the existing literature and aims to be helpful for relevant stakeholders and management to get their knowledge for the sustainable development of mixed-ownership enterprises using stakeholder governance.

Keywords: Common governance; green governance; data governance; sustainable development; mixed-ownership enterprise; China

JEL: L22; G34

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Resumo

O número de empresas com propriedade mista tem crescido rapidamente na China e torna-se importante estudar o seu desenvolvimento sustentável, utilizando a teoria dos stakeholders, pois a sustentabilidade depende muito do envolvimento de todas as partes interessadas. Para este estudo, entrevistamos diretores e gestores seniores com o objetivo de conhecermos a sua opinião sobre o desenvolvimento sustentável no contexto de empresas com propriedade mista. O modelo de pesquisa que propomos tem por base a teoria da governação das partes interessadas e foca-se nos aspetos da governação comum, da governação verde e da gestão dos dados. Estes três aspetos da governação das partes interessadas são discutidos para abordar a sua relação com a capacidade dinâmica corporativa, valorização do capital humano, e a sustentabilidade corporativa. Finalmente, com base na revisão da literatura e nos resultados das pesquisas existentes, apresentamos as correspondentes proposições de pesquisa. As entrevistas foram analisadas utilizando o método dedutivo para de um modo sistemático e empírico compreender o seu conteúdo, verificar e explicar as proposições. Da análise efetuada concluímos que a governação comum, a governação verde e a gestão de dados têm uma influência positiva na facilitação da capacidade dinâmica corporativa, na valorização do capital humano, e no desenvolvimento sustentável das empresas de capital misto, em concordância com as proposições formuladas. Na análise de conteúdo das entrevistas, para aprofundarmos ainda mais a pesquisa foram representados objetivos e modelos de governação. Este estudo lança luz e aprofunda a literatura existente e tem utilidade prática para as partes interessadas e transmite conhecimento aos gestores sobre o desenvolvimento sustentável de empresas de capital misto utilizando uma governação baseada nas partes interessadas.

Palavras-Chave: Governação comum; governação verde; gestão de dados; desenvolvimento sustentável; propriedade mista; China

JEL: L22; G34

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摘要

混合所有制企业在中国发展迅速，利益相关者治理成为了新时代经济发展的主要战略，研究其可持续发展具有重要意义。本研究，对混合所有制企业董事和高级管理人员进行了访谈，来实证他们在混合所有制企业背景下对可持续发展的看法。首先，本研究基于利益相关者治理理论，从公共治理、绿色治理和数据治理三个方面提出了本文研究模型；然后，讨论了这三个方面，以研究它们与企业动态能力、人力资本增值和企业可持续性的关系；最后，基于论点和现有研究结果，提出了相应的研究提议。访谈问卷本研究采用演绎方法进行分析，实证调查内容并验证提议。根据本研究制定的提议，分析发现共同治理、绿色治理和数据治理对促进混合所有制企业的企业动态能力、人力资本增值和可持续发展具有积极影响。在访谈内容分析中，本研究提出了公司治理的目标和模式，进一步深化研究。本研究可以揭示和深化现有文献，旨在帮助相关利益相关者和管理层利用利益相关者治理获得混合所有制企业可持续发展的知识。

关键词：共同治理；绿色治理；数据治理；可持续发展；混合所有制企业；中国

JEL: L22; G34

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Chapter 1: Introduction

1.1 Research background

The research background herein was expounded from the four perspectives. First of all, “sustainable development serves as the main strategy for the economic development in the new era”; then, “diverse ownership economy works as a major policy on the new stage of development in China”; next, “stakeholder governance accords with the development needs for the modern market-oriented economy”; finally, the phenomenon of stakeholders’ engagement in corporate governance exists in the mixed-ownership enterprise where the author work. These four perspectives are discussed below in detail.

(1) Sustainable development serves as the major strategy for economic development in the new era.

The sustainable development strategy was first mentioned in *A Sustainable Europe for a Better World: The European Union’s Strategy for Sustainable Development* by the European Commission in May 2001. European Commission aims to chart a blueprint for effective resource management, economic prosperity, complete environmental protection, and harmonious social development. From then on, this strategy for sustainable development was included in the “Europe 2020 Strategy” and “the 2030 Agenda for Sustainable Development”. The German Federal Ministry of Environment, Nature Conservation, and Nuclear Safety released the National Welfare Index (NWI) in March 2010. NWI emphasizes the missing aspects of Gross Domestic Product (GDP) measures, such as environmental damage, resource depletion, and social equity. It selects six aspects of welfare reduction, welfare increase, consumer spending, wealth gap, environmental damage, and national strength. In May 2011, the OECD Ministerial Council adopted *the OECD Green Growth Strategy*, which contained an evaluation index framework for green development. This framework covers 14 themes, including natural asset base, environmental productivity, economic opportunities, living and environment quality, as well as carbon and energy productivity. *The World Development Report 2021* addresses a series of issues, such as improving the livelihood of the poor by virtue of data and forming a new social contract for data around fairness, trust, and value. All of the above shows that developed countries begin paying attention to improving people’s well-being early.

They focus more on new economic development and sustainable development and attach importance to technological innovation and ecological protection.

China is currently in a new development stage. This is a new era when we are transforming our economic development model, optimizing our economic structure, and changing our growth momentum after 40 years of reform and opening up. This is a new era when China is shifting from extensive and rapid growth based on material resource consumption towards high-quality development based on workforce quality improvement and innovative technologies. High-quality development serves as both a strategic goal for our economic development and an urgent requirement for us to build a modernized economic system. High-quality development belongs to the same conceptual category as sustainable development and is a methodology for sustainable development proposed by China based on our new development stage. Enterprises stand as micro subjects for high-quality development. Their high-quality development embodies a state in which enterprises achieve or remain in high-level and high-quality development. Such a state can contribute to sustainable development (Sully, 2012). Enterprises, a key constituent of the social economy, form an ecological relationship with social groups. They should shoulder corresponding social responsibilities during their development and highlight their concern for human value and their contribution toward both environment and society (J. Zhang, 2009). The corporate capability for sustainable development is not a simple superposition of various competence elements but their dynamic integration and interactive coordination, as well as the systematic construction and effective operation that drive the synergetic integration effect among enterprises (Shao, 2012). High-quality development is featured by the transition from “high-carbon growth” to “green development” so as to achieve green transformation, which requires China to accelerate top-level design and institutional building (Y. Wang, 2020). In the new development stage, enterprises should emphasize green development and advocate green innovation, green investment, green production, green circulation, and green consumption. Enterprises carry out green innovation and practices and solve those environmental issues arising from their survival and development while ensuring their profitability so as to achieve green, efficient and corporate sustainability. Enterprises, the main players in a market-based economy, are in urgent need to balance the relationship between the economy and the environment.

(2) Diverse ownership economy works as a major policy on the new stage of development in China.

China once experienced a 30-year planned economy period, during which state-owned enterprises always undertook more social functions and responsibilities. They were loaded with

heavy burdens that posed more difficulties on their path to development. With the implementation of the “reform and opening up” policy in China during the late 1970s, the business philosophy of minimized costs or maximized profits has been widely accepted soon by society and enterprises. The third Plenary Session of the 18th CPC Central Committee, in 2013, called on “us to actively develop diverse ownership economy.” In his Government Work Report 2014, Premier Li Keqiang clearly pointed out that we need to accelerate the development of a diverse ownership economy and integrate state-owned and private enterprises further so as to invigorate the economy. In his Government Work Report 2015, Premier Li once again emphasized the need to carry on the reform of introducing mixed ownership to state-owned enterprises in an orderly manner and encourage and standardize the introduction of non-state-owned capital into investment projects; the development of diverse ownership economy serves as a key approach to continue the reform of state-owned enterprises and to boost economic prosperity in the new development stage. In 2017, it was proposed in the report of the 19th National Congress of the CPC, “We will deepen the reform of state-owned enterprises, develop the diverse ownership economy, and incubate world-class enterprises with global competitiveness.” Among them, the development of mixed ownership is an important breakthrough to deepen the reform of state-owned enterprises.

Thus, the emergence and development of mixed-ownership enterprises in China have seen a gradual historic transition from the single public ownership structure before China’s reform and opening up toward the common development of various economic components of diversified ownership. In the new development stage in China, the reform of mixed-ownership enterprises has set higher requirements for the operation of state-owned enterprises and created a new impetus for the new round of development in the national economy.

(3) Stakeholder governance accords with the development needs of a modern market-oriented economy.

The stakeholder theory, emerging in the 1980s, has provided a new economic theoretical basis and an analytical method for the research on corporate sustainability. According to this theory, an enterprise stands for its stakeholders. All stakeholders, including shareholders, have made certain appropriation investments in the survival and development of that enterprise. Simultaneously, they have also shared some operating risks of that enterprise or pay their prices for its businesses. As a result, they all should have ownership over that enterprise (Blair, 1996; Freeman, 1994). Stakeholders comprise both individuals and organizations that can influence its business activities, such as shareholders, creditors, employees, suppliers, consumers, government, and other entities. The sustainable development of enterprises based on this theory

must take into account both the immediate and the long-term interests. That requires enterprises to assume corresponding responsibilities for their employees, consumers, society, environment, and ecology while maximizing their profits and economic efficiency.

The previous enterprise system emphasizes “shareholder-centered theory” and “shareholder benefit maximization,” whereas the stakeholders’ rights and interests awareness, the corporate social responsibility awareness, and the ecological and environmental protection awareness see no corresponding improvement. Thus, enterprises will face the crisis and confusion concerning sustainable development. Therefore, enterprises need to change their development strategies and management thoughts with traditional “shareholder-centered theory” as the dominant concept, reshape corporate development philosophy, and make innovations in corporate development strategy. However, there is no adequate theoretical or experiential reference for us to formulate correct strategies for sustainable development in mixed-ownership enterprises. Given the urgent need for research on sustainable development strategy among mixed-ownership enterprises, the issues on the sustainable development strategy of mixed-ownership enterprises were studied and analyzed from the perspective of “stakeholder governance”; the analytical framework on stakeholder governance theory for sustainable development in mixed-ownership enterprises was constructed. This serves as a breakthrough and innovation concerning corporate development strategy and corporate management theory dominated by traditional theories on enterprises.

(4) The phenomenon of stakeholders’ engagement in corporate governance exists in the mixed-ownership enterprise.

Guizhou Huangguoshu Central Kitchen Co., Ltd., where the author work, is a mixed-ownership company whose stakeholders have engaged in corporate governance. The company stands as a mixed-ownership enterprise jointly invested and incorporated by the Agricultural and Rural Modernization Fund of Guizhou Province, Huangguoshu Huinong Group Co., Ltd., a state-owned enterprise at Anshun City level, Kunda Co., Ltd., a state-owned enterprise located at Anshun Economic Development Zone, and Anshun Xiangzhiyuan Co., Ltd. It is a high-growth enterprise engaging in agricultural products deep processing and supported by the CPC Party Committee and the Government of Guizhou Province. The enterprise has now encountered three prominent problems in corporate governance: I. Currently, the company mainly adopts a traditional unilateral governance mode, whose governance object is mainly agents, and governance is mainly implemented through contracts and corporate systems; however, during its actual operation process, the phenomenon of stakeholders’ engagement in corporate governance becomes increasingly prominent, and plays crucial roles in resource

integration and optimization as well as dynamic corporate capacity promotion in its sustainable development; it requires empirical research for the theoretical basis to account for this phenomenon. II. Sustainable development is a development strategy established by both the international community and the Chinese government; besides, it is pointed out that green innovation works as a major way to achieve sustainable development; the key to fulfilling green innovation is to design green governance content in the corporate governance system, which should be verified at the theoretical level. III. With the commercialized application of big data, artificial intelligence, and other new-generation information technologies, data governance has gradually become a new governance measure, which also needs to be verified by empirical research. To this end, theoretical research is required for those aforesaid issues on the theoretical level so that theoretical guidance can be provided for the corporate governance reform in mixed-ownership enterprises on the application level.

1.2 Research agenda

For so long, enterprises have stood as economic means whose aim is to maximize their profits and minimize their costs according to classical economic theories. The contribution made by enterprises to society mainly lies in their economic aspect, which results in those profit-driven enterprises. The early arrangement for the corporate governance system reflects the definition and allocation of rights and responsibilities between owners and operators. Corporate governance is designed to ensure the maximized interests of shareholders and to prevent operators from deviating from the owners' interests. Corporate governance is mainly featured by an internal governance structure formed by the general meeting of shareholders, the board of directors, the board of supervisors, and the management. Early scholars of corporate governance held that the Anglo-American model centered on shareholder interests would be more effective and modernized than other models. Since the 1970s, the Japanese and German economies have risen rapidly after the end of world war II (WWII) and maintained strong competitive advantages for a relatively long term. Then, many scholars argued that the stakeholder model is more vitality than the shareholder primacy model. Therefore, the stakeholder theory and its practical application have begun to attract more and more attention. In 1998, *the OECD Global Corporate Governance Report* drafted by six famous managers from the US, France, the UK, Germany, and Japan read that global corporate governance models converge on not the Anglo-American model nor the Japan-Germany model but a compromise between the shareholder primacy model and the stakeholder model.

In terms of domestic researches on corporate governance, Chinese scholars focused on the modernized reform in state-owned enterprises, the senior executive corruption in state-owned enterprises, the state-owned asset protection, and the maximized interests of state-owned assets in the early stage. Their research methods mainly belong to case summary and qualitative reasoning, and there are few pieces of research on sustainable development in mixed-ownership enterprises by stakeholder theory.

To sum up, the sustainable development of mix-ownership enterprises was researched from the perspective of stakeholder governance. As scholars gradually deepen their research on corporate governance, the research scope concerning stakeholder theory has become increasingly extensive and correlated with corporate sustainability. Thus, the scope of this research has extended to the main stakeholder governance, green governance, and data governance, which provides a theoretical basis for the research and a theoretical framework for the governance model construction concerning the sustainable development of mixed-ownership enterprises.

Therefore, based on the stakeholder governance theory, the influence mechanism of sustainable development was researched from the perspective of the corporate governance system design of mixed-ownership enterprises. In view of the previous research results, the research model and propositions were proposed from the three independent variables of common governance, green governance, and data governance and two intermediary variables of human capital appreciation and corporate dynamic capability. Thus, a sustainable development model was expected to construct for mixed ownership enterprises from the dimension of corporate governance theory, which provides a theoretical basis for subsequent research. Simultaneously, a corporate governance framework was proposed for the sustainable development of mixed-ownership enterprises in terms of corporate governance practice, which provides the corporate governance path and guidance for the sustainable development of mixed-ownership enterprises.

1.3 Research significance

1.3.1 Theoretical significance

First of all, based on the theoretical framework of stakeholder governance, this research was designed to propose a mechanism model for sustainable development in mixed-ownership enterprises from the perspective of stakeholder governance. The model was designed to test the

influence of three independent variables of common governance, green governance, and data governance on the intermediate variables of human capital appreciation and corporate dynamic capability and their further effect on the sustainable development of mixed-ownership enterprises.

Secondly, it attached importance to how human capital appreciation and corporate dynamic capability mediate common governance, green governance, and data governance and how they will influence sustainable development in mixed-ownership enterprises. Besides, the specific influencing mechanism of this effect was analyzed and explained so as to gain some in-depth insights into the internal effect of stakeholder governance on sustainable development.

Furthermore, common governance, green governance, and data governance were applied to the sustainable development model concerning enterprises, with the purpose of expanding the research dimension of stakeholder governance. In addition, we also tried to explore the moderating effect of state-owned enterprise holding and enterprise-scale variables on the model so as to enrich the influence of intervening variables upon sustainable development.

1.3.2 Practical significance

First of all, this research was designed to provide practical implications for corporate governance reformers of mixed-ownership enterprises. Through 80 responses from 10 participants for 8 interview questions, the influence on the human capital appreciation and the corporate dynamic capability of enterprises and a further effect on the corporate sustainability in the context of mixed-ownership enterprises were detected. Those elements provide governance system design paths for corporate governance reformers of mixed-ownership enterprises, effectively activate corporate dynamic capabilities, and eventually promote sustainable development in mixed-ownership enterprises.

Secondly, common governance, green governance, and data governance were simultaneously incorporated in the model for consideration; the mechanism of their influence upon human capital appreciation, corporate dynamic capability, and sustainable development were explored. Those efforts produce decision-making support for mixed-ownership enterprises in practice.

Furthermore, human capital appreciation and corporate dynamic capability were taken as intervening mechanisms of the research model so as to place them on a prior level for consideration. Corporate governance reformers need to figure out what other governance factors have a significant influence on the sustainable development in mixed-ownership enterprises in addition to common governance, green governance, and data governance.

1.4 Research contents and methods

1.4.1 Research thoughts

The research model and propositions on the sustainable development of mixed ownership enterprises were proposed from the perspective of stakeholder governance theory and in light of existing research findings, such as common governance, green governance, sustainable development, and data governance theories. Then, 80 responses from 10 participants were collected through interview questions to verify and explain those propositions. Finally, conclusions were drawn, and suggestions were proposed for the sustainable development of mixed-ownership enterprises from the perspective of stakeholder governance.

1.4.2 Research methods

(1) A combination of literature collection and interview contents

Data herein were collected from both secondary data and primary data. Secondary data were mainly collected and summarized from the relevant research literature, including stakeholder theory, sustainable development theory, green governance theory, and data governance theory; in addition, first-hand sample data were also obtained through interview questions. The software was adopted for literature reading and management; interviews were conducted face to face and transformed to text content with the aid of software.

(2) A combination of qualitative analysis with quantitative analysis

A combination of qualitative analysis with quantitative analysis was adopted herein. Qualitative reasoning analysis was adopted to propose research questions, review literature, and research propositions. Finding answers for propositions were qualitatively and quantitatively analyzed using collected interview contents from professionals in mixed-ownership enterprises.

(3) A combination of descriptive analysis with content analysis

Descriptive analysis and statistical analysis were adopted herein for sample data analysis. Descriptive analysis was adopted to analyze the basic information on the sample. Reliability and validity analysis were adopted for the testing the interview questions and responses. Data validation was performed via similarity ranking, and content analysis was conducted with the aid of MAXQDA, Python, VOSviewer, and Excel Spreadsheets.

1.5 Research process and content arrangement

1.5.1 Research process

The first step is to collect and read relevant materials and literature and then propose research questions; the second step is to summarize the existing researches and viewpoints and deduce the themes for propositions for sustainable development of mixed-ownership enterprises from the dimension of corporate governance; the third step is to construct research model and propose propositions; the fourth step is to convert variables for propositions into the measurement that can be investigated by interview questions, and then to contact and determine mixed-ownership enterprises for interview and research, and for data samples; the fifth step is to analyze and extract information for propositions from those collected responses by descriptive analysis and content analysis, so as to verify the mechanism between those variables and the human capital appreciation, dynamic capability and sustainable development of mixed-ownership enterprises; the sixth step is to draw research conclusions and propose the prospect.

1.5.2 Content arrangement

This research was divided into six chapters as follows:

Chapter 1 mainly introduces the research background, research questions, research significance, research contents, research methods, research processes, and content arrangement.

Chapter 2 is mainly about the literature review. First of all, the theories adopted herein are introduced comprehensively; secondly, the main theoretical models are reviewed.

Chapter 3 covers the research model, proposition development, and declaration based on existing literature for the sustainable development of mixed-ownership enterprises based on stakeholder governance. The research model herein is proposed based on the existing theories.

Chapter 4 mainly introduces the design of the interview questions, measurement title determination of questions, response recovery, and statistical pre-treatment of the responses.

Chapter 5 mainly presents the modeling and the content analysis concerning the model and tests research propositions through qualitative and statistical analysis of each variable; additionally, the goals of corporate management, stakeholders, and models of corporate governance were analyzed to represent additional insights into the study.

Chapter 6 summarizes the conclusions of this research in terms of the theoretical significance and the practical management application and then points out the shortcomings herein and the prospect for subsequent researches.

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Chapter 2: Literature Review

2.1 Relevant concepts

2.1.1 Mixed ownership

The research subject herein is mixed-ownership enterprises. First, the basic concepts of mixed ownership, mixed economy, and diverse ownership economy should be defined and differentiated. Besides, the relevant concepts concerning property rights, ownership, and transaction cost theory should be clarified. Thus, the theoretical basis for boosting mixed-ownership enterprises can be located from the level of corporate governance, and the governance model can be further proposed for the sustainable development of mixed-ownership enterprises.

(1) Formation and connotation of mixed ownership

Compared with single ownership, mixed ownership, first proposed at the 15th National Congress of the CPC in September 1997, refers to an ownership relation with different economic components co-existing in one kind of real economy. Mixed ownership is a kind of socialized ownership formed by capital investment subjects with different capital properties according to different investment methods. In such an ownership, Capital is under socialized possession and utilization. Therefore, it is an economic combination mode suitable for socialized mass production and a consortium of ownership under a market-oriented economy (P. Deng, 2015). The currently so-stressed mixed ownership belongs to a kind of joint-stock system. Its particularity lies in the mixture of capital from both public and non-public property subjects; it is essentially a kind of institutional arrangement for ownership (Zang et al., 2016). This system can integrate public and non-public property rights into dispersive market entities, namely the internal property structure of each enterprise, so as to seek a win-win situation among relevant stakeholders (P. Deng, 2015).

From the 15th National Congress in 1997 to the third Plenary Session of the 18th Central Committee of the CPC in 2013, Chinese scholars have defined the concept of “mixed ownership” from macro and micro levels as well as broad and narrow perspectives, respectively. Generally speaking, there have been basically micro-level theories, macro-level theories, and dual-level theories. There are three different expressions in terms of micro-level theory: The first is the

ownership form theory (X. Zhang, 2004); the second is the theory of ownership realization form (Fang, 2014; Ji, 2019); and the third is enterprise model theory (Fan & Zhang, 2021; Qi et al., 2017). According to the macro-level theory, mixed ownership is a basic economic structure with public ownership as the mainstay and various ownership economies developing together. This concept supports the institutional arrangement of the diverse ownership economy at the macro level. According to the dual-level theory, mixed ownership is the “block-type” co-existence of various ownership forms on the whole social level and the “infiltrated” mixture of different property rights subjects on the enterprise level (H. Hu, 2018). In addition, there is also a three-level theory (Z. Zhang, 2008), a four-level theory (Shi, 2005), and market determinism (Xiao, 2004).

On the whole, mixed-ownership enterprises in China can be generally divided into three categories (S. Huang, 2014): The first category is the mixed-ownership enterprises composed of both public and private ownership, including those enterprises mixed with collective shares and foreign capital, as well as enterprises mixed with state-owned shares and foreign capital, such as Chinese-foreign cooperative enterprises and joint ventures with Chinese and foreign investment, and those enterprises jointly incorporated by state-owned enterprises and domestic private enterprises, or by collective enterprises and domestic private enterprises; the second category is mixed-ownership enterprises composed of public ownership and individual ownership, such as state-owned enterprises that absorb the shares holding part of their own employees during their transformation of shareholding system as well as enterprises that integrate individual shares and collective shares in the joint stock cooperative system; the third category is mixed-ownership enterprises jointly incorporated by collective enterprises and state-owned enterprises.

To sum up, the concept of mixed ownership can be defined from micro and macro levels. Macroscopically, it refers to a diversified and block-type mixed-ownership form in the same social and economic system in which both public and non-public ownership co-exist. However, it is a mixture generated from the mutual correlation and interaction among various ownership forms. Microscopically, it refers to the fact that in the same economic organization (enterprise), the property rights subjects with different economic components form a kind of capital organization form that penetrates each other through certain forms of asset organization (enterprises). Therefore, the mixed-ownership enterprises mentioned herein refer to the mixed-ownership enterprises jointly funded by state-owned capital and social capital under the reform of introducing mixed ownership to state-owned enterprises. Such enterprises have equal status

with state-owned enterprises, foreign-invested enterprises, and private enterprises in market competition.

(2) Development course of mixed ownership in China

Mixed ownership reform in China is interwoven with economic system change, state-owned enterprise reform, and private enterprise development in their basic logic (He & Yang, 2021). The root cause is that economic system change has somehow shaped the external institutional environment for mixed ownership reform. State-owned enterprises and private enterprises are key subjects to participate in mixed-ownership reform. As a result, the evolution of mixed-ownership reform in state-owned enterprises is highly consistent with economic system change, state-owned enterprise reform, and private enterprise development pace on the time line. The whole reform can be divided into following four stages.

① Stage: Exploration

Period: 1978-1992

Measures: 1. The economic system developed from a “planned economy,” which completely excludes market regulation, into a “commodity economy,” in which the plan and the market are inherently unified; 2. The reform of “decentralization of power and transfer of profits” was rolled out in state-owned enterprises with manager initiative mobilization as its core; this reform focused on promoting the separation of ownership away from management rights, expanding the independent management rights of state-owned enterprises and making them independent interest subjects, so as to arouse the initiative among enterprises and employees; 3. Private enterprises came into being, and the ownership structure in China showed a pattern with “public ownership as the main and multiple economic components co-existing”; the closed structural problems arising from single and divided ownership under the planned economic system were alleviated.

Characteristics: Due to the ideological debate on the theory between “socialist scope” and “capitalist scope” during the initial mixed-ownership reform, the deep integration of different ownership patterns was blocked, and the overall reform was on the stage of mixed “form.”

② Stage: Growth and Transcending

Period: 1992-2003

Measures: 1. A socialist market-oriented economy system was initially established; 2. The reform of state-owned enterprises entered the stage of “mechanism building and system transformation” with the establishment of a modern corporate system as the core, which includes “clearly defined ownership and power and responsibility, separation of enterprise from

administration, and scientific management”; in this way, state-owned enterprises were really transformed into the main body of market competition with the independent operation, self-responsibility for profits and losses, self-development and self-restraint; 3. The private economy has entered a period of rapid growth and played a role in boosting employment, meeting market demands, and promoting national economic development; in addition, the strategic adjustment of the distribution of state-owned sector, the reform of property rights in state-owned enterprises and the development of Internet economy provided huge growth space for private enterprises.

Characteristics: Mixed-ownership reform entered the “Golden Decade” of growth in leaps and bounds. However, the synergistic advantages of diversified capital in this stage of mixed-ownership reform have not been fully reflected yet. The coordination mechanism between state-owned enterprises and private enterprises is still weak. The effect of mixed-ownership reform policies is mainly reflected in the realization of a diversified ownership structure. The whole stage belongs to the “hybrid capital” stage.

③ Stage: Adjustment and Perfection

Period: 2003-2013

Measures: 1. A sound market-oriented economic system was established; we made it clear that the basic socialist economic system is “public ownership as the mainstay and diversified ownership economies developing together”; 2. With the establishment of the State-owned Assets Supervision and Administration Commission, the focus of state-owned enterprise reform was shifted to supervision reform; avoiding state-owned property drain became the key in this mixed-ownership reform; 3. After China’s accession to the WTO, private enterprises strengthened their own strength in international competition, achieved great development, and lifted China to the “world factory.”

Characteristics: After continuous adjustment and improvement, mixed-ownership reform paid more attention to whether its property right structure can play a positive role in enhancing corporate efficiency; this stage as a whole belongs to the “hybrid property rights” stage.

④ Stage: Further Acceleration

Period: 2013 - Now

Measures: 1. China deepened reforms comprehensively, and our economic system reform entered a critical stage; 2. State-owned enterprises have entered the advancement period of “comprehensively expanding in-depth reform.” China has launched a series of “1+N” policies on the reform in state-owned assets and enterprises so as to encourage state-owned enterprises

to transform their operation mechanism; 3. Private enterprises have developed into the “Leapfrog Period.” On the one hand, they are encountering severe survival pressure, and the supply-side reform requires the private economy to move from the low-end to the high-end; on the other hand, whether the private economy can develop in a good business environment has attracted unprecedented national attention. China encourages private enterprises to engage in the national strategy actively, to strive to improve their development quality in the supply-side reform, and to combine with state-owned capital in the mixed-ownership reform actively. Characteristics: In the new cycle, enterprises begin to pay attention to introducing strategic investors with high conformity, coordination, and identity to participate in governance; they begin to straighten out the power and accountability relationships among Party committees, shareholder meetings, boards of directors, and management, to improve the corporate governance mechanism actively, implement the reform in labor, personnel and distribution systems, and deeply transform into market-oriented operation mechanisms; they begin to implement the differentiated employee incentive distribution mechanism combining compensation incentive and equity incentive, and to carry out the selection and appointment mechanism of “market-oriented selection and exit” and “variable compensation and position”; this also marks that the focus of mixed-ownership reform has shifted from “hybrid capital” and “hybrid property rights” to “reform in” mechanism; the whole stage belongs to “hybrid mechanism” stage.

(3) Difference between mixed economy and diverse ownership economy

According to western economists, the ideological origin of the “diverse ownership economy” mainly comes from the “mixed economy.” The connotation of “mixed economy” is consistent with the “controlled economy,” “dual economy,” and “balance economy.” After more than two-century evolution in the West, “mixed economy” has laid a theoretical foundation for the research on “diverse ownership economy” in the micro scope (P. Deng, 2015). Therefore, western researches on diverse ownership economy are mainly reflected in the mixed economy. The mixed economy is a mixture of the socialized economy and private capitalist economy, an economy with certain characteristics of both socialism and capitalism (Hattersley, 1979). It is actually subject to government intervention and based on the private economy. It is featured by both the concentrated decisions from state intervention and the dispersed decisions from market regulation (Newman, 2001). It is an economy in which government intervention and market mechanisms, public sector and private sector, “visible hand” and “invisible hand” coexist and play their roles (Fang, 2014). Western scholars usually conducted research on the mixed economy from perspectives of privatization reform, nationalization reform, and public-private

partnership model (MacDonald, 2000; Pietroforte & Miller, 2002; Stewart & Walsh, 1994). There are few other specific models for the diverse ownership economy in western countries. The mostly common literature describes practices during the process of privatization reform, such as the sale of property rights as well as the introduction of private capital, competition mechanisms, and mixed public-private management (Gupta, 2005; S. Van, 2003), the so-called public-private partnership (PPP) in the UK and other patterns derived from PPP. This model is a typical mixed-ownership economic pattern (P. Deng, 2015).

A diverse ownership economy refers to an economic form whose property rights belong to various owners (Q. Huang, 2013). This can be adopted to describe not only countries or regions on a macro level but also business organizations on a micro level (Ji, 2019). In the macro sense, a diverse ownership economy is expressed in the diverse economic ownership structures in a country or region. It includes state-owned, collective, private, individual, joint venture, cooperative, foreign capital, and other types of public- and non-public-owned economies (C. Liu & Zhang, 2016). In the micro sense, a diverse ownership economy is manifested as enterprise organizations with diversified property rights structures formed by diversified investment, mutual integration, and interactive penetration among various property rights subjects (Yu, 2014). Essentially speaking, a diverse ownership economy is a joint-stock economy or an economy based on the joint-stock system. It is a joint-stock economy with shares from or jointly formed by different capitals (X. Wei & He, 2015).

The mixed economy discussed among western scholars and the diverse ownership economy in China have distinct historical backgrounds, so the two cannot be mixed up. With broader connotation, mixed economy desalinizes the concepts of production relations and ownership and covers not only state-owned and private ownership structures but also government regulation and market regulation structures (X. Zhang, 2004). The diverse ownership economy herein refers to the integration of public capital and non-public capital on the micro (enterprise) level. A diverse ownership economy on the micro level determines the institutional arrangement concerning corporate governance structure, income distribution, and property right structure.

2.1.2 Property right

A property right is a scope of extremely rich connotations, and its definitions vary in academia. According to *The Problem of Social Cost* by Coase (1960), property right shows not only property ownership but also the relationship of behavioral rights among owners of the property, namely, the artificial or mandatory restrictions on incompatible uses of a thesis and the exclusive allocation of rights to choose among such uses. Property right does not reflect the

relationship between people and property but the right of property owners to make certain behaviors (G. North, 1992). Coase has defined property rights as the right of the property owner to act. There is a price to pay for overstepping privilege. In viewpoint of Coase, an issue on property rights is an issue on externalities in essence. According to Demsetz (1974), property rights work as a kind of social tool whose importance lies in the fact that they help people manage legally and ethically bound expectations during transactions in a reasonable manner. Demsetz further argued that property rights refer to the rights to benefit or damage oneself or others and only exist as there is a relationship concerning interests among different owners. He has defined property rights from their functions and effects. He disintegrates those rights in terms of functions and defines their roles from the aspects of benefit loss, external internalization, and reasonable expectation of transaction, respectively. Thus, he concludes that property rights work as a social tool to coordinate the relationship among people. Alchian (1991) has defined property rights from their formation mechanism as the rights formed by government compulsion and market compulsion, with both aspects mutually unified. Property rights are of the meaning of ownership, namely the rights to choose among various uses of certain kind of economic product through social compulsion. Barzel (1997) held that property right is a kind of interest right, and its economic function comes from its denotation extension. Owners can obtain benefits through individual action changes or obtain efficiency through property rights transfer, which reflects property rights themselves and the benefits they can generate (Barzel, 1997). Furubotn and Pejovich (1972) argued that property rights are the interpersonal behavioral relationship caused by the use of goods, or the existence of scarce goods and other specific purposes. It shows the interpersonal relationship and the rules of behavior corresponding to objects that all people must follow. It prescribes the specific norms of behavior for people corresponding to things. Everyone must abide by those norms when socializing with others. Violation of those norms will incur a price to pay. That is, violators shall bear the penalty cost for not abiding by those rules. This kind of norm is applicable for ownership, which includes the right of use, usufruct, disposal of power, and trading right. The ownership of those four unified rights is named property rights (Furubotn & Pejovich, 1972).

Thus, although there are differences in the definition of property rights, a basic consensus has been achieved in terms of the concept of property rights. First of all, property right is a concept concerning legal rights; second, property right comprises a series of rights and interests; it includes not only ownership but also all sorts of rights that property right actors can exercise, such as usufruct and assignment rights, as well as unenforceable rights; furthermore, property right is a behavioral relationship between owner and others during the exercise of ownership;

additionally, property right is a socialized institutional arrangement tool; it plays a role in moderating socioeconomic operation by standardizing and protecting the economic relationship of the owner. Besides, the property right of the asset will change with its attribute and value, which is a dynamic change process. Asset value and property rights interact with each other. The discovery of asset value is accompanied by the definition of property rights. Therefore, property right, a kind of property right concerning ownership, is a progressive and dynamic concept.

2.1.3 Ownership

The essence of corporate governance is the power arrangement and benefit distribution concerning the company. The most important is the arrangement for residual control rights and residual claim rights. The rationality of such a power arrangement serves as one of the most vital determinants of corporate performance (L. Wang et al., 2010). Hart and Moore (1990), for the first time, explicitly defined residual control right as the power whose usage has not been clearly defined yet in the contract in advance. Residual control right is the right to determine how the asset will be used beyond the specific purposes defined in the final contract. It is the right of asset owners to determine all uses of their assets in any manner in accordance with prior contracts, customs, or laws (Hart & Moore, 1990). In the meantime, due to the incompleteness of the enterprise element contract, the total income of an enterprise cannot be a fixed amount, nor can it be thoroughly distributed by the fixed income of every participant. Instead, there will be some surplus. There must be someone who will become the claimer of those residual incomes and then acquire the residual claim right of the enterprise. A residual claim right is the right to claim the balance or the profit of enterprise income after all fixed contract payments have been deducted. It is relative to contractual usufruct and is featured by state dependence (Fama & Jensen, 1983).

According to the theory of modern property ownership, enterprise ownership is the unity of residual control rights and residual claim rights of enterprises. On the surface, enterprise government structure comprises various structures of different rights and interests and capital sources within an enterprise. In fact, it reflects the benefit distribution pattern by which property right entity behind depend on and interact with each other. A modern corporate governance structure is a kind of contingent governance structure. In essence, the issue of corporate governance structure is how to effectively allocate corporate ownership among all contractual parties, such as equity owners, creditor owners, enterprise managers, and ordinary employees, under the established property ownership pattern, namely who and how to own residual control

right and residual claim right. The rationality of two kinds of right arrangements serves as one of the most important determinants of corporate performance (L. Wang & Dang, 2008). Additionally, property rights can also be reflected in organizational form (Nee, 1992). According to *the Ownership of Enterprises* by Hansmann (2000), investor ownership, a form of enterprise organization, is a product out of special economic conditions. It is simply a form of ownership that often dominates under the existing technological conditions (Hansmann, 2000). That is because not all enterprise organizations are owned by investors. For example, when it comes to professional services, such as legal and accounting practices, employee-owned businesses are pretty common. In addition, non-profit organizations are essentially businesses without owners, too (Hansmann, 1988). The enterprise ownership mentioned herein is actually the ownership of business corporations mentioned by Hansmann (2000) in *the Ownership of Enterprises*. This ownership is actually the ownership over the capital invested by an investor in an enterprise, which is often referred to as ownership structure.

Therefore, the corporate ownership structure is an aggregate of corporate shareholders. Taken from the horizontal level, it mainly refers to those individuals or organizations who own the equity of an enterprise and the equity distribution among them. Based on different attributes of shareholding subjects, the ownership structure entities can be divided into the following categories: First, ownership entities can be divided into individual shareholders and organizational shareholders by their different identities. Among them, organizational shareholders include general enterprise legal persons such as investment corporations, special enterprise legal persons such as various financial instruments, and non-enterprise legal persons such as foundations and labor unions. Second, ownership entities can be divided into external shareholders and internal shareholders by their positions relative to the enterprise; among them, internal shareholders include management shareholders and ordinary employee shareholders, which mainly refer to employee stock ownership plans. Third, ownership entities can be divided into state-owned shareholders and non-state-owned shareholders by their nature. Among them, state-owned shareholding in China mainly includes the shareholding by government departments such as the Ministry of Finance, the people's governments at all levels and the state-owned assets supervision and administration agencies, the shareholding by special investment institutions established by the government such as Central Huijin Investment Ltd. and social security fund, and the shareholding by state-owned enterprises. For example, large state-owned central enterprises almost all run their own listed subsidiaries. Non-state-owned shareholding includes all non-state-owned ownership entities, such as overseas investors, individuals, and private enterprises. Fourth, ownership entities can be divided into A-share

shareholders and B-share shareholders according to the location of the listed exchange where the shares are held. Fifth, ownership entities can be divided into major shareholders and minority shareholders by their shareholding size, among whom major shareholders also include controlling shareholders.

2.1.4 Transaction cost

(1) Connotation of Transaction Cost

Since the 1970s, transaction cost economics has been named new institutional economics by O. E. Williamson (2000) so as to distinguish it from old institutional economics represented by Coase (1998). Transaction cost economics has already become one of the fastest-developing fields in microeconomics (Hennart, 2005). Currently, new institutional economics has developed into a broad subject with rich contents, whose theoretical connotation has gone beyond the category of transaction costs into most fields of economic analysis, such as the economic theories on property rights (Furubotn & Pejovich, 1972), the economic development theory (Bardhan, 1989), and the corporate governance theory (Posner, 2010).

Transaction cost theory has been proposed by Coase (1998) in *the Nature of the Firm*. Coase interpreted transaction costs as the costs generated by the use of price mechanism (market) and explains that the enterprise organization, a substitute for the market, also incurs management costs. In defining transaction cost, Arrow points out the fact that transaction cost is the cost for the economic system to operate (Arrow, 1999); O. E. Williamson (1989) defined transaction cost as the costs needed to run an economic system; D. C. North (1990) defined transaction cost as including all costs of political and economic organizations that an economy obtains from trade; W. Zhang (1999) held that transaction cost covers all costs that do not directly occur during the process of material production; Barzel (1997) defined transaction cost as the cost associated with transferring, acquiring, and protecting property rights; Eggertsson et al. (1990) argued that transaction cost is the cost for individuals to exchange their ownership of economic assets and to establish their exclusive rights. To sum up, transaction cost can be interpreted as non-productive paid payments generated during the process of property right change in economic activities. Transaction cost, the key to explaining economic performance, has changed the research direction of neoclassical economics (O. E. Williamson, 2005).

As a micro analysis method, transaction cost theory is adopted to analyze various economic and organizational issues, such as vertical integration and enterprise-scale (Benlian, 2009; Whinston, 2003), modern enterprise property right structure and behavior analysis (Nee, 1992), enterprise property right structure adjustment and evolution (D. C. North & Wallis, 1994), and

internal enterprise mechanism and work organization (Valentinov & Curtiss, 2005). Additionally, the category and method of transaction cost can serve as a certain reference for economic system reform in China (Nee, 1992). During the economic system reform in China, it is necessary to weigh the reform costs and benefits and choose a reform path with relatively small costs and large benefits. It should also be noticed that, first of all, reform is closely associated with the cultural traditions of China and thus cannot be mechanically applied; secondly, the transaction cost is the core for socially competitive institutional arrangement and options under the premise of given technical conditions. A better institutional arrangement can be provided through institutional reform and innovation, whose standard is to save transaction cost.

(2) Agency Cost

According to M. C. Jensen and Meckling (1976), enterprises stand as the contractual connector or a kind of formal legal fiction featured by divisible residual claim rights on organizational assets and cash flow. Those residual claim rights can normally be sold without consent from other contracting parties (M. C. Jensen & Meckling, 1976). Specialized in issues on agency cost, M. C. Jensen and Meckling held that the principal grants the agent some decision-making rights and requires the agent to provide services beneficial to the interests of the principal. An agency relationship exists in all organizations and collaborations. The relationship between capital owner and operator due to the separation of ownership and control right in enterprises also belongs to such a relationship. Let's assume that both the principal and the agent seek the maximized utility. Then, one can be sure that the agent will not always act in favor of the principal's interest. To solve this problem, the principal can incentivize and supervise the agent to do his best for the principal's benefit. Simultaneously, the agent can ensure that he will not infringe on the interests of the principal by pledging a certain amount of assets as security. Otherwise, he will compensate the principal with those assets. Even so, actions by the agent may still differ from the actions that maximize the principal's utility. The resultant loss to the principal's interests is called "residual loss" (Fama & Jensen, 1983). Agency cost is defined as the principal's supervision cost and residual loss, as well as the agent's guarantee cost. Agency cost works as the decisive factor for enterprise ownership structure. The existence of agency cost stems from the fact that the operator is not the full owner of an enterprise. That is to say, there is external stock ownership (Ang et al., 2000). In this case, the hard work of the operator may bring him all of the costs but only part of the benefits. Similarly, when he has company-paid consumption, he can receive all of the benefits but only bears part of the costs. As a result, the operator has a low working enthusiasm but is more eager to pursue

company-paid consumption. Therefore, the market value of the enterprise is lower than that when the operator is the full owner. The difference between those two market values is the agency cost of external stock ownership, a cost that must be borne by the operator within the rational expectation of the external owner. Making the operator a thorough owner of residual rights and interests can eliminate or at least reduce agency costs. However, this is, in turn, limited by the operator's own wealth. Bond financing, although able to break this limitation, can result in another agency cost. That is to say, the operator, a residual claimer, is more enthusiastic about engaging in projects with greater risks (Pandey & Sahu, 2019). According to the analysis of agency costs for equity and creditor's rights by M. C. Jensen and Meckling, a balanced enterprise ownership structure is determined by the balance between equity agency cost and the agency cost for creditor's rights. The optimal capital structure of an enterprise is to equalize the marginal agency costs for two financing methods so as to minimize the total agency cost.

The existence of an enterprise is based on the fact that its internal transaction cost is lower than that of the external market, so it is more efficient. Any operation mode that compromises the interests of those stakeholders within an enterprise will increase the transaction costs within the enterprise, thus reducing its production efficiency and even threatening its survival. Therefore, stakeholder governance works as an enterprise system design of productivity, production relations, and superstructure that takes into account the profits and interests of all parties. It is an inevitable requirement for an enterprise's survival and long-term development.

Thus, mixed-ownership enterprises are incorporated upon decomposable property rights. When such an enterprise is formed, the property rights can be reorganized according to the actual needs, but there is no need to integrate the ownership of property rights. Simultaneously, such a design also reduces the cost of property right integration and improves the possibility and efficiency of the establishment and operation of mixed-ownership enterprises. For example, when it comes to public-private cooperation in some large construction projects, private capital can raise funds via financial instruments or lease some assets so as to obtain the right to use those assets, thus creating "hybrid" conditions for the development of a diverse ownership economy. In addition, it is worth expressing that the theory on enterprise ownership only outlines the mechanism behind when market entities choose the form of enterprise ownership on their own. However, that is not enough to prove that those forms of ownership fit Chinese companies. We need to combine the characteristics of the Chinese market environment so as to explore the ownership form that really adapts to a given enterprise.

2.2 Stakeholder theory

Instead of intensifying the conflict among stakeholders, especially the arrangement for residual claim rights and residual control rights, the pro-active development of a diverse ownership economy is aimed at breaking the rigid and monopolistic mechanism and system to promote the complementary advantages of capital, and thus to optimize the allocation of resources. The integration of state-owned capital and private capital should not overemphasize their respective control and influence. Instead, an effective corporate governance mechanism should be established on the basis of a reasonable property right structure so as to mobilize the enthusiasm of various interest subjects via checks and balances. Stakeholder theory provides a theoretical reference for the proactive promotion of a diverse ownership economy and its models. This theory can guide the coordination mechanism against interest conflicts in the operation of mixed mode and thus assist in the effective operation of mixed mode. Based on the stakeholder theory proposed by previous scholars, the dimensions of stakeholders were expanded herein. Common governance, green governance, and data governance were incorporated into stakeholder governance theory. Literature concerning those theories was reviewed.

2.2.1 Stakeholder governance

(1) Stakeholder Concept

In *the Firm Growing Theory*, a new viewpoint is proposed that an enterprise is a collection of human assets and interpersonal relationships (Penrose, 1959). This viewpoint has laid a certain foundation for the emergence and development of stakeholder theory. The concept of stakeholder was first proposed by Stanford Research Institute in 1963. The scholars from this institute hold that there are some interest groups for enterprises. Without their support, enterprises cannot survive (Carroll & Näsi, 2002). Although this definition regards stakeholders from a very narrow perspective, it enlightens people that enterprises do not only serve shareholders; there are also many interest groups around enterprises that are concerned with the survival and development of enterprises. The stakeholder concept has gradually been developed in western countries since the 1960s. Ansoff (1965), an American scholar, has introduced the stakeholder concept into management and economics. In his opinion, to develop an ideal corporate goal, one must take into account the conflicting claim rights among many stakeholders of an enterprise in a comprehensive and balanced manner, who include shareholders, managers, employees, suppliers, and distributors. In his book *the Strategic*

Management: Stakeholder Approach (1984), Freeman (2010) completed the framework of stakeholder theory and puts forward that stakeholders refer to individuals and organizations that can influence or are influenced by the behaviors and goals of an enterprise. According to the stakeholder theory proposed by Freeman, companies are accountable to both shareholders and other interest groups. Since then, the influence of stakeholders has expanded rapidly. Scholars in the fields of business ethics, business and society, corporate social performance, and strategic management have integrated existing theories with stakeholder concepts. Stakeholders have begun to influence the choice of corporate governance modes in the US and the UK and thus promoted the transformation in corporate management models (Carroll, 1994; Carroll & Buchholtz, 2014; Goodpaster, 1991; Weiss, 1994). Subsequently, scholars have defined the stakeholder concept from various perspectives. Clarkson (1995) defined stakeholders as the individuals or organizations that have invested certain physical capital, financial capital, human capital and other valuable resources in an enterprise and thus bear the corresponding risks. However, some collectives or individuals, such as the media, who do not have market transactions with enterprises are not among stakeholders (Clarkson, 1995). Blair (1996) argued that stakeholders refer to all individuals and groups who have contributed specific assets to an enterprise and have already been in a risk investment situation due to the accomplished result. M. Liu (2007) held that stakeholders are the individuals or groups that have a mutual relationship with an organization. This relationship is under the precondition of a contract. Stakeholders are supposed to acquire benefits from the business activities of an enterprise and thus bear corresponding risks (M. Liu, 2007).

Many scholars have proven that material capital is no longer the only important resource in an enterprise. Stakeholders, including human capital owners, should be entitled to enterprise ownership whose structure should be diversified. According to Donaldson and Preston (1995), a company is essentially a business entity subject to multiple market forces. Via such an entity, a large and diverse number of participants achieve diversified purposes that are not always consistent. This means that each stakeholder group is entitled to demand the company to treat it according to its own results rather than the final results of others. Therefore, they must participate in decisions concerning the future direction of the company based on their bets (Donaldson & Preston, 1995). Therefore, an enterprise should not be an organizational system dominated solely by shareholders. Instead, creditors, managers, employees, and other providers of special resources can also act as the owners of an enterprise (X. H. Wang, 2012). According to the opinion of Blair (1996), shareholders are entrusted with all rights and responsibilities as owners under traditional theories, which is not out of the law of social science but just based on

legal and social practice. According to Blair, managers should be accountable to all stakeholders bearing the risk of the company; enterprise owners include not only the owners of material capital but also the owners of expertise and special investments; corporate governance should work as a mechanism to protect each stakeholder (Sharpe, 1996; X. H. Wang, 2012). Z. Wang and Peter (2008) expounded that an enterprise stands essentially as a kind of collective option; the contracting parties of organizational contracts only include those internal stakeholders who engage in the collective choice of the enterprise rather than all of those enterprise stakeholders. Enterprise ownership arrangement is the result of the collective choice by stakeholders (Z. Wang & Du, 2012).

Definitions of stakeholders vary in academia. Therefore, the development of the stakeholder concept is a process from stakeholder influence to stakeholder participation. In the first stage, stakeholders influence the enterprise's survival; in the second stage, stakeholders influence or are subject to the business activities of the company; in the third stage, the specific assets of the enterprise are emphasized, which provides a measurement method for stakeholders' participation in enterprise ownership distribution.

(2) Stakeholder Governance

Corporate governance can be interpreted as a system that guides and controls a company (Cadbury, 2000) and whose core is the institutional design of enterprise ownership. There are two different schools of theory in terms of corporate governance objectives. The "shareholder first" corporate governance theory works as a unilateral governance (Ferrero et al., 2014) aimed at maximizing shareholders' interests; according to this theory, the business activities and objectives of the enterprise are all oriented toward shareholders' interests. Another stakeholder governance model (Freeman, 2010) developed rapidly in the middle and late stage of the last century advocates that enterprise ownership is shared among stakeholders such as shareholders, creditors, suppliers, employees, consumers, governments, and communities; business operation is aimed to maximize stakeholders' interests.

In the early stage of enterprise development, it was helpful to boost enterprise development by simply emphasizing the realization of shareholders' interests due to the scarce material capital. Under the conditions, then, the assets invested by shareholders into enterprises are of strong specificity and mortgage property, and shareholders have become the actual risk bearers. Even though enterprise managers faced management problems at that time, the management skills needed for enterprise development were not outstanding due to the few uncertain factors in the market. The identities of owners and operators of material capital were often the same. As far as employees were concerned, human capital was of weak specificity and mortgage

property, and it was unable to bear the residual risks of the enterprise. Therefore, material capital acted as the major implementer of maximum enterprise value, while human capital played an insignificant role in enterprises. Therefore, the ownership arrangement naturally embodied the logic of shareholder primacy. That is, enterprises served shareholders, and enterprise owners should thus be enjoyed by shareholders alone, which naturally and reasonably formed a unilateral governance mode dominated by material capital. According to the theory of unilateral governance, corporate governance is the incentive and constraint made by the owner (i.e., shareholder or principal) to the operator under information asymmetry. Corporate governance is aimed to maximize the interests of shareholders; the subject of corporate governance is the sole shareholder, the owner of material capital; the object of corporate governance is the agent (operator).

After the 1960s, a series of practical problems arose in enterprises worldwide, such as corporate ethics, employee disputes, and corporate environmental management, which brought forth the stakeholder theory. Freeman and McVea (2001) came up with the stakeholder governance model and hold that corporate goals should not just meet the demand of shareholders. Instead, they should also meet the interests of stakeholders as far as possible. In terms of corporate governance, the unilateral decision-making power of shareholders has no longer been applicable but has been replaced by a corporate governance model in which all stakeholders participate and share risks and residual interests (Zhao, 2013). According to the stakeholder theory, an enterprise comprises different stakeholders (M. C. Jensen & Meckling, 1976), and it aims to create wealth and value for all stakeholders rather than to maximize the interests of shareholders. The resources necessary for the survival and development of enterprises not only include the equity capital invested by shareholders but also cover the joint investment of special assets from various stakeholders (Jawahar & McLaughlin, 2001). This also indicates that stakeholders will invest in specific assets necessary for the survival and development of the enterprise and simultaneously bear a certain number of operational risks. Therefore, enterprises should consider the satisfaction of stakeholders in making their business decisions. Otherwise, the survival and development of enterprises will be compromised at the end (Freeman, 2010). Therefore, when it comes to the research on stakeholder theory, relative satisfaction with interests has become a key research aspect (H. Chen & Jia, 2005). Demands and requirements for interests vary among stakeholders, whose emphases on interest requirements are also significantly different (Mitchell et al., 1997; Wheeler & Sillanpa, 1998). Meanwhile, the realization of interest requirements also varies among stakeholders. All of those facts will have a significant influence on corporate values and sustainable business development

(Rowley, 1997). The corporate governance model based on stakeholders has become the primary option for more and more enterprises. According to research findings by some scholars, the performance of enterprises adopting the stakeholder governance mode is better than those adopting the shareholder supremacy mode (Ayuso et al., 2014; Preble, 2005). The specific comparison has been listed in Table 2.1.

Table 2.1 Comparison between shareholder primacy theory and stakeholder theory

Objects	Shareholder primacy theory	Stakeholder theory
Enterprise mission	Shareholder value maximization	Stakeholder value maximization
Responsibility object	Accountability to shareholders	Accountability to stakeholders
Priority in management decisions	Shareholders' interests	Stakeholders' demands
Management focus	Control	Balance interests and conflicts
Manager's compensation	In light of economic value creation	In light of economic value creation and stakeholder satisfaction
Performance evaluation approaches of managers	Shareholder value: Economic added value, total shareholder income, and return on net assets.	Social responsibility and performance
Residual risk undertakers and corporate residual right claimers	Shareholder	Stakeholder
Governance model	The operator is the agent of the shareholder who engages in management.	The operator is the agent of all stakeholders who jointly govern the enterprise.

In May 1999, the Organization for International Economic Cooperation and Development (OECD) specially formulated *the OECD Principles of Corporate Governance Structure*, emphasizing the ideas and principles of corporate governance from the perspective of the improvement of corporate governance structure among various countries (OECD, 2004). This document showed that enterprises can obtain a competitive advantage because different stakeholders provide specific assets and make joint efforts (Jesover & Kirkpatrick, 2005). All stakeholders who have invested special human capital or other relevant special assets in an enterprise and bear the failure risk of such assets shall be entitled to the residual income and bear the residual risk (Freeman & McVea, 2001). Each stakeholder constitutes the main body of corporate governance. Their interests must be taken into consideration in the management decisions and the corporate governance framework formulated by the enterprise. Shareholder interest is only one of those considerations (Lozano, 2005). In the corporate governance structure, enterprises should design a series of contract plans and institutional governance arrangements, allocate corresponding corporate governance rights to each stakeholder, and proactively attract each stakeholder to participate in corporate governance in order to achieve those common governance goals (Blair, 1996). Stakeholder governance breaks through the

logic of unilateral governance in the governance model and allocates enterprise ownership among stakeholders so as to improve the enthusiasm of each stakeholder to supervise operators and thus enhance the efficiency of corporate governance (Turnbull, 1997). In this sense, enterprises have developed into an institutional arrangement for specialized investment governance and management.

(3) Stakeholder Management

Different stakeholders may set diverse and even conflicting interest requirements for enterprises, but enterprise resources are limited. Therefore, enterprises should pay different degrees of attention to various stakeholders according to the actual situation and adopt diversified management policies and measures (L. Wu, 2006). It can be seen that the definition of stakeholder and the in-depth understanding of their interest requirement are the basis of stakeholder management. In the research on stakeholder theory, scholars have proposed several theoretical models concerning stakeholder management strategy. Grant et al. (1991) divided stakeholders into four types, namely supportive, marginal, mixed, and opposed types. Their corresponding stakeholder management strategies are participation strategy, monitoring strategy, cooperation strategy, and defense strategy. Supportive stakeholders establish a high level of cooperation but pose a low degree of threat against enterprises. Therefore, enterprises adopt the participation strategy, namely, to share decision-making power with them. Marginal stakeholders establish a low level of cooperation with and pose a low degree of threat against enterprises. Therefore, enterprises adopt the monitoring strategy. Mixed stakeholders establish a high level of cooperation with and pose a high degree of threat against enterprises. Therefore, enterprises adopt the cooperation strategy to improve the possibility for them to remain supportive. Opposed stakeholders establish a low level of cooperation and pose a high degree of threat against enterprises. Therefore, enterprises adopt the defense strategy to reduce their reliance upon those stakeholders (Grant et al., 1991). According to Clarkson (1995), enterprises can adopt four different kinds of management strategies for different stakeholders, namely, foreseeable strategy, adaptive strategy, defense strategy, and confrontational strategy. Foreseeable strategy means enterprises should foresee and assume responsibilities and do more than what they are required. Adaptive strategy means that enterprises assume responsibilities but expect to gain concessions and thus do only what they are required. Defense strategy means that enterprises receive responsibilities but refuse to accept them and thus do as little as possible; adversarial strategy means that enterprises deny responsibilities and do less than what they are required (Clarkson, 1995). Berman et al. (1999) proposed two different kinds of stakeholder management models, namely the strategic stakeholder management model and the endogenous

stakeholder commitment model. The former is instrumental and emphasizes that stakeholders with great contributions to corporate financial performance should receive more attention and corporate resources. The latter is normative and emphasizes enterprises' moral responsibilities toward their stakeholders. The formulation of enterprise stakeholder management strategy only needs to take into consideration corporate moral responsibilities. Besides, empirical research showed that enterprises often consider the strategic stakeholder management model in practice (Berman et al., 1999). Jawahar and McLaughlin (2001) proposed a corporate lifecycle-based dynamic stakeholder management model on the basis of resource dependency theory and expectancy theory. This model indicates that enterprises should adopt not only different management strategies for different stakeholders but also different management strategies for the same stakeholders on different corporate life cycle stages. Based on theoretical analysis, this model also produces the specific management strategies that enterprises should adopt for different stakeholders on different corporate life cycle stages (Jawahar & McLaughlin, 2001). Although it is established only upon the basis of theoretical analysis and thus lacks support from empirical research, this model is still of great significance because it has introduced corporate contextual factors into stakeholder research (L. Wu, 2006). H. Chen (2003) argued that stakeholder management is to coordinate, balance, and govern the interests of stakeholders. L. Wu (2006) proposed a contingent stakeholder management strategy model, which divides stakeholder management strategies into three types, namely comprehensive satisfaction strategy, adaptive strategy, and basic guarantee strategy. According to her empirical research, enterprises will adopt corresponding stakeholder management strategies for different stakeholders based on different contextual factors (L. Wu, 2006).

(4) Stakeholder Governance Model Practice

Stakeholders' participation in corporate governance has become a common phenomenon during the operation practice of companies in various countries. The corporate governance systems in various countries can be roughly divided into three types, namely the two-tier corporate governance structure represented by Germany, the single-tier dual corporate governance structure represented by Japan, and the single-tier unitary corporate governance structure represented by the UK and the US. Corporate governance structures vary significantly upon national conditions and legislative traditions, but there are still some commonalities. By comparing and learning the systems for stakeholders to participate in corporate governance among various countries, we should grasp the international development trend of corporate governance structure integration and convergence and then form a system with Chinese characteristics for stakeholders to take part in corporate governance.

Germany adopted *the Law of Co-decision (Mitbestimmungsgesetz)* in 1976. It clearly stipulates that the board of supervisors in a company must comprise 50% of employee representatives and that all enterprises with more than 2,000 employees must carry out the joint decision-making power system. Among the members of the board of supervisors of enterprises, the ratio of employee representatives to employers shall be 1:1. In 1992, Germany amended *the Workers' Committee Act*. It stipulates that an enterprise with more than five employees must establish a workers' committee (Frick & Lehmann, 2005). In 1960, Volkswagen, a public joint-stock enterprise, sold its "people's shares" to its low-wage employees. Since then, some private companies have also adopted such an approach. As of the mid-1980s, there had been 900,000 employee shareholders in Germany. The common governance mechanism of stakeholder in German enterprises not only safeguard capitalists' interests but also alleviates the conflict between laborers and capitalists. Employees are no longer on the passive side in enterprises but enjoy some economic rights and engage in business administration, decision-making, and other issues concerning their vital interests (G. Jackson, 2005).

Founded in 1956, Mondragon Cooperative Enterprise stands as a typical enterprise under common governance by stakeholders via the structure model of common governance between physical capital owners and internal employees of the enterprise (Turnbull, 1997). For example, in terms of residual allocation, the enterprise has established an internal capital account system. The account is composed of an individual account and an aggregate account, and the residual interests generated by the enterprise are allocated to the individual account and aggregate account as per regulations. Usually, 70% of the net residual of the enterprise is allocated to individual accounts, while the remaining 30% is allocated to the aggregate account as a "self-insured allocation" for collective reserves and social funds. In terms of company management, a democratic management system is implemented for employees to participate in decision-making. The highest authority of the enterprise is the general assembly of workers, and the board of supervisors is elected from the cooperative members of the general assembly.

Since the "manager revolution" in the 1930s, managers' status in enterprises has been rising increasingly in the US. In addition to the rights to operate businesses and manage properties, managers are also entitled to a partial residual claim right, thus completing their "power without property". In 1952, Pfizer of the US launched its first stock option plan. Since then, the executive stock option plan began to prevail in enterprises worldwide (C. Li, 2003). In the 1960s, Louis Kelso, an American lawyer, proposed the "employee stock ownership plan," in which labor by employees was taken as the basis for their ownership of company shares (Kieron,

1993). By 1996, 90% of listed American companies had established stock option plans for their employees (Clarke, 1998).

After World War II, Japan rolled out a democratic political system and social equality under the occupation of US troops. As a result, the labor-capital relationship changed accordingly in Japan. In 1945, Japan promulgated the Labor Union Law and Labor Group Law, which gradually formed a labor-capital relationship with Japanese characteristics (Koike & Saso, 1988). Japanese companies are established with both a board of directors and a board of supervisors. Employees elect their representatives to attend the board of supervisors so as to fulfill their supervision function, realize the democratic management of their companies, and advocate the engagement of all employees in operation. However, at that moment, there was no legislative regulation on the system of employee director or employee supervisor. In 1993, Japan amended *the Commercial Law* and *the Special Law on Commercial Law* and introduced the external supervisor system and other matters to lay a legislative foundation for the implementation of employee participation in governance in Japanese companies. In 2001, *the Special Law on Commercial Law of Japan* was amended again, which stipulated that the majority of supervisors must be chaired by external supervisors.

Thus, corporate governance models change in countries and regions with the continuous development in culture, system, politics, economy, law, and other factors. The continuous development of the stakeholder governance model reflects the realistic requirements set by the modern market economy. Simultaneously, this model will also face the demand for further evolution and innovation. Stakeholder governance has shaped a brand-new concept of ownership. It furthermore diversifies the survival and development goals of enterprises and strikes a balance among different stakeholders. Stakeholder governance theory serves as a reference for corporate governance reform among transition economies.

(5) Research Shortcomings and Limitations on Stakeholder Theory

Currently, there are many researches on stakeholder theory, but no unified theoretical system has been established yet. Generally speaking, most of those research findings concentrate on a theoretical basis and definition of stakeholders. How stakeholders participate in corporate governance remains a weak link, however. Some scholars only interpret ownership under stakeholder theory as the establishment of a corporate governance structure for common governance. At present, *the Company Law* clearly stipulates that shareholders are the ultimate owners of a company, which has seen no radical adjustment. Under this condition, those scholars attempt to establish a corporate governance structure for common governance in a narrow sense. As a result, they are undoubtedly driving themselves into a dead end of

management practice application. In fact, corporate governance involves a series of formal or informal systems or mechanisms that covers both internal and external sides of the enterprise, so as to coordinate the interests between the enterprise and all stakeholders (W. Li, et al., 2019).

In addition, the lack of empirical research on stakeholder theory in terms of research methods has restricted the academic status of stakeholder theory to a certain extent (H. Chen, 2003). Whether to adopt a scientific research method will play a decisive role in the research on stakeholder theory from imperfect to perfect. Since the emergence of stakeholder theory, normative theoretical analysis has taken an overwhelming position in its expression and achieved fruitful results, while empirical research is in great deficiency (Donaldson & Preston, 1995). H. Chen (2003) has made pioneering contributions to the empirical research on stakeholder theory in China. Based on the empirical survey data and the enterprises' cognition of the ranking difference in stakeholders in terms of initiative, importance, and urgency, he has divided enterprise stakeholders into core stakeholders, dormant stakeholders, and marginal stakeholders. Besides, he has further explored the importance ranking, the realization method ranking, and the difference in their realization degree of specific interest requirements from different stakeholders (H. Chen, 2003). Later, quite a few Chinese scholars continued their empirical research on stakeholder theory. For example, L. Wu and He (2005) have researched the stakeholder categorization in enterprises with different life cycles based on the ranking difference in enterprises' cognition of the importance of different stakeholders. L. Wu (2006) divided enterprise stakeholders into four categories, namely crucial stakeholders, important stakeholders, general stakeholders, and marginal stakeholders, and proposed a contingent stakeholder management strategy model. H. Deng and Zhao (2007) have focused on the importance of ranking various specific interest requirements from three kinds of core stakeholders, namely shareholders, managers, and employees, as well as the realization degree of their interest requirements. Taking a mining group as an example, they have conducted a detailed factor analysis on the interest requirements of grass-roots managers. W. Jiang (2007) has researched the ranking difference in four types of industrial clusters' attention to the interest requirements from external stakeholders. After the slight improvement to measures proposed by H. Chen (2003), L. Liu (2008) has adopted the same method to research the importance ranking of various specific interest requirements from enterprise stakeholders in another sample. She has acquired similar results to H. Chen. It can be seen that empirical research on stakeholder theory has become a current topic concerning corporate governance research.

The research fields concerning stakeholder theory cannot be covered without omission due to their rich and extensive scope. Therefore, the research herein focuses on the empirical

research on stakeholders' participation in governance after dimension expansion. We will forward our empirical research on corporate stakeholders' participation in governance and corporate sustainability so as to explore their influence mechanisms. We hope to complete the stakeholder theory by further enriching the empirical research on stakeholders' participation in corporate governance. Furthermore, we also hope to enhance the understanding of enterprises in stakeholder governance, facilitate enterprises in more consciously responding to the stakeholder interests, and enhance the efficiency and effectiveness of stakeholder management in the operation of enterprise organizations, so as to provide instructions for relevant groups to participate in corporate governance better.

To sum up, a rough review of stakeholder governance theory shows that the stakeholder theory is also under constant updating and optimization as the economic situation keeps changing and the research perspective keeps expanding and deepening. Some scholars proposed that corporate ethics should be valued during economic activities. They emphasize the consistency among corporate profits, other stakeholders' interests, social responsibilities, and ecological protection so as to guarantee corporate sustainability and social economy (Donaldson & Preston, 1995; Letza et al., 2004). They insist that forward-looking environmental strategies should be formulated during the process of continuous development (Buysse & Verbeke, 2003). Meanwhile, with the continuous development of socialized information technologies, data have gradually become the core and specific assets for enterprise operation and development. Therefore, data governance has become a key approach to enhancing corporate governance ability (Bao & Jia, 2019). From the perspective of stakeholders, the diverse ownership economy model is to re-combine stakeholders. We proposed the common governance under stakeholder governance theory and defined the stakeholders participating in corporate governance in mixed-ownership enterprises. Thus, common governance, green governance, and data governance were incorporated into stakeholder governance theories based on previous stakeholder governance theories, which expanded the connotation dimension of stakeholder governance.

2.2.2 Common governance theory

(1) Common Governance Subject

Freeman proposed six principles on institutional arrangement for future enterprises, namely, the entry and exit principle, the governance principle, the externality principle, the transaction cost principle, the organization principle, and the conditional immortality principle (Freeman, 1994). The entry and exit principle mean that each stakeholder has the right to enter and exit

contracts; the governance principle means that each stakeholder has the right to participate in corporate governance; the externality principle means that each stakeholder will spare no effort to avoid becoming the recipient of “negative externality” of an enterprise; the transaction cost principle means that each stakeholder should bear the transaction cost of a contract accordingly; the organization principle means that an organization should take into account the interests of all stakeholders; the conditional immortality principle means that a company should be able to consistently realizing the benefits of all stakeholders. Common governance is to allocate corresponding corporate governance rights to each stakeholder so as to draw different stakeholders to participate in corporate governance (Blair, 1996).

Common governance subject is for different stakeholders. To this end, we should define and classify the stakeholders engaging in common governance scientifically and reasonably (Rowley, 1997). This is a key and fundamental issue (Stiglitz, 1985) in limiting the authority scope of various stakeholders (Burchell & Cook, 2006; Money & Schepers, 2007). Scholars have classified stakeholders from multiple perspectives and proved that the influence on enterprises varies upon stakeholders (Freeman & McVea, 2001; Wheeler & Sillanpa, 1998). Freeman classifies corporate stakeholders from three different perspectives, namely ownership, economic dependence, and social interests. All corporate shareholders are stakeholders with ownership over an enterprise. Stakeholders with economic dependence on an enterprise include creditors, managers, employees, suppliers, consumers, competitors, and local communities. While government leaders, the media, and other parties establish a relationship with a company in terms of social interests (Freeman, 2010). Frederick et al. (1988) divided stakeholders into direct stakeholders and indirect stakeholders. Among them, direct stakeholders are those who conduct direct market transactions with enterprises, and they include creditors, shareholders, employees, and suppliers. Indirect stakeholders are those who establish a non-market relation with enterprises and they include the government, social groups, the general public, and the media (Frederick et al., 1988). Charkham (1992) divided stakeholders into contractual stakeholders and public stakeholders as per the nature of relationship between stakeholder group and enterprise contracts. The former includes shareholders, employees, suppliers, distributors, clients, and lenders. The latter includes all consumers, regulators, government departments, media, and local communities (Charkham, 1992). Clarkson (1995) listed several different classification methods. He divides them into active stakeholders and passive stakeholders according to the way stakeholders undertake risks in business activities. He divides stakeholders into important stakeholders and secondary stakeholders according to the close relationship between stakeholders and enterprises. The former refers to the group that

enterprises cannot operate without their participation. Otherwise, enterprises cannot stand for long. They include investors, shareholders, employees, suppliers, and clients. The latter refers to those who influence or are indirectly influenced by enterprise operations, such as local communities, the government, and the media (Clarkson, 1995). According to the difference in closeness among social dimensions, Wheeler divides stakeholders into four types, namely, first-tier social stakeholders, first-tier non-social stakeholders, second-tier social stakeholders, and second-tier non-social stakeholders (Wheeler & Sillanpa, 1998). According to Mitchell et al. (1997), stakeholders must possess three attributes, namely influence, legitimacy, and urgency. Mitchell et al. scored stakeholders' ownership of those three attributes and divides them into three categories, definitive stakeholders, anticipatory stakeholders, and potential stakeholders. According to instrumental stakeholder theory, enterprises only need to focus on the stakeholders who can influence the enterprise value (Donaldson & Preston, 1995; M. Jensen, 2001). R. Jiang (2006) sorted out the researches on subjects and categorization of stakeholders, and the brief results were listed in the table.

No matter how stakeholders are categorized, the role characteristics and the interest appeal of each stakeholder should be clarified in practical application. Thus, effective mechanisms and measures can be adopted to strike a balance among the interest appeals of each stakeholder. Meanwhile, the adjustment should be made according to the changes in roles and attributes of stakeholders so as to adapt to the new interest pattern among stakeholders.

(2) Arrangement for Stakeholders to Participate in Corporate Governance Structure

Common governance is malleable. Therefore, enterprises can design different specific mechanisms under different external environments and internal organizational characteristics as per their own adaptability. From the perspective of the internal corporate organizational characteristics, the common governance model mainly includes two parallel mechanisms, namely, the board of directors and the board of supervisors (Yang & Zhou, 1998). The common governance mechanism in the board of directors ensures that property rights entities have equal opportunities to participate in major corporate decisions. The common governance mechanism in the board of supervisors is to ensure that all property rights entities are equally entitled to the right of supervision so as to achieve checks and balances. In China, the internal corporate governance structure is usually "three meetings and one layer." They are interdependent and mutually restricted, namely, 1) the board of directors, 2) the general meeting of shareholders, 3) the board of supervisors, and 4) the senior management personnel (H. W. Hu et al., 2010), as shown in Figure 2.1.

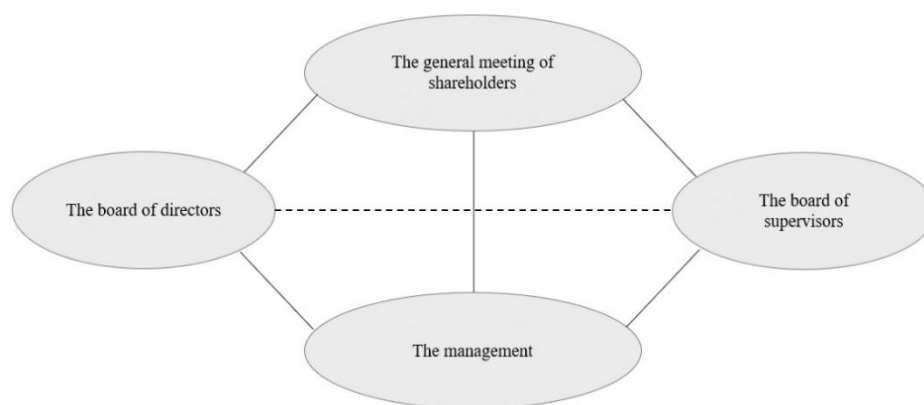


Figure 2.1 Corporate governance framework of “Three Meetings and One Layer”

The general meeting of shareholders stands as the high authority of a company. It can decide on a company’s operation policies and investment plans, examine and approve various plans of the company, and make resolutions on major matters of the company (Glinkowska & Kaczmarek, 2015). The general meeting of shareholders generally elects the board of directors. It serves as the representative of the interests of all shareholders, the decision-making organization concerning enterprise operation, and the executive organization of the general meeting of shareholders. Decision-making and management of daily business activities are the responsibilities of the board of directors, and they can directly manage the enterprise through the recruitment of senior management personnel (D. B. Van & Levrau, 2004). The business decisions made by the board of directors will directly influence the business performance and the future development of an enterprise (Shan & Xu, 2012). The board of supervisors stands as the supervision body of an enterprise. It is mainly responsible for supervising the due diligence of the board of directors and the management (Farg & Mallin, 2019). The senior management acts as the agent of the board of directors and the most direct participant in the operation and management activities of the enterprise. It is the final agent of the principal-agent relationship and the executive agency of an enterprise. The measures it takes will directly influence a company’s operation performance (Lin, 2004). The common governance mechanism of mixed-ownership enterprises can be considered in light of the joint executive committee, the board of supervisors, the special human capital stock ownership plan, the employee stock ownership plan, the cross-stock ownership, the membership system and other mechanisms. It ensures that all participants have equal opportunities to participate in the major decisions of a company and that all participants are entitled to equal rights of supervision.

① A joint executive committee refers to the invitation or appointment of some important stakeholder representatives as personnel of the board of directors within an enterprise so as to highlight the importance of such stakeholders (Agustia et al., 2022). The incorporation of

stakeholder representatives into the board of directors helps establish a good communication channel with such stakeholders. Enterprises assimilate stakeholders by allowing their representatives to participate in corporate affairs so as to stabilize the relationship between enterprises and stakeholders. For example, the current independent director system and the incorporation of worker representatives into the board of directors are important approaches for enterprises to deal with the increasingly powerful influence of external stakeholders.

② The board of supervisors has the right to recommend the convening of an extraordinary general meeting of shareholders, to propose suggestions on the management of the company, and to question the problems in the company. Therefore, the board of supervisors can participate in corporate governance and influence corporate operation performance via various approaches (Lin, 2004). Its members are generally composed of three kinds of people. The first kind is the employee representatives elected from the general membership meeting; the second kind is the shareholder representatives elected by the general meeting of stockholders; the third kind is external supervisors (Dienes & Velte, 2016).

③ Employee stock ownership plan works as a long-term incentive method for enterprises to unify the interests of employees and enterprises by granting them a certain number of shares (Livingston & Henry, 1980). In essence, an employee stock ownership plan is to turn employees into owners of the company, that is, to introduce employees into the ranks of corporate stakeholders. When rolling out the employee stock ownership plan, enterprises must formulate a relatively complete employee stock ownership system in view of their own realities. The system includes the employee performance quantification standard, the employee categorization method, the arrangement for an employee to withdraw from the company shares, the employee stock arrangement plan in case of their death, and whether to combine the employee stock ownership plan with employee punishment. Only the employee stock ownership plan under the protection of a complete system can exert a good effect. Otherwise, it will not only fail to incentivize employees and boost productivity but also incur unnecessary lawsuits or losses for a company.

④ Cross-shareholding refers to the phenomenon that two or more companies hold each other's shares for specific purposes, thus forming a cross-investment among corporate entities (Dietzenbacher & Temurshoev, 2008). Through cross-shareholding, enterprises can realize business cooperation and integration among different companies. Such a practice also plays a unique role in corporate governance and resistance to malicious mergers and acquisitions. Given the double-edged sword effect of cross-shareholding, enterprises need to define the

extent of cross-shareholding well, strictly select powerful target companies for such moves, and limit the application scope of cross-shareholding to the main relationship suppliers that have a great influence on themselves (X. Wang et al., 2012).

⑤ The membership system works as a kind of member governance system designed by an enterprise to treat its supply chain members as participants in the sharing platform of the enterprise. Different from the pure transaction relationship, the membership system divides supply chain members into different ranks and defines different rights and interests through the system (X. Chen, 2016). Therefore, the membership system works more like an incentive mechanism that provides a broader space for enterprises to manage their various stakeholders. For example, enterprises can stipulate that top members can participate in sharing the surplus profits of enterprises and what kind of discount they are entitled to handle. Of course, the implementation of a membership system often requires enterprises to develop a strong channel control capability and can attract a large number of supply chain members to participate. Enterprises can choose different types of membership systems according to their own conditions, such as the paid and the free membership systems, so as to better realize the goals for enterprise value management.

⑥ Special human capital shareholding plan is an incentive scheme for an enterprise to grant shares to the special human capital, such as senior managers, senior professional and technical personnel, and innovative leading talents, with special contributions to the enterprise (Kruse, 1996). The specific method for special human capital shareholding can be either the direct stock incentive or the stock option incentive. Either way, the essence is to incorporate special human capital into the corporate stakeholder system and to stimulate the joint creation of value through value sharing. A special human capital shareholding plan can effectively resolve the problem of managerial and innovative talent shortage in enterprises. In the meantime, it can effectively alleviate the agency issue between material capital investors and social capital investors and the management, as well as between management and senior professionals.

⑦ Profit-sharing plan is a net income allocation model in which enterprise owners and employees share the profits generated by an enterprise (Kruse, 1996). According to the profit-sharing plan, employees can acquire a reward at a certain percentage of the final net profit of the enterprise in addition to their normal salary and remuneration. This move is a method to incentivize human capital to generate more net profits by associating employees' efforts or contributions to net profits with their personal interests. The difference between a profit-sharing plan and a stock ownership system is that employees participating in a profit-sharing plan only

take part in profit sharing but do not bear the loss and operation risk of an enterprise. Enterprises can determine the main target of a profit-sharing plan according to their actual needs, such as enterprise management, professionals, and non-management staff.

(3) Stakeholders of Mixed-ownership Enterprises

The definition of stakeholders of mixed-ownership enterprises is not a new division but a new connotation formed upon the existing division. “Mixed-ownership enterprises” stands as the integration of state-owned capital and non-state-owned capital. The stakeholders of state-owned capital involve the general public, but it has no “real owner.” Therefore, there is the owner’s absence, and a complete marketization has not been achieved. The arrangement for residual claim rights and residual control rights has always been controversial. A dynamic and categorized perspective should be adopted for the stakeholders of mixed-ownership enterprises (P. Deng, 2015). For example, state-owned capital can be divided into public policy capital, specific functional capital, and general commercial capital according to its functional nature. The mixing of various types of state-owned capital and non-state-owned capital makes the boundary of stakeholders different. The stakeholders of mixed-ownership enterprises in the general commercial sector are concentrated inside enterprises, including shareholders, creditors, operators, employees, and other organizations or individuals that have a direct transaction relationship with enterprises. Mixed-ownership enterprises in specific functional fields have both commercial and policy properties. Their stakeholders are concentrated inside and outside enterprises and, in society, including shareholders, creditors, operators, employees, partners, industry, community, the government, and society (i.e., the media, people, and the environment). Mixed-ownership enterprises in the field of public policies involve public interests, so the stakeholders of such enterprises also include the general public. Furthermore, stakeholders can also be divided as per the arrangement for residual claim rights and residual control right. The group entitled to residual claim rights is a close stakeholder; otherwise, it is a loose stakeholder or non-stakeholder.

When raising demands, stakeholders also make corresponding contributions. Simultaneously, companies are setting more and more requirements and expectations for stakeholders (Low & Cowton, 2004). For example, companies will require shareholders to keep making capital investment, to expand their investment scale, and to increase their risk tolerance, so as to provide a long-term support and trust; they will require creditors to maintain steady and long-term loans, with the hope that creditors can increase or sustain the risk tolerance of debt funds; they will ask employees to consistently enhance their business competence and the expertise of human capital, so as to conform to their values and to seek a long-term development;

they will require the industrial development policy to steer shareholders to provide long-term financial support for industrial development; they will require suppliers to offer long-term and stable supply channels and overall solutions, and to preferably form strategic alliances so as to establish integrated vertical value chains; they will request clients to constantly solidify their loyalty and trust, to actively support their new products or services, and to share customer feelings and opinions with them; they will request the government to create good political and commercial environments, pro-business environment, legal and regulatory system, local community endorsement, human resources support, and industrial ecological support.

To sum up, mixed-ownership enterprises were mainly explored in the general commercial field. The participants in common governance were defined as shareholders of state-owned enterprises, shareholders of private enterprises, shareholders of industrial support funds, operators, employees, creditors, suppliers, clients, communities, the government, and the society (the media, people, and environment). Among them, the shareholders of state-owned enterprises play two roles of specific assets: One role is the investor of capital and resources, and the other role is the participant on behalf of the government and community in the governance of mixed-ownership enterprises. Shareholders of industrial support funds also play two roles in specific assets: One role is to invest funds in industrial development as strategic investors and the other role is to participate in the governance of mixed-ownership enterprises as social attributes of the industry. Clients refer to the agents who have a direct transaction relationship with enterprises and the direct consumers of products made by the enterprise. Society refers to the external environment closely relevant to the survival and development of enterprises, mainly covering the media, the general public, and the environment who act more as the participants on behalf of the society in the governance of mixed-ownership enterprises.

2.2.3 Green governance theory

(1) Green Governance

A new governance model should be created to integrate “green ideas” into the political, economic, social, and ecological systems of China in all aspects and during their operation process so as to address complex environmental problems and achieve sustainable development (W. Li et al., 2017). Green governance is oriented by ecological civilization construction and aimed at achieving sustainable development. In essence, it is a kind of public affair activity participated by governance subjects, implemented via governance approaches, and coordinated through governance mechanisms (W. Li, 2016). The traditional energy-intensive and highly polluting development mode has rendered the severely contaminated environment and

excessively consumed resources. In contrast, green governance has reversed the development pattern and created new drivers for growth (Z. Liu, 2017). China will take the lead in sustainable development by virtue of green ideas. We have put forward the basic strategy of “upholding the harmonious coexistence between mankind and nature” to promote global economic development in an ecological, equitable, and sustainable way and to emphasize the framework of a community for the shared future of humans (W. Li, 2016). Enterprises stand as the key players in green governance. According to the theoretical analysis of green governance, its starting point is to change from traditional resource scarcity to the environmental carrying capacity. It has realized the transformation from unilateral consideration of human needs to bilateral consideration of the environment as an equal entity (W. Li et al., 2017). To carry out green governance does not mean restricting enterprises from pursuing economic benefits with the carrying capacity of the ecological environment. Instead, it means to further boost sustainable economic development through the participation of stakeholders, the governance subjects, by virtue of innovative technologies, methods, and models (W. Li et al., 2017). Weng et al. (2015) have conducted research on green innovation from the perspective of stakeholders and hold that green innovation includes organizational innovation, management innovation, and technological innovation. However, scholars, such as Buysse and Verbeke (2003), Delmas and Toffel (2004), and Jennings and Zandbergen (1995) generally believe that stakeholder pressure serves as the main driving factor for enterprises’ green management. Stakeholders act pressure upon enterprises via various channels to influence their management behaviors (Henriques & Sadorsky, 1999). The influence on enterprises’ green management behaviors varies upon stakeholders. The mandatory force from the government is the main driving force of green management behavior. Internal stakeholder pressure and community pressure compel enterprises to actively respond to environmental issues so as to adopt proactive green management behaviors (Henriques & Sadorsky, 1999; Jennings & Zandbergen, 1995). According the mainstream ideas in western countries, external factors are the leading factors to drive enterprises to implement green management (Jennings & Zandbergen, 1995). In China, different driving factors of green management behaviors are categorized for further research. Those factors include the pressure from environmental laws and regulations, the pressure from environmental protection by clients, and competition pressure (Y. Li & Ye, 2011). Thus, green governance stands as a kind of system design involving joint efforts from stakeholders.

(2) Evaluation Index System of Green Governance

According to Buysse and Verbeke (2003), during the process of sustainable development, enterprises should incorporate environmental issues into their strategic planning and fully

consider the demands from various stakeholders so as to develop forward-looking environmental strategies as much as possible. A reasonable governance architecture can determine the vision, mission, culture, and strategy for green development of a company from the top-level design and provide institutional guarantee on the arrangement for governance structure. It serves as the foundation and the key to enhancing the green development level and the sustainable development capabilities of enterprises (W. Li et al., 2019). At present, the green performance evaluation systems adopted worldwide mainly include the ISO14031 standard proposed by the International Organization for Standardization (ISO), *the Sustainable Development Reporting Guide* issued by the Global Reporting Initiative (GRI), and the environmental performance evaluation standards issued by the World Council for Sustainable Enterprise (W. Li et al., 2019). The ISO14031 standards mainly construct the environmental performance indexes from the internal and external dimensions to evaluate corporate environmental performance comprehensively. Different scholars have also constructed green performance evaluation indexes for enterprises from different perspectives. For example, Clarkson (1995) categorizes the corporate environmental and social responsibility disclosure into seven performance indexes: Governance structure and management system (such as environmental audit policy), public confidence (such as voluntary environmental measures), environmental performance indexes (such as greenhouse gas emissions), environmental vision and strategic objectives (such as environmental performance goals communicated by the CEO to shareholders), environmental expenditure (such as fines for violations of environmental regulations), environmental protection (such as environmental performance relative to the rest enterprises in the industry), and internal environmental protection measures (such as staff training on environmental management issues). In terms of institutional design, Baboukardos (2018) has stressed the importance of environmental clauses. He points out that companies with well-recognized environmental clauses can help investors understand the future economic benefits and costs associated with their environmental performance by signaling strong future financial performance or enhancing the reliability of environmental performance information (Baboukardos, 2018). Saunila et al. (2018) held that the intrinsic driving force for enterprises to invest in green research and development is to pursue sustainable development. Therefore, their green investment amount can be regarded as a key factor in measuring the status of corporate green governance (Saunila et al., 2018). Kong et al. (2016) proposed that green innovation is a key enterprise capability to address environmental problems, and the use of advanced manufacturing technology (AMT) provides important resources and knowledge for enterprises' green innovation.

2.2.4 Data governance theory

(1) Data Governance

The term “data” was first recorded in 1946 as a piece of transferable and storable computer information. Data is basically considered as a set of discrete but objective factual descriptions of events, the raw material constituting information and knowledge. The notion of data as an asset was first proposed in a 1994 report by the Hawley Commission. The report defines data assets as “data that have been or should be recorded and have value or potential value” (Oppenheim et al., 2003). Horne associates governance with the best use of assets and then treats data and information as assets, which drives the importance of data governance within an organization (Horne, 1995). The primary driver of data governance is to regard data as a company asset (Panian, 2010). The research on data governance started as early as 2004 (Watson et al., 2004). Then, scholars, such as Cheong and Chang (2007), Griffin (2005), and Power (2008) discussed the model, framework, and mechanism of data management respectively around enterprises, the government, hospitals, and colleges. According to Cheong and Chang, data governance works as a process of enterprises managing the quantity, consistency, ease of use, security, and availability of data. They proposed a data governance framework composed of organizational framework and policy, standards and processes, and technology. Otto (2011b) defined data governance as a company-wide framework for the assignment of rights and obligations concerning decisions so that data can be adequately processed as company assets. Weber et al. (2009) proposed a data governance model, in which data quality role, decision domain, and responsibility form a responsibility-sharing matrix. Kim (2013) proposed a data governance model for commerce and IT alliances.

Data governance refers to the decisions that must be made and who makes those decisions, with the purpose of ensuring the effective management and use of resources. Data management involves decision execution (Fu et al., 2011; Khatri & Brown, 2010), and data management is influenced by data governance (Otto, 2011a). Data governance includes twofold connotations: The first is data-dependent governance, and the second is governance over data (K. Zhang, 2018). Data governance, the replacement, and transcendence of the concept on “data management,” not only pays static attention to “data” but further focuses on a larger scope of the “data world” (Alhassan et al., 2019).

(2) Data Governance Model

Previous researches are helpful in understanding data governance through modeling (Khatri & Brown, 2010; Otto, 2011b; Tallon et al., 2013). Alhassan et al. (2019) presented a data

governance activity model composed of three parts, namely action, governance domain, and decision domain. The Data Management (DAMA) International takes data policies and data standards as main deliverables in the data governance plan (Mosley et al., 2010). The data governance model by Wende focuses only on the data roles and responsibilities in the data governance plan (Wende, 2007). In addition, other governance domains should also be available so as to implement the data governance plan. For example, data technology is a governance field that receives more attention from practitioners as it is more associated with technological artifacts. According to the CDI Institute, against the backdrop of implementation from an IT perspective, data governance involves “developing the best practices and standards for architecture” and “building governance infrastructure, technology, and supportive organizations.” It emphasizes the importance of considering technologies concerning the implementation of data governance plan. Information Systems Audit and Control Association (ISACA) is a globally well-recognized organization for leading, managing, and monitoring information-relevant science and technology. ISACA constructs the data governance model (“ISACA model” for short) from four perspectives, namely administrative funding, culture, management index, and training and awareness cultivation (Abraham et al., 2019). The Higher Education Statistics Agency (HESA), as the official agency in the UK is collecting, analyzing, and disseminating quantitative information on higher education. The HESA data governance model (“HESA model” for short) stresses that the data governance model is closely associated with an organization’s design and management structure and that each organization should make appropriate modifications to the common model according to its own priorities so as to achieve the “specialization” (B. Williamson, 2018). HESA model juxtaposes the data governance team with the legal, security, human resources, and other teams under the guidance of the Data Governance Board (B. Williamson, 2019). HESA model is the first to propose the concept on the university data trustee and points out that the university data trustee should be responsible for the strategic coordination of data management. The university data trustee is essentially a senior data manager who is similar to the role allocation of a data bank at the University of Illinois under stakeholder theory (G. Liu et al., 2018). Mustimuhw Information Solutions (MIS) has developed the data governance spiral model (“Mustimuhw Information Solutions” spiral model for short). According to this company, data governance should be presented as a spiral model so as to adapt to the evolving needs and capabilities of people constantly. The consistency of the data governance model should be given full consideration, and the model should allow for the participation of the entire organization. That reflects the dynamic and evolving nature of this model. It consists of several core elements, including data

governance vision and principles, data governance structure, accountability mechanism, data governance policy, privacy and security policy, and law (Mahanti, 2021).

2.2.5 Human capital appreciation

(1) Human Capital

Human capital evaluates the monetary value of humans from the macro and the micro perspectives and highlights the role of human in the economy, which is the basis of human capital theory (M. Wang & Zheng, 2006). G. S. Becker (2009), Schultz (1961), and other scholars have made an in-depth exploration of human capital and thus created the modern human capital theory. Later, more scholars continued their research in-depth and further enriched the human capital theory. Schultz defined human capital as the capital congealed on laborers, converted from investment costs, and embodied in their techniques. It is the most important capital for enterprises. Mehta (1976) defined human capital as the sum of knowledge, skills, and competence of the people living in a country. In a broad sense, it includes initiative, resilience, the ability for consistent work, the correct values, interests, and attitudes, as well as the quality factor of people that can increase output and boost economic growth (Mehta, 1976). G. S. Becker held that human capital is the knowledge, skills, and physical agility of human resources formed by human investment to increase future monetary and material benefits. In addition, he also takes into account the time factor and highlights the time value of human capital (G. S. Becker, 2009). In the 1980s, Lucas (1988) and Romer (1986) applied mathematical methods to human capital theory and thus established the new economic growth theory and the economic growth model centered on human capital. Lucas has incorporated specialized human capital as an independent factor into the economic growth model, explained the reasons for continuous economic growth, and proposed that human capital investment serves as an important factor for economic growth. Through a perfect organization and supervision over employees and an appropriate management decisions, and the continuous absorption of well-educated talents, enterprises turn human capital into an investment that has a direct influence on enterprise value growth (Rosen, 1982). In the empirical research on human capital, scholars pay more attention to the influence of human capital on economic growth and the influence of enterprise training on economic growth. For example, Bartel (1989) proposed the return on investment in training through the investigation on American enterprises and showed that productivity gains stem from the previous investment in training made by enterprises. Boon and Eijken (1998) further confirmed the importance of enterprises'

investment in employees for training from the perspective of econometric research on 173 enterprises in the Netherlands.

(2) Corporate Human Capital

Human capital has been divided into social human capital, individual human capital, and corporate human capital from the macro, micro, and corporate perspectives (Xia, 2013). Human capital on the macro level refers to social human capital. Social human capital is proposed by Schultz (1961) so the term is also named Schultz human capital. He holds that the whole society, including the government, enterprises, families, and various social organizations, are investors of social human capital and that the profits and risks generated by investment should therefore be borne by all walks of life. Human capital on the micro level refers to individual human capital. Individual human capital is proposed by G. S. Becker (2009), so it is also named Becker human capital. In his opinion, enterprises generally will not pay for skills training for on-the-job employees, so individuals or families should bear this cost. Such investment is made for a higher personal income in the future. Individuals can claim the value-added revenue brought by their participation in the production while the investor will also bear the investment risk (G. S. Becker, 2009). Human capital on the enterprise level refers to corporate human capital. Corporate human capital is proposed by J. Wei and Zhao (2002), a Chinese scholar. He holds that corporate human capital is invested, owned, and borne by enterprises. Corporate human capital is different from individual human capital in the following ways. First of all, the labor force of corporate human capital is embodied in innovative intelligence or creativity, of which a small portion comes from education investment; the most of the intelligence or creativity is embodied in the innovation ability, the ability to coordinate relationships, the insight, the risk tolerance and the decision-making courage, which are hard to acquire from school education. Second, the corporate human capital and the corporate material capital are entitled to both control and claim rights, and the resultant income must also be produced together with material capital. Third, investment in corporate human capital incurs two kinds of risks: One risk comes from the risk of acquiring income from its own investment; it also bears the risks arising from the participation in the production of enterprises as factors of production (Xia, 2013). The extension of corporate human capital is corporate innovators, including key personnel in innovative corporate activities, such as the core technical personnel and entrepreneurs (Jia et al., 2006; J. Wei & Zhao, 2002).

(3) Corporate Human Capital Appreciation

Enterprises increasingly pay attention to the important role of human in enterprise production and management and begin to choose to strengthen the investment in human capital

so as to promote the appreciation of human capital (Garavan, 1991). The consideration of income is inevitable in any investment, and human capital investment is no exception. However, human capital investment is of its own characteristics, and its income is reflected in the increasing human capital value (D. Wu & Zhang, 2005). Scholars have expounded the connotation of human capital appreciation from different perspectives. For example, Younger and Sandholtz (1997) emphasized the development of human capital and the retention and motivation of employees from the perspective of employee career development. According to Z. Wu (2009), human capital appreciation is the process in which enterprises invest in employees and thus promote their production knowledge, working skills, working attitude, and other human capital. Human capital appreciation is a process of continuous accumulation in time. In terms of space, it not only enhances the utility of a certain department or a certain product research and development project but also involves the entire enterprise. This will substantially improve the core competitiveness of enterprises (Yim, 2021). Human capital owners will also choose human capital appreciation (Garavan et al., 2001) to maximize the mutual benefits. First of all, in selecting the direction for human capital appreciation, only when choosing the same direction as the enterprise develops in, can employees ensure the maximization of their own interests while improving enterprise benefits (Gold et al., 2013; Werner, 2021). Secondly, enterprises should do well in employee recruitment, training, deployment, and incentive (Garavan, 2007), manage well the organizational environment factors that influence the value of human capital, and create a good environment for human capital appreciation (Torraco & Swanson, 1995), so as to truly achieve both human capital appreciation and enterprise appreciation (Luthans & Jensen, 2002). Human capital value depends not only on the amount of investment in human capital but also on many complex internal and external environmental factors. That is because laborers with human capital can only play a role in a certain organizational environment (G. Zhang, 2000). Therefore, it is necessary to combine human capital appreciation with the organizational environment where laborers are from, so as to promote human capital appreciation in a more effective manner (D. Wu & Zhang, 2005).

2.2.6 Corporate dynamic capability theory

(1) Resource-based View

As early as 1959, Penrose put forward in his book *The Theory of Enterprise Growth* that enterprise growth comes from internal resources, and internal resources and capabilities are the solid foundation of enterprise performance and development (Penrose, 1959). This view has

laid a theoretical foundation for the resource-based view. Wernerfelt (1984) formally proposed the resource-based theory (RBT), shown that an enterprise stands as a collection of resources with different purposes in each. This is a new research direction in the field of strategic management. The external market opportunity and market structure will have a certain influence on the competitive advantage of enterprises. However, the internal resources owned by an enterprise are the decisive factor of its competitive advantage. Many scholars have explored the research paradigm on corporate resource-based theory. According to Mahoney and Pandian (1992), the resource-based theory should be discussed from the strategic perspective on heterogeneous and unique capabilities of enterprises, the perspective of industrial organization research, and the perspective of organizational economics. Wernerfelt (1995) indirectly proposed the development direction of resource-based theory, namely, the interpretation of resource nature, the research on special resources, and the combination with governance structure. Barney comes up with four paradigms for the research on the resource-based view: The neoclassical microeconomics paradigm, the industrial economics paradigm, the neoclassical economics paradigm, and the evolutionary economics paradigm (Barney, 2001).

The resource-based theory is a brand new theoretical perspective to expound the effect of enterprise-specific factors on corporate performance, with its focus on the source of corporate competitive advantages (Barney, 1991; Conner, 1991). Currently, RBT has been widely applied in many research fields. Wright et al. (2001) have explored the importance of resources, knowledge, and dynamic capabilities for the bridge between strategic management and human resource management. Fiol (2001) combined resources, knowledge, and dynamic capabilities with continuously restructured corporate competitive advantages, whose research suggested that the continuous competitive advantage was impossible in some environments. Barney (2001) showed that the logic of the resource-based view can be applied not only to a stable market, resources, and capabilities but also to rapidly changing markets and dynamic capabilities. “Dynamic capability” is just another saying of “capability is dynamic,” which should conform to the logic of the traditional resource view. Michalisin et al. (1997) argued that scholars should pay more attention to intangible resources. The intellectual capital of enterprises, such as patents, intellectual property rights, research and development capabilities, and corporate culture can resist copying and imitation by competitors (Michalisin et al., 1997).

(2) Corporate Dynamic Capability

The dynamic capability theory originates from the resource-based view and is the process of constant questioning and revision as well as the transcendence and development of the resource-based view and core competence theory (Teece et al., 1997). Wernerfelt (1984)

formally proposed the resource-based view, and Barney (1991) gradually promoted such an idea. According to the resource-based view, the root of different performances among enterprises in the same industry lies in their heterogeneous resources and capabilities. The source of competitive advantages depends on the valuable, scarce, inimitable, and irreplaceable resources and capabilities of enterprises. Barney points out that resource-based theory helps us open the “black box” of enterprises and highlights the importance of conditions within enterprises (Barney, 1995). Miller and Friesen (1986) emphasizes the deficiency in external industrial structure and competitive power analysis paradigm, thus forming a relatively systematic and balanced strategic management theory system. However, as the research on resource-based theory goes deeper, its validity has been increasingly questioned. First of all, the definitions of key concepts adopted in the resource-based view are blurring (Barney, 1991, 1996). Secondly, the resource-based view belongs to static analysis and thus is difficult to adapt to the current complex and changing dynamic environment (Teece et al., 1997). Thirdly, the resource-based view cannot explain resource competitive advantage (Mosakowski & McKelvey, 1997; Priem & Butler, 2001; O. E. Williamson, 1999). According to Hamel and Prahalad (1990), collective learning within organizations is the source of continuous competitive advantages. They further expand resource-based theory by proposing the concept of core competence (Hamel & Prahalad, 1990).

However, the resource-based view cannot explain the source of the continuous competitive advantages of an organization in a dynamic environment (Wernerfelt, 1995). Leonard-Barton (1992) and Lieberman and Montgomery (1988) held that core competence has “core rigidity” or “inertia trap” and, therefore, cannot adapt to dynamic changes in the environment, let alone bring sustainable competitive advantages for enterprises. To this end, Teece et al. (1997) proposed the concept of corporate dynamic capability. That is to say, enterprises are capable of responding to environmental changes and integrating and reconstructing new resources and capabilities quickly. The emphasis herein is on dynamics and ability. The dynamics are to keep the consistency between competitive ability and environmental changes, and the ability is to adapt to environmental changes (Teece et al., 1997). Since Teece and other scholars proposed the concept of dynamic capability, many scholars have offered new definitions. In the opinion of Helfat (1997), a dynamic capability is a kind of ability that allows enterprises to address external environment changes by producing new products and reconstructing production processes. Eisenhardt and Martin (2000) proposed that dynamic capability is an organizational process. That is to say, enterprises adapt to or create market changes by acquiring, releasing, integrating, or restructuring their own resources or constantly updating resource allocation by

virtue of strategic practices to meet the changing environmental needs (Eisenhardt & Martin, 2000). Zollo and Winter (2002) held that dynamic capability is a stable mode for collective learning or activity, which enables enterprises to improve their efficiency through systematic creation or operation rule adjustment. Zahra and George (2002) proposed that dynamic capability is essentially a change-oriented capability that enables enterprises to cope with constantly developing client demands and competitors by re-configuring and integrating their resources. C. L. Wang and Ahmed (2007) argued that dynamic capability is the behavior guidance for enterprises. It is more important to enhance and transform the core competences of enterprises to address environmental changes through the integration, reconstruction, renewal and creation of resources and capabilities, so as to obtain sustainable competitive advantages. Tseng and Lee (2014) held that dynamic capability is a key intermediate organizational mechanism through which the benefits from knowledge management capability can be converted into performance effects at the enterprise level. In other words, knowledge management competences enhance the dynamic capabilities of organizations, which in turn improve organizational performance and create competitive advantages. After the proposition of dynamic capability, some scholars think that it is featured by tautology and operation difficulty. However, many scholars argued that dynamic capability is not vague, difficult to operate, tautological or empirical. Instead, it is recognizable, relatively durable, repeatable and replaceable. Different dynamic capabilities, although different in detail, share common features and somewhat individuality (Eisenhardt & Martin, 2000; Menon, 2008; Zollo & Winter, 2002).

The aforesaid definitions of dynamic capabilities fall into three categories: First, it is a stable collective learning mechanism; second, it is an ability to integrate and reconstruct resources and operation capability; third, it is an organizational process or practice change process. Those three kinds of views constitute the learning view, the integration view, and the process view of dynamic capability research. The aforesaid definition also indicates that dynamic capability has become a well-accepted construct that is designed to change the resource base or organizational practices of enterprises. Dynamic capabilities are built by enterprises rather than purchased from the market. They are path-dependent and embedded in enterprises. The aforesaid definition indicates that dynamic capabilities are not specific activities or immediate responses but contain a certain kind of pattern problem-solving components. For example, first, dynamic capabilities have to be repeatable; second, their utilization is deliberate and purposeful; third, such capabilities are not equal to strategic change (Ambrosini & Bowman, 2009).

(3) Corporate Dynamic Capability Measurement

Lawson and Samson (2001) proposed that enterprises must develop new dynamic capabilities so that they can closely combine mainstream activities and innovation activities during the operation of enterprises. Therefore, it is necessary to measure dynamic capability by the capacity base, enterprise vision and strategy, organizational intelligence system, new idea management, organizational structure system, organizational culture, and technology management (Lawson & Samson, 2001). According to Arthurs and Busenitz (2006), corporate dynamic capability can be measured by the products and management of enterprises, the legal liability, and the risk capability of government regulations. C. L. Wang and Ahmed (2007) proposed a method to measure corporate dynamic capability from the perspectives of adaptability, absorptive capability, and innovation capability. Cepeda and Vera (2007) measured corporate dynamic capability by knowledge reconstruction capability from the perspective of knowledge management. Easterby-Smith and Prieto (2008) proposed a method to measure corporate dynamic capability from the perspectives of knowledge generation, knowledge integration, and knowledge reconstruction. Thus, the common feature of corporate dynamic capabilities is to make appropriate adjustments based on the dynamic environmental nature so as to deal with environmental changes. Corporate dynamic capability evolution is subject to the joint effect from the evolution stage of organizational knowledge and the learning mechanism of dynamic capability (Xie & Wang, 2012). However, as there is no unified concept of corporate dynamic capability in the academic circle, it is difficult for most of those measurement methods to express its connotation. As a result, the measurement indexes concerning corporate dynamic capability need to be further tested.

2.2.7 Corporate sustainability

(1) Sustainable Development

Sustainable development is a relatively ambiguous concept that can form different “derivatives” (Giddings et al., 2002). The sustainable development model, well recognized worldwide, was proposed by Brundtland in his report *Our Common Future* in 1987. This report interprets sustainable development is a kind of development that meets the current generation’s demands without compromising the ability of future generations to meet their own needs (Johnston et al., 2007). Currently, most countries have formulated their strategies for sustainable development, but their importance and ideologies differ from each other. Those differences arise from socioeconomic conditions and physical properties (Linnenluecke & Griffiths, 2010), as well as interest disputes among stakeholders (Spangenberg, 2011). Sustainable development should organically integrate economic, ecological, and social aspects (Baumgartner & Ebner,

2010) and avoid neglecting economic, ecological, and social sustainable development while solely pursuing economic efficiency and growth. During the process of economic development, we should not only pursue efficiency but also value ecological harmony and social equity (M. Chen, 2011). There is a consensus among scholars that sustainable development should follow the principles of development, sustainability, fairness, and commonality (X. Deng, 2008).

(2) Corporate Sustainability

Corporate sustainability is a concept derived from the general principles of sustainable development. According to sociologists and economists, sustainable economic development is regarded as the premise for a sustainable system as a whole in theory on sustainable development. Enterprises, micro units of economic development, have decided sustainable socioeconomic development to a great extent (Schaltegger & Burritt, 2005). Thus, there is an inseparable relationship between the realization of sustainable development in the entire social system and that in enterprises themselves. This requires enterprises to take into full consideration their own sustainable capabilities and levels during the process of development (Atkinson, 2000), such as the degree of influence from product manufacturing, marketing approaches, management methods, and other activities upon the economy, society, and environment, and to spare no effort to minimize the potential threat to society and economy (Salzmann et al., 2005; M. M. Van & Werre, 2003). Simultaneously, the government of each country or other stakeholders should, through administrative and economic means, intervene and steer enterprises to enhance their capabilities for sustainable development and to shoulder more social responsibilities (Montiel & Delgado-Ceballos, 2014). In this way, economic efficiency can be improved, and sustainable development can be promoted in the entire society (Herzig & Schaltegger, 2006). By now, there has been no unified definition of corporate sustainability in the academic circle. Many scholars have defined the concept and connotation of corporate sustainability based on their own understanding and research findings. For example, according to the opinion of Brown (1982), corporate sustainability mainly includes the principles of fairness, sustainability, and commonality. It is an ecological concept with an economic connotation (Brown, 1982). Deloitte (1992) holds that measures should be taken to protect, maintain and promote the utilization rate of various resources under the premise of meeting the demands for enterprise development so as to meet our future needs. According to P. Li (2006), corporate sustainability is a survival state in which enterprises, under the principle of economic and ethical coordination, keep generating profits, meet the reasonable requirements from enterprise stakeholders, pursue their own longevity, and thus eventually achieve permanent and harmonious development in both enterprises and the society.

It was held herein that sustainable development in mixed-ownership enterprises is a brand-new development model that can balance long-term profitability and ecological environment protection capacity based on the full consideration of the rights and interests of major stakeholders.

2.3 Chapter summary

The relevant concepts and theories were reviewed in this chapter. First of all, the chapter clarifies the concepts of mixed ownership, mixed economy, and diverse ownership economy and expounds on the relevant concepts of property rights, ownership, and transaction cost theory. It was determined that the enterprises herein refer to mixed-ownership enterprises jointly incorporated by state-owned capital and social capital through the introduction of social capital under the reform of introducing mixed ownership to state-owned enterprises. Secondly, the chapter sorts out the research framework on stakeholder governance theories. When it comes to stakeholder governance theories, three theories on corporate governance were detected: The first is the stakeholder theory and its derivative common stakeholder governance theory; the second is the green governance theory with the stakeholder participation, the governance mechanism coordination and the promotion of sustainable development; it was found that green governance has a positive role in boosting corporate financial performance; the third is the data governance theory sorted out from the technical level; this theory can make the corporate organizational system more flexible and more efficient in coordination during the process of accelerated social digitized reconstruction; it can promote the data governance capability by virtue of digitization and platformization. Finally, this chapter expounds on the corporate dynamic capability theory and the human capital appreciation theory, which play an intermediary role in the sustainable development in mixed-ownership enterprises, and then gives the definition of sustainable development in mixed-ownership enterprises in this research.

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Chapter 3: Research Model and Propositions

3.1 Research model

The following research model was proposed according to research purposes herein. Figure 3.1 shows the details. The relations among constructs in this model were clarified in the part of the proposition.

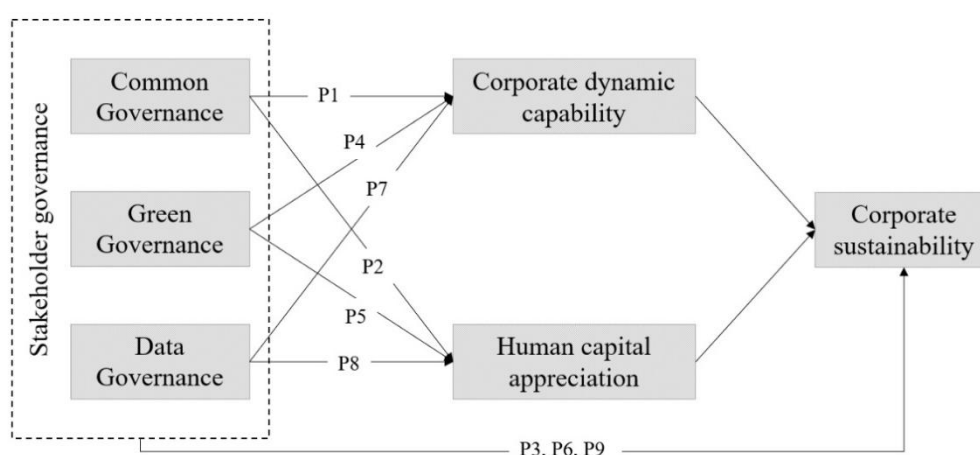


Figure 3.1 Governance model for sustainable development in mixed-ownership enterprises

3.2 Proposition of research model

This research is designed to study how the relevant variables of stakeholder governance act upon the sustainable development of mixed-ownership enterprises through investigation. The independent variables, the intervening variables, and the dependent variables were proposed in this research model to analyze the themes based on questions.

This research is on the basis of the theoretical framework of stakeholder governance as well as the theories on common governance, green governance, data governance, corporate dynamic capability, human capital appreciation, and corporate sustainability. Three independent variables of common governance, green governance, and data governance proposed herein respectively act upon two intervening variables of corporate dynamic capability and human capital appreciation. Human capital appreciation acts upon corporate dynamic capability. Two intervening variables of corporate dynamic capability and human capital appreciation act upon the dependent variable of corporate sustainability. This research model contains six constructs,

namely common governance, green governance, data governance, corporate dynamic capability, human capital appreciation, and corporate sustainability.

3.3 Research propositions

3.3.1 Common governance and corporate dynamic capability

Common governance means that enterprises need to design a series of contractual plans and institutional arrangements for governance in the corporate governance structure so as to allocate corresponding corporate governance rights toward each stakeholder. Thus, enterprises can proactively attract all stakeholders to take part in corporate governance and further achieve those goals for common governance (Blair, 1996). This is conducive to the long-term and stable development of relationships within companies and the check and balance and coordination within enterprises (M. Liu, 2007). The main focus of dynamic capability theory is not on fixed assets. Instead, it accounts for how companies generate and deploy existing resources and where they acquire new resources in order to innovate resource allocation methods as time goes by. Corporate dynamic capability provides the knowledge, resources, and foundation for enterprises to respond quickly to changing demands, and to facilitate the reviewing forms of innovation model that incorporates stakeholders into governance (H. Tian & J. Tian, 2021). The common governance by stakeholders is more conducive to the pursuit of long-term corporate development (Y. Zhang, 2007).

Thus, the incorporation of common governance into corporate governance clarifies the checks and balances within enterprises, balances the requirement of stakeholders for interests, and secures the effective operation of enterprise systems. In addition, this measure plays a leading role in improving corporate management efficiency, enhancing performance, and transforming management, thus realizing the continuous wealth generation by enterprises. Therefore, the first proposition is proposed as follows:

P1. The common governance in mixed-ownership enterprises has a positive effect on corporate dynamic capability.

3.3.2 Common governance and human capital appreciation

An enterprise stands as an organization where its stakeholders generate wealth. Common governance can maximize the returns from both material capital and human capital (Blair, 1996). Common governance can guarantee the interests of enterprise stakeholders sufficiently and

protect the legitimate rights and interests of employees effectively so that employees are fully motivated to receive skill training concerning human resources (M. Liu, 2007). However, it is impossible to measure human capital. With the increase of enterprise-specific investment and experience, both human capital and relationship capital also see an increasing trend in their value. Under the common governance in state-owned enterprises, human capital property rights and non-human capital property rights jointly participate in the incentive and restraint mechanism for corporate operation and control as well as profit performance sharing. The stock right-oriented human capital can be realized in state-owned enterprises through the formulation and implementation of appropriate employee stock ownership plans, executive stock option plans, status incentives, and other long-term incentive programs. This will boost the sustainable operation and management of state-owned enterprises (J. Y. Wei, 2006). Nowadays, an increasing number of enterprises own both material capital and intellectual capital. In an enterprise where, human capital serves as a crucial resource for enterprise value increment, the human capital risk for employees incurred by corporate decision-making and the risk borne by investors of material capital have been shared. The protection of human capital value in enterprises necessitates that the interests of stakeholders, including employees, must be taken into consideration during their decision-making process (Y. Zhang, 2007).

Thus, during business activities among enterprises, the participation of stakeholders of non-capital specific assets has become increasingly important. Under the common governance logic, the restructured distribution mode for residual income and the new mode of corporate governance structure can have a positive and dynamical effect on the human capital appreciation in enterprises. Therefore, the second proposition is proposed as follows:

P2. The common governance in mixed-ownership enterprises has a positive effect on their human capital appreciation.

3.3.3 Green governance and corporate dynamic capability

Green governance is aimed at realizing sustainable development. It works as a means for participation by governance subjects and the coordination of governance mechanisms (W. Li, 2016). Traditional development mode results in excessive resource consumption, while green governance creates new momentum (Z. Liu, 2017). Corporate dynamic capability embodies a process of constant question and revision of resource-based view and core competence theory (Teece et al., 1997). Green performance management can promote the continuous improvement in environmental achievements by enterprises (S. E. Jackson et al., 2011). According to J. W. Huang and Li (2017), corporate dynamic capability, coordination capability, and social

reciprocity work as the main driving forces for green innovation. Amaranti et al. (2019) proposed a conceptual framework to illustrate the effect of green corporate dynamic capability on the green innovation performance of manufacturing companies in Indonesia. According to their researches, corporate dynamic capability works as one of the factors that correlate with green innovation performance. Xing et al. (2020) explored the relationship between environmental supervision and financial performance through green dynamic capability and sustainable innovation based on data from 355 Chinese manufacturing enterprises. The empirical findings showed that green dynamic capability and sustainable development and innovation can help improve financial performance.

Thus, if enterprises want to secure their competitive edges in a competitive market, they must consider the correlation between enterprises, natural resources, and the environment again. Green governance by the enterprise can facilitate the green capital accumulation and green innovation so as to create sustainable competitive edges. Thus, the fourth proposition is proposed as follows:

P4. The green governance in mixed-ownership enterprises has a positive effect on corporate dynamic capability.

3.3.4 Green governance and human capital appreciation

Green human resource management has already become a key business strategy for human resource departments to play a pro-active role in greening enterprises (Ahmad, 2015). Mampra (2013) held that green human resource management encourages the sustainable utilization of resources in enterprises by virtue of human resource management policies and further steps up employee morale and satisfaction. Zoogah (2011) argued that green human resource management promotes the sustainable utilization of business resources by virtue of the policies, concepts, and practices concerning human resource management. According to Luu (2018), human resource practices, including training, authorization, and environmental behavior award, can exert a positive influence on employees' green recovery performance. The improvement in skills and management competence of employees can promote the effective implementation of a green management system (Daily et al., 2007).

Thus, green human resource management has gradually been popularized in the green strategies of enterprises. Green governance policies can encourage employees to increase their green skills, knowledge, and abilities. Therefore, the fifth proposition is proposed as follows:

P5. The green governance in mixed-ownership enterprises has a positive effect on their human capital appreciation.

3.3.5 Data governance and corporate dynamic capability

Data governance covers organizational strategies, data quality and security, “data science” architecture, innovative applications, life cycles, and other fields (Fakhri et al., 2020). P. Zhang et al. (2016) proposed that data governance can have a positive influence on the performance of organizations that adopt big data algorithm systems. Adopting correct digitization strategies will enable organizations to keep competitive, overcome the challenges arising from digitization, and make use of opportunities, according to W. Becker and Schmid (2020). Harlow (2018) argued that “data science” architecture and knowledge management systems can bring long-term and sustainable competitive edges to enterprises. Companies with more “data science” capabilities perform better than those companies without such capabilities (Reddy et al., 2022).

Clearly, enterprises need data governance strategies so as to gain long-term competitive edges and innovative capabilities. Therefore, proposition seven is proposed as follows:

P7. The data governance in mixed-ownership enterprises has a positive effect on corporate dynamic capability.

3.3.6 Data governance and human capital appreciation

Nowadays, big data has been widely applied to the human resource management of enterprises during their development process (Yi, 2021). When it comes to data governance, enterprises should focus on not only the data but also the systems that collect, manage, and utilize those data. Furthermore, personnel are crucial in those systems (Benfeldt et al., 2020). Taking Credit Suisse as an example, Sivathanu and Pillai (2018) discovered that personnel analysis has been widely adopted in this company to reduce staff turnover. It emphasizes the importance of smart human resource 4.0 and its role as a catalyst in the disruption process of human resource field. Strategic changes in data governance will have an influence on the structures, laws, regulations, personnel, technologies, processes, roles, and responsibilities of an organization (Al-Ruithe & Benkhelifa, 2017). Janssen et al. (2020) argued that data governance can stimulate the active behaviors of those participating in collecting, managing, and using data. Talents work as the most critical factor for “data science” investment (Wamba et al., 2015). Talent competence covers technologies, relationships, expertise, and the capability to manage technologies (Akter et al., 2016).

Clearly, data governance cannot do without the collaboration between organizations and individuals that constitute the system and can have a certain facilitating effect on human resources. Therefore, proposition eight is proposed as follows:

P8. The data governance in mixed-ownership enterprises has a positive effect on their human capital appreciation.

3.3.7 Human capital appreciation and corporate dynamic capability

Human resource management marks the core impetus for corporate development. Only by constantly promoting their human resource management level can enterprises see stable development (Yi, 2021). The cognitive ability of senior management is critical to dynamic capability (Hodgkinson & Healey, 2011). According to Kareem and Mijbas (2019), dynamic capability influences the human resource development process of organizations and thus directly affects their performance. The research conducted by Kareem (2019) has confirmed that human resource development practices include talent development, training, and development. He further revealed that organizational and occupational development has a positive effect on the organization effect. Human resource management practices help improve performance within organizations, such as productivity and quality. Those improvements, in turn, have a positive financial influence on corporate performance (Cooke, 2018). Human capital includes the knowledge, skills, and attitudes possessed by individuals. It plays a crucial role in the implementation of the innovative production process (Karim & Qamruzzaman, 2020).

Thus, human resource management serves as the key to business administration; human capital appreciation plays a key role in corporate sustainability and economic efficiency improvement.

3.3.8 Corporate dynamic capability and corporate sustainability

Dynamic capability refers to the ability of enterprises to acquire, release, integrate and reconfigure resources and capabilities (Teece et al., 1997). It comprises the adaptability, absorption capacity, and innovation capability of enterprises (C. L. Wang & Ahmed, 2007). According to Cezarino et al. (2019), dynamic capability plays a crucial role in the improvement of organizational sustainability performance. Companies need to tackle challenges against sustainability through constant perception, study, and transformation, so as to become flexible and adaptable (Y. S. Chen & Chang, 2013). Bayu et al. (2022) explored sustainability management driven by dynamic capability by developing a dynamic model for a sustainability management system driven by a dynamic capability perspective. Mousavi et al. (2018) discovered that the perception, capture, and reconfiguration of dynamic capability have a positive influence on sustainable innovation.

As one can see, enterprises are facing complicated problems concerning sustainable development at present. Enterprises need to identify and grasp the opportunities for sustainable development and effectively allocate and integrate their own resources so as to achieve consistent changes in both enterprises and the environment as well as their economic, environmental, and social performance.

3.3.9 Human capital appreciation and corporate sustainability

Harmon et al. (2010) held that the human resource department plays a significant role in creating a culture of sustainable development within an organization. Chams and García-Blandón (2019) explored the key role of human resource management in the development of a sustainable work environment and the facilitation of sustainable development goals. According to Roscoe et al. (2019), green human resource management practices, including recruitment, training, evaluation, and incentives, have supported the development of green organizational culture. The key driving factors of green organizational culture emphasize leadership, information credibility, and employment authorization. Corporate sustainability is facilitated by such a green organizational culture. Drela (2020) held that corporate sustainability can be realized through sustainable human resource management in the management practice. According to Renwick et al. (2012), outstanding policies concerning recruitment, performance, evaluation management, training, personnel development, employee relations, and incentive systems are powerful tools to keep employees in line with the environmental strategies of companies.

Thus, there is a direct correlation between human capital appreciation in enterprises and corporate sustainability. The innovation and integration of human resource management practices can improve the environmental performance of enterprises.

3.3.10 Common governance, green governance, data governance, and corporate sustainability

Research of Almagtome et al. (2020) showed that the company size and corporate governance rating are positively correlated with sustainability in the context of Türkiye companies. They believe that the sustainable development strategy is the consequence of the interaction between the level of corporate governance and stakeholder pressure (Almagtome et al., 2020). W. Li et al. (2018) showed that based on the perspective of open innovation, penetrated the organizational boundary, coordinated the relationship between multiple governance entities,

established a collaborative mechanism based on trust and contract, explored the governance model of open innovation, built a framework of green governance, and implement the sustainable development of man and nature. Based on the structural equation model, Dubey et al. (2019) found through the sample study of Indian manufacturing organizations that big data and predictive analysis have a significant impact on social and environmental performance.

It can be seen that the innovation and integration of joint governance, green governance, and data governance are directly related to the sustainable development of enterprises. Therefore, we draw the following propositions:

P3. The common governance in mixed-ownership enterprises has a positive effect on corporate sustainability.

P6. The green governance in mixed-ownership enterprises has a positive effect on corporate sustainability.

P9. The data governance in mixed-ownership enterprises has a positive effect on corporate sustainability.

3.4 Research proposition overview

To sum up, a total of 9 propositions were proposed as follows in this research to address the relationship with common governance, data governance, and green governance with corporate dynamic capability, human capital appreciation, and corporate sustainability.

P1. The common governance in mixed-ownership enterprises has a positive effect on corporate dynamic capability.

P2. The common governance in mixed-ownership enterprises has a positive effect on human capital appreciation.

P3. The common governance in mixed-ownership enterprises has a positive effect on corporate sustainability.

P4. The green governance in mixed-ownership enterprises has a positive effect on corporate dynamic capability.

P5. The green governance in mixed-ownership enterprises has a positive effect on human capital appreciation.

P6. The green governance in mixed-ownership enterprises has a positive effect on corporate sustainability.

P7. The data governance in mixed-ownership enterprises has a positive effect on corporate dynamic capability.

P8. The data governance in mixed-ownership enterprises has a positive effect on human capital appreciation.

P9. The data governance in mixed-ownership enterprises plays a positive role in corporate sustainability.

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Chapter 4: Securing the Trustworthiness of the Interviews

4.1 Research design

4.1.1 Design of the interview questions

This research was designed to investigate the opinions on the effects of common governance, green governance, and data governance as the mechanism part of stakeholder governance in mixed-ownership enterprises upon corporate sustainability via interview questions. Respondents were the members of the board of directors and the senior managers of mixed-ownership enterprises in the Guizhou and Sichuan Provinces of China. The qualitative research method was adopted for analysis after for collecting the responses through the interview questions.

The interview questions were divided into two parts. The first part is about the basic information of respondents, including their age, gender, position, industry, and working years. This part was designed to understand the characteristics of the respondents. The second part is about investigating the construct through unstructured interviews. This research model contains six constructs, namely common governance, green governance, data governance, corporate dynamic capability, human capital appreciation, and corporate sustainability. Many previous scholars have researched common governance, green governance, data governance, corporate dynamic capability, human capital appreciation, and enterprise sustainable development from a different perspective. Therefore, the measurement results of the construct variables herein all come from previous literature with mature measurement scales. Then, they have been properly adapted to our study in the context of mixed-ownership enterprises.

The content of the question was first translated into Chinese under the research background. Second, the items in Chinese were translated into English in order to ensure measurement validity and compatibility, and both English and Chinese versions were compared. Then, as for respondents, the wording was modified to adapt to this research context and make them easily comprehensible. Pilot tests were conducted on two respondents to evaluate the content validity. Simple expressions, rather than proper terms that are difficult for respondents to understand, were used. This interview comprises a total of 8 questions to get the opinions from the respondents.

4.1.2 Questions operability and coding

Interview questions were designed and adopted to get unstructured responses from the participant. There was a total of 8 questions to get the unstructured thematic responses. The first, second, and third questions were designed to get the thematic responses regarding goals for corporate management, understanding stakeholder for sustainable development, and models for stakeholder governance. Table 4.1 displays the questions for the interview with their relevant coding.

Table 4.1 Questions for the interview with their relevant coding

Question Number	Question Content	Question Code
1	From the perspective of corporate governance, what do you think are the realistic and ideal goals of corporate management?	Q1_GOALS
2	What stakeholders do you think should be considered for the long-term sustainable development of the enterprise?	Q2_STAKEHOLDERS
3	What do you think are the models for stakeholders to participate in corporate governance?	Q3_MODELS
4	What do you think of stakeholder participation in corporate governance? What effect does this have on the dynamic capabilities and human capital appreciation of enterprises?	Q4_CG-DC&HCA
5	What effect do you think stakeholders' participation in corporate governance will have on the sustainable development of enterprises?	Q5_CG-SD
6	What role do you think green governance plays in the dynamic capabilities and human capital appreciation of enterprises?	Q6_GG-DC&HCA
7	What role do you think data governance plays in the dynamic capabilities and human capital appreciation of enterprises?	Q7_DG-DC&HCA
8	What role and impact do you think green governance and data governance have on the sustainable development of enterprises?	Q8_GG&DG-SD

The interview question for common governance herein refers to the scale adopted in the research by Amankwah-Amoah et al. (2019), García-Sánchez et al. (2018), and Plaza-Úbeda et al. (2010). The interview question concerning the effects of green governance on corporate dynamic capability and human capital appreciation comes from the scale adopted in the research by Cheng et al. (2014), Chuang and Huang (2018), and Garcés-Ayerbe et al. (2016). The interview question concerning the effect of data governance on corporate dynamic capability and human capital appreciation herein refers to the scale adopted in the research by Ferguson et al. (2013), R. Huang et al. (2010), and Weill and Ross (2005). The interview question concerning the effects of common governance on corporate sustainability herein comes from the scale adopted in the research by Gallardo-Vázquez and Sanchez-Hernandez (2014), Rindova and Kotha (2001), and Q. Wu et al. (2013). The interview question concerning the effects of data governance and green governance on corporate sustainability herein refers

to the scale adopted in the research by Antolín-López et al. (2016) and Chow and Chen (2012). All question titles were modified based on the characteristics of the mixed-ownership enterprise.

4.1.3 Data collection techniques and process

When it comes to data collection and proposition verification via questions, particularly unstructured interviews, the relevancy and stability of samples should be the first consideration, followed by reliability and validity. The sample of interview questions was designed in this study intended to get responses for 8 themes. Among them first three are for goals of corporate management, understanding stakeholders for long-term sustainable development, and describing the models for stakeholder governance and remaining 5 themes is to get the opinions for 6 constructs, such as common governance, green governance, data governance, corporate dynamic capability, human capital appreciation, and corporate sustainability. The test samples were collected from the representatives of ownership and top management personnel from mixed-ownership enterprises in the Guizhou and Sichuan Provinces of China.

The purposive sampling technic was used to target the appropriate respondent and collect the interview data from the specific group of respondents who were able to answer the interview questions with maximum variation and appropriateness adequately. The purposive sampling technique was also helpful in identifying the appropriate respondent with relevant experience from relevant industries who were closely familiar with the study constructs, such as stakeholder governance, dynamic capability, human capital appreciation, and corporate sustainability to accord with the specific criteria of this research. This selection of purposive sampling enables this study to avoid non-relevant participants and prevent bias of about 80 to 100 percent rather than using random or automated sampling to obtain a greater number of answers from less rational respondents.

The experimental interview was conducted before the formal interview so as to assess the rigor and ensure the validity and reliability of the samples. Three experts were invited to monitor the interview experiment. The purpose of this interview experiment is to check the validity and reliability of the contents listed in those samples, as well as the grammar, accuracy, readability, and rationality of the designed questions. Finally, according to the experiment, some modifications were made to the expression and linguistic style of the original questions so as to keep them consistent with the language habits of respondents and comprehensible and to improve the accuracy of the response collected.

Finally, face-to-face interviews were conducted to collect the responses from appropriate participants. Two experts and two research assistants were invited to administer and collect the

interview responses. A detailed electronic and printed manual describing the rules, processes, response limitations, and research themes and objectives was provided alongside the questions to ease the complexity of the answer process for the respondents. Before answering the interview questions, participants were asked to complete a form of protection to show their willingness to participate voluntarily as the respondents. They were also well assured of privacy and confidentiality policies relating to personal information. A gift worth RMB 2000 yuan was prepared to encourage respondents who completed the interview. This effort encourages them to answer the question freely, anonymously, and completely, thus, reducing social preferences associated with common method biases in interview processes. On the other hand, it helped reduce the rate of non-response and to control non-response biases with a minimum rate. Each participant was pre-appointed since the interview with one person lasted for quite a long time. The interview collection lasted for approximately three months, from August 2022 to October 2022.

4.2 Recovery and pre-treatment of responses

4.2.1 Response recovery

In the final stage, 80 pieces of responses from 10 participants for 8 questions were received, among which 78 complete pieces were recovered. These remaining two responses have answered 'not have' and were not effective for this study.

4.2.2 Description of the interviewee

All of our respondents are mainly from the group of the company or big industries and possess relevant experiences of mixed-ownership enterprises perspective. The vertical characteristics of the respondents are discussed in the following section.

① Position: All participants are from the senior management level and the stakeholder of relevant industries. Positions of respondents are 3 vice general managers (30%), 2 secretaries of the board of directors (20%), 1 general assistant of the group (10%), 1 chairman of the board (10%), 1 strategy office (10%), 1 vice president (10%), 1 assistant to the chairman (10%), and 1 director (10%).

② Gender: The gender of all respondents is male (100%).

③ Age: Respondents' ages range from 38 to 52, with mean value = 46.4 and standard deviation (SD) = 4.088. A greater portion of the ages was within the range of 45-49 (count = 6).

④ Working Experience: Working experience (in years) is segmented as a present entity working years and total working years. Present entity working years range from 2 to 14 years (mean = 7 and SD = 4.028), and a greater portion of experience falls into 2-10 years (80%). Total working years range from 9 to 33 (mean = 24.2 and SD = 6.86), and a greater portion of total experience is more than 20 years. From this data, it is also evident that all of the participants are well-experienced and have rich knowledge to deliver deeper information for this research.

⑤ Industry categories: Various types of industries were selected to identify the participants and get diverse information. Industries categories are electric, mechanical, construction, investment, tourism, and information technology.

As shown in the following tables, Table 4.2 displays the demographic information, and Table 4.3 displays the frequency statistics of the respondents.

Table 4.2 Demographic information of the respondent

Item	Range	Count	Percent	Mean	Std.
Position	Vice General Manager	3	30%		
	Secretary of the Board of Directors	2	20%		
	General Assistant of the Group	1	10%		
	Chairman of the board	1	10%		
	Strategy Office	1	10%		
	Vice President, Assistant to the Chairman	1	10%		
	Director	1	10%		
	Total (n)	10	100%		
Gender	Male	10	100%		
	Total (n)	10	100%		
Age	35-39	1	10%		
	40-44	1	10%		
	45-49	6	60%	46.4	4.088
	50-54	2	20%		
	Total (n)	10	100%		
Present entity working years	1-5	4	40%		
	6-10	4	40%	7	4.028
	11-15	2	20%		
	Total (n)	10	100%		
Total working years	5-9	1	10%		
	20-24	4	40		
	25-29	2	20	24.2	6.86
	30-34	3	30		
	Total (n)	10	100		

Table 4.3 Frequency statistics for demographic information

Position	Gender	Age	Present entity working years	Total working years	Count
General Assistant of the Group	Male	42	5	20	1
Secretary of the Board of Directors	Male	38	3	9	1
		46	3	20	1
		50	12	30	1
Strategy Office	Male	46	7	26	1
		49	8	27	1
		49	10	30	1
Vice General Manager	Male	47	6	24	1
Vice President, Assistant to the Chairman	Male	52	14	33	1
Chairman of the board	Male	45	2	23	1
	Male				
Director	Male				

4.2.3 Description of the interviewee's enterprises

The targeted enterprises of this study for the interviewees were mainly from the group of companies which have mixed-ownership backgrounds. The name, registered capital, unified social code, enterprise type, industry category, address, shareholder information, profile, and business scope are described in the following sections.

① Sichuan Shudao Urban & Rural Investment Group Co., Ltd.

Registered Capital: CNY 100 billion yuan

Unified Social Credit Code: 91510107MA7EUBLXX0

Enterprise Type: Limited liability company (A sole proprietorship enterprise invested or controlled by non-natural person)

Industry: Commercial service

Company Address: No. 3 West Taipingsi Road, Wuhou District, Chengdu City.

Shareholder Information: 100% of shareholdings by Shudao Investment Group Co., Ltd.

Company Profile: Incorporated on December 20th, 2021, Sichuan Shudao Urban & Rural Investment Group Co., Ltd. engages in three major sectors, namely new urbanization, real estate development, and relevant diversified industries. The Group has shaped three major brands, namely “Shudao Real Estate”, “Shudao Property,” and “Shudao Business Administration”, and owned multiple mixed-ownership enterprises. By the end of November 2021, there were 63 wholly-owned and holding enterprises at all levels, with 1,737 employees and total assets of more than CNY 40 billion yuan. The key projects under construction and completed by the Group include the new urbanization construction project along the Xichang High-speed Railway, the Bazhong TOD project, and the Yibin International Convention Center Project with a total investment of greater than CNY 50 billion yuan. Subsequently, the Group will continue

to expand the Luzhou TOD Project, the Zigong TOD Project, the Yibin TOD Project, and the Ziyang TOD Project. Through independent development, commissioned development, equity cooperation, and other methods, the Group has carried out various collaborative businesses in depth in Chengdu and its surrounding areas, such as Panxi area, southern Sichuan region, Northeast Sichuan region, as well as other key cities and regions, with a total investment of more than CNY 85 billion yuan and a land reserve of more than 824 Acre.

Business Scope: General items are investment activities by its equity fund, corporate headquarters management, brand management, land consolidation services, property management, engineering management services, enterprise management consultancy, marketing planning, municipal facility administration, urban and rural appearance management, building and ornament materials sales, construction material sales, planning and design management, commercial complex management services, hotel management, tourism development project planning and consultancy, leisure and sightseeing activities, elderly care service, technical service, technology development, technology consultancy, technology exchange, technology transfer, technology promotion, engineering and technical services (Except for planning management, exploration, design and supervision), project cost consultancy, bidding and tendering agency services, legal consultancy (Except for law firm business), taxation services, environmental protection consultancy, health care consultancy (Except for diagnosis and therapy services), supply chain management services, domestic trade agency, domestic freight forwarder, general cargo storage services (Except for dangerous chemicals and other items requiring examination and approval), park management services, intelligent agricultural management, the production, sales, processing, transportation, storage and other relevant services concerning agricultural produce, rural collective economic organization administration, fair and market administration services, as well as the technology, information, facility construction, and operation services concerning agricultural production and operation (Except for the items subject to legal approval, the Group shall carry out independent business activities as per law by virtue of its business license). Permitted items are construction project implementation, professional construction work, interior residential decoration and remodeling, construction project quality inspection, construction engineering design, construction project supervision, inspection, and testing services, as well as intelligent building system design (For projects subject to legal approval, business activities can only be conducted upon approval by the relevant authority. The specific business projects shall be subject to the approval document or license certificate issued by the relevant authority.).

② CRRC Meishan Co., Ltd.

Registered Capital: CNY 637,849,000 yuan

Unified Social Credit Code: 91511400662787535Q

Enterprise Type: Limited liability company (A sole proprietorship enterprise invested or controlled by non-natural person)

Industry: Transportation vehicle manufacturing concerning railway, vessel, and aerospace.

Company Address: Simeng Town, Dongpo District, Meishan City, Sichuan Province.

Shareholder Information: 100% of shareholdings by CRRC Yangtze Co., Ltd.

Company Profile: Incorporated on June 28th, 2007, CRRC Meishan Co., Ltd. stands as a specialized enterprise engaged in the research, development, and manufacturing of rail transit equipment and accessories under CRRC, one of those Fortune Global 500 companies. The Company is an important and leading enterprise and base for researching, developing, manufacturing, and exporting railway freight trains, bogies, brakes, and fastener products in China, and it owns multiple mixed-ownership enterprises. With more than 2,700 employees and an annual production value of CNY 3 billion yuan, the Company researches and develops the product series covering various train models, brakes, and fastener products, of which many products have won the National Prize for Progress in Science and Technology and the National Science and Technology Research Award, and owns more than 700 patents. During its process to becoming a world-leading railway equipment supplier, the Company focuses on strengthening international quality standards with fine manufacturing at its core, thus rising as a key supplier of railway freight train equipment across the world. The Company has set the record of freight train export volume many times and established complete marketing networks and service systems in Asia, Europe, Africa, America, Oceania, and other regions of the world, thus, providing clients with high-quality products and personalized services, and gaining a good reputation from its clients.

Business Scope: The research, development, manufacturing, sales, leasing, and technical services concerning railway freight train, the design and processing of rail transit equipment and spare parts, the research, development, manufacturing, and sales of brakes, fasteners, connectors, specialized automobiles (Operation upon license or approval document), metal structural members, atmospheric pressure vessels and storage equipment, containers, composite products and various material-integrated products; metal casting and forging, the contracting of overseas railway, rolling stock, industrial engineering projects and domestic international bidding projects, computer software development and sales, information system integration service, research and development, sales, maintenance of intelligent product, information technology consultancy and training services, electronic and intelligent engineering

construction, as well as import and export business operation and agency concerning various commodities and technologies (operation of projects subject to legal approval shall only be conducted upon approval by relevant authority).

③ Sichuan Changhong Electronic Holding Group Co., Ltd.

Registered Capital: CNY 3 billion yuan

Unified Social Credit Code: 91510700720818660F

Enterprise Type: Other limited liability companies

Industry: Manufacturing of computers, communication devices and other electronic equipment.

Company Address: Mianyang High-tech Industrial Development Zone.

Shareholder Information: The State-owned Assets Supervision and Administration Commission of Mianyang City holds 90% of its share; Sichuan Provincial Finance Department holds 10% of its share.

Company Profile: Sichuan Changhong Electronic Holding Group Co., Ltd. (Hereinafter referred to as Changhong Group or Changhong) was originally established in 1958. Its predecessor, the state-owned Changhong Machinery Workshop, once was one of the 156 key projects during the “First Five-Year Plan” period and stood as the only production base for airborne fire control radar in China then. On June 3rd, 2015, Sichuan Changhong Electric Appliance Co., Ltd. issued an announcement declaring that the company designation of its controlling shareholder, Sichuan Changhong Electronic Holding Group Co., Ltd. was changed to Sichuan Changhong Electronics Holding Group Co., Ltd. (“Changhong Holding Company” in brief) on June 3rd, 2015. It’s registered capital, and business scope were also subject to the corresponding change. In December 2018, Changhong ranked 286th in *the World’s 500 Most Influential Brands 2018*, formulated by World Brand Lab. In September 2019, Sichuan Changhong Electronic Holding Group Co., Ltd. ranked 21st on the list of 2019 China’s Top 100 Leading Enterprises in Strategic Emerging Industries released in Jinan; Sichuan Changhong Electronic Holding Group Co., Ltd. ranked 58th on the list of 2019 China’s Top 500 Manufacturers. On December 18th, 2019, Sichuan Changhong Electronic Holding Group Co., Ltd. Ranked 97th on the list of China Brand Development Index Top 100 issued by *People’s Daily*. On December 25th, 2019, Sichuan Changhong Electronic Holding Group Co., Ltd. won the People’s Ingenuity Brand Award 2019.

Business Scope: The investment in industries permitted by national industrial policies, the state-owned property (Stock) rights administration, the manufacturing and sales of household appliances, refrigeration appliances and accessories, illumination equipment, electronic

products and components, daily electrical appliances, daily metal products, gas appliances and electrical devices, the recycling and processing of waste electrical and electronic products, the development, sales and service of integrated circuit and software, the system integration services, the enterprise management consultancy and service, the import and export of various commodities and technologies permitted by law, the mineral product sales, the sales of electronic information and network products, battery product series, electric power equipment, environmental protection equipment, communication and transmission equipment, mechanical equipment, digital monitoring products, metal products, instruments, kitchen cabinets and gas appliances, the sales of relevant product via the Internet, the import and export businesses concerning auxiliary materials and relevant technologies of company products, the warehousing and freight of hardware and electrical equipment, building materials and chemical products, the automobile repair, the electronic product repair, the real estate development and management, the housing construction and engineering work, the housing and equipment leasing, the manufacturing and sales of complete weapons, supporting equipment and components, as well as the hospitality and catering services (The operation of projects subject to legal approval shall only be conducted upon approval by relevant authority).

④ Deyang City Industrial Investment Development Group Co., Ltd.

Registered Capital: CNY 10.2 billion yuan

Unified Social Credit Code: 91510600MA62340W9J

Enterprise Type: Limited liability company (A sole proprietorship enterprise invested or controlled by non-natural person)

Industry: Commercial service

Company Address: Building 1, No. 79, Section 2, South Lushan Road, Deyang City, Sichuan Province.

Shareholder Information: 100% of shareholdings by Deyang Development Holding Group Co., Ltd.

Company Profile: Incorporated on April 25th, 2016, Deyang City Industrial Investment Development Group Co., Ltd. stands as a state-owned municipal enterprise and owns some mixed-ownership enterprises. Entrusted by the People's Government of Deyang City, the Company carries out the industrial investment and financing, the operation and administration of state-owned assets and resources so as to promote the strategic layout adjustment, industrial structure optimization, and industrial transformation and upgrading of the state-owned economy in Deyang City. Abiding by the market-oriented operation mechanism, the Company takes the establishment of an investment and financing service system as the core and fully

implements risk management. Its business covers fund administration, equity investment, financing guarantee, financial leasing, petty loan and brick and mortar industry, and other fields. The Company pro-actively steers the economic and industrial transformation and facilitates the upgrading and healthy development of Deyang, strives to provide high-quality investment and financing services for enterprises, and thus injects a strong impetus to promote the industrial adjustment, transformation and upgrading of the Deyang area as well as the construction of the world's intelligent manufacturing center, international cultural city and Northern New Town of Chengdu.

Business Scope: The investment in finance, equipment, convention, exhibition, material, internet, basic social industries, high and new technology industries, strategic emerging industries and pillar industries, the administration and operation of state-owned equity, administration and operation of state-owned assets and resources, enterprise management services, the real estate agency services, financial consultancy, the international and domestic trade, as well as the engagement in other business activities permitted by law (The operation of projects subject to legal approval shall only be conducted upon approval by relevant authority).

⑤ Chengdu Jiahui Real Estate Co., Ltd.

Registered Capital: CNY 20 million yuan

Unified Social Credit Code: 915101246721582142

Enterprise Type: Limited liability company (A sole proprietorship enterprise invested or controlled n by non-natural person)

Industry: Real estate

Company Address: Fangqiao Village, Anjing Town, Pixian County, Chengdu City.

Shareholder Information: 100% of holdings by Chengdu Southwest Jiaotong University Industry (Group) Co., Ltd.

Company Profile: Incorporated on September 8th, 2009, Chengdu Jiahui Real Estate Co., Ltd. mainly engages in real estate development. In recent years, the Company has adhered to the scientific and technological development strategy of “market-oriented and independent key breakthrough leading the industry”, enhances the investment in research and development, and strives to break through the key technologies restricting the enterprise development and seize the commanding heights for market competition. Chengdu Jiahui Real Estate Co., Ltd. stands as a holding enterprise of Chengdu Southwest Jiaotong University Industry (Group) Co., Ltd. Incorporated on August 21st, 1993, Chengdu Southwest Jiaotong University Industry (Group) Co., Ltd. is registered at Room 1101 of Southwest Jiaotong University Innovation Building, No. 111, North Section 1, 2nd Ring Road, Huanjiao Smart City, Jinniu District, Chengdu City,

Sichuan Province. Its legal representative is Chen Tianli. Its business scope covers investment administration (No engagement in financial activities like illegal fund-raising and absorption of public funds), capital operation, the transformation and promotion of scientific and technological achievements, high-tech enterprise incubation, scientific and technological development, technological consultancy, technical services, as well as the domestic trade (Except for commodities exclusively managed, sold or controlled by the state) (The operation of projects subject to legal approval shall only be conducted upon approval by relevant authority). Chengdu Southwest Jiaotong University Industry (Group) Co., Ltd. invests in 35 companies.

Business Scope: The investment administration (No engagement in financial activities like illegal fund-raising and absorption of public funds), the capital operation, the transformation and promotion of scientific and technological achievements, the high-tech enterprise incubation, the scientific and technological development, the technological consultancy, the technical services, as well as the domestic trade (Except for commodities exclusively managed, sold or controlled by the state) (The operation of projects subject to legal approval shall only be conducted upon approval by relevant authority).

⑥ Sichuan Huakun Zhenyu Intelligent Science and Technology Co., Ltd.

Registered Capital: CNY 100 million yuan

Unified Social Credit Code: 91510100MA67G71FX6

Enterprise Type: Other limited liability companies

Industry: Software and information technology services

Company Address: Rooms 1-9, Floor 24, Unit 2, Building 1, No. 28, North Tianfu Avenue, Chengdu High-tech Zone, China (Sichuan) Pilot Free Trade Zone.

Shareholder Information: Shareholder Information: 30% of holdings by Chengdu High-Tech Investment Electronic Information Industry Group Co., Ltd.; 25% of shareholdings by Gongqingcheng Huakun Zhenyu Investment Partnership (Limited partnership); 25% of shareholdings by Sichuan Changhong Electronic Holding Group Co., Ltd.; 15% of shareholdings by Pingtan MornCloud Information and Technology Partnership (Limited partnership); 5% of shareholdings by Sichuan Shenwan Hongyuan Changhong Equity Investment Fund Partnership (Limited partnership).

Company Profile: Sichuan Huakun Zhenyu Intelligent Science and Technology Co., Ltd. (Hereinafter referred to as “the Company”) stands as a high-tech group enterprise jointly invested and incorporated by Chengdu High-Tech Investment Group Co., Ltd., Shenwan Hongyuan Changhong Equity Investment Fund and other companies on June 18th, 2020. The

Company maintains a strategic cooperation with Huawei Technologies Co., Ltd. Through the national layout and the rapid growth in recent years, the Company has taken the lead in the Kunpeng + Shengteng industry, and its sales volume in the next five years is planned to exceed CNY 10 billion. Based on the design, production, sales, and maintenance of the server, PC computer, and other products supported by Huawei Kunpeng + Shengteng chips, the company will push forward the application of integrated solutions based on Kunpeng + Shengteng technology system into the fields of government affairs, public security, medical care, transportation, parks, electricity, finance, city management, education, and AI. Now, the Company has acquired a series of qualifications and honors, including the high and new tech enterprise, the Standing Director Unit of the Information Technology Application Innovation Alliance, the Vice Chairman Unit of Kunpeng Computing Industry Alliance, the Most Reliable Green Computing Server, the Sichuan Joint Innovation Center for Kunpeng Intelligent Hardware Development, the “Best Computing Strategic Cooperation Award” of Huawei, the Huawei Shengteng Smart City Solution Partner, and the Industrial Cooperation and Certification for 120+ Ecological Partners. The Company has established two headquarters of the Group, the market operation headquarters, the technology research and development center, the chip design center, the software adaptation center platform, and other institutions in both Chengdu High-tech Zone and Beijing. The Company has established a manufacturing base covering an area of more than 132 Acres in Changhong Double Innovation Industrial Park, with a total investment of more than CNY 2 billion yuan and an annual output of 300,000 servers. Currently, the company has established the business layout nationwide by setting up offices in Beijing, Shanghai, Chengdu, Nanjing, Hangzhou, Shenzhen, Guangzhou, Jinan, Lhasa, Urumchi, and other cities.

Business Scope: The technological services, technology development, technological consultancy, technology exchange, technology transfer and technology promotion, manufacturing of computer hardware, software and peripheral device, wholesale of computer hardware, software and auxiliary device, retail of computer hardware, software and auxiliary device, manufacturing of digital video surveillance system, sales of digital video surveillance system, cloud computing equipment manufacturing, sales of cloud computing equipment, manufacturing of integrated circuit chips and products, sales of integrated circuit chips and products, integrated circuit manufacturing, integrated circuit sales, application system integration services in the artificial intelligence industry, intelligent control system integration, design and service of integrated circuit chip, technological services of cloud computing equipment, information system integration services, computer system service, information

system operation and maintenance services, data processing and storage support services, artificial intelligence application software development, software development, software sales, import and export of cargo, technology import and export, integrated circuit design, property management, machinery and equipment sales, construction and engineering machinery and equipment leasing, computer and communication equipment leasing, wholesale of electronic components, retail of electronic components, sales of electronic products, sales of household appliances, research and development of household appliances, manufacturing of household appliances, communication equipment sales, sales of semiconductor illumination device, research and development of electronic-specific materials, supply chain management services, enterprise administration, as well as the non-residential real estate leasing (Except for the items subject to legal approval, the Company shall carry out independent business activities as per law by virtue of its business license). (The operation of projects subject to legal approval shall only be conducted upon approval by the relevant authority. The specific business items shall be subject to the approval document or the license certificate issued by the relevant authority).

⑦ China Railway 23rd Bureau Group Corporation Limited

Registered Capital: CNY 2 billion yuan

Unified Social Credit Code: 91510100740338242L

Enterprise Type: Limited liability company (A sole proprietorship enterprise invested or controlled by non-natural person)

Industry: Building decoration, remodeling, and other construction industries.

Company Address: Room 508, Floor 5, Building 1, No. 530, Middle Tianfu Avenue, Chengdu High-tech Zone, China (Sichuan) Pilot Free Trade Zone.

Shareholder Information: 100% of shareholdings by China Railway Construction Corporation Limited.

Company Profile: Incorporated on June 11th, 2002, China Railway 23rd Bureau Group Corporation Limited is subordinate to China Railway Construction Corporation Limited, an extra-large enterprise among the Fortune Global 500 companies and the largest construction contractor, directly supervised by the State-owned Assets Supervision and Administration Commission of the State Council. The subordinate units of China Railway 23rd Bureau Group Corporation Limited have participated in constructing 48 state-key railway projects, including the Qinghai-Tibet Railway, the Datong-Qinhuangdao Railway, the Shenmu-Yan'an Railway, the Nanning-Kunming Railway, the Beijing-Kowloon Railway, the Qinhuangdao-Shenyang High-speed Railway, the Xi'an-Hefei Railway, the Neijiang-Kunming Railway, the Chongqing-Huaihua Railway, the Yichang-Wanzhou Railway, the Dazhou-Chengdu Railway, the Lanzhou-

Xinjiang Railway, the Baoji-Chengdu Railway, as well as the important hubs of Northeast Railway Network, namely the Harbin Marshalling Station, the Sanjianfang Marshalling Station, the Manzhouli Port Station Capacity Expansion and the Harbin-Manzhouli Railway Speed Raise. China Railway 23rd Bureau Group Corporation Limited is subordinate to China Railway Construction Corporation Limited, an extra-large enterprise among the Fortune Global 500 companies and the largest construction contractor, directly supervised by the State-owned Assets Supervision and Administration Commission of the State Council. By the end of 2010, China Railway 23rd Bureau Group Corporation Limited had acquired the following qualifications, including the special qualification for general contracting of railway engineering construction, the Grade I qualification for general contracting of the highway, municipal public utilities, water conservancy and hydropower, housing construction, mechanical and electrical installation, and mining engineering construction, the Grade I qualification for bridge, tunnel, highway pavement, highway roadbed, urban rail transit, and other professional engineering contracting, as well as the qualification for overseas project contracting. In 2004, the Company acquired the corporate environment, occupational health and safety system certification, and quality system certification. The Group is currently employing more than 14,000 staff, among whom 25.15% are professional technicians, 36.4% are skilled technicians, 249 are primary registered construction engineers, and 426 have acquired national vocational and technical appraisal certificates. The subordinate units of the Group have participated in constructing more than 50 state key railway projects, dozens of high-grade highways, and dozens of large-scale projects, such as water conservancy and hydropower, municipal public utilities, airports, ports, industrial and civil buildings, as well as electrical engineering works. The Group has set up tube segment manufacturing workshops in Suzhou, Zhengzhou, Wuxi, Chengdu, Kunming, Guilin, and other places. Its unique steel-structured concrete products have covered a large market with a high share.

Business Scope: Permitted items are construction project implementation, construction engineering design, construction project survey, inspection and testing services, real estate development and management, food and beverage services, food sales, accommodation services, timber harvesting and transportation, forest, tree, and seed production, and management (The operation of projects subject to legal approval shall only be conducted upon approval by the relevant authority. The specific business items shall be subject to the approval document or the license certificate issued by the relevant authority). General Items are landscaping and afforestation engineering construction, foreign project contracting, the information technology consultancy, technological service, technology development,

technology consultancy, technology exchange, technology transfer and technology promotion, engineering administration services, sales of metal materials, sales of chemical products (Excluding the licensed chemical products), sales of construction materials, sales of electronic products, the cargo import and export, technology import and export, conference and exhibition services, enterprise administration, asset administration services for equity capital investment, forest cultivation, free planting and management, fruit cultivation, flower planting, sales of forestry products, timber sales, wholesale of fresh fruit, forest carbon sequestration services, professional and auxiliary forestry activities, afforestation, forest management and maintenance, oil-bearing fruit cultivation, forest pest prevention and control services, forest fire prevention services, forest park administration as well as the information system integration services (Except for the items subject to legal approval, the Group shall carry out independent business activities as per law by virtue of its business license).

⑧ Sichuan Tourism Investment Bashu Education Science and Technology Co., Ltd.

Registered Capital: CNY 2 million yuan

Unified Social Credit Code: 91510107MA6AEL6E3C

Enterprise Type: Other limited liability companies

Industry: Commercial service

Company Address: Room 1602, Floor 16, Unit 1, Building 1, No. 18, West Road of South Railway Station, Wuhou District, Chengdu.

Shareholder Information: 51% of shareholdings by; 49% of shareholdings by Sichuan Tourism Investment Education Investment Co., Ltd.

Company Profile: Established on July 9th, 2021, Sichuan Tourism Investment Bashu Education Science and Technology Co., Ltd. stands as a state-owned mixed-ownership company jointly invested by Sichuan Tourism Investment Education Investment Co., Ltd. and Bashu Education Science and Technology Group Co., Ltd. Through the 1+N operation mode, Sichuan Tourism Investment Bashu Education Science and Technology Co., Ltd. carries out the vocational skill training with the “cultural and tourism industrial talents” as its core around the “Sanxingdui Museum, Jiuzhaigou Valley and the Giant Panda,” “One Heart and Two Cores,” “One Belt and Many Points” and those famous tourist counties in the Land of Abundance. The company has now established the vocational skill level recognition system, training curriculum standard system, talent cultivation base, skill competition base, and talent employment base for the talents in the cultural and tourism industry. It has established the “cultivation - supply - redevelopment” chain for cultural and tourism industrial talents, thus providing talent support for the development, transformation and upgrading of the cultural and tourism industry. Sichuan

Tourism Investment Bashu Education Science and Technology Co., Ltd. has always adhered to the vision of “building cultural and tourism industry talent cultivation platform” and the mission of “endowing cultural and tourism industry talents with lifelong competitiveness” and regarded quality as its foundation. The Company has been proactively exploring the vocational education development course and collectivized management mode with the features of tourism investment in Bashu region and is devoted to cultivating great talents in the cultural and tourism industry.

Business Scope: Permitted items are the occupational and health-caring technical services, labor dispatching services, job intermediary activities, tourist and entertaining activities, medical services, accommodation services, as well as the tourism business. (The operation of projects subject to legal approval shall only be conducted upon approval by the relevant authority. The specific business items shall be subject to the approval document or the license certificate issued by the relevant authority). General items are the sport venues and facilities management (Excluding the highly risky sports), software development, business training (Excluding education training, vocational training and other licensed training activities), nursery care service outside kindergarten, organization of cultural and artistic exchange activities, the educational consultancy (Excluding the education activities involving examination and approval), experiential development activities and planning, socio-economic consultancy, information technology consultancy, enterprise administration, bidding and tendering agency services, conference and exhibition services, technological service, technology development, technology consultancy, technology exchange, technology transfer and technology promotion, software sales, marketing planning, housekeeping services, elderly care services, supply chain management services, consultancy and planning services, advertisement production, personal business services, etiquette services, taxation services, as well as the ticket agency services (Except for the items subject to legal approval, the Company shall carry out independent business activities as per law by virtue of its business license).

⑨ China Railway Transit Sichuan Engineering Co., Ltd.

Registered Capital: CNY 20 million yuan

Unified Social Credit Code: 91510106790024807N

Enterprise Type: Other limited liability companies

Industry: Civil engineering building

Company Address: No. 145, Yongjun Road, Luoshui Town, Shifang City, Deyang City, Sichuan Province.

Shareholder Information: 70% of shareholdings by China Railway 23rd Bureau Group Rail Transit Engineering Co., Ltd.; 30% of shareholdings by Chengdu Shanbenfang Artwork Co., Ltd.

Company Profile: China Railway 23rd Bureau Group Rail Transit Sichuan Engineering Co., Ltd. was jointly incorporated on July 10th, 2006, by China Railway Rail Transit Engineering Co., Ltd. and Chengdu Shanbenfang Artwork Co., Ltd. Incorporated in Pudong New Area of Shanghai in August 2004 with a registered capital of CNY 50-million-yuan, China Railway Rail Transit Engineering Co., Ltd. stands as a professional company specialized in producing rail transit products. Since 2006, the company has set up seven mixed-ownership companies with holding shares and four mixed-ownership companies with equity participation in total by means of joint ventures. Among them, the company established Chengdu Engineering Company jointly with Chengdu Shanbenfang Artwork Co., Ltd. in July 2006, Suzhou Engineering Company jointly with private entrepreneurs in May 2008, Wuxi Engineering Company jointly with Wuxi Hengjiu Company in March 2010, Kunming Engineering Company jointly with Kunming Ruiguanli Company in May 2010, Nanning Engineering Company jointly with private entrepreneurs in March 2011, Hefei Engineering Company jointly with Anhui Lauster Company in April 2011, as well as Foshan Engineering Company jointly with Shenzhen Jinchangyuan Company in May 2017. Those mixed-ownership companies have strongly supported the leapfrog development in the enterprise while facilitating the Rail Company to expand its urban rail transit market.

The total assets of China Railway Rail Transit Engineering Co., Ltd. increased by CNY 3.6 billion yuan in 2020 as compared with that in 2006, with a compound annual growth rate of 24.96%; its operating income increased by CNY 1.7 billion yuan in 2020 as compared with that in 2006, with a compound annual growth rate of 20.02%; its total profit increased by CNY 100 million yuan in 2020 as compared with that in 2006, with a compound annual growth rate of 57.28%; its net profit increased by CNY 81,270,800 yuan in 2020 as compared with that in 2006, with a compound annual growth rate of 54.51%; its return on equity in 2020 increased by 14.25% compared with that in 2006; its state-owned capital equity increased by CNY 460 million yuan as compared with that in 2006, with a compound annual growth rate of 23.28%; its labor productivity increased by CNY 2.49 million yuan in 2020 as compared with that in 2006, with a compound annual growth rate of 10.55%.

Business Scope: General items are the non-residential real estate leasing, residential housing leasing, sales agency, sales of metal materials, metal material manufacturing, sales of construction materials, chemical product production (Excluding the licensed chemical

products), the sales of chemical products (Excluding the licensed chemical products), sales of electronic products, communication equipment repair, sales of communication equipment, mechanical equipment leasing, manufacturing of concrete structural members (Except for the items subject to legal approval, the Company shall carry out independent business activities as per law by virtue of its business license). Permitted items are the construction project implementation, the manufacturing of pre-stressed concrete simple supported railway bridge beams, the real estate development and management, as well as the road freight transport (Excluding dangerous cargoes). (The operation of projects subject to legal approval shall only be conducted upon approval by the relevant authority. The specific business items shall be subject to the approval document or the license certificate issued by the relevant authority).

⑩ Sichuan Haboat Electric Co., Ltd.

Registered Capital: CNY 110.1 million yuan

Unified Social Credit Code: 91510600214262049U

Enterprise Type: Company limited by shares (An unlisted company invested or controlled by natural person)

Industry: Electrical, machinery, and equipment manufacturing industries.

Company Address: Guangmu Road, Xiangyang Town, Guanghan City, Sichuan Province.

Shareholder Information: 45.86664% of shareholdings by Zheng Xuejian; 25.28383% of shareholdings by Ye Chunzhi; 11.70148% of shareholdings by Haboat Investment Co., Ltd.; 9.17045% of shareholdings by Sichuan Qunyi Equity Investment Management Partnership (Limited partnership); 7.9776% of shareholdings by Huang Minghui.

Company Profile: Founded in 1986, Sichuan Haboat Electric Co., Ltd. began to design and manufacture the complete set of electrical switchgear and control equipment in 1993. With adherence to the business philosophy of “gaining the trust of hundreds of millions of clients by high-quality products” and by virtue of the profound technical deposits and the pioneering and diligent spirit, the Company has now developed into a high-tech enterprise, a well-known high-end electrical distribution system solution provider engaging in the complete set of specialized electrical and controlling equipment through integrating product research, development, production, and sales into one. By virtue of the years of development, the Company has now established the following businesses, namely the research, development, design, manufacturing, and sales of a complete set of medium-and low-voltage switchgear and controller, as well as the general contracting and specialized contracting of electrical equipment installation and construction.

Business Scope: The high-and low-voltage power distribution equipment, electronic control equipment, electrical systems, complete set of electrical equipment, the manipulator, the electric converter devices, electric and electronic devices, mechanical part processing, as well as the import and export businesses of self-operated commodities (Excluding those commodities limited or prohibited by country) (The operation of projects subject to legal approval shall only be conducted upon approval by relevant authority).

4.2.4 Content pre-treatment

The original interview content was collected through the aid of audio recordings and handwriting notes to reduce the loss of any content and later were transformed to text contents for each question and response. The original text contents were in Chinese language and later were translated into the English version. Both English and Chinese versions of the content were compared, back-to-back translated. Then, each content was carefully checked in two steps for grammar, readability, and rationality based on the questions. First, the contents were checked and verified by two experts. Second, the contents were further checked, verified, and corrected during the coding process using MAXQDA software (version 2020).

Before preparing content validity, the content was processed in a standard scientific way through aid of natural language processing (NLP) algorithms to ensure accurate and reliable measurement of unstructured data, such as text cleaning, normalization, removing stop words, and tokenization. During text cleaning, unnecessary marks and special characters were removed. In addition, all the content was converted to lowercase for normalization purposes. Using the standard stop words list, the body is filtered by removing the stop words. These steps allowed this study to reduce word variations and redundant word counts and are used as inputs in the tokenization process. Finally, the corpus was tokenized and used for cosine similarity measurement.

4.2.5 Response validity

The responses are unstructured text, and respondents were free to answer from any direction. However, the content should be relevant to the particular question before it can undergo final analysis. One way to test the answer relevancy for the question is to check the similarity between the two contents. For example, if the question and its particular response use similar themes/contents, it can be assumed that the respondents are talking about relevant themes for the question as the expectation. However, checking the similarity between two contents is a

challenging work and has been extensively researched in academia. Among them, cosine similarity is widely adopted and used to tackle the issues (Han et al., 2012).

The cosine similarity is used to measure the similarity of two vectors in the underlying product space. It basically measures the cosine of the angle between the two vectors and determines whether the two vectors are pointed in roughly the same direction. It has been extensively used in text analysis and is commonly used to measure the similarity of documents. Thus, this study adopted cosine similarity ranking to check the validity of responses based on the questions. Table 4.4 displays the counting frequencies of the responses and their cosine similarity. Besides the cosine similarity, this study also measured the character count, word count, and keyword count for each answer so as to check that respondents were providing enough relevant content during the interview process.

Table 4.4 Counting frequencies of the responses and their cosine similarity

Question Code	Respondent Code	Answer Character Count	Answer Word Count	Keyword Count	Cosine Similarity
Q1_GOALS	RESP001	948	138	6	0.319505
	RESP002	229	35	4	0.257248
	RESP003	2009	283	7	0.204124
	RESP004	907	134	4	0.104257
	RESP005	255	38	2	0.162221
	RESP006	911	139	3	0.226339
	RESP007	1030	151	5	0.169031
	RESP008	776	113	3	0.099015
	RESP009	1056	156	7	0.217597
	RESP010	332	48	2	0.138675
	Total	8453	1235	43	1.898013
	Mean	1536.909	224.5455	7.818182	0.345093
Q2_STAKEHOLDERS	RESP001	1204	175	4	0.251754
	RESP002	1021	150	6	0.261116
	RESP003	2292	329	6	0.180579
	RESP004	2502	352	9	0.091971
	RESP005	226	31	5	0.661438
	RESP006	601	85	5	0.322749
	RESP007	1251	176	6	0.123299
	RESP008	154	19	9	0.294174
	RESP009	223	28	6	0.257248
	RESP010	176	21	11	0.188982
	Total	9650	1366	67	2.633311
	Mean	1754.545	248.3636	12.18182	0.478784
Q3_MODELS	RESP001	1904	263	8	0.109109
	RESP002	303	44	7	0.365148
	RESP003	1344	182	12	0.188562
	RESP004	288	39	6	0.297044
	RESP005	242	38	4	0.468293
	RESP006	951	137	4	0.218218
	RESP007	839	132	4	0.054554
	RESP008	303	43	7	0.083333
	RESP009	325	46	5	0.3403

Question Code	Respondent Code	Answer Character Count	Answer Word Count	Keyword Count	Cosine Similarity
Q4_CG-DC&HCA	RESP010	113	15	1	0.408248
	Total	6612	939	58	2.533013
	Mean	1202.182	170.7273	10.54545	0.460548
	RESP001	1476	214	13	0.261116
	RESP002	540	72	8	0.240563
	RESP003	1193	170	3	0.306186
	RESP004	1244	165	6	0.146647
	RESP005	470	68	7	0.39036
	RESP006	793	110	3	0.353553
	RESP007	510	74	4	0.19518
	RESP008	534	72	3	0.39036
	RESP009	555	82	4	0.180334
	RESP010	207	29	4	0.280056
	Total	7522	1056	55	2.744356
	Mean	1367.636	192	10	0.498974
	RESP001	2227	321	9	0.17609
	RESP002	1067	154	5	0.362887
	RESP003	1106	155	7	0.282958
	RESP004	662	94	3	0.164399
	RESP005	251	31	4	0.521749
Q5_CG-SD	RESP006	592	79	3	0.301511
	RESP007	635	88	8	0
	RESP008	396	55	3	0.3849
	RESP009	536	72	4	0.394405
	RESP010	108	16	4	0.111111
	Total	7580	1065	50	2.700012
	Mean	1378.182	193.6364	9.090909	0.490911
	RESP001	1694	236	7	0.168696
	RESP002	1058	148	8	0.113961
	RESP003	1231	168	8	0.243709
Q6_GG-DC&HCA	RESP004	969	129	5	0.199681
	RESP005	283	41	4	0.53936
	RESP006	648	95	5	0.304636
	RESP007	88	13	0	0.246183
	RESP008	436	63	6	0.254824
	RESP009	561	74	5	0.434524
	RESP010	134	18	3	0.636364
	Total	7102	985	51	3.141937
	Mean	1291.273	179.0909	9.272727	0.571261
	RESP001	1630	232	11	0.138197
Q7_DG-DC&HCA	RESP002	496	67	7	0.148704
	RESP003	1050	148	7	0.268044
	RESP004	1133	173	7	0.208893
	RESP005	309	43	4	0.514259
	RESP006	543	77	7	0.289683
	RESP007	138	19	2	0.174078
	RESP008	740	109	8	0.177822
	RESP009	443	64	6	0.452267
	RESP010	168	18	5	0.167248
	Total	6650	950	64	2.539196
	Mean	1209.091	172.7273	11.63636	0.461672
Q8_GG&DG-SD	RESP001	1128	162	9	0.246183
	RESP002	699	100	11	0.388973

Question Code	Respondent Code	Answer Character Count	Answer Word Count	Keyword Count	Cosine Similarity
	RESP003	1512	220	15	0.225018
	RESP004	771	112	5	0.288675
	RESP005	486	67	1	0.549972
	RESP006	1177	170	10	0.229416
	RESP007	9	2	0	0
	RESP008	692	101	5	0.35583
	RESP009	486	70	5	0.3849
	RESP010	188	25	4	0.27735
	Total	7148	1029	65	2.946317
	Mean	1299.636	187.0909	11.81818	0.535694

From Table 4.4, it can be seen that the minimum average character count is 1202.18 and the maximum average character count is 1754.54; the minimum average word count is 170.72, and the maximum average character count is 248.36; the minimum average keyword count is 7.82, and the maximum average keyword count is 12.18. The minimum average cosine similarity is 0.345, and the maximum average cosine similarity is 0.536. These data showed that the responses were normal in range, relevant to questions, and able to produce insightful information via qualitative content analysis. Thus, finally, the unstructured text contents were used for qualitative analysis.

4.3 Chapter summary

The interview questions were designed and experimented in this chapter to collect the opinions from the members of the board of directors and the senior managers in mixed-ownership enterprises for corporate sustainability. Both the text analysis and descriptive analysis were conducted on the valid responses after response recovery, including the analyses on sample characteristics, cosine similarity, and counting frequencies for the reliability and validity of the interviews. These processes, techniques, and information exposure allowed this study to secure the trustworthiness of the conducted interviews. A preliminary description was drawn on the effect of variables concerning common governance by stakeholders of mixed-ownership enterprises upon corporate sustainability.

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Chapter 5: Analysis and Results

5.1 Research approach

In this study, qualitative research (Baxter & Jack, 2008) was used, which includes collecting interview data, analyzing, and interpreting them to infer the results based on the meaningful information from the observations. It was used to gather hidden patterns of the content and insightful information and reveal them to understand how respondents experience the sustainable development for mixed-ownership enterprises using stakeholder governance. Some common method of qualitative research includes grounded theory, ethnography, action research, and narrative research. The deductive approach (Abusneineh & Zairi, 2010) was used to code all the interview responses and find meaningful answers from the content and verify them based on the postulated propositions developed after the literature review.

5.2 Information extraction and representation

From the unstructured content, information was extracted and represented to interpret the results systematically. This was operationalized through several steps using scientific tools technics. First, each response was coded using MAXQDA 2020 software as per the meaning of the sentences or paragraphs. Second, code co-occurrences were calculated. Third, codes were visualized using several technics such as code co-occurrence model, network visualization map, word cloud, and bar graph.

5.2.1 Code extraction

Extracting and sorting meaningful information from the responses is a challenging task and need to conduct systematically. Thus, MAXQDA 2020 was used to code the meaningful phrases for each response. It is worth mentioning that MAXQDA 2020 software is not only useful for code extraction, but it is also comprehensive software for both qualitative and quantitative research, which comes with plenty of data analysis tools, including code matrix browser, word cloud, code co-occurrence model, MAXDictio, and code and document map. Figure 5.1 represents the code extraction window interface for this study.

Document System

- Documents
 - interview
 - RESP001 (104)
 - RESP002 (78)
 - RESP003 (96)
 - RESP004 (69)
 - RESP005 (44)
 - RESP006 (65)
 - RESP007 (46)
 - RESP008 (61)
 - RESP009 (58)
 - RESP010 (42)

Code System

- Code System
 - Q1_GOALS
 - three powers (1)
 - scientific (1)
 - rational (1)
 - reform (1)
 - efficiency (2)
 - cooperative development (1)
 - management (2)
 - customer satisfaction (1)
 - sustainable development (5)
 - social value (4)
 - wealth of shareholders (2)
 - balance company's behaviors (2)
 - social responsibility (2)
 - transaction cost (1)
 - interests of stakeholders (9)

Document Browser: RESP001 (8 Paragraphs)

Q1_GOALS\satisfaction of stakeholders

1 The objectives of corporate management are multiple, such as the promotion of enterprise value, the maximization of shareholders' interests, the satisfaction of stakeholders, the maintenance and appreciation of state-owned assets, and the improvement of social benefits. From the perspective of corporate governance, short-term realistic goals pay more attention to the improvement of enterprise value, which is mainly reflected in the completion of relevant operating economic indicators, such as operating income, profits, asset scale, etc; In the long run, the ideal goal of corporate management is not only to maximize the interests of shareholders, but also to serve the stakeholders and make them satisfied. For example, for state-owned enterprises, shareholders, creditors, employees, related parties, the government, the public and other stakeholders are satisfied on the basis of maintaining and increasing the value of state-owned assets.

2 According to the contractual relationship, the company's stakeholders can generally be divided into contractual stakeholders and non-contractual stakeholders. The recent business strategy must start from the completion of the enterprise's economic goals, and pay more attention to the interests of contractual stakeholders such as shareholders and creditors in the near future. Of course, for state-owned enterprises, regardless of the level of control, supervision, or business cooperation, especially in view of the particularity of the new urbanization construction business along our transportation lines, we need to pay more attention to the interests of the government. For the long-term sustainable development of the enterprise, it is necessary to consider the interests of some non-contractual stakeholders, and the interests of stakeholder can no longer be put in the first place, because in general, many stakeholders involved in corporate governance form a huge and complex system. Only when the interests of the system, such as employees, the public, communities, cooperative enterprises, industries, are satisfied, the interests of stakeholders, creditors and so on can be further improved.

3 Corporate governance structure is a set of institutional arrangements to govern the transaction relationship of enterprises, including external governance mechanism and internal governance mechanism. The internal governance mechanism mainly includes the institutionalized arrangements such as the shareholders' meeting, the board of directors, the board of supervisors, senior managers, trade unions, etc. With the continuous improvement of the corporate governance mechanism in China, this internal institutionalized governance mechanism has become perfect and

Retrieved Segments

663 coded segments (from 10 documents, 1 document group)

interview > RESP001

The objectives of corporate management are multiple, such as the promotion of enterprise value, the maximization of shareholders' interests, the satisfaction of stakeholders, the maintenance and appreciation of state-owned assets, and the improvement of social benefits. From the perspective of corporate governance, short-term realistic goals pay more attention to the improvement of enterprise value, which is mainly reflected in the completion of relevant operating economic indicators, such as operating income, profits, asset scale, etc; In the long run, the ideal goal of corporate management is not only to maximize the interests of shareholders, but also to serve the stakeholders and make them satisfied. For example, for state-owned enterprises, shareholders, creditors, employees, related parties, the government, the public and other stakeholders are satisfied on the basis of maintaining and increasing the value of state-owned assets.

RESP001_Pos.1 Q1_GOALS (0)

Figure 5.1 Code extraction interface using MAXQDA 2020

5.2.3 Keyword statistics

Figure 5.4 represents the top 20 words used in the whole corpus of responses. Table 5.1 represents keyword frequency, term frequency, document frequency, and term frequency-inverse document frequency (TF-IDF) (Qin et al., 2016). Figure 5.5 represents the bar graph of keywords and document frequency of the top 10 keywords.

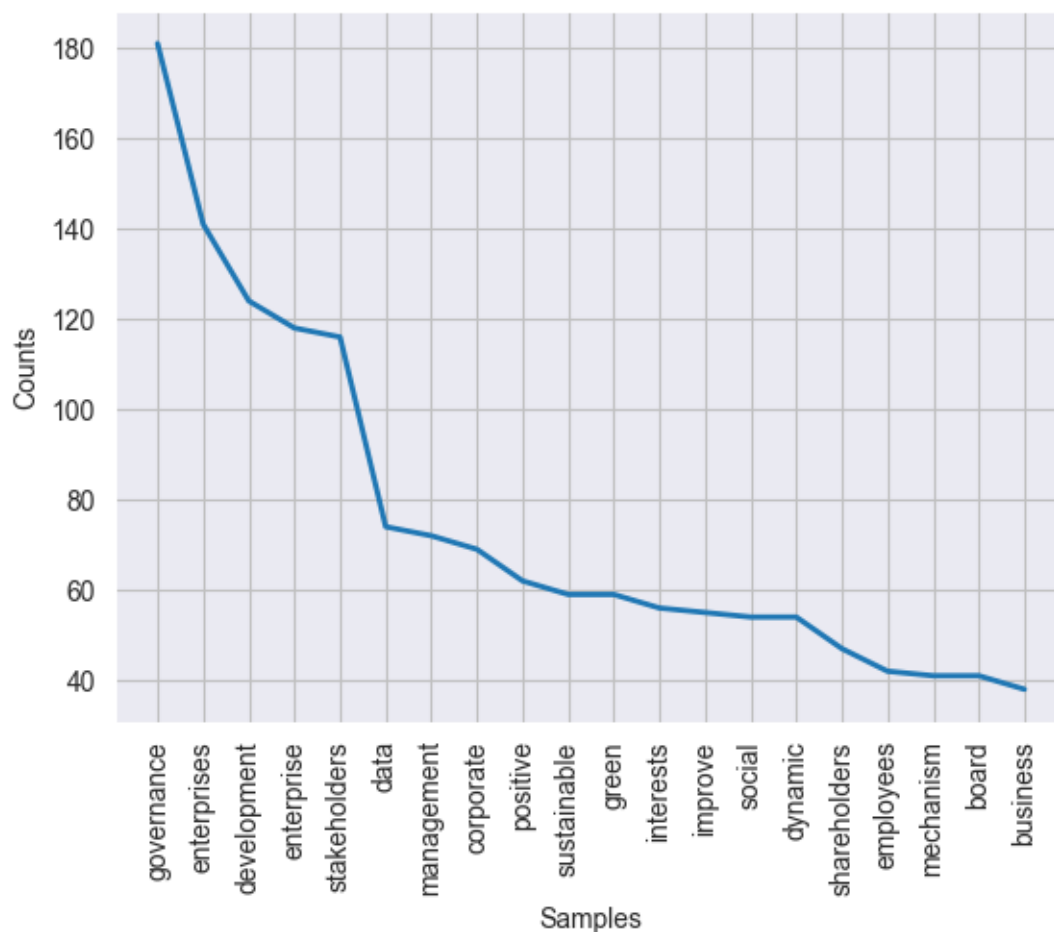


Figure 5.4 Top 20-word frequency

Table 5.1 Top 10 keyword statistics

Keywords	Keyword Frequency	Term Frequency	Document Frequency	TFIDF
positive	63	0.7875	48	0.005584
stakeholders	116	1.45	40	0.009164
dynamic	54	0.675	33	0.007246
social	54	0.675	21	0.008182
productivity	21	0.2625	18	0.003805
management	72	0.9	30	0.008243
contractual	20	0.25	9	0.006646
stakeholders	20	0.25	9	0.006646
resource integration	17	0.2125	16	0.004575
development	124	1.55	48	0.008121

Keywords	Keyword Frequency	Term Frequency	Document Frequency	TFIDF
interests of stakeholders	18	0.225	14	0.002656
efficiency	32	0.4	19	0.006189
decision-making	28	0.35	13	0.006315
customer	35	0.4375	16	0.009143

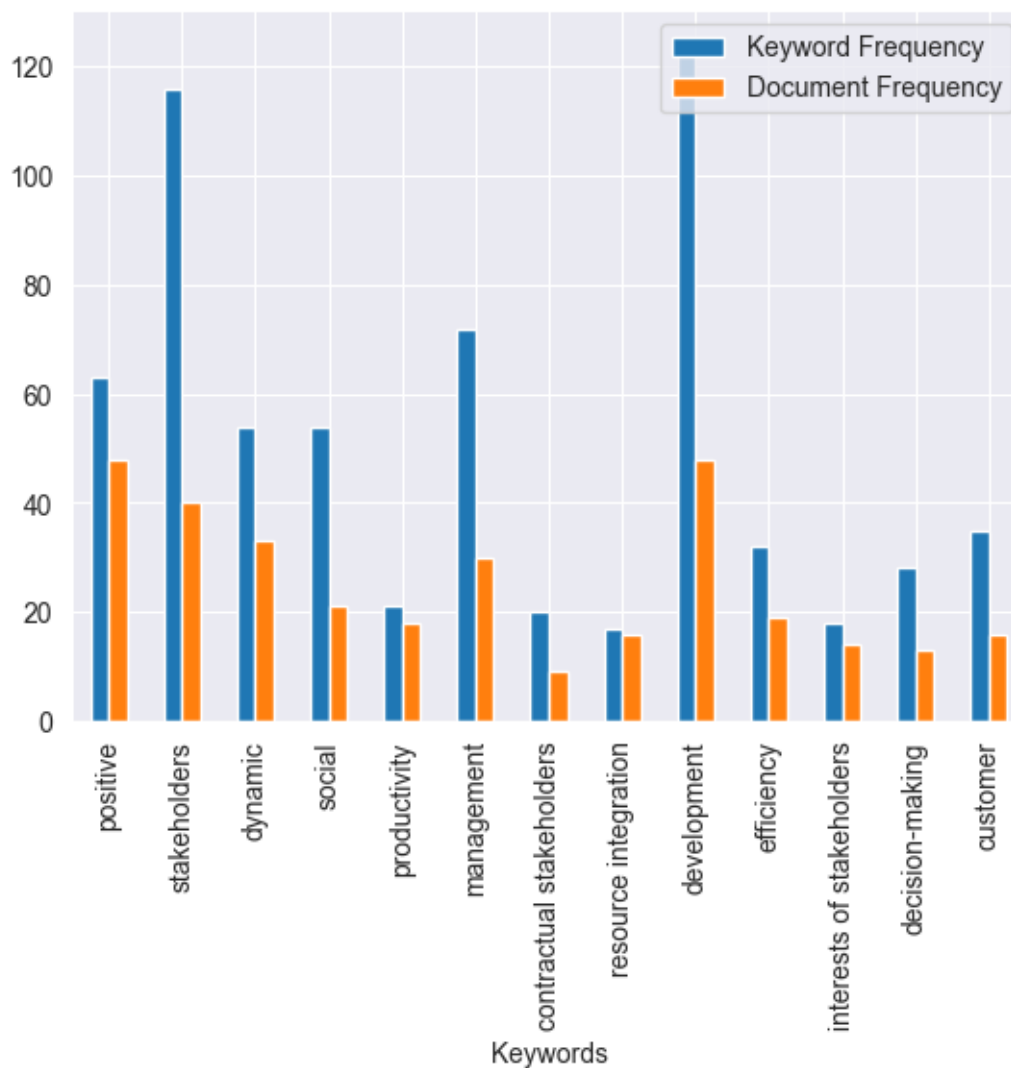


Figure 5.5 Bar graph of top 10 keyword and document frequency

5.2.4 Code matrix statistics

Table 5.2 represents code matrix statistics for all the interview questions (i.e., Q1 to Q8) with its corresponding codes and responses (i.e., R1 to R10). The last column of each row shows the sum of each code's frequency with its corresponding responses. Similarly, at the bottom of each question shows the column wise sum of each response with its corresponding codes.

Table 5.2 Code matrix statistics for all responses

Question Code	Codes	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Sum
Q1_GOALS	appreciation of state-owned assets	1	0	0	0	0	0	0	0	0	0	1
	balance company's behaviors	0	0	1	0	0	0	1	0	0	0	2
	cooperative development	0	0	0	0	0	0	0	0	1	0	1
	customer satisfaction	0	0	0	0	0	0	0	1	0	0	1
	efficiency	0	0	0	0	0	0	0	0	2	0	2
	enterprise value	3	1	0	1	0	1	0	0	1	0	7
	incentive compatibility	0	0	1	0	0	0	0	0	0	0	1
	interests of stakeholders	2	0	4	0	0	0	0	2	0	1	9
	maintenance of state-owned assets	1	0	0	0	0	0	0	0	0	0	1
	management	0	0	0	0	0	0	1	0	1	0	2
	profits of enterprises	0	1	0	3	0	2	0	0	0	0	6
	rational	0	0	0	0	0	0	1	0	0	0	1
	reform	0	0	0	0	0	0	0	0	1	0	1
	satisfaction of stakeholders	2	1	1	0	0	0	0	1	1	0	6
	scientific	0	0	0	0	0	0	1	0	0	0	1
	social benefits	1	0	0	0	1	0	0	0	0	0	2
	social responsibility	0	0	2	0	0	0	0	0	0	0	2
	social value	0	1	0	3	0	0	0	0	0	0	4
	sustainable development	0	0	0	1	0	1	0	0	2	1	5
	three powers	0	0	0	0	0	0	1	0	0	0	1
	transaction cost	0	0	1	0	0	0	0	0	0	0	1
Q2_STAKEHOLDERS	wealth of shareholders	0	0	1	0	1	0	0	0	0	0	2
	Sum	10	4	11	8	2	4	5	4	9	2	59
	contractual stakeholders	1	2	0	2	1	2	1	1	0	1	11
	creditor	0	0	0	0	1	0	0	1	1	1	4
	customer	0	1	0	1	0	2	1	1	1	1	8
	employee	0	0	0	1	1	2	0	1	1	1	7
	government	1	1	0	1	1	0	1	1	0	1	7
	interests of stakeholders	2	0	1	1	0	0	0	0	0	0	4
	non-contractual stakeholders	3	2	2	3	0	3	1	1	0	1	16
	partner	0	0	0	0	0	0	0	0	1	1	2
	profits of enterprises	0	0	1	0	0	0	0	0	0	0	1
	shareholder	0	1	0	1	1	2	0	1	0	1	7
	social	0	0	1	1	0	0	2	1	1	1	7
	social benefits	0	0	1	0	0	0	0	0	0	0	1
	social responsibility	0	0	0	1	0	0	2	1	1	1	6

Question Code	Codes	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Sum
Q3_MO DELS	stakeholders	0	0	2	0	0	0	0	0	0	0	2
	supplier	0	1	0	0	0	0	0	0	0	1	2
	Sum	7	8	8	12	5	11	8	9	6	11	85
	board of directors	1	1	0	1	1	2	1	2	1	1	11
	board of supervisors	1	1	0	0	1	2	0	1	1	0	7
	capital investment	0	0	1	0	0	0	0	0	0	0	1
	contractual forms	0	0	1	0	0	0	0	0	0	0	1
	credit mechanism	0	0	1	0	0	0	0	0	0	0	1
	decision-making	0	1	1	0	0	1	0	0	0	0	3
	employee representatives	0	0	0	1	0	0	0	0	0	0	1
	employee stock ownership plan	0	0	1	0	0	0	0	1	0	0	2
	external governance mechanism	2	0	1	0	0	0	0	1	1	0	5
	external resource market	0	0	1	0	0	0	0	0	0	0	1
	general meeting	0	0	0	1	0	0	0	0	0	0	1
	institutional governance	1	1	0	0	0	0	0	0	0	0	2
	internal governance mechanism	2	1	1	1	1	0	1	1	1	0	9
	joint governance	1	1	1	1	1	2	1	1	1	0	10
	labor union	1	0	0	1	0	0	0	0	0	0	2
	management efficiency	0	0	1	0	0	0	0	0	0	0	1
	market mechanism	0	0	1	0	0	0	0	0	0	0	1
	mixed ownership supervision	1	0	1	0	0	0	3	1	0	0	6
	Sum	10	7	12	6	4	7	6	8	5	1	66
	achieve goals	0	0	1	0	0	0	0	0	0	0	1
	adaptive	1	1	0	1	0	0	0	1	1	1	6
	avoid decision-making judgment errors	0	0	0	0	0	1	0	0	0	0	1
Q4_CG- DC&H CA	balance	1	0	0	0	0	0	0	0	0	0	1
	dynamic	1	2	0	1	1	0	0	1	1	1	8
	dynamic participation mechanism	1	0	0	0	0	0	0	0	0	0	1
	expand market flexible	0	0	0	0	1	0	0	0	0	0	1
	participation mechanism	1	0	0	1	0	0	0	0	0	0	2
	full play	2	2	1	0	0	0	1	0	0	0	6
	improve business performance	0	1	0	1	1	0	0	0	0	1	4
	improve customer satisfaction	0	1	0	0	0	0	0	0	0	0	1
	improve management	0	0	0	0	1	0	0	0	0	0	1

Question Code	Codes	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Sum
Q5_CG-SD	increase profit	1	0	0	0	0	0	0	0	0	0	1
	innovation	1	0	0	0	0	0	0	0	0	0	1
	interests of stakeholders	0	0	0	1	0	0	0	0	0	0	1
	not effective	0	0	0	0	0	1	1	0	0	0	2
	positive	4	1	3	1	3	2	1	1	2	1	19
	prevent hazard	1	0	0	0	0	0	0	0	0	0	1
	promote compliance	0	1	0	0	0	0	0	0	0	0	1
	management	0	0	0	0	1	0	0	0	0	0	1
	raise fund	1	0	0	0	0	0	0	0	0	0	1
	reduce cost	1	1	0	0	0	0	1	0	0	0	3
	right to speak	1	0	0	0	1	0	0	0	1	0	3
	sustainable development	17	10	5	6	9	4	4	3	5	4	67
	Sum	0	0	0	0	0	0	0	0	0	1	1
	achieve goals	0	1	0	0	0	0	0	0	0	0	1
	adaptive	0	0	1	0	0	0	0	0	0	0	1
	complex	0	0	0	0	0	0	0	1	0	0	1
	cultivate industry benchmarks	2	0	0	0	0	0	1	0	0	0	3
	decision-making	1	0	0	0	0	0	0	0	0	0	1
	democratic	0	0	0	0	0	0	0	1	0	0	1
	development of the industry	0	1	0	0	0	0	0	0	0	0	1
	dynamic	0	0	0	0	0	0	0	0	0	1	1
	enhance cohesion	0	0	1	0	0	0	0	0	0	0	1
	enhance enterprise value	0	1	0	0	0	0	0	0	0	0	1
	enhance the core competitiveness	1	0	0	0	0	0	0	0	0	0	1
	executive power	0	0	0	0	0	0	0	0	1	0	1
	expand the market	0	0	0	0	0	0	1	0	0	0	1
	flexible mechanism	0	0	1	0	0	0	0	0	0	0	1
	full play	0	1	0	0	0	0	0	0	0	0	1
	function	0	0	0	0	1	1	1	0	0	0	3
	development	0	0	0	0	0	1	0	0	0	0	1
	improve management	0	0	0	0	0	0	2	0	0	0	2
	improve relevant systems	0	0	0	0	1	0	0	0	0	0	1
	innovation	0	0	0	0	1	0	0	0	0	0	1
	institutional optimization	4	0	2	1	0	0	0	0	1	0	8
	interests of stakeholders	0	0	0	1	0	0	0	0	0	0	1
	minimize risk	0	0	1	0	0	0	0	0	0	0	1
	not effective	1	0	0	0	0	0	0	0	0	0	1
	obtain economic benefits	0	0	0	0	1	0	0	0	0	0	1
	personnel integration	4	1	1	1	1	1	5	2	2	1	19
	positive											

Question Code	Codes	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Sum
Q6_GG-DC&H-CA	productivity	3	0	1	0	0	0	1	0	1	0	6
	reduce cost	0	0	0	0	0	0	1	0	0	0	1
	resource integration	0	0	0	0	0	0	1	0	0	1	2
	scientific guidance	1	0	0	0	0	0	0	0	0	0	1
	service oriented	1	0	0	0	0	0	0	0	0	0	1
	Sum	18	5	8	3	4	3	13	4	5	4	67
	competitiveness	0	1	0	0	0	0	0	0	0	0	1
	concerned	1	0	0	0	0	0	0	0	0	0	1
	development	0	1	0	0	0	0	0	0	0	0	1
	dynamic	1	2	1	1	1	1	0	1	2	1	11
	ecological	0	0	0	0	0	1	0	0	0	0	1
	civilization	0	0	0	0	0	1	0	0	0	0	1
	energy efficient	0	0	0	0	0	1	0	0	0	0	1
	environmental	0	1	1	0	0	0	0	0	0	0	2
	protection	0	1	1	0	0	0	0	0	0	0	2
	gain competitive	1	0	0	0	0	0	0	0	0	0	1
	advantages	1	0	0	0	0	0	0	0	0	0	1
	gain reputation	1	0	0	0	0	0	0	0	0	0	1
	green	0	1	0	0	0	0	0	0	0	0	1
	manufacturing	0	1	0	0	0	0	0	0	0	0	1
	improve skills	0	0	0	0	0	0	0	1	1	1	3
	improve social	0	0	1	0	0	0	0	0	0	0	1
	responsibility	0	0	1	0	0	0	0	0	0	0	1
	increase investment	0	0	1	0	0	0	0	0	0	0	1
	innovation	0	1	1	0	0	1	0	1	0	0	4
	interests of	0	0	0	1	0	0	0	0	0	0	1
	stakeholders	0	0	0	1	0	0	0	0	0	0	1
	market favor	1	0	0	0	0	0	0	0	0	0	1
	obtain economic	0	0	1	0	0	0	0	1	1	0	3
	benefits	0	0	1	0	0	0	0	1	1	0	3
	positive	1	4	5	2	1	1	0	1	1	1	17
	productivity	0	1	0	1	1	0	0	0	0	0	3
	resource integration	0	0	1	1	0	0	0	1	1	0	4
	service oriented	0	0	0	0	1	0	0	0	0	0	1
	social trust	1	0	0	0	0	0	0	0	0	0	1
	Sum	7	12	12	6	4	5	0	6	6	3	61
Q7_DG-DC&H-CA	business efficiency	0	0	0	0	0	0	0	0	1	0	1
	competitiveness	0	0	0	0	1	0	0	2	0	1	4
	customer oriented	1	0	0	0	0	0	0	1	0	0	2
	decision-making	0	1	0	0	0	1	0	0	0	1	3
	development	0	0	0	0	0	0	1	0	0	0	1
	digital strategy	1	0	1	0	0	0	0	0	0	0	2
	dynamic	1	0	1	2	1	1	0	1	1	0	8
	efficient	2	0	1	0	2	0	0	1	0	1	7
	management	0	1	0	0	0	0	0	0	0	0	1
	enhance data	0	1	0	0	0	0	0	0	0	0	1
	security	0	1	0	0	0	1	0	0	0	0	2
	improve accuracy	0	1	0	0	0	1	0	0	0	0	2
	improve assets	0	0	0	1	0	1	0	0	0	0	2
	improve value	0	0	0	2	0	0	0	0	0	0	2
	increase investment	1	0	0	0	0	0	0	0	0	0	1
	obtain economic	1	0	0	0	0	0	0	0	0	0	1
	benefits	1	0	0	0	0	0	0	0	0	0	1

Question Code	Codes	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Sum
Q8_GG &DG- SD	operation efficiency	1	2	1	1	0	0	0	0	0	0	5
	positive	3	4	2	3	2	2	1	3	3	1	24
	productivity	1	3	2	2	0	1	0	2	1	0	12
	reduce cost	0	1	0	0	0	0	0	1	1	0	3
	resource integration	2	0	2	1	0	0	0	0	1	0	6
	scientific guidance	0	0	0	0	0	1	0	0	0	1	2
	service efficiency	0	0	0	0	0	0	0	1	0	0	1
	stable preservation	1	0	0	0	0	0	0	0	0	0	1
	Sum	15	13	10	12	6	8	2	12	8	5	91
	business efficiency	0	0	0	0	0	0	0	0	1	0	1
	competitiveness	0	1	1	0	0	0	0	0	0	0	2
	decision-making	0	1	1	0	0	0	0	1	0	0	3
	development	0	0	0	0	0	0	0	1	1	0	2
	digital strategy	0	0	0	0	0	1	0	0	0	0	1
	digitalization	0	0	1	0	0	0	0	0	0	0	1
	dynamic	1	1	2	1	0	1	0	0	0	1	7
	ecological civilization	0	1	0	0	0	1	0	0	0	0	2
	economic benefits	0	0	2	0	0	1	0	0	0	0	3
	efficient management	1	1	1	0	0	0	0	1	0	0	4
	expand market	0	0	0	1	0	0	0	0	0	0	1
	flexible	1	0	0	0	0	0	0	0	0	0	1
	gain enterprise value	0	0	0	0	0	1	0	0	0	0	1
	green manufacturing	0	1	0	0	0	0	0	0	0	0	1
	green products	0	1	0	0	0	0	0	0	0	0	1
	green technology	0	1	0	0	0	0	0	0	0	0	1
	higher growth	1	0	0	0	0	0	0	0	0	0	1
	improve reputation	0	0	1	0	0	0	0	0	0	0	1
	improve security	0	0	1	0	0	0	0	0	0	0	1
	increase investment	0	0	1	0	0	0	0	0	0	0	1
	innovation	1	0	1	0	0	1	0	0	0	0	3
	operation efficiency	0	1	2	0	0	1	0	0	0	1	5
	positive	4	1	4	2	2	4	0	3	2	1	23
	productivity	0	0	2	2	0	2	0	0	1	0	7
	reduce cost	0	0	1	0	0	0	0	0	0	0	1
	resource integration	1	1	1	2	0	0	0	0	0	1	6
	scientific guidance	0	0	0	0	0	2	0	1	1	0	4
	service-oriented	1	0	0	0	0	0	0	0	0	0	1
	stability	1	0	0	0	0	0	0	0	0	0	1
	Sum	12	11	22	8	2	15	0	7	6	4	87

5.3 Proposition testing and answer exposure

5.3.1 Common governance for corporate dynamic capability and human capital appreciation

Figure 5.6 displays the code co-occurrence model for common governance to corporate dynamic capability and human capital appreciation. From the figure, it can be identified that *positive* (frequency = 19) and *dynamic* (frequency = 8) are the maximum code used for common governance to corporate dynamic capability and human capital appreciation. Figure 5.7 displays the network visualization map for common governance to corporate dynamic capability and human capital appreciation based on question 4. The network visualization map also found that positive and dynamic were the maximum number of codes used in the maximum number of responses. From both figures, it can conclude that common governance is positively related to corporate dynamic capability and human capital appreciation. Thus, propositions P1 and P2 were supported in this study. These two figures also represent that common governance is related to *full play* and *improve business performance*.

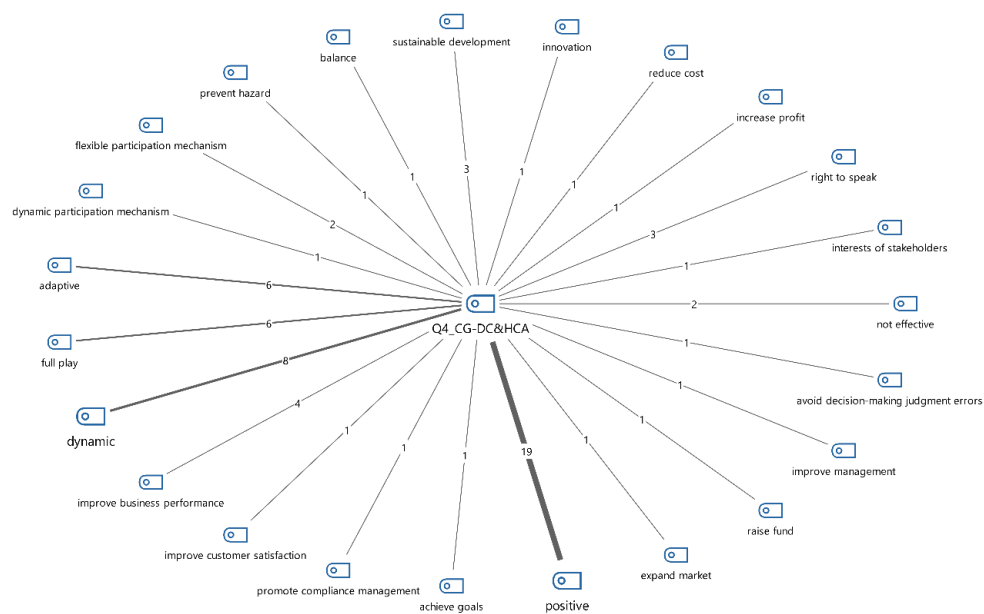


Figure 5.6 Code co-occurrence model regarding Question 4

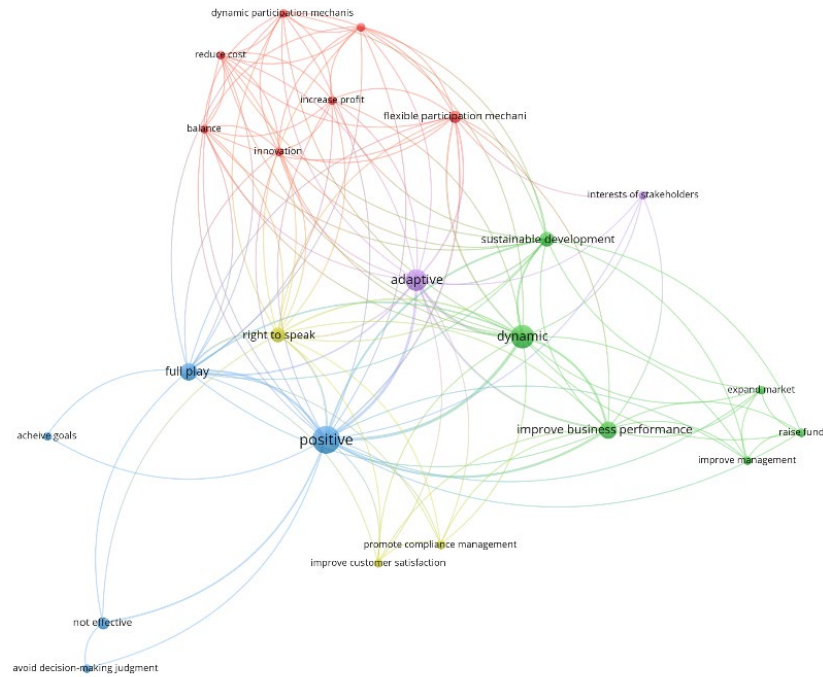


Figure 5.7 Code network map regarding Question 4

5.3.2 Common governance for corporate sustainability

Figure 5.8 displays the code co-occurrence model for common governance to corporate sustainability. From the figure, it can be identified that *positive* (frequency = 19) is the maximum code used for common governance. Figure 5.9 displays the network visualization map for common governance to corporate sustainability based on question 6. The network visualization map found that *positive* was the maximum number of codes used in the maximum number of responses. From both figures, it can conclude that common governance is positively related to corporate sustainability. Thus, proposition P3 was supported in this study. These two figures also represent that common governance is related to the *interest of stakeholders*, and *productivity* while it is beneficial for corporate sustainability.

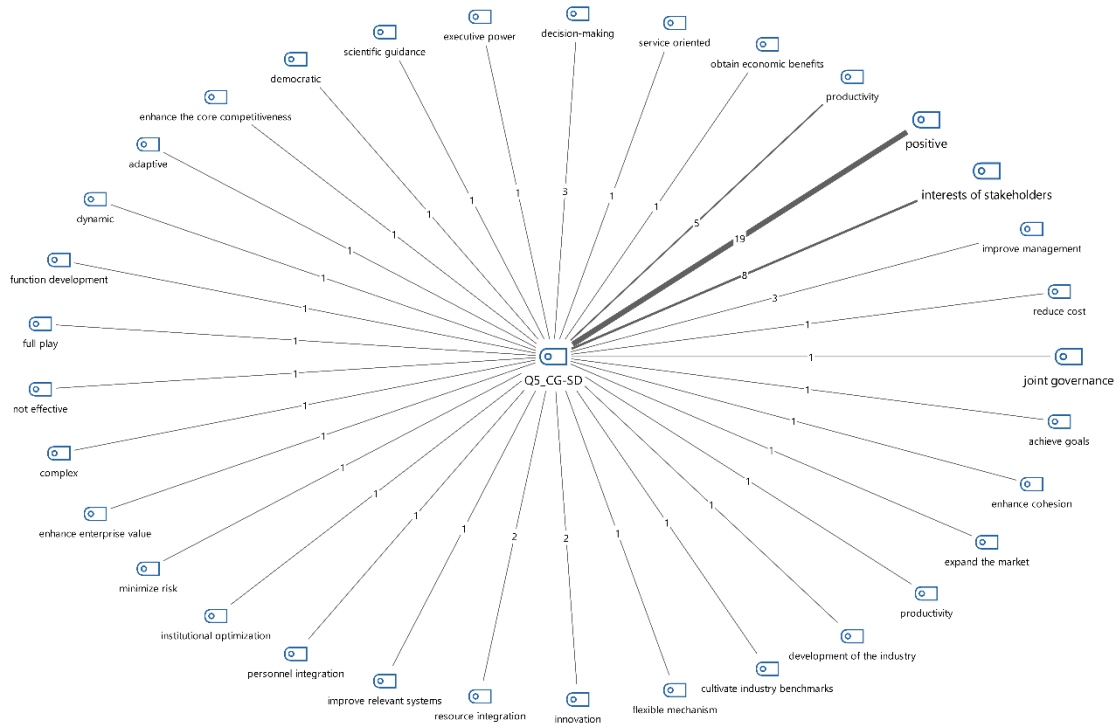


Figure 5.8 Code co-occurrence model regarding Question 5

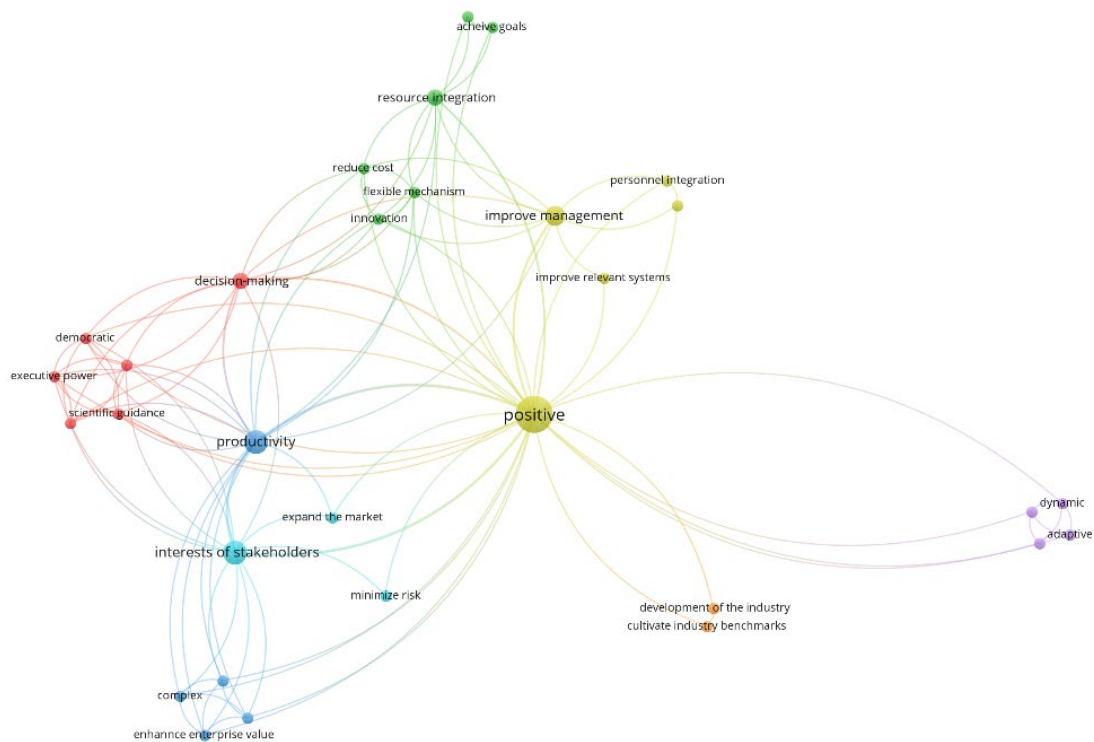


Figure 5.9 Code network map regarding Question 5

5.3.3 Green governance for corporate dynamic capability human capital appreciation

Figure 5.10 displays the code co-occurrence model for green governance to corporate dynamic capability and human capital appreciation. From the figure, it can be identified that *positive*

(frequency = 17) and *dynamic* (frequency = 11) are the maximum code used for common governance corporate dynamic capability and human capital appreciation. Figure 5.11 displays the network visualization map for green governance to corporate dynamic capability and human capital appreciation based on question 6. The network visualization map found that positive and dynamic were the maximum number of codes used in the maximum number of responses. From both figures, it can conclude that green governance is positively related to corporate dynamic capability and human capital appreciation. Thus, propositions P4 and P5 were supported in this study. These two figures also represent that green governance is related to *obtain economic benefits, innovation, and resource integration*.

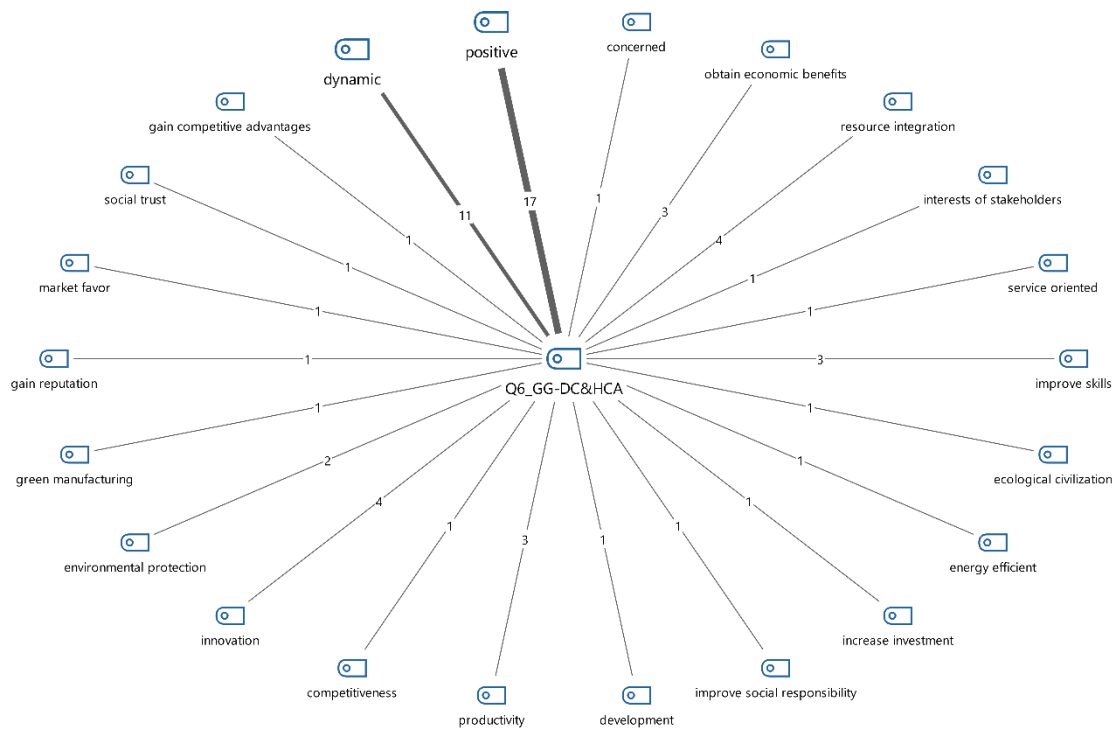


Figure 5.10 Code co-occurrence model regarding Question 6

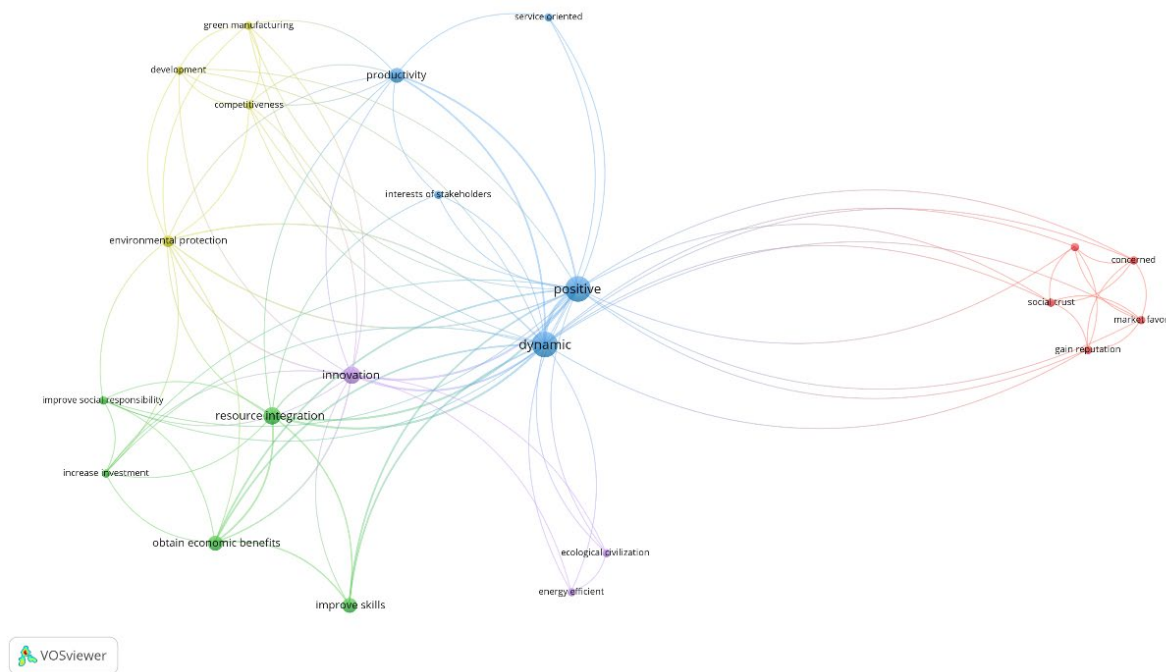


Figure 5.11 Code network map regarding Question 6

5.3.4 Data governance for corporate dynamic capability and human capital appreciation

Figure 5.12 displays the code co-occurrence model for data governance to corporate dynamic capability and human capital appreciation. From the figure, it can be identified that *positive* (frequency = 24) and *productivity* (frequency = 12) are the maximum code used for data governance to corporate dynamic capability and human capital appreciation. Figure 5.13 displays the network visualization map for data governance to corporate dynamic capability and human capital appreciation based on question 7. The network visualization map found that *positive* and *productivity* were the maximum number of codes used in the maximum number of responses. From both figures, it can conclude that data governance is positively related to corporate dynamic capability and human capital appreciation. Thus, propositions P7 and P8 were supported in this study. These two figures also represent that data governance is related to *efficient management*, *reduce cost*, and *resource integration* while securing a positive relationship with corporate dynamic capability and human capital appreciation.

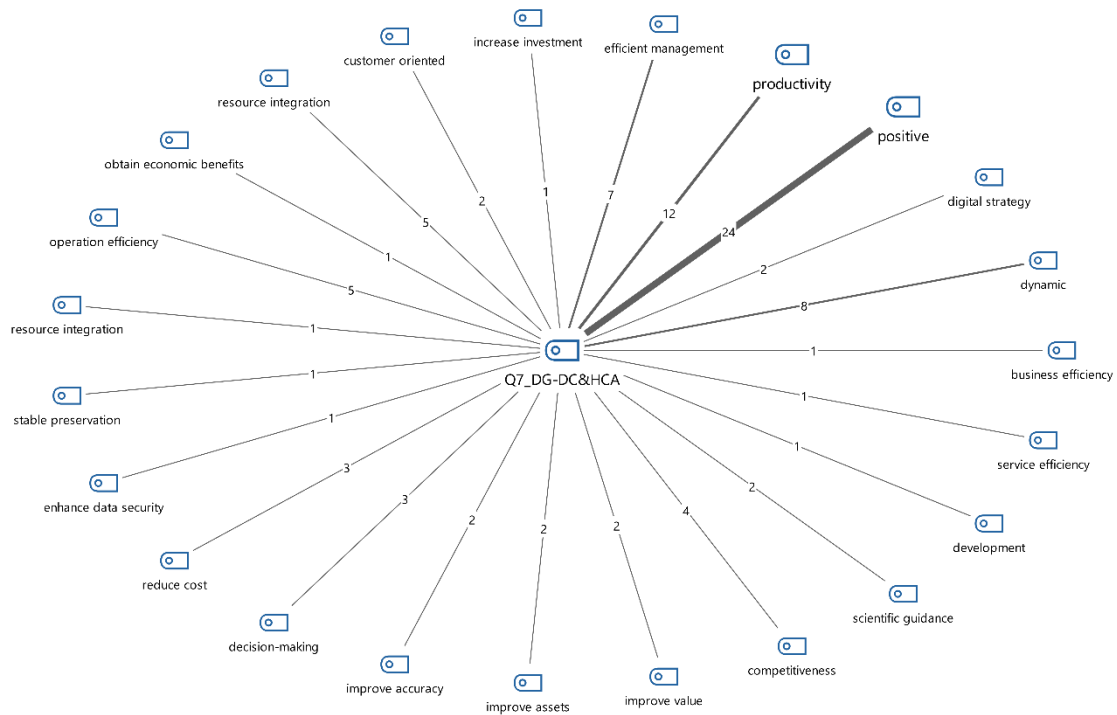


Figure 5.12 Code co-occurrence model regarding Question 7

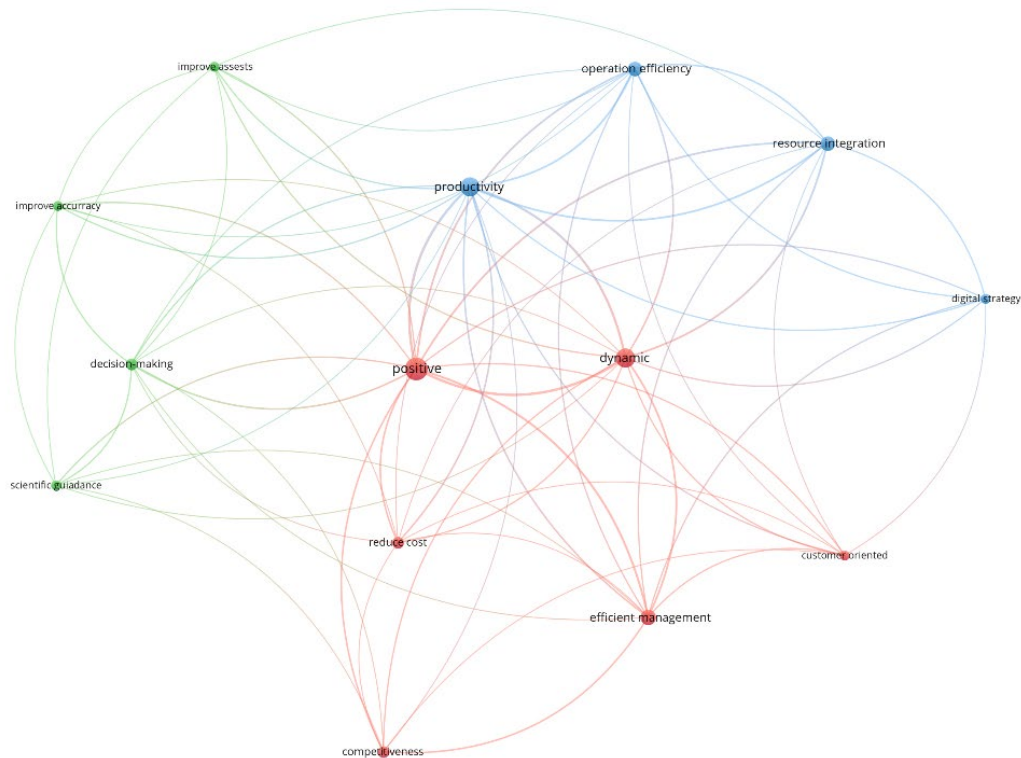


Figure 5.13 Code network map regarding Question 7

5.3.5 Green governance and data governance for corporate sustainability

Figure 5.14 displays the code co-occurrence model for green governance and data governance to corporate sustainability. From the figure, it can be identified that *positive* (frequency = 23) is

the maximum code used for green governance and data governance to corporate sustainability. Figure 5.15 displays the network visualization map for green governance and data governance to corporate sustainability based on question 8. The network visualization map found that positive was the maximum number of codes used in the maximum number of responses. From both figures, it can conclude that green governance and data governance are positively related to corporate sustainability. Thus, propositions P6 and P9 were supported in this study. These two figures also represent that green governance is related to *scientific guidance, resource integration, productivity, dynamic, innovation, and decision making* while it is beneficial for corporate sustainability.

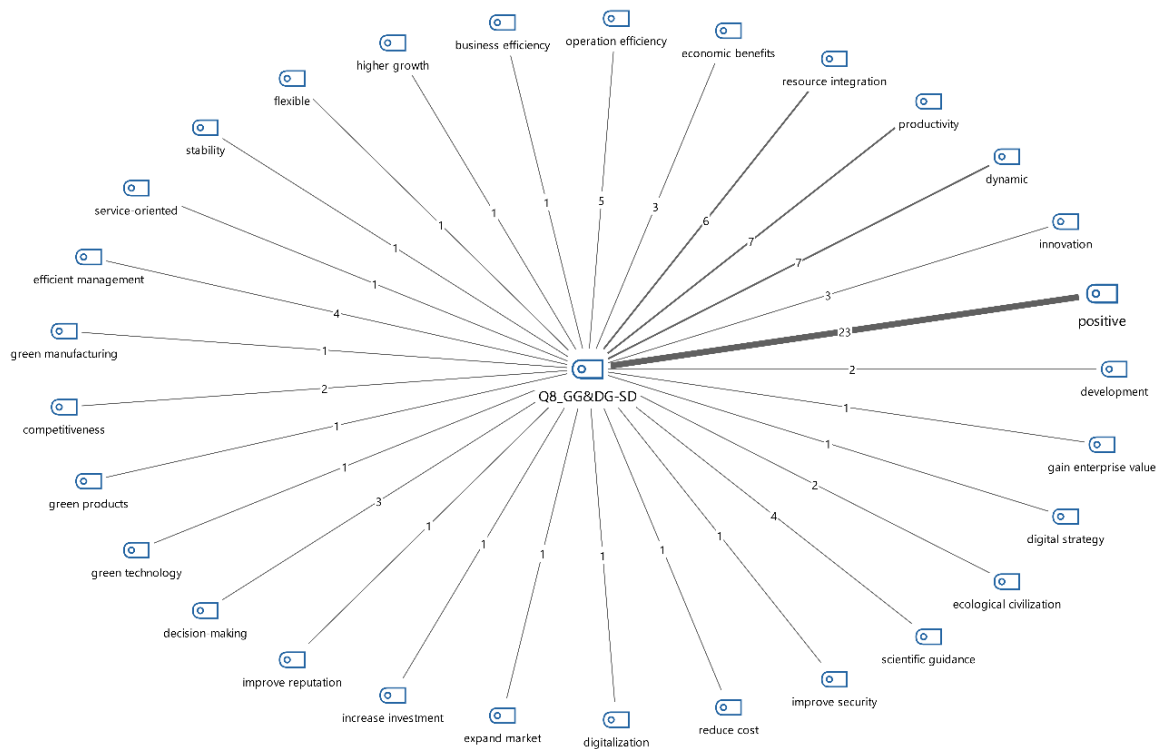


Figure 5.14 Code co-occurrence model regarding Question 8

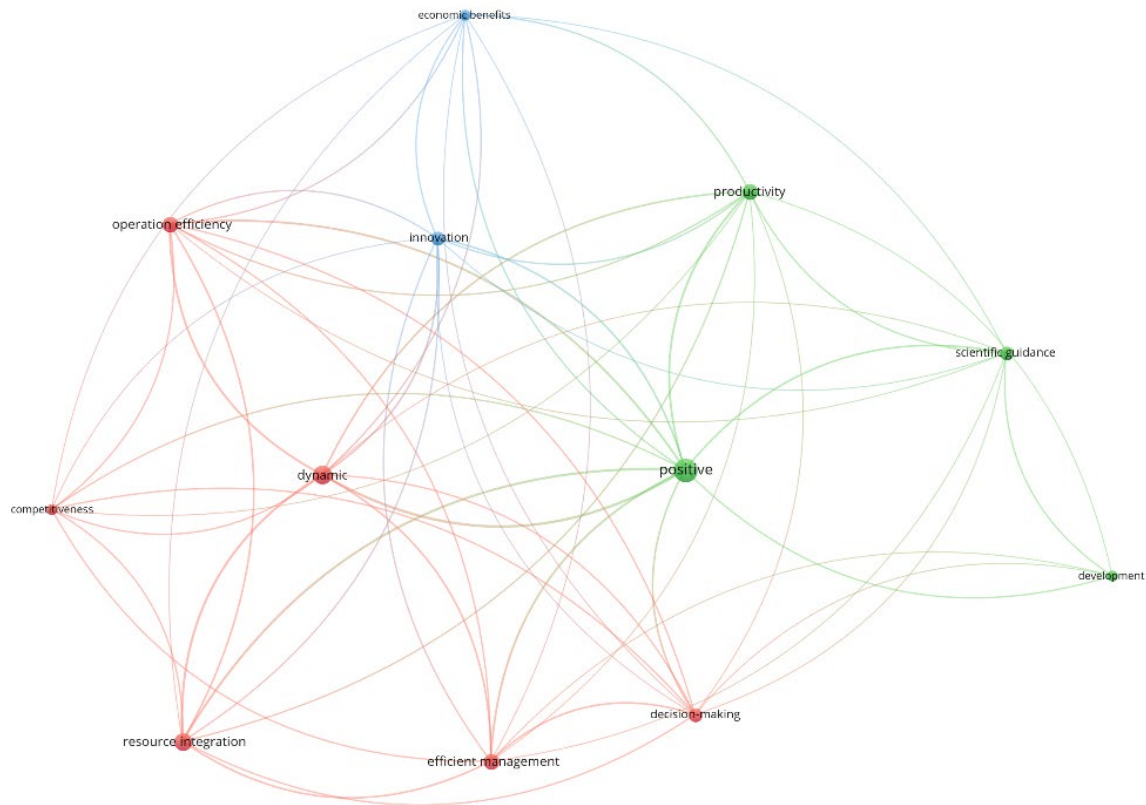


Figure 5.15 Code network map regarding Question 8

5.4 Interpreting additional results

Questions 1, 2, and 3 were asked to the respondents to give opinions about realistic and ideal goals of corporate management, kinds of stakeholders suitable for sustainable development, and models for stakeholder governance. Through these interview questions and answer some additional insights were drawn from the contents, which are useful for both practical and theoretical implications.

5.4.1 Goals of corporate management

Figure 5.16 displays the code co-occurrence model to understand the realistic and ideal goals for corporate management. From the figure, it can be identified that the *interest of stakeholder* (frequency = 9) and *enterprise value* (frequency = 7) are the maximum code used for the goals of corporate management. Figure 5.17 displays the network visualization map for goals based on question 1. The network visualization map found that the interest of stakeholders and enterprise value are the maximum number of codes used in the maximum number of responses.

These two figures also represent that realistic and ideal goals for corporate management are related to the *satisfaction of stakeholders*, *sustainable development*, and *profits of enterprises*.

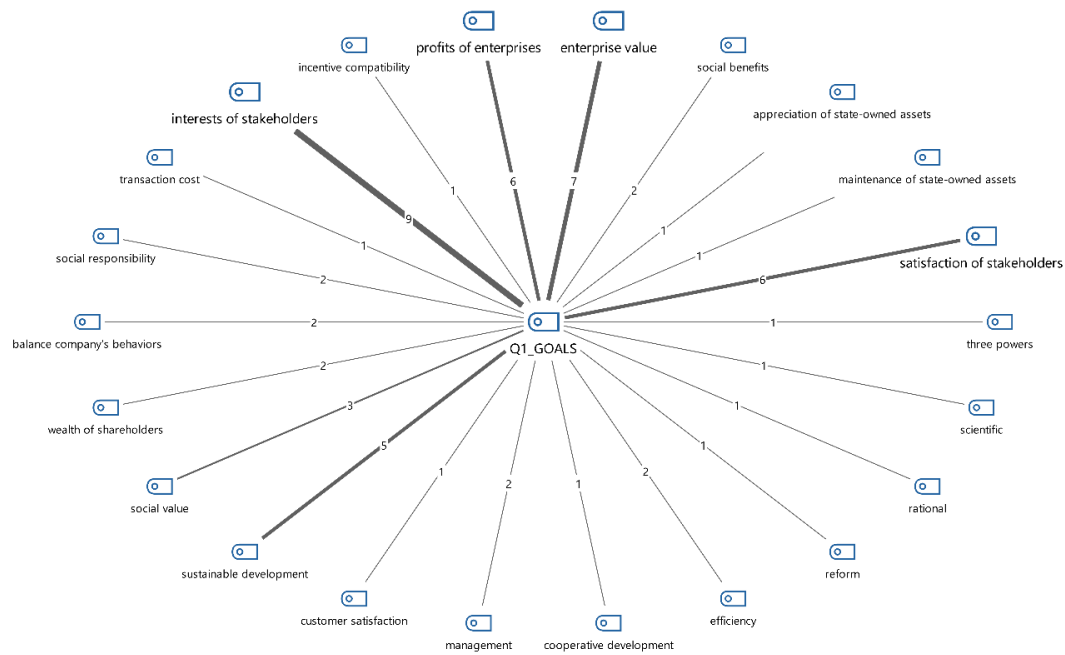


Figure 5.16 Code co-occurrence model regarding Question 1

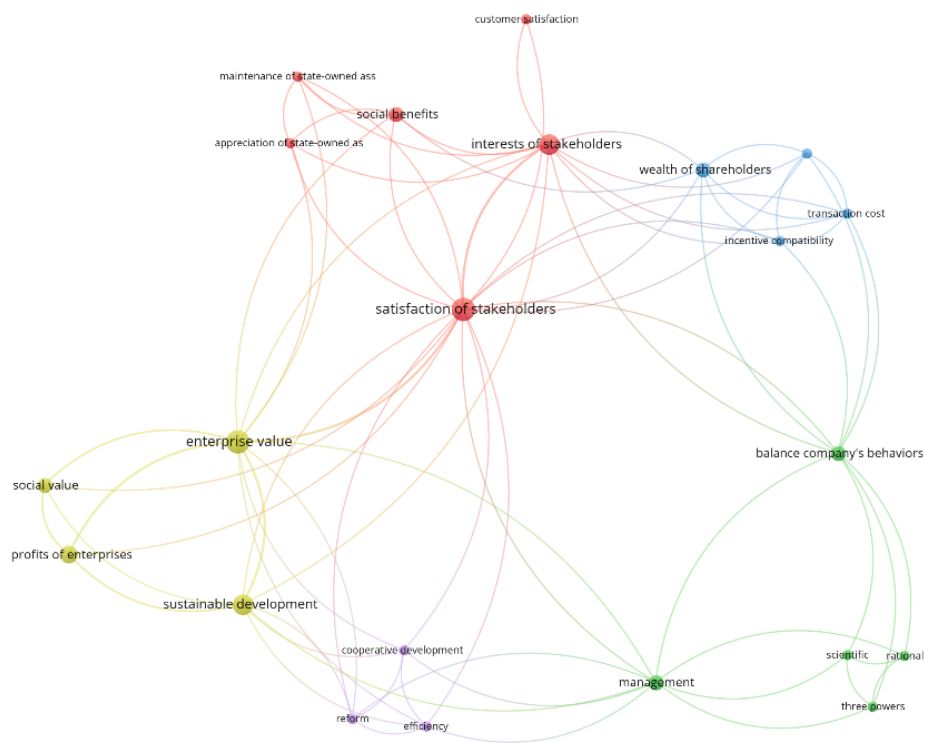


Figure 5.17 Code network map regarding Question 1

5.4.2 Stakeholders for sustainable development

Figure 5.18 displays the code co-occurrence model for stakeholders for sustainable development. From the figure, it can be identified that *non-contractual stakeholders* (frequency = 16) and *contractual stakeholders* (frequency = 11) are the maximum code used for the stakeholders-related question. Figure 5.19 displays the network visualization map based on question 2. The network visualization map found that non-contractual stakeholders and contractual stakeholders are the maximum number of codes used in the maximum number of responses. These two figures also represent that stakeholders for sustainable development are related to the *customer*, *employee*, *social*, *shareholder*, and *government*.

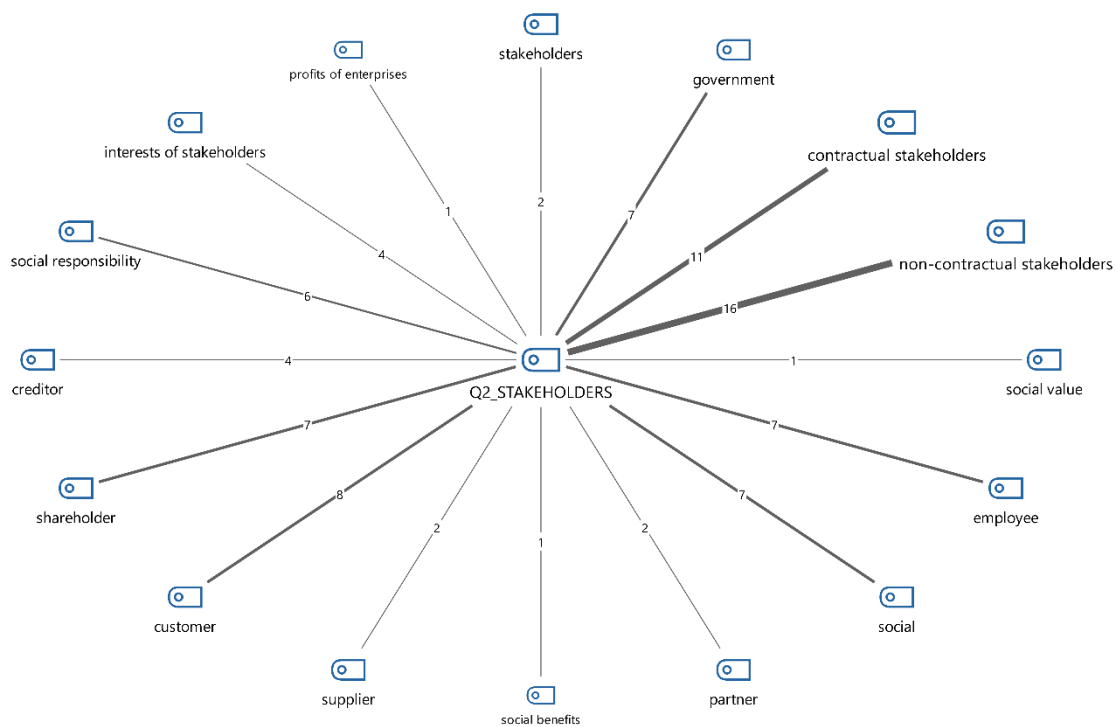


Figure 5.18 Code co-occurrence model regarding Question 2

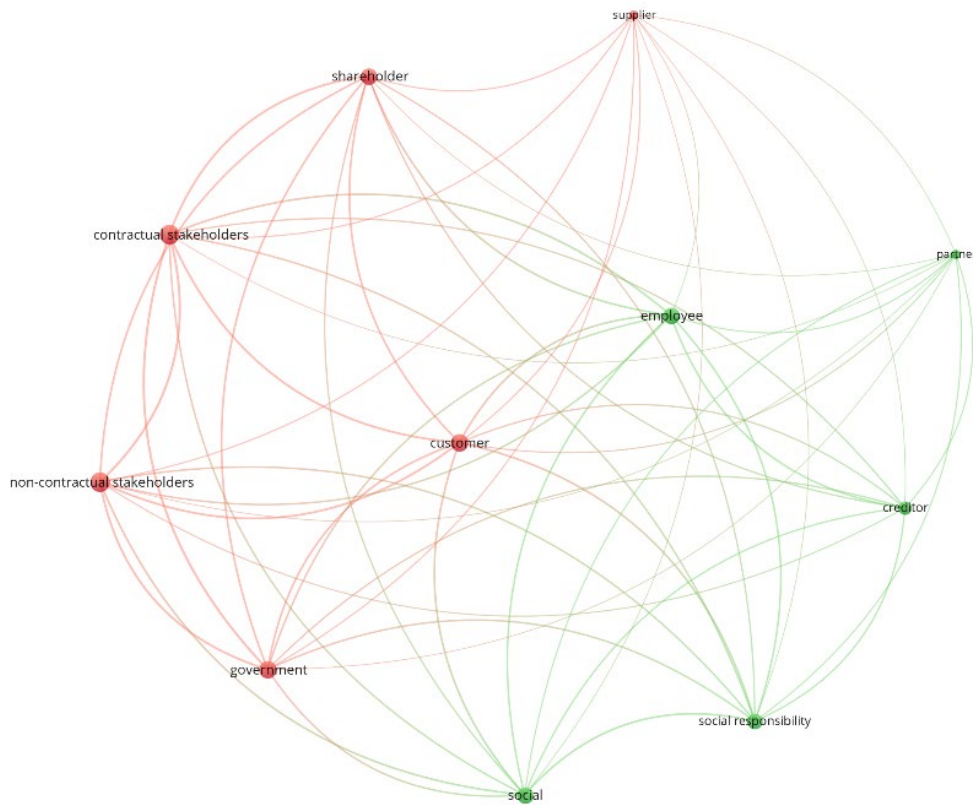


Figure 5.19 Code network map regarding Question 2

5.4.3 Modes for stakeholder governance

Figure 5.20 displays the code co-occurrence model to find information about models for stakeholder governance. From the figure, it can be identified that the *board of directors* (frequency = 11), *joint governance mechanism* (frequency = 8), and *internal governance mechanism* (frequency = 8) are the maximum code used for stakeholder governance. Figure 5.21 displays the network visualization map based on question 3. The network visualization map found that the board of directors, joint governance, and internal governance mechanism are the maximum number of codes used in the maximum number of responses. These two figures also represent that models for stakeholder governance are related to *mixed ownership*, *external governance mechanism*, and *board of supervisors*.

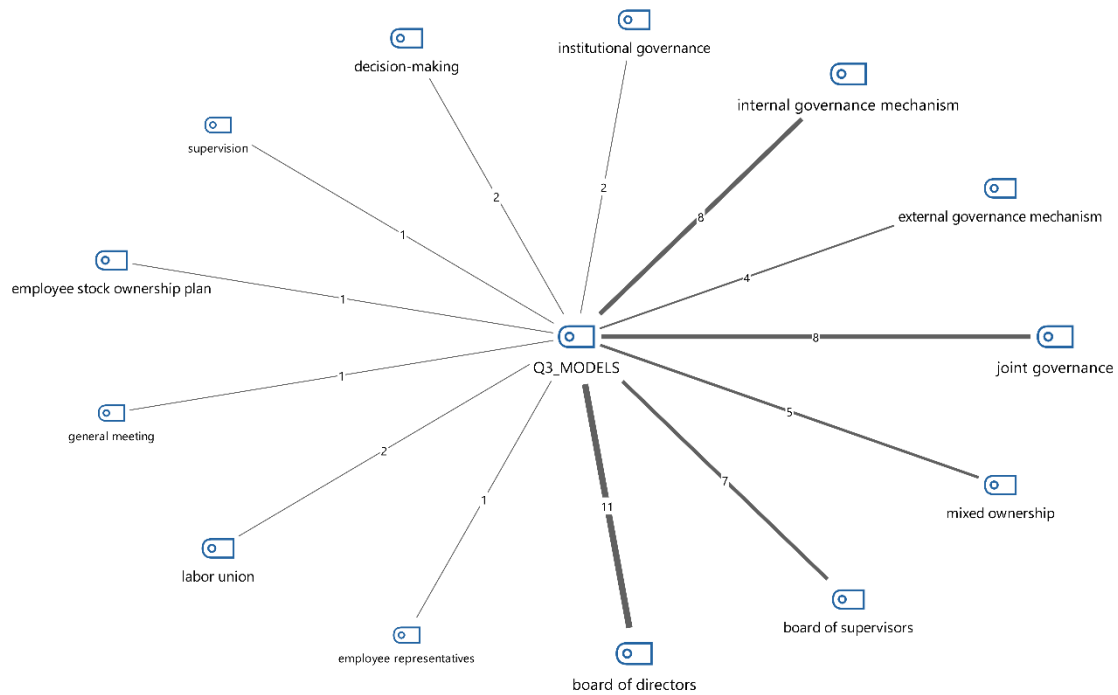


Figure 5.20 Code co-occurrence model regarding Question 3

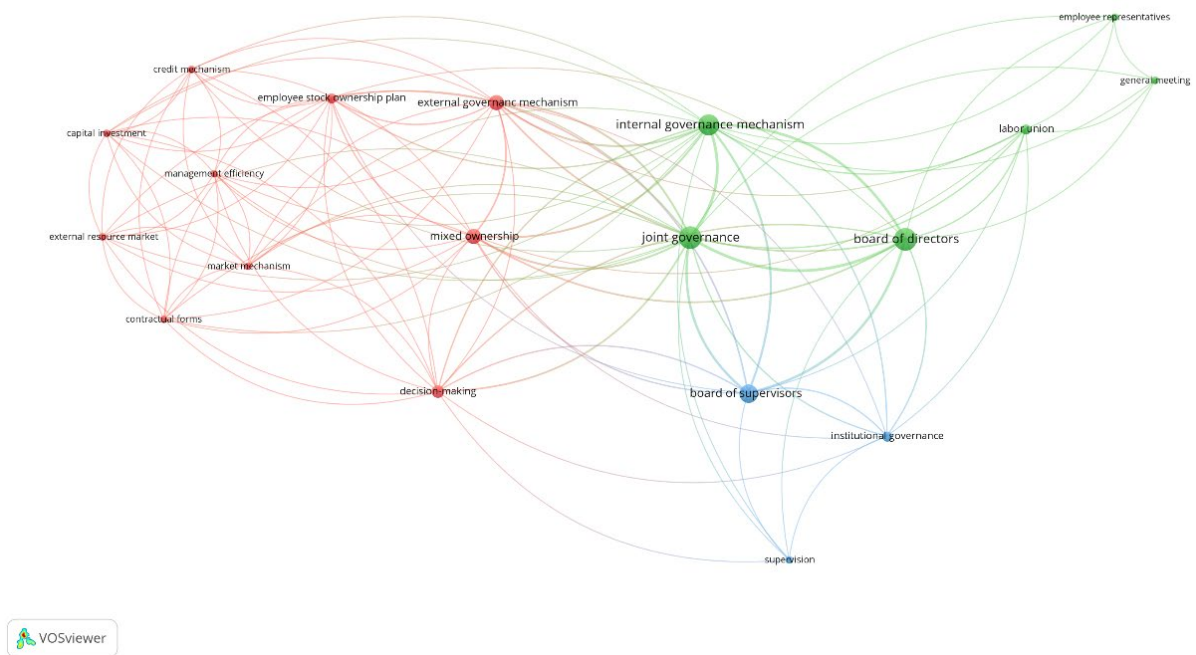


Figure 5.21 Code network map regarding Question 3

5.5 Research discussion and comparison

Through the interview content analysis of 80 responses from 10 respondent's regarding mixed-ownership enterprises by asking eight questions, this study investigated, validated, and compared the results for a total of nine propositions, as well as aimed to explore the results with

the extant literature and theories. Those opinions through the interviews are mainly based on the respondent's long-term professional practical experience, which reflects the true scenarios to investigate the sustainable development of mixed-ownership enterprises based on stakeholder governance. Investigated results found that all of the nine propositions were corroborated and supported according to the derived propositions from the arguments of existing literatures and theories. Through the following sections, research outcomes and proposition's validation are discussed and compared according to the rationale of extant literature and respondent reflections.

5.5.1 Results of common governance

Common governance can provide the right to speak, prevent moral hazard, reduce costs, and increase profits, adapt to the rapidly changing environment in the process of corporate governance. For example, *the degree of interest and stakeholder participation in corporate governance is conducive to achieving internal checks and balances of the company, preventing moral hazard, reducing costs, and increasing profits, as well as innovation and long-term development of the company*, as said by the first respondent. Common governance also can improve business performance, sales resources, customer satisfaction, expand markets, raise funds, and management level. For example, the fourth respondent believes that *the introduction of high-quality stakeholders to participate in corporate governance is of positive significance to the dynamic capabilities of enterprises. First of all, they have rich social experience and resources, which will greatly help enterprises to expand markets, raise funds and improve management level*. Stakeholders' participation in corporate governance is an objective phenomenon of enterprises. China's economic policy is to take public ownership as the main body and develop various ownership economies together. *Stakeholder governance is suitable for China's national conditions and the essential requirements of China's common prosperity*, as expressed by the respondent nine. However, it should have a clear vision and need to give full play to achieve these goals and benefits. *On the one hand, internal corporate governance needs multi-dimensional information and resources to provide a decision-making judgment basis, which can avoid decision-making judgment errors due to information blockage. At the same time, the gathering of various corporate governance participants can also form a good corporate atmosphere of unity and joint endeavor, providing growth soil for new dynamic capabilities and human capital appreciation of enterprises; on the other hand, if stakeholders do not have a clear division of rights and responsibilities in the process of corporate governance, it will affect the efficiency of corporate business decision-making and cause corresponding*

losses, as expressed by the sixth respondent. Thus, this study indicated that common governance is positively related to corporate dynamic capability, thereby supporting the first proposition (P1). Such a positive outcome was almost expected and consistent with the earlier findings of M. Liu (2007), H. Tian and J. Tian (2021), and Y. Zhang (2007), who argued that common governance by stakeholders, in general, is more conducive to the pursuit of long-term corporate development through positive dynamic capability.

Common governance can provide a play of rights and stimulate the vitality of the corresponding stakeholders, which is very important to integrate dynamic mechanism, and the dynamic mechanism is more conducive to the integration and upgrading of resources and is conducive to enterprises adapting to the new market, policy, social, and other environmental changes. The process of enterprises adapting to changes and updating is also the process of human capital appreciation. In actual business, we also need to let stakeholders give full play to their advantages. For example, *the Talii Chunfeng project cooperated with Bluetown Group is to introduce leading enterprises for entrusted construction. We also fully let stakeholders give full play to their advantages to participate in project construction, enterprise operation, and other aspects. In the process of joint development, we have accumulated successful experience, improved the value of the product, strengthened the ability to sell, and obtained higher economic benefits*, as expressed by the first respondent. Respondents believe that supporting stakeholders to participate in corporate governance is gradually forming a consensus, which will have a greater impact on the change of the corporate governance model in the future. *Since the stakeholders themselves have more resources, if we can attract more major stakeholders to actually participate in corporate governance, we can ensure the realization of other stakeholders' goals while achieving the corporate interest goals, to some extent, we can enhance the dynamic capabilities and human capital appreciation of the enterprise*, as expressed by the third respondent. Through the common governance in corporate governance, enterprises can pursue the overall interests of stakeholders, not just the interests of a certain subject. *The goals and responsibilities of enterprises are not only responsible for the owners of assets but also responsible for all stakeholders, including shareholders, employees, consumers, business partners, and government, which is conducive to enterprise integration and construction*, as said the fourth respondent. Thus, this study identified that common governance was also found to be positively associated with human capital appreciation supporting the second proposition (P2). Such a result is also consistent with the findings reported by Blair (1996), M. Liu (2007), and J. Y. Wei (2006). Those scholars argued that under the common governance logic, the restructured distribution mode for residual income and the new mode of

corporate governance structure could have a positive and dynamic effect on the human capital appreciation in enterprises.

The sustainable development of enterprises requires the joint efforts of human resources, knowledge, information, technology, leadership, capital, marketing, and other dimensions. Common governance, through the stakeholders' participation in corporate governance, has a greater effect and impact on the sustainable development of enterprises. First, it can interact with the specific external environment, especially the market environment in terms of information, resources, and energy so that the company can better adapt to changes in the external environment and form a harmonious and common development between the company and the external environment; Second, through the interaction and mutual effect of information, resources and energy of the internal functional systems, the dynamic equilibrium of the spiral rise of the internal system is constantly formed to promote the continuous evolution and improvement of the internal functions of the enterprise and enhance the core competitiveness of the enterprise; The third is to promote the coordination and development of internal and external functions of the enterprise through the convection of internal and external system information, resources, and energy, so as to realize the sustainable development of the enterprise. It can enhance the cohesion of enterprises, integrate resources, and create an environment for common goals. When stakeholders participate in the efficient operation of the corporate governance mechanism, the interests of relevant interest groups are met, and the long-term development of the enterprise has sustainable power. *For example, we are now vigorously promoting the empowerment of the big health industry, which is to fully introduce the industrial parties with relevant industrial resources and operational capabilities, and through the form of joint ventures to establish operating companies, state-owned enterprises will take the leading position. On the one hand, through the industrial introduction and industrial operation, we will realize the improvement of project value, realize the complementary advantages with real estate, reduce operational risks, and finally realize the long-term sustainable economic benefits of light assets, On the other hand, it will cultivate its own industry, enhance its industrial capacity, form the advantages of the big health industry and brand, and truly realize the transformation to a service-oriented enterprise, which will have a profound impact on the sustainable development of the enterprise in the future,* as profoundly expressed by the first respondent. The collective decision-making of the board of directors is conducive to better representing the interests of investors, correctly handling all aspects of relations, and promoting the scientific, democratic, and effective decision-making system. From a broader perspective, if the interests of stakeholders representing regulatory requirements, social responsibility, external creditors, and

employees are guaranteed, more people will be benefited, the image of the enterprise will be improved, and a positive effect will be formed on sustainable social development. It can make enterprises more profitable. *If the requirements of stakeholders are ignored, the enterprise is actually taking risks; If it is opposed to important stakeholders, it may endanger the survival of the enterprise itself. Without the continuous participation of major stakeholders, it is difficult for enterprises to survive*, as expressed by the fourth respondent. *The participation of high-quality stakeholders in corporate governance, from fund raising to management improvement, institutional optimization, and personnel integration, has a positive effect on the sustainable development of the company*, as expressed by the fifth respondent. *It is conducive to mutual supervision, thereby saving costs and improving efficiency; It is conducive to resource integration and complementation of existing advantages; It is conducive to mechanism innovation, the employment mechanism is more flexible, and the board of directors can obtain more authorization to achieve differentiated management; It is conducive to scientific and technological innovation. A diversified company with market and product components has its own gene for continuous research on technology*, as expressed by the seventh respondent. Common governance can promote the standardization and sustainable development of the company, cultivate industry benchmarks, and lead the development of the industry. Stakeholders' participation in corporate governance, to a certain extent, liberates productivity, further releases the enthusiasm of the labor force for production, and then expands the market, which further enlarges the productivity of enterprises. Thus, this study investigated that common governance was found to have a positive relationship with corporate sustainability which validates the third proposition (P3) of this study. This finding is largely supported by Almagtome et al. (2020), Dubey et al. (2019), and W. Li et al. (2018), who argued that based on the standpoint of open innovation, penetrating the organizational boundary, coordinating the relationship between multiple governance entities can establish a collaborative mechanism based on trust and contract. This can ultimately explore the governance model of open innovation, build a framework of joint governance and implement the sustainable development of man and nature.

In summary, most of the respondents are positive about establishing a mechanism for all employees to participate in corporate governance, including employees, senior executives, partners, communities, creditors, customers, and the government. This has a positive role in promoting the dynamic capabilities of enterprises, a positive role in promoting human capital appreciation, a positive role in achieving corporate sustainability, a normative and exemplary role in the development of the industry, and can improve the adaptability of talents to social

development and the ability of enterprises to adapt to the competitive environment. It has greatly improved the dynamic capability of Chinese enterprises. At the same time, because of the mode of common governance, the enthusiasm of employees has been further enhanced, and the income of employees has been promoted to expand consumption, leading to the sustainable development of the economy.

5.5.2 Results of green governance

Green governance focuses on the construction of ecological civilization and sustainable development. In particular, in recent years, environmental pollution and short-term energy problems have become increasingly serious, and the social relations of enterprises have become increasingly complex. All stakeholders have begun to put forward higher requirements for enterprises regarding green technology and phenomenon. They believe that enterprises should not only take profit as the ultimate goal, but also play a positive externality, such as actively participating in pollution control, energy conservation, and consumer protection. Therefore, green governance is widely concerned. For example, under the background of "carbon peak and carbon neutralization," although the task is arduous, with the systematic adjustment of the energy structure, various new decarbonized technology products such as highly-efficient electric technology, new energy vehicles, zero carbon buildings, zero carbon steel, zero carbon cement have been brought into being. *If enterprises pay attention to the investment in ecological civilization construction and environmental protection in corporate governance and actively participate in social governance, to some extent, it will help enterprises gain competitive advantages and strategic resources, gain more social trust, better consumer reputation, and even policy support and market favor. The acquisition and full use of these external resources will help to enhance the dynamic ability of enterprises to adapt to market changes and the value of human capital,* as expressed by first respondent. Green governance is a new governance model extended under the corporate governance system, which can reduce the risks of enterprises in producing environmental pollution and is conducive to the long-term sustainable development of enterprises. It is a manifestation of enterprises' better performance of social responsibility. With the increasingly strengthening of the dual carbon goals, green governance has attracted more and more attention from all walks of life, requiring enterprises to take responsibility for green governance while obtaining economic benefits. *Through green governance, we can increase green capital investment and promote the progress of green R&D technology, drive the industrial transformation and structural upgrading of enterprises, enhance the dynamic transformation ability of enterprises, and thus directly contribute to*

economic growth, as denoted by the third respondent. Green governance is conducive to mobilizing the enthusiasm of all stakeholders, coordinating internal and external resources, and adapting to the rapidly changing social environment. Green governance can enhance and supplement the dynamic competitiveness of enterprises. Nowadays, facing the depletion of resources, green development is the core path to achieving sustainable development and realizing the harmonious coexistence of man and nature. *Green governance and corporate governance strategies based on green development have a positive role in promoting the dynamic capabilities of enterprises' sustainable development*, as expressed by the ninth respondent. Thus, the second construct, green governance, was identified to be positively related to corporate dynamic capability, thereby supporting the fourth proposition (P4). This outcome is similar to the previous findings reported by Amaranti et al. (2019), J. W. Huang and Li (2017), W. Li (2016), and Xing et al. (2020). According to them, green governance by the enterprise can facilitate green capital accumulation and green innovation to create sustainable competitive edges that eventually lead to enterprises' dynamic capabilities.

The implementation of green governance by enterprises will not only promote the enterprises to adapt to the national economic development strategy but also play a positive role in improving new skills, new awareness, and new adaptive skills of human resources, positively guiding the moral construction of enterprise personnel, help to establish the sense of ownership of employees, and promote the orientation of loving the enterprise, country, and nature. The acquisition and full use of these external resources will help to enhance the value of human capital. For example, the third respondent expressed that *enterprise's investment in green technology research and development, appointment of scientific research talents, patent technology development, and other investments will help fully tap the intellectual resources of employees and will also enhance the value-added role of human resources*. With the continuous development of modern enterprise systems, the rights and interests of shareholders, creditors, employees, consumers, suppliers, governments, community residents, and other stakeholders have gradually attracted the attention of company operators. Corporate governance has evolved from the traditional "unilateral governance" model of shareholder supremacy to the "joint governance" model of stakeholders, and the responsibility of enterprises has accordingly changed from a single economic responsibility to the social responsibility of stakeholders. Such *"joint governance" model can increase the accumulation of human capital so that the company has a steady stream of human resources available, which is conducive to the increase of human capital*, as expressed by the fourth respondent. Green governance is an enterprise management concept applicable to all walks of life in today's society. *"Gold and silver mountains are clear*

waters and green mountains”. Enterprises in the computing industry, green governance should penetrate into all aspects of enterprise management. For example, our product design needs to focus on innovative technologies, constantly explore and reduce the limit of energy consumption in the use of products so as to form the requirements for enterprises to adapt to the development of ecological civilization, helping enterprises improve their dynamic capabilities and increase their human capital, as expressed by sixth respondent. More so, green development further requires the driving forces of knowledge economy development, which enables enterprises to invest in improving personnel quality and further realize the appreciation of human capital, as expressed by the ninth respondent. Thus, the same construct (green governance) was also found to have a positive relationship with human capital appreciation, thereby supporting the fifth proposition (P5). This outcome is largely supported by the earlier findings reported by a number of scholars, such as Ahmad (2015), Luu (2018), Mampra (2013), and Zoogah (2011). According to them, green governance policies can encourage employees to increase their green skills, knowledge, and abilities.

Green governance is crucial to the long-term sustainable development of enterprises through promoting green governance of enterprises with innovative technologies, methods, and models through the participation of multi-stakeholder governance bodies. However, *the construction of green governance is a long-term process, which may accompany the whole life cycle of enterprise development. In the short term, it may not bring profits to the enterprise, but it will help to improve the long-term value of the enterprise. By improving the dynamic ability of the enterprise and the value of human capital, the enterprise will obtain higher growth ability, stronger risk-bearing ability, more relaxed financing constraints, and higher long-term value. In the future, we will build a green and low-carbon smart community through green governance, and digital governance-enabled property management, enable project management and construction to achieve green smart construction sites, and comprehensively transform to a service-oriented enterprise*, as expressed by first respondent. Through the progress and application of science and technology, green products and services can be transformed and developed to meet the requirements of social and ecological civilization development and improve the competitiveness of enterprises. It is the transformation force to adapt to the future economic growth mode and an important engine to promote future economic development. *In terms of green governance, good green governance can continuously improve the green image of the enterprise, thereby improving the reputation of the enterprise, enhancing the core competitiveness of the enterprise in the market, enabling the enterprise to obtain more investment and resources, enabling the enterprise to obtain a larger market, thus enabling the*

enterprise to obtain long-term economic benefits, which is conducive to the long-term survival and development of the enterprise, as expressed by the third respondent. Green governance is conducive to integrating internal and external resources, such as capital, technology, talents, policies, and markets. It can not only enhance the ability of enterprises to adapt to the environment but also increase the accumulation of human capital, implement the appreciation of human capital, and promote the sustainable development of enterprises. For example, the fifth respondent expressed that *I think sustainable development is achieved through green governance and data governance. There is no sustainable development without green governance and data governance. Green governance is the basis, foundation, and support of the sustainable development of enterprises. It is the guiding direction of sustainable development. With the guiding ideology of ecological civilization construction as the guide, supplemented by scientific means such as data governance, enterprises will be driven to engage in sales, research and development, production, supply, service, and other business activities with innovative technologies, methods, and models; In the process of operation, our company benefited from the implementation of green governance. On the one hand, the performance maintained a rapid growth and obtained good profits. On the other hand, talents continue to gather and gain further value; In addition, the company image and product brand awareness has been rapidly improved*, as expressed by the sixth respondent. For enterprises, green governance is a matter of strategic direction and enterprise ethics, which can solve the problem of business direction. Therefore, the author of this study identified that green governance is positively associated with corporate sustainability, thereby supporting the sixth proposition (P6). This outcome is also consistent with the previous outcomes reported by a number of researchers, such as Almagtome et al. (2020) and Dubey et al. (2019). According to them, green governance can have a lasting impact on corporate sustainability through the creation of a superior image in the eyes of customers, Government regulatory agencies, suppliers, and international bodies.

In summary, the implementation of green governance by enterprises can be beneficial from multiple perspective, first, enable enterprises to establish the concept of green manufacturing, take resource conservation, environmental protection and sustainable development of enterprises as the core, and incorporate them into development strategies and plans; Second, it can promote technological innovation of enterprises, change the development mode, improve the development of green science and technology, develop green products and services, and meet consumer's demand for green products and services; Third, the promotion and application of green products and the innovation of market business model can further enhance the competitiveness of enterprises; Fourth, the promotion of the green health system of the

enterprise can form a good ecological environment and working environment for the enterprise and its surrounding areas, which is conducive to the physical and mental health of employees, improves the enthusiasm and initiative of employees in production and helps the development of the enterprise. Respondents believed that green governance itself is a governance mode of sustainable development. It can lay a good foundation for the dynamic capabilities of enterprises and human capital appreciation, provide support, and do a good job of providing services. It is the root of sustainable development.

5.5.3 Results of data governance

At present, data governance is very mandatory because it is the basis for an enterprise to implement its digital strategy. In the dimension of enterprise organization, digital management can timely follow up on production progress, safety issues, personnel arrangement, and material use. More so, the digital industry is an important part of the relevant diversified industries during the 14th Five Year Plan period in urban and rural areas. *Dynamic data feedback helps enterprises make more timely and prepared decisions, which reflects the advanced “big backstage supporter and small front” enabling management strategy supported by digital big data. We want to get through the enterprise chain of “investment-production-supply-sales-storage-return-profit” through digitalization, accurately understand user needs with the help of data, effectively match customer markets, and accelerate the promotion of digital investment, digital construction, digital design, digital cost control, digital marketing, digital assessment, realize the informatization of all indicators, business nodes, and business results in the full cycle production chain,* said first respondent. Data governance is the organization and management system of the company’s internal data and is an embodiment of the management and organization mode under the company’s digital strategy. *It will change the management thinking of enterprises, break through the boundaries of enterprise business, and achieve an efficient flow of corporate resources through tools, systems, processes, and methods so as to build a new management model, including business form, organizational model, and information acquisition and utilization, to achieve the collection mode and efficiency of resources, and greatly improve the dynamic capabilities of enterprises,* pointed by the third respondent. In the era of big data, the value of a single data is very limited. If an enterprise can have a large number of ordered series with large storage, it is equivalent to having a batch of valuable data assets. Through the standardization and sorting of data governance, data will become a real production element, which can enable the development of enterprises and provide strong analytical value. The implementation of data governance is a necessary path to extract

data value. *If we want to gradually form a market situation dominated by data, we need to fully release the potential value of business data, quickly integrate internal and external resources through data analysis, and improve the adaptability of enterprises*, as demonstrated by the fourth respondent. Data governance is the basis of standardized process management, and it is the means of scientific enterprise governance. The full application of data management is conducive to improving the competitiveness of enterprises. With the continuous development of society and enterprises, data will continue to accumulate. *The use of excellent data processing technology and effective data can scientifically and accurately guide the business decision-making of enterprises, which is itself a dynamic capability formation method*, expressed by the sixth respondent. Data governance is a necessary result of the informatization development of human society in the new era. Big data can greatly improve business efficiency and reduce costs, which plays a crucial role in building the dynamic capabilities of enterprises. *It can make enterprise management decisions scientific, informatization, and transparent, and effectively improve enterprise efficiency and competitiveness*, as mentioned by the last respondent. Therefore, in this study, the author discovered that data governance is positively related to corporate dynamic capability, supporting the seventh proposition (P7), which is largely consistent with the previous findings reported by W. Becker and Schmid (2020), Fakhri et al. (2020), Reddy et al. (2022), and P. Zhang et al. (2016). They, more or less, argued that enterprises need data governance strategies to gain long-term competitive edges and innovative capabilities.

As the core business resource of an enterprise, human capital will provide more solutions and practices for enterprise data governance based on the use of intellectual resources. Through data governance, enterprises can realize the intelligent operation of property management and asset management, complete the interconnection of people-people and people-things, accumulate big data, integrate various needs, build an information platform, and help realize information interaction and resource sharing so as to improve the brand effect of the group, improve the reputation of the group's products in the market, and achieve the stable preservation and appreciation of the group's assets. *Data governance will generally enhance the process of knowledge resources participating in enterprise management so that the contribution potential of human capital can be effectively released*, expressed by the third respondent. It plays a positive role in promoting the accumulation of experience and capacity growth of stakeholders involved in enterprise governance. However, *in order to promote data governance in an orderly manner, we need to further sort out, further improve the organizational structure, strengthen communication between data governance functional personnel and business personnel, and*

establish a professional team of data governance, which has promoted the appreciation of human capital to a certain extent, expressed by the fourth respondent. Data governance is a necessary result of the informatization development of human society in the new era. *It has external and internal requirements for the skills and technologies of existing human resources, thus further strengthening the importance of human capital in corporate governance*, as expressed by the ninth respondent. Thus, in this study, data governance was found to have positively related to human capital appreciation, thereby supporting the eighth proposition (P8) of this study. This finding, too, like all the earlier ones, has been supported by and consistent with a number of previous study results reported by Akter et al. (2016), Al-Ruithe and Benkhelifa (2017), Benfeldt et al. (2020), Yi (2021), Janssen et al. (2020), Sivathanu and Pillai (2018), and Wamba et al. (2015), who emphasized that data governance can stimulate the active behaviors of those participating in collecting, managing, and using data. They further argued that data governance could not do without the collaboration between organizations and individuals that constitute the system and can have a certain facilitating effect on human resources.

Along with common governance and green governance, data governance is also an important part of the long-term sustainable development of enterprises. *Digital transformation of enterprises can effectively and timely conduct dynamic management of business data to achieve resource data integration and improve business operation and decision-making capabilities*, expressed by the second respondent. It can promote enterprises to continuously improve and enhance production efficiency, maximize the use of various resources, and further promote the sustainable development of enterprises. *Data governance is the only way for enterprises to digitalize. Relying on the efficient management of data resources, it is of great significance to improve the efficiency of enterprise business operations and innovate enterprise business models. With the help of information technology (IT), artificial intelligence (AI), and other technologies, the digital and automated process operation will improve the data quality of enterprises, enhance the security of data, reduce business operation costs, and enable management decisions, thus laying a solid foundation for the sustainable development of enterprises*, expressed by the third respondent. Data governance improves the value of data, enabling companies to extract useful data information from huge data resources so as to correctly grasp the development direction of the market and arrange in advance. It improves data sharing within the enterprise, further improves work efficiency, and is conducive to the sustainable development of the enterprise. Data governance is the approach, way, and means of the sustainable development of enterprises. *To realize the enterprise's digital strategy through*

the policies and processes based on the commercial application and technology management of the entire internal data of the enterprise, and always adhere to the enterprise governance principle of “green governance is the goal, data governance is the guarantee,” can ultimately realize the high-quality and sustainable development of the enterprise. In the process of operation, our company benefited from the implementation of green governance and data governance. On the one hand, the performance maintained a rapid growth and obtained good profits. On the other hand, talents continue to gather and gain further value; In addition, the company image and product brand awareness has been rapidly improved, as mentioned by the sixth respondent. Green development and data management together can play a fundamental role in the company’s sustainable development planning, vision objectives, and governance effects. Data governance is a scientific management method used in a specific development, whereas green governance is a matter of strategic direction and enterprise ethics. The two complement each other and are wings of sustainable development. One is to solve the problem of business direction and development value, and the other is to solve the problem of enterprise efficiency. Without green governance and data governance, there is no sustainable development today, as expressed by the ninth respondent. Therefore, lastly, data governance was identified to have a positive relationship with corporate sustainability which confirmed the ninth proposition (P9) as a valid one. This outcome has been supported by Almagtome et al. (2020), Dubey et al. (2019), and W. Li et al. (2018), who argued that enterprise data to be imperatively utilized in a timely manner and data governance is directly related to the sustainable development of enterprises.

To sum up, data governance is the complementary and contemporary demand and prime mechanism in the path to achieving sustainable development while conducive to corporate dynamic capability and human capital appreciation in a multi-dimensional way as follows. First, the implementation of data governance by enterprises is conducive to improving data quality; Second, managing data visitors and applications, controlling data sharing, and enhancing data security; Third, formulating data management strategies to improve business processing efficiency; Fourth, break data islands, improve operational efficiency and reduce costs; Fifth, improve the accuracy of data analysis and prediction, enable management decision-making, and improve decision-making ability. It can effectively improve the adaptability of enterprises to keep pace with the times and enhance competitiveness of enterprises. It is mainly reflected in three aspects. One is to improve the level of the digital office, such as data flow adjustment and retention. The essence of management is to improve efficiency and save costs, which can effectively improve the management level of enterprises. Second, it plays a positive role in

promoting employees' use of information technology and improving the efficiency of employees' skill relearning. Third, the service efficiency of the enterprise's products (services) has been greatly improved to enhance the competitiveness of the enterprise's products or services and customer experience.

5.6 Chapter summary

Qualitative research and a deductive approach allowed this study to investigate the interview content systematically from the professionals, board of directors, and the senior managers of mixed-ownership enterprises on corporate sustainability. From code extraction to visualization of codes and statistics not only renders meaningful insights for the sustainable development of mixed-ownership enterprises but also provides a quick view of the hidden pattern inside the interview content. A robust representation of code coherence mode and network visualization was used to test and explain the propositions as well as represent more additional insights for the study context, which might be essential to know for practical, theoretical implications.

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Chapter 6: Research Summary, Implications, Future Research, and Conclusions

6.1 Chapter overview

This chapter concludes the thesis. This chapter has five sections. The first section (6.1) outlines the chapter's contents. The second one (6.2) exposes the research summary. Section 6.3 represents the reflections and rethinking of the research in brief. Section 6.4 highlights the different implications of the thesis. This section has two sub-sections (6.4.1 and 6.4.2). The next section (6.5) has highlighted the study limitations and further research scope. Finally, section 6.6 concludes the study.

6.2 Research summary

The thesis study can be considered the most updated and unique since it has proposed a research model and propositions on the sustainable development of mixed ownership enterprises from the perspective of Stakeholder Governance Theory which is quite rare but complementary and contemporary important in academia. The model included three important constructs (i.e., common governance, green governance, and data governance) to investigate their potential relationship and effects on corporate dynamic capability, human capital appreciation, and corporate sustainability based on the arguments of extant literature and theories and content analysis of interview opinions. I collected 80 responses from 10 participants through interview questions to verify and explain the research propositions. In conclusion, I drew conclusions and proposed some action recommendations suggestions for the sustainable development of mixed-ownership enterprises from the perspective of stakeholder governance.

For the interview, I prepared the questions based on a variety of sources. First of all, I made a combination of literature sources and interview content to collect data from both secondary and primary sources. Secondary data were mostly composed and summarized from the pertinent research literature, which includes Stakeholder theory, sustainable development, Green Governance, and Data Governance. In addition, first-hand sample data were also obtained through interview questions. A number of the latest software were adopted for literature

searching, interpretation, and management. Furthermore, face-to-face interviews were conducted and transformed to text content with the support of software.

Secondly, I conducted a combination of qualitative and quantitative analyses. Qualitative reasoning analysis was adopted to propose research questions and conduct the literature review and research propositions. Finding answers for propositions were qualitatively and quantitatively analyzed using collected interview contents from professionals in mixed-ownership enterprises. Finally, I conducted a combination of descriptive analysis with content analysis. Descriptive statistical analysis was adopted for conducting sample data analysis and extracting the essential information from the sample. Furthermore, reliability and validity analysis were adopted for testing the interview questions and responses. Data validation was performed via similarity ranking (i.e., cosine similarity), while content analysis was conducted with the aid of MAXQDA, Python, VOS viewer, and Excel Spreadsheets.

As part of the research process, I followed several steps systematically. The first step was to collect, gather, and go through pertinent materials and literature in order to propose research questions. The second step was to summarize the existing research studies and viewpoints in order to deduce the themes for propositions for the sustainable development of mixed-ownership enterprises from the dimension of corporate governance. The third step was to construct a research model and propose propositions, while the fourth step was to convert constructs for propositions into the measurement that can be investigated by interview questions and afterward contact and determine mixed-ownership enterprises for interview and research as well as for data samples. The fifth step I followed was to analyze and extract information for propositions from those collected responses by descriptive analysis and content analysis in order to verify the mechanism between those constructs and the corporate dynamic capability, human capital appreciation, and sustainable development of mixed ownership enterprises. Finally, the sixth and last step of this research was to draw research conclusions and recommend the prospect of further empirical investigations.

After the statistical analysis based on the collected primary and secondary information, the study indicated that common governance is positively related to corporate dynamic capability, thereby supporting the first proposition (P1). Common governance was also found to be positively associated with human capital appreciation supporting the second proposition (P2). Moreover, common governance was found to have a positive relationship with corporate sustainability, which validated the third proposition (P3) of this study. This can ultimately explore the governance model of open innovation, build a framework of joint governance and implement sustainable development of enterprises and economies.

The second variable, green governance, was identified to be positively related to corporate dynamic capability, thereby supporting the fourth proposition (P4). The same construct was also found to have a positive relationship with human capital appreciation, thereby supporting the fifth proposition (P5). According to them, green governance policies can encourage employees to increase their green skills, knowledge, and abilities. Furthermore, the author of this study identified that green governance is positively associated with corporate sustainability, which validated the sixth proposition (P6).

Finally, this study discovered that data governance is positively related to corporate dynamic capability, thereby supporting the seventh proposition (P7). The same construct was found to have positively related to human capital appreciation, therefore, supporting the eighth proposition of this study (P8). Finally, data governance was identified to have a positive relationship with corporate sustainability, which confirmed the last proposition (P9) as valid. Therefore, all the developed nine propositions were supported by the empirical investigation, while those research outcomes have been consistently supported by all the relevant research studies conducted so far on the same, similar, or relevant fields of study. Thus, the Chinese enterprise's governance mechanisms are similar to the governance mechanisms and policies of other country contexts.

The study can be described as a timely and innovative initiative founded on the responses of top-level executives and/or related stakeholders of different Chinese mixed-ownership enterprises. The primary intention of this research was to propose an appropriate governance mechanism for sustainable development for Chinese mixed-ownership enterprises in the context of stakeholder governance. I believe that this study was largely successful in addressing those points, and recommendations provided based on the findings will be useful for the upcoming researchers, policymakers, managers, executives, stakeholders, and regulators in formulating, executing, and governing sustainable governance mechanisms. In the following sections, an in-depth view of implications, limitations, and future research will be addressed and discussed.

6.3 Reflections and rethinking

The basic intention of this research is to propose a mechanism for sustainable development in mixed-ownership enterprises from the perspective of stakeholder governance, including the goals and models of stakeholder governance at different Chinese enterprises. In this section, I would like to express my own experience in pursuing this Ph.D. journey. I endeavor to clarify

my gradual development as an investigator and my difficult times throughout this research period to complete the process. As my background is in Business Administration and Management, I have had the basic concept of qualitative and quantitative research from the very beginning. However, throughout the entire process, I have faced numerous challenges of being uncertain and connected with the naturalistic investigation. I was required to manage the constructs without impacting the research findings, which posed a great challenge to me. I started my research by collecting and reading a huge number of literatures from journal articles, books, conference papers, thesis, newspapers, websites, and many more reputed domestic and international sources.

As soon as I started my research journey, I realized that my research questions might have more than one answer. Thus, I began to realize my responsibility as a researcher in the qualitative research study without making any interference in the study settings. I was very careful from the beginning in selecting the respondents, experts, and volunteers, and most importantly, in collecting responses. Now I understand that with the experience I achieved, I can carry out independent research studies. The method I utilized for carrying out my research study was consistent with the ethical guidelines, and that has been mentioned clearly in Chapter 5 of this thesis. The research instruments were properly checked, and a pre-test was performed before conducting and collecting the final responses. I shared my interview data collection technique, data collection method, and content analysis process with my respected supervisor, colleagues, committee members, and professors from other universities and took their valuable comments, views, and suggestion numerous times. Such constant sharing of knowledge permitted me to learn so many new ideas and knowledge during this journey. With intense reading and discussion, I have learned several new tools and techniques for collecting, analyzing, and interpreting using some latest versions of software.

The overall research investigation allowed me to understand the in-depth mechanisms of qualitative research. The methodology and data collection technique had well-clear directions. All the pertinent decisions regarding the research were taken with utmost caution and considerate reflections based on the recommendations provided by the scholars, such as my supervisor and other professors. The positivist character of qualitative analysis was difficult for me in the beginning, but finally, I have mastered it, particularly the MAXQDA software and VOSViewer. Such a larger investigation has helped me to grasp the manifold nature of the qualitative analysis. At the same time, it posed several challenges in interpreting and presenting the results in a logical and understandable manner. Finally, I admit that during the preparation

and execution of this study, I learned substantial knowledge about the qualitative research approach.

6.4 Implications and contributions of the thesis

This thesis can contribute to different interested parties in different manners. This section has highlighted those implications in a sequential manner on the next sub-sections.

6.4.1 Practical implication

This research also has practical implications for corporate governance reforms of mixed-ownership enterprises. Using the deductive approach of qualitative research, common factors with a direct influence on corporate dynamic capability, human capital appreciation, and corporate sustainability of mixed-owned enterprises effect were detected. All those elements and their corresponding relationships provide expected governance reform design paths for the reformers and policymakers of multi-stakeholder enterprises. Therefore, the policymakers can effectively activate corporate dynamic capabilities and eventually promote the sustainable development of such mixed-owned enterprises.

Secondly, common governance, green governance, and data governance were simultaneously incorporated in the proposed model of this study. The mechanism of such influence upon human capital appreciation, corporate dynamic capability, and sustainable development were tried to explore in this empirical investigation. Those efforts are expected to produce decision-making support for mixed-ownership enterprises in practice. Furthermore, human capital appreciation and corporate dynamic capability were considered as the intervening mechanisms in this research model to place those variables on a prior level of consideration. Corporate governance reformers are required to figure out what other governance mechanisms are for the sustainable development of mixed-ownership enterprises in addition to common governance, green governance, and data governance.

6.4.2 Theoretical implication

This is one of the few studies that aimed to investigate the stakeholder governance mechanisms in achieving the corporate sustainability of mixed-ownership enterprises. The study tested the impact of three independent constructs such as common governance, green governance, and data governance as the proxy of stakeholder governance on the variables of human capital

appreciation and corporate dynamic capability and the corporate sustainability of mixed-ownership enterprises. Such an investigation is almost absent in academia (B. Li et al., 2022). Further, the study also highlights the realistic and ideal goals and models of stakeholder governance in the context of mixed-ownership enterprises. The particular influence mechanism of those effects was analyzed and interpreted so that the upcoming researchers can gain in-depth knowledge from the stakeholder governance perspective on sustainable development.

Finally, common governance, green governance, and data governance were applied to the sustainable development model of mixed-ownership enterprises with the intention of expanding the research dimension of stakeholder governance. Therefore, the author strongly expects that this wide-scale empirical investigation and the subsequent interpretation in the thesis will open new research motivation focusing on the different stakeholder governance mechanisms on sustainable development in the context of mixed-owned enterprises.

6.5 Limitations of the study and further research gap

Although being focused on a timely and realistic issue, the author admits that there are a number of limitations in this study. First of all, the study included only mixed-owned enterprises to consider in this study, thereby limiting the scope of the research area. A wider scope considering other forms of ownership may be considered in the upcoming investigations. Secondly, the study used only 10 respondents for interviews which might not represent a larger economy like China. Therefore, the author recommends that future studies can broaden the depth of such empirical investigations by collecting more samples, perhaps close to 100.

Thirdly, this thesis study considered only China as the research base. A comparison of cross-cultural samples collected from two or more countries might have provided a more logical and widely representative outcome to the readers. Finally, the author used a content analysis using unstructured interview responses. It can be proposed that, in the future, the researchers may use a structured survey instrument that proximately matches the survey constructs and items. The author is hopeful that the upcoming studies will consider these limitations as the research gap and implement the recommendations provided by the author in their intended investigations.

6.6 Concluding remarks

The study identified that all three independent constructs, such as common governance, green governance, and data governance have positive effects on corporate dynamic capability and

human capital appreciation. Therefore, the proposed model showed a positive association among the components of stakeholder governance mechanisms on the corporate dynamic capability and human capital appreciation of the mixed-owned enterprises in China. In addition, those constructs are also indented to have positive impacts on corporate sustainability.

A strong, established, and effective corporate governance mechanism is quite essential to interact with stakeholders and achieve sustainable development (R. Zhang et al., 2022). Good governance is a key source of achieving the long-term and logical development of sustainable performance. This thesis study selected the Chinese mixed-ownership enterprises from Guizhou and Sichuan provinces as the sampling area and used a qualitative research method to empirically test the impact of the different governance mechanisms on the sustainability performance of mixed-ownership enterprises in terms of the three aspects of governance mechanisms.

Findings from this study offer new and fresh insight into the impact of the governance mechanisms of mixed-ownership enterprises and the path of further courses of action. Such findings can facilitate the policymakers to understand and identify the importance of deepening mixed-ownership reform in Chinese enterprises and further persuade non-state shareholder participation in corporate governance, as well as improve mixed-ownership enterprises' sustainability performance. Mitigating different corporate governance responsibilities in order to sustain development has increasingly become a strategic choice for the present corporations. Taking on common, green, and data governance are the commonly beneficial actions that can uphold the long-term interests of enterprises and meets the requirements of sustainable social, environmental, and financial development. Investments in the different governance mechanisms can help enterprises understand sustainable and healthy development. This study provides evidence that good corporate governance mechanisms can guarantee high corporate sustainable performance.

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