ISCTE IUL
Instituto Universitário de Lisboa

The Relationship between Corporate Social Responsibility and Firm Performance in Emerging Economies: Evidence from Pharmaceutical Chinese Firms

YANG Minghui

Thesis submitted as partial requirement for the conferral of the degree of

Doctor of Management

Supervisor:

Prof. Paulo Bento, Assistant Professor, ISCTE University Institute of Lisbon

July, 2018

ISCTE IUL
Instituto Universitário de Lisboa

The Relationship between Corporate Social Responsibility and Firm Performance in Emerging Economies: Evidence from Pharmaceutical Chinese Firms

YANG Minghui

- Spine -

ISCTE IUL
Instituto Universitário de Lisboa

The Relationship between Corporate Social Responsibility and Firm Performance in Emerging Economies: Evidence from Pharmaceutical Chinese Firms

YANG Minghui

Thesis submitted as partial requirement for the conferral of the degree of

Doctor of Management

Supervisor:

Prof. Paulo Bento, Assistant Professor, ISCTE University Institute of Lisbon

July, 2018

[This page is deliberately left blank.]

Declaration

I declare that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university and that to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: Yang Minghui Date: 31.8.2018

Name: YANG Minghui

作者申明

本人郑重申明：除了论文致谢中明确说明并致以谢意的部分外，所呈交的论文不包含任何他人或作者本人已用于获得任何教育机构的学位和证书而使用过的材料。同时尽我所知，除了文中特别加以标注引用的内容外，本论文不包含任何其他个人或集体已经发表或撰写的成果作品。

作者签名：Yang Minghui 日期：31.8.2018

姓名(拼音)：YANG Minghui

[This page is deliberately left blank.]

Abstract

Corporate social responsibility (CSR) has received increasing concern from both companies and the public. Prior scholars began to develop the concept of CSR in the 1950s, and until now there have been various CSR studies focusing on its principles, frameworks, and developments in the mature economies. However, researchers point out that differences in social, cultural and economic systems yield various perceptions and implementations of CSR issues. Scholars have currently turned their attention to explore CSR in the context of emerging economies.

Because of growing demands for safe and reliable medication for the public, pharmaceutical companies are highly expected to manufacture their products in socially responsible ways. However, the great expenditures spent on medical research and development (R&D) and promotional activities limit their resources for CSR practices. If engagement in CSR activities cannot generate the growth of financial performance, these activities may be regarded as wasting of resources. Recent researchers claim that the relationship between CSR and firm performance is still not fully understood in the emerging economies and needs to be further investigated.

A mixing method including both qualitative and quantitative approaches is used in this study to explore the relationship between CSR and firm performance for Chinese pharmaceutical companies. Twenty experts firstly give scores for the importance of different stakeholders based on a five-point scale. The CSR measuring system is then developed by incorporating the weighted average of experts' scores and the performance of CSR indicators collected from the Hexun CSR rating. With a sample of 125 Chinese pharmaceutical companies between 2010 and 2016, the panel data regression model is lastly applied to scientifically analyze the data and test the hypotheses.

The statistical results show that there is significant positive relationship between CSR and firm performance. Specifically, corporate fulfillment towards

different aspects of stakeholders' responsibility, including to shareholders, employees, customers and suppliers, environment, and society, also positively affects firm performance. The findings of the research support the hypotheses. The academic and practical contributions are also identified at the end of this study.

Keywords: China; CSR; firm performance; pharmaceutical companies
JEL: M41; M14

Resumo

A responsabilidade social empresarial (RSE) tem recebido atenção crescente, tanto por parte das empresas quanto do público. Os académicos começaram a desenvolver o conceito de RSE na década 50, do século passado, e tem havido vários estudos com foco nos seus princípios, estruturas e desenvolvimentos em economias maduras. No entanto, os investigadores salientam que as diferenças nos sistemas sociais, culturais e económicos geram perceções e implementações distintas em torno de vários aspetos da RSE. Atualmente, os académicos voltaram a sua atenção para a RSE no contexto das economias emergentes.

Devido à procura crescente de medicamentos seguros e confiáveis para o público, espera-se que as empresas farmacêuticas fabriquem os seus produtos de maneira socialmente responsável. No entanto, os gastos avultados em investigação e desenvolvimento (I&D) na área médica e atividades promocionais limitam os seus recursos para atividades de RSE. Se o envolvimento em atividades de RSE não pode gerar melhorias no desempenho financeiro, as mesmas podem ser consideradas desperdício de recursos. Recentemente, investigadores afirmam que a relação entre a RSE e o desempenho da empresa ainda não é totalmente compreendida nas economias emergentes e precisa de ser mais investigada.

Este estudo usa um método misto, que inclui abordagens quantitativas e qualitativas, para explorar a relação entre a RSE e o desempenho das empresas farmacêuticas chinesas. Em primeiro lugar, vinte especialistas pontuam a importância de diferentes *stakeholders*, com base numa escala de um a cinco. O sistema de medição da RSE é depois desenvolvido incorporando a média ponderada das pontuações dos especialistas e o desempenho dos indicadores da RSE obtidos a partir da classificação de RSE Hexun. Com uma amostra de 125 empresas farmacêuticas chinesas, o modelo de regressão de dados em painel é aplicado por último para o período 2010 e 2016, tendo em vista analisar cientificamente os dados e testar as hipóteses.

Os resultados mostram que existe uma relação positiva significativa entre a RSE e o desempenho da empresa. Especificamente, o cumprimento corporativo em relação a diferentes aspetos da responsabilidade dos *stakeholders*, incluindo acionistas, colaboradores, clientes e fornecedores, meio ambiente e sociedade, também afeta positivamente o desempenho da empresa. As conclusões do estudo suportam as hipóteses. As contribuições académicas e práticas também são identificadas no final deste estudo.

Palavras-chave: China; RSE; desempenho empresarial; empresas farmacêuticas
JEL: M41; M14

Acknowledgement

Many persons need to be acknowledged for their significant impact on my writing of the doctoral thesis.

I would like to start my heartfelt thanks and sincere gratitude to my supervisor Prof. Paulo Bento. Thanks for his continue support, motivation and enthusiasm, and for sharing with me his immense knowledge of the area which I am so passionate - corporate social responsibility. His continue insightful comments and constructive feedback throughout my academic writing journey has been of tremendous help. Without the guidance he provided, this thesis would not have reached it current forms. His intellectual insights and keen eyes for details has help me immensely approaching the completion of my doctoral degree.

I would like to extend my thanks to Prof. Virginia Trigo and Prof. Elisabeth Reis, for providing me much insightful and valuable comments which contributed to shaping my research. My gratitude is also extended to Eva Xu and Vian Ou, for providing me precious academic advises and orientation.

Special thanks to Prof. Liguang Wu, Dr. Michael Wang, Yuki Ji, Jane Huang and James Morrison. This thesis would have not come to life without their precious helps and inputs. Thank to my friends and colleagues, whose supported me to continue my academic journey.

The main thanks must go to my beloved family. Without their faith in me, my journey would not have gone so far. Thanks to my loving parent, Bin Yang and Lihua Cui, who have been a never ceasing source of love. Their words of encouragement always kept me going and inspire me all my life.

Thanks to my wife, Kio Zou, for giving me the strength to finish the thesis, inspiring me to go my way, and being my sparring partner at every step I take.

Finally, to the best gift of my life, my beloved daughter, Emily. To see you grow, develop and be curious about the world gave me strength and joy every day. You really

have been the light brightening every dark moment.

Contents

[This page is deliberately left blank.]

List of Tables

List of Figures

[This page is deliberately left blank.]

List of Abbreviations

AA	Accountability
CAR	Cumulative Abnormal Return
CASS	Chinese Academy of Social Science
CED	Committee for Economic Development
CFDA	China Food and Drug Administration
CPEA	Chinese Pharmaceutical Enterprise Association
CSMAR	China Stock Market & Accounting Research
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
CSR(CUST&SUP)	Corporate Social Responsibility toward Customer and Suppliers' Dimension
CSR(EMP)	Corporate Social Responsibility to Employees' Dimension
CSR(ENV)	Corporate Social Responsibility to the Environment's Dimension
CSR(SHA)	Corporate Social Responsibility to Shareholders' Dimension
CSR(SOC)	Corporate Social Responsibility to Society's Dimension
CSRC	China's Securities Regulatory Commission
DJSI	Dow Jones Sustainability Indexes
EPS	Earnings per Share
GRI	Global Reporting Initiatives
H1	Hypothesis 1
H2	Hypothesis 2
ISO	International Organization for Standardization
KLD	Kinder, Lydenberg, and Domini
KLSE	Kuala Lumpur Stock Exchange

LNTA	Natural Logarithm of Total Assets
MVA	Market Value-Added
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Cooperation and Development
PCSEs	Panel Corrected Standard Errors
R&D	Research and development
RBV	Resource-based View
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
RP	Research Problem
RQ	Research Questions
S&P	Standard & Poor's
SASAC	State-Owned Assets Supervision and Administration
SEPA	State Environmental Protection Administration
SHSE	Shanghai Stock Exchange
SMEs	Small and Medium Enterprise
SRI	Socially Responsible Investing
ST	Special Treatment
SZSE	Shenzhen Stock Exchange
TRI	Toxic Release Inventory
VIE	Variance Inflation Factors
WBCSD	World Business Council for Sustainable Development

Chapter 1: Introduction

The purpose of this chapter is to outline the scope of this study and propose the research background, research problem, and research questions. Next, it presents the research method and a brief discussion about the structure of the research. The chapter concludes with a figure outlining the structural framework.

1.1 Research Background

Corporate social responsibility (CSR) has received increasing concerns from companies, the public, and academia. There are more and more firms realizing that the idea of "privatizing gains but socialize losses" should be eliminated. Carroll (1979) defined that the social responsibility of business focuses on aspects of economic, legal, ethical, and discretionary expectations from the society at a given time. Freeman (1984) suggested that CSR is concerned with corporate stakeholders who directly or indirectly affect or are affected by companies' operation. Frederick (1994) proposed that CSR contains activities in support of education, employment and training, safety in the workplace, quality of product, environmental protection, human rights, community development, and philanthropy. In business practice, CSR becomes an important issue for corporate decision-making, and increasing numbers of multinationals have developed specialized segments to plan, conduct, and manage their CSR activities (Vogel, 2005; Du, Bhattacharya, & Sen, 2010).

Prior studies have found that companies can communicate CSR practices through either annual report (Gray, Kouhy, & Lavers, 1995; Halme & Huse, 1997) or individual CSR reports (Gray, Javad, Power, & Sinclair, 2001). By informing outside users about CSR information, individual CSR reports can be seen as superior compared to other types of CSR disclosure. The reason is that separate CSR reporting shows more specific and comprehensive information about perception and practices of CSR. In order to provide direction to the company about which content needed to be reported

and how the text to be organized, the Global Reporting Initiatives (GRI) issued a comprehensive guideline called GRI 4.0 (GRI, 2014), regarded as a global acceptance of CSR disclosure. Since 2001, the Organization for Economic Cooperation and Development (OECD) has launched "Guidelines for Multinational Companies" to develop relevant principles and standards of society and environment. Additionally, in 2002 the United Nations officially released the "UN Global Compact," which proposes ten principles of CSR for the company to meet fundamental responsibilities in the aspects of human rights, labor, environment, and anticorruption. International organizations have also developed frameworks in CSR, such as "Social Responsibility" released by the International Organization for Standardization (ISO) within the standard of No. 26000 (ISO, 2010), "Approach for Sustainable Development Goals" issued by the World Business Council for Sustainable Development Guidelines (WBCSD, 1998), and the Accountability's AA1000 Standard in Accountability, Responsibility and Sustainability launched by AccountAbility (Accountability, 2008).

CSR performance can be measured by various tools such as CSR questionnaire surveys, content analyses, expenditures spent on CSR activities, reputation assessments, and professional agency CSR ratings (Weber, 2008). Questionnaires, content analyses and reputation assessments are subject to the lack of objectivity (Soana, 2011; Lang & Washburn, 2012). The costs of CSR practices, such as charitable donations and investments in the community, can be quantitatively measured (Brammer & Millington, 2008), but limitations of CSR expenditures also exist because they only concern some aspects of CSR (Pan, 2014). In addition, CSR can be measured by independent and professional CSR rating agencies, such as Kinder, Lydenberg, and Domini (KLD), Dow Jones Sustainability Indexes (DJSI), the Runling (RKS) rating in China, and the Hexun CSR in China (Harrison & Freeman, 1999; Chen & Delmas, 2011; Pan, 2014). The benefits of professional CSR ratings are the accessibility, independence, and consistency of CSR data (Pan, 2014).

There are many CSR studies focused on mature economies such as the United States, the UK, and other European countries (Crane & Matten, 2007). In developed

countries, the principles, standards, and framework of CSR have been established and adapted by the company for a relatively longer period of time. In particular, scholars have claimed that CSR receives greater concern in mature economies than in emerging economies (Griesse, 2007; Lin, Xiao, Liu, & Liu 2011). Countries with different stages of social and economic development deliver different impacts on CSR perceptions and practices (Xiao, Gao, Heravi, & Cheung, 2005; Lin et al., 2011). Furthermore, the various norms of culture and tradition also affect CSR conceptions in different ways (Matten & Moon, 2004). Even though there are considerable amounts of CSR regarding developed countries (Clarkson, 1995; Crane & Matten, 2007; Lin et al., 2011), there is limited understanding of how CSR is perceived and applied in developing countries, especially in China, which has experienced rapid economic growth in recent decades and is regarded as the most prominent country in emerging markets.

Specifically, China has become a valuable research target in terms of CSR because the number of incidents concerning product safety and environmental pollution has increased in recent years. The public has witnessed a series of CSR scandals, such as poisonous milk powder from the Sanlu Group, pollution of the river by Jilin Petrochemical, and sewage discharge from Harbin Pharma. The widespread image of irresponsibility of Chinese companies is a main cause of CSR development in China (Lin, 2010). Chinese government and authorities have released guidelines, principles, and policies for regulating CSR practices (Lin, 2010). The first initiatives reflecting governmental conception of CSR is the 1994 Company Law, which concerns the rights of employees in Article 52 & 121 (Chinese Company Law, 1994). In order to explain CSR in a more explicit way, the 2006 Chinese Company Law clarifies social morality and business ethics for Chinese corporations in Article 5 (Chinese Company Law, 2006). There have also been general principles of CSR in China since 2008. The State-Owned Asset Supervision and Administration Commission of the State Council (SASAC) released the “Guidance for Social Responsibility Implementation for the State-Owned Enterprise,” by requiring all companies controlled by the Central Government to perform social responsibility in business practices (SASAC, 2008). Regarding the

regulation of CSR reporting, the State Environmental Protection Administration (SEPA) began to formulate the guideline of environmental disclosure in 2007. Two Chinese stock exchanges, the Shenzhen Stock Exchange (SZSE), and the Shanghai Stock Exchange (SHSE), released guidelines of CSR disclosure for listed companies in 2006 and 2008, respectively. The SZSE encouraged listed firms to voluntarily issue separate CSR reports, while the SHSE required three types of listed companies to release CSR reports annually if they are companies listed in the Corporate Governance Index, or listed in both China and overseas, or if they belong to the financial industry. After the guidelines of CSR information disclosure were published, the population of CSR reporting increased, along with the improvement of reporting quality (Kolk, Hong, & Dolen, 2010). In this circumstance, Chinese managers and entrepreneurs have also attached their importance to CSR issues (Lin, 2010). According to official data from the Blue Book of CSR launched by Chinese Academy of Social Science (CASS) in 2017, the index of CSR development was 37.4, increasing by 2.2 compared to 2016, and experienced continuous growth over a decade (CASS, 2017).

Accompanied by the increasing demand for high-quality drugs and reliable medical services, the pharmaceutical industry is undertaking difficult challenges economically and politically in the global market (Smith, 2008). Pharmaceutical companies need to manage their relationship to various groups of stakeholders in socially responsible ways, including preferential pricing with suppliers, safety of drug-related products, and donations among societies (Murphy & Poist, 2002; Smith, 2008). In terms of the Chinese market, pharmaceutical companies are also stressed from providing reliable medical services and drugs in a cost-efficient manner, along with offering high-quality drugs and taking care of safety with a process to recycle expired drugs. Additionally, the public is also concerned with the actions of how pharmaceutical companies ensure the safety of the supply-chain process and promote community development (Lin et al., 2011). In this circumstance, they are motivated to pursue ways to achieving stakeholders' expectations and act legitimately in the public eye through CSR practices, which increase patients' confidence in medicine safety and attract more

social responsibility-oriented investors (Lin et al., 2011).

As the biggest economy in developing countries, China is chosen to explore CSR issues for this study. Recently, there are growing numbers of accidents in terms of drug quality and environmental pollution in Chinese pharmaceutical companies, which the public have witnessed. In order to examine CSR practices for the Chinese pharmaceutical industry, the companies categorized as "pharmaceutical manufacturing" under the "Industry Classification" by China's Securities Regulatory Commission (CSRC) are selected as the sample for this study.

1.2 Research Problem and Research Questions

There is growing concern over CSR issues by Chinese pharmaceutical companies nowadays. The Hexun professional CSR rating agency shows that the pharmaceutical industry has been rated with one of the top CSR performances among all manufacturing industries in 2017 (Hexun, 2018). Further, the "Guidelines of CSR Practices for Chinese Pharmaceutical Companies" was released by the Chinese Pharmaceutical Enterprise Association (CPEA) in September 2017 (CPEA, 2018), in order to direct companies to better understand the benefits of CSR and provide guidance on CSR activities. Because of accelerated importance of CSR issues derived from both public and regulatory authorities, it become necessary to explore the reason pharmaceutical companies engage in CSR practices.

Various theories have been adapted in prior studies to explain the reason for corporate engagement in CSR issues (Margolis & Walsh, 2003). Stakeholder theory is used to explain a situation in which CSR helps companies to build effective management of relationships with key groups of stakeholders, including employees, customers, suppliers, government, and communities (Roberts, 1992; Liu & Anbumozhi, 2009), and the sound associations with stakeholders provide possibilities for the companies to create, develop, and maintain important resources (Wood & Jones, 1995). According to the resource-based view (RBV) (Barney, 1991), companies can be seen

as a “pool of resources.” The differences in corporate performance can be explained by different resources acquired by companies (Barney, 1991). CSR practices help companies to develop both internal resources such as human resources and external resources such as reputation (Orlitzky, Rynes, & Schmidt, 2003). The resources are the strengths that are difficult for other competitors to replicate (Wernerfelt, 1984; Barney, 1991) and can be seen as a source of competitive advantage (Russo & Fouts, 1997; Surroca, Tribo, & Waddock, 2010). Based on the perspective of legitimacy theory (Sethi, 1979), the social contract between the company and society is emphasized, by explaining corporate actions that are desirable, proper, or appropriate within the norms, values, and beliefs in the social system (Suchman, 1995). CSR activities can ensure organizational legitimacy in the eyes of the public (Rupley, Brown, & Marhall, 2012), and help companies to develop better corporate images (McWilliams, Siegel, & Wright, 2006). The social worthiness and commitment of stakeholders as well as long-term sustainability can be also obtained when the company performs in compliance with social expectations (Bansal & Roth, 2000).

However, principal-agent theory (Jensen & Meckling, 1976) suggests that the lack of strong control from shareholders can provide opportunities for managers to apply corporate resources in personal ways and pursue own goals, which are probably contradictory to shareholders’ objectives (Navarro, 1988). Philanthropic activities, such as charitable donations and community development, enable top managers to increase their personal reputation as well as smooth a path for future political careers but injure corporate profitability as a whole (Friedman, 1970). Specifically, previous studies also identified that CSR practices trigger the incurrence of agency costs that can distract corporate attention from pursuing profit maximization (Hillman & Keim, 2001; Campbell, 2007). With the negative impact on corporate performance, the criticism of CSR still exists in current literature (Brammer & Millington, 2008; Wang, Qin, & Kong, 2008).

Therefore, different theories applied in CSR studies provide different results, either explaining the motivation of CSR practices or the opposite. Whether CSR can

improve corporate performance or not needs further investigation (McWilliams & Siegal, 2000; Margolis & Walsh, 2003). Particularly, pharmaceutical companies are easily stressed from allocating strategic resources to CSR, due to their greatest concerns with drug-related research and development as well as promotional activities (Smith, 2008). On the other hand, because the quality of drugs and medicines is closely related to human and social health, it is still fundamental for pharmaceutical companies to attach importance to the safety of drug-related products, which also consumes a great quantity of resources. It is possible that the over-weighting of resources invested in CSR issues negatively impact on corporate profitability (Smith, 2008). Thus, the motivation of CSR engagement in pharmaceutical companies is worthy of discussion.

Taken together, this leads to the research problem (RP) of this study which is:

RP: "Why do China's pharmaceutical companies participate in CSR issues?"

The research problem leaves the issue of how CSR affects firm performance. Margolis and Walsh (2003) discovered that between 1972 and 2002 there were 127 studies that examined the association between CSR and firm performance. They found that the results of relationship are mixed, depending on different theoretical frameworks. Half of the studies show a positive association, seven studies depict a negative association, and 28 and 20 studies show nonsignificant and mixed results, respectively (Margolis & Walsh, 2003).

Prior literature has not shown universal conclusions of the association between CSR and firm performance. This study attempts to examine the CSR-firm performance relationship in the context of Chinese pharmaceutical companies. It initially presents an adaptable CSR measuring system and then discusses the impact of CSR on firm performance.

Taken together, this leads to two research questions of this study, which are:

RQ1: What are the adaptable CSR measurements in the context of Chinese pharmaceutical companies?

RQ2: What is the relationship between CSR and firm performance?

1.3 Research Method

The two research questions outlined in Section 1.2 are further explained by developing a conceptual framework based on literature review. The theoretical basis is then used to formulate hypotheses and arrive at relevant data for CSR and firm performance from professional CSR rating agencies and financial databases. The empirical analysis can be also constructed, and then statistical results are obtained in order to test the hypotheses. As the result of that, the positivism paradigm is chosen for this study. It attempts to provide information that is predictive and descriptive of the social phenomenon (Collins & Hussey, 2003). By applying a positivist approach, the researchers are deductive by collecting relevant data-systemizing information instead of arriving at a conclusion through observation (Bryman & Bell, 2007).

Mixing methods are developed for this study, by combining qualitative and quantitative methods. Modell (2009) suggested that implementing mixed approaches in business studies enables researchers to take advantage of the strengths of either qualitative or quantitative methods and deliver more robust research findings (Miles & Huberman, 1994). Taken together, this study applies mixing methods by qualitatively formulating CSR measurement and quantitatively developing empirical analysis. The details of mixing methods are described in Section 4.3.1.

The qualitative method is used to measure CSR for China's pharmaceutical companies. An expert scoring method is applied (Pan, Sha, Zhang, & Ke, 2014) to organize a CSR measurement system. The details of the qualitative approach are described in Section 4.3.2 on this study. The expert scoring method used for data collection consists of two rounds. In the first round, 20 experts who work as managers in Chinese pharmaceutical companies are asked to give a score within a five-point scale, according to their perceptions about how the importance of the stakeholders' responsibility needs to be fulfilled by the company. The data are collected by questionnaire in consistence with Likert-scale format. The second round, the qualitative method, is to formulate the CSR measurement based on a weighted average calculated

by experts' scoring.

The quantitative method is used to further identify the relationship between CSR and firm performance. The panel-corrected standard errors (PCSE) model is developed to test the hypotheses. The reason for choosing this econometric model is that both cross-sectional data 125 Chinese pharmaceutical companies and time series data for a seven-year period are used in this study. The details of this quantitative approach are described in Section 4.3.3.

1.4 Outline of the Study

This study consists of six chapters and is structured as follows:

The first chapter provides the introduction to the study. It delivers the research background, the research problems, the research questions, the research methods, and the structural framework.

The second chapter discusses the literature review. It first defines the concept of CSR and the evolution of CSR. Furthermore, the development of CSR in emerging economies and in China are also introduced. After that, it discusses the practices of CSR in pharmaceutical companies and the evaluation of CSR. The measurement of firm performance is then developed. Last, it discusses the theoretical framework of theories explaining the relationship between CSR and firm performance.

The third chapter regards the hypotheses and the conceptual model. It first develops a stakeholder approach to a pharmaceutical company's CSR and then establishes a CSR measuring system in the context of Chinese pharmaceutical companies. The hypotheses and the conceptual model are also discussed.

The fourth chapter concerns the research method. It first defines the research paradigm and the research method. The size of the sample, the source of data collection, and the measurement of variables are also demonstrated. Last, it discusses the empirical models used in the statistical analysis.

The fifth chapter shows the empirical analysis. It first discusses the

descriptive statistics, then shows the results of the stationarity testing as well as the fixed and random effects testing. It last discusses the empirical results by using a PCSE model.

The sixth chapter illustrates the conclusion. It first summarizes the findings of the research. The answers to the research questions, the solution to the research problem, and the review of the hypotheses are then discussed. It last proposes recommendations, contributions, limitations, and suggestions for further research.

1.5 Structural Framework of the Study

Figure 1-1 presents the structural framework of this study.

1.6 Summary

This chapter introduces the scope of the study. The research background is depicted, and the gaps to be addressed in the literature are also defined. To fill in the gaps, the research problem and research questions are posted. The research method and the structure of the study are also outlined. This chapter provides foundations of the thesis, and leads to the literature review, which provides a theoretical basis for the study.

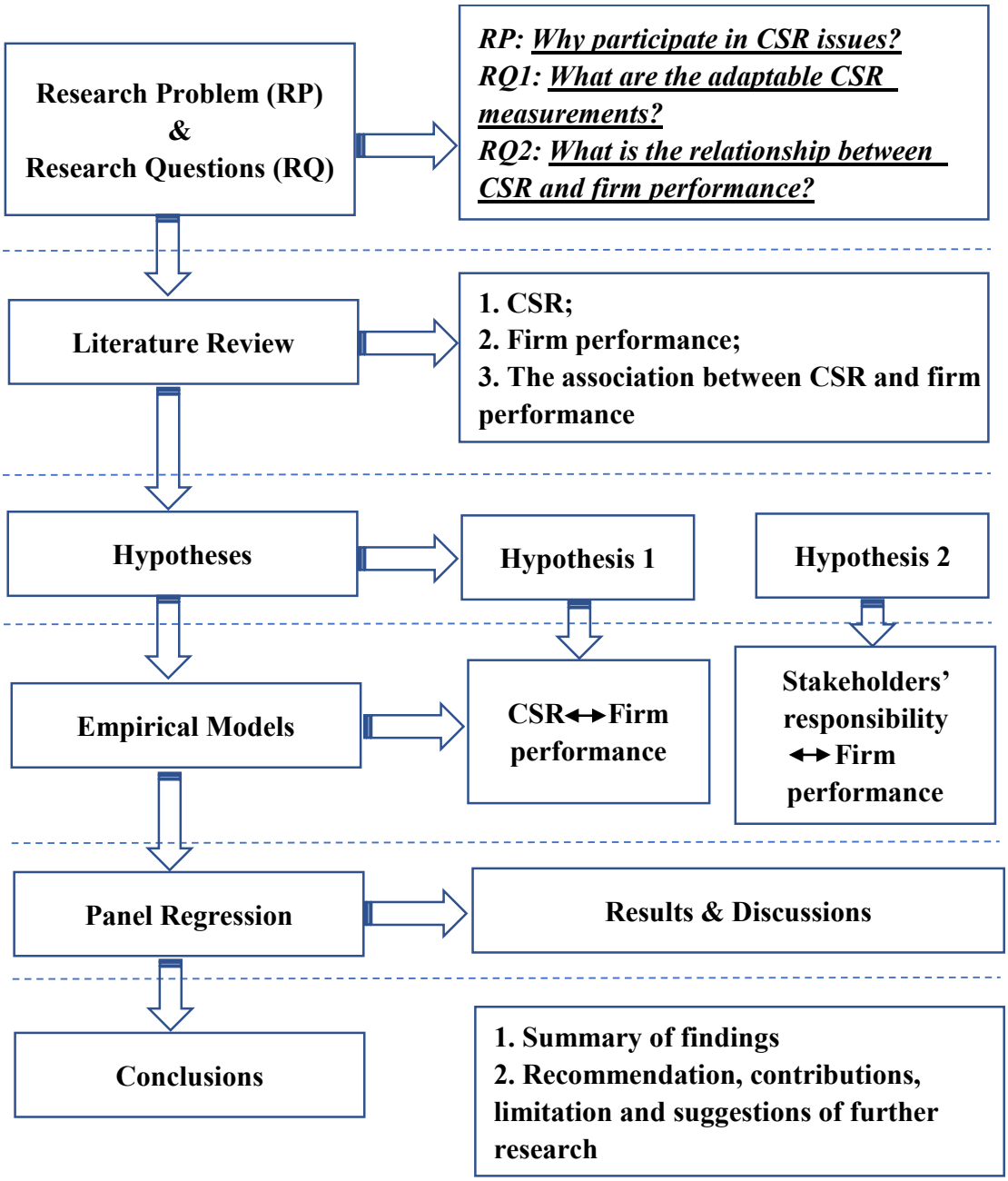

Figure 1-1 Structural framework of the study

Chapter 2: Literature Review

2.1 Introduction

The purpose of this chapter is to provide the theoretical framework of CSR and its relationship to firm performance. It first defines the concept of CSR and reviews the evolution of CSR from the 1950s to twenty-first century. CSR development in both emerging economies and in China are then discussed. The practices of CSR in pharmaceutical companies is also introduced. The chapter then further discusses the measurement of CSR and firm performance. Last, it reviews theories explaining the association between CSR and firm performance.

The sections of Chapter 2 are organized as follows: Section 2.2 defines CSR. Section 2.3 discusses the evolution of CSR. Section 2.4 develops CSR in emerging economies. Section 2.5 discusses CSR in China. Section 2.6 shows CSR in pharmaceutical companies. Section 2.7 reviews the evaluation of CSR. Section 2.8 presents the measurement of firm performance. Section 2.9 reviews the relationship between CSR and firm performance. Section 2.10 summarizes this chapter.

2.2 Definition of CSR

The point of view regarding corporate responsibility towards not only economic maximization but also social activism has been present in academia for more than seven decades (Frederick, 1994). CSR become a critical issue for both companies and the public. Because of the improvements in stakeholder relations as well as corporate legitimacy, CSR poses important influences on real business practices. There are more and more multinationals to deliver specialized segments to manage CSR activities (Vogel, 2005; Du et al., 2010).

However, there are still different explanations and definitions to CSR (Moon, Crane, & Matten, 2005). Academia has not reached an agreement on the benefits of

CSR practices and who should be involved in the decision making of CSR (Smith & Ward, 2007). CSR provides different ideas and matters to different kinds of people (Sethi, 1979). Prior researchers summarized 37 conceptual definitions of CSR (Dahlsrud, 2008). Frederick (1994) suggests that the content of CSR includes activities in support of education, employment and training, safety in the workplace, quality of products, environmental protection, conservation of natural resources, human rights, community development, and philanthropy.

Friedman (1962) believed that the responsibility for the company is only to maximize its economic profit for their shareholders and comply with regulations, social principals, and laws. Carroll (1979) proposed that the social responsibility of the company is concerned with economic, legal, ethical, and social expectations. Freeman (1984) released a stakeholder model that is regarded as a fundamental definition for CSR development. This model relates to groups of stakeholders who directly or indirectly affect or are affected by companies' operations. Jones (1995) suggested that the important part of the stakeholder model is to identify relevant groups of stakeholders to the company.

Worldwide organizations have also developed guidelines for or definitions of CSR. For instance, the WBCSD defined CSR as the commitment concerning sustainable economic development, illustrated by the ways of providing better relations with employees, the local community, and society. Hence, CSR helps to improve the quality of life for stakeholders (WBCSD, 1998). Additionally, the "green paper" released by European Commissions (2001) suggested that CSR can be explained by the activities related to human resources, the environment, and stakeholder relations, which exceed legal expectations.

Recently CSR has been practiced by companies and is regarded as a key component in corporate strategic management. Managers believe that CSR is not simply doing good things, but also helping companies bring about long-term competitive advantages. In this study, CSR is defined as the commitment by companies to combine the responsibilities of economic, employee, customer, supplier,

environment, and society together, in order to manage good relationships with their stakeholders, as well as to acquire legitimacy in the eyes of public.

2.3 Evolution of CSR

2.3.1 CSR before the 1950s

CSR was originally perceived and practiced during the Industrial Revolution. Because of the inequalities in early industrial society, some of businessmen attempted to strengthen their business image by building clinics and lunch-rooms for their employees, donating money to orphan asylums, and conducting other philanthropic activities (Carroll, 2008). Therefore, philanthropy, paternalistic behavior, and charitable donations become ways to improve social problems, including poverty, crime, and child labor (Moon et al., 2005). These opinions are reflected in Adam Smith's statement in his book, "Theory of Moral Sentiment," which argues that most people are sympathetic, and the activities of profitable business are vulnerable to social and ethical examination (Campbell, Raphael, & Macfie, 1977).

Before the 1920s, business leaders were only concerned with the economic perspective. It means that if the purpose of the company was not maximizing profit for shareholders, then the company's value was destroyed (Margolis & Walsh, 2003). The Great Depression caused all companies to consider only how to survive in the crisis. If the businessmen did not engage in profitable activities that they were accused of immorality because shareholders' money were spent. At the same time, the pioneer of CSR in academia was Oliver Sheldon in 1924. In his study it encourages management not only to seek profit maximization, but also to take initiatives to improve the local community (Bichta, 2003).

2.3.2 CSR in the 1950s

The perspective about taking society into consideration was widely adopted in the 1950s. During this time the public witnessed a new era of CSR when Bowen

published his work, “Social Responsibilities of the Businessman.” It is regarded as the beginning of the modern period of literature on the CSR issue (Carroll, 2008). Bowen’s work espoused that companies should perform ethically as well as extend the traditional scope of legal obligations and profit maximization (Kakabadse, Rozuel, & Lee-Davies, 2005). Bowen also described that companies’ engagement in CSR activities is motivated by public demands. Frederick (1994) concluded that the perception of CSR in the 1950s can be categorized into three perspectives. The first is that managers should identify themselves as trustees of the public interests. The second is that managers should understand the balance of how to allocate resources to different kinds of activities. The third is that managers should be concerned with the importance of philanthropy, which reflects a corporate tendency toward socially responsible activities.

In the 1950s the literature tried to define “what” social responsibility means to the company, but it still did not extend to real CSR action. Carroll (2008) emphasized that during that time managers were perceived as learning to get comfortable with CSR, but he also figured out there were very few CSR actions besides philanthropic activities.

2.3.3 CSR in the 1960s

In the 1960s companies began to get a general understanding of how to apply CSR policies and practices in their operations. It is the period that has a growth attempt to formalize CSR ideas and deliver more precise statements to define CSR (Carroll, 2008). There were some debates about CSR in that time. Specifically, CSR was treated as a threat of corporate development. It is also referred to as a “neo-classical” or “shareholder” perspective, which puts companies into pure economic centralization. Some scholars believed that the engagement of social and welfare issues distract companies’ primary responsibility towards their shareholders (Levitt, 1958; Friedman, 1970). Friedman also defined that it is the responsibility of government to take care of social and environmental issues. This point of view regards CSR as a waste of resources, and thus CSR practices are implemented as internal investments (McWilliams et al., 2006).

Besides financial motivation of CSR, prior scholars such as Davis (1960) began to propose a moral motivation of CSR. It briefly presents that CSR can bring not only potential benefits to the company but also the right things for companies to apply.

The Committee for Economic Development (CED) published "Social Responsibilities of Business Corporations", claiming that companies should be perceived within society during their operation instead of just in the marketplace (Frederick, 1994). The CED's publication emphasized the transformation of social expectations toward companies' operations. It requires companies to operate in a way that satisfies social needs rather than only manufacturing products or providing services. The CED also outlined that companies are expected to be engaged in ten major fields: economic growth and efficiency, education, employment and training, civil rights and equal opportunity, urban renewal and development, pollution abatement, conservation and recreation, culture and the arts, medical care, and government relations (Frederick, 1994).

2.3.4 CSR in the 1970s

There have been concerns on the nature and the scope of CSR since 1970. Carroll (2008) emphasized that the 1970s was an important period in investigating CSR because "alternative or complementary concepts and ideas" in CSR emerged, such as corporate social responsiveness and corporate social performance. CSR research explored the viewpoint about what business can do to respond to and satisfy social demands, instead of studying whether firms should engage in CSR or not. It requires companies to not only arrive at the expectation of shareholders as well as society in order to secure their legitimacy, but also to predict potential changes in society, so that companies can promptly react to the public (Sethi, 1979).

Another important contribution of CSR in this period is Carroll's three-dimensional conceptual model of corporate social performance (CSP) (Carroll, 1979), which describes the model as a pyramidical diagram. Companies' social responsibilities include four dimensions: economic, legal, ethical and philanthropic. Economic

responsibilities describe that companies are obligated to manufacture products and provide services to meet the needs of consumers, along with profitable operation. Legal responsibilities require firms to pursue economic responsibilities within the range of relevant laws. Ethical responsibilities claim that companies should be concerned with unwritten values, norms, and standards within the society, and their corporate behaviors should to meet social expectations. Philanthropic responsibilities are voluntarily launched at the managers' discretion. The reason it is voluntary is that the public has no explicit expectations of philanthropy, and it is not compulsory for the company. Carroll's pyramid enables CSR to become more applicable because in his study it delivers a CSR framework, assisting companies to implement CSR within actual business practices. The pyramid also outlines some strategies for companies to follow based on the perspective of CSR. Carroll's CSR pyramid is shown in figure 2-1.

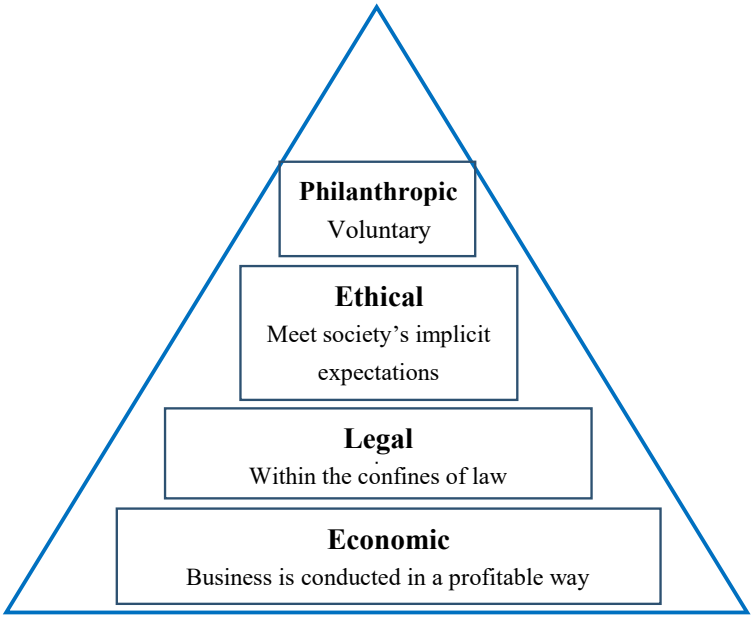

Figure 2-1 Carroll's CSR pyramid

Source: Carroll (1979)

2.3.5 CSR in the 1980s

Since the 1980s, there has been concern with exploring managerial approaches to CSR analysis (Carroll, 1974). However, approaches to CSR have been debated during that period. Jones (1980) is regarded as an active participant within the

debate. Jones' study emphasizes that CSR is treated as a process instead of set of outcomes (Jones, 1980). Another proposition corresponding to the criticism of CSR in the 1980s is that social responsibility is too vague to be useful in business practices (Jones, 1980).

Additionally, the concern with how to address the groups impacted by social responsibilities and analyze the relationship of a company with these groups became another critical CSR issue in the 1980s. Freeman (1984) suggested that managers are necessary to focus on the groups who both impact and are impacted by the actions of the companies. In Freeman's statement, customers, employees, and suppliers directly affect companies, while government, environment, and society indirectly affect companies' objectives and operations. The stakeholder theory stresses a necessity for the company to engage in CSR practices because they can bring benefits for the companies. In this case, the stakeholder model become the dominant paradigm in interpreting CSR (McWilliams & Siegal, 2000). Freeman's stakeholder theory is shown in figure 2-2.

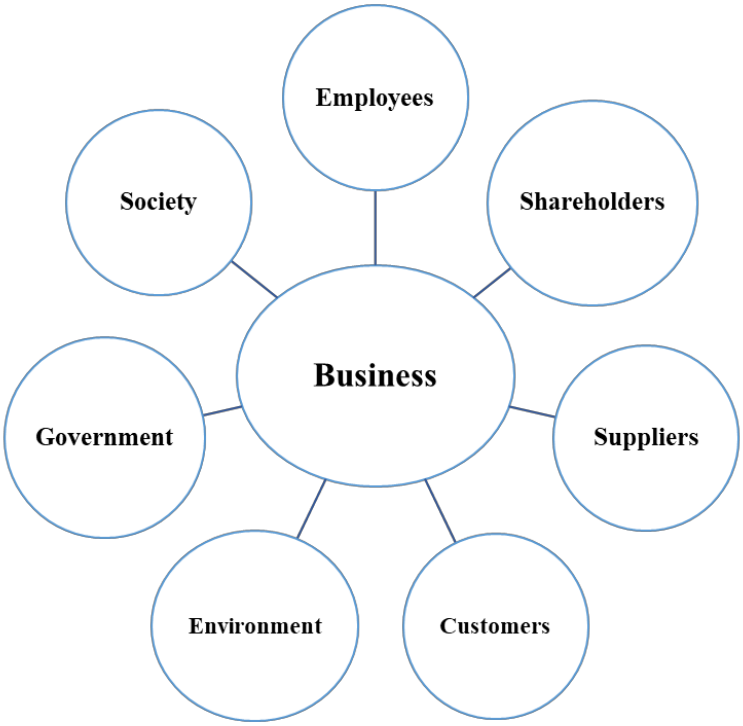

Figure 2-2 Freeman's stakeholder theory

Source: Freeman (1984)

2.3.6 CSR in the 1990s

The main issue of CSR in the 1990s was concerned with the outcomes of CSR practices, as regards a more pragmatic perspective. During this period, CSR study focused on the topics among CSP, the extension of the stakeholder theory, and corporate citizenship (Carroll, 2008).

In terms of outcomes of CSR practices, the main topic is to analyze the market outcomes of CSR implementation (McWilliams & Siegel, 2000; Margolis & Walsh, 2003). This view gave rise to new streams of literature labelled as CSP. Scholars attempted to investigate the benefits CSR that could be brought to the companies (Windsor, 2001). Others referred to this issue as the "business case for CSR" (Margolis & Walsh, 2003). Additionally, the association between CSR and financial performance was the main issue in the late 1990s, and it is still prevalent in recent CSR studies.

The theme of CSP is also further explored by Elkington's (1994) triple bottom line model, regarded as a method to assist companies in assessing overall business performance based on three important aspects: profit, people and planet. Elkington's study specifies that companies should not only simply pursue maximization of economic benefits, but they also proceed with comprehensive examinations of their environmental and social responsibilities. The argumentation of this model is that it casts aside the legal responsibility, which are rules that must company to comply with, rather than options companies can voluntarily decide to implement or not (Elkington, 1994). The triple bottom line model is shown in figure 2-3.

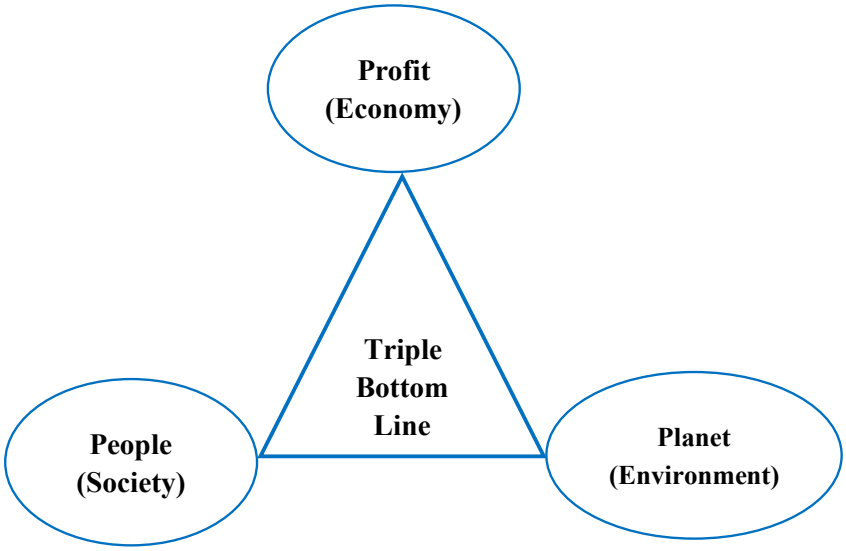

Figure 2-3 triple bottom line model

Source: Elkington (1997)

Another issue of CSR in this period regards stakeholder theory, extending into moral factors and defining the groups of stakeholders (Donaldson & Preston, 1995; Jones, 1995). Prior scholars emphasized the importance of moral and ethical perspectives of CSR in the 1990s. They also recommended that companies perform ethically with all stakeholders, even though the return from ethical behaviors is not high (Jones, 1995). In addition, Wood (1991) suggested that the performance of CSR can be used to evaluate business outcomes in terms of a business-society relationship. Wood's study suggested that business should not only pursue legal and profitable targets but also conduct ethical and philanthropic activities. In this research it was also pointed out the concept of corporate citizenship, which is still widely applied by companies until these days. Corporate citizenship is regarded as a strategy for operational activities, along with acting as good citizens.

2.3.7 CSR in the Twenty-First Century

The public witnessed growing corporate scandals at the beginning of the 2000s, such as the cases of Enron and WorldCom. These illegal corporate activities give rise to issues about how to build up effective mechanisms of corporate governance. As

a result, literature began to be concerned with the analysis of how companies incorporate CSR into their business strategies and how to apply CSR to obtain benefits. Hence, companies were trying to use CSR as a tool to heighten long-term competitive advantages (McWilliams & Siegel, 2001). Baron (2001) contributed to the CSR literature by outlining CSR as "strategic," and distinguished two aspects of CSR as follows: altruistic and strategic. Altruistic CSR regards activities for meeting social needs, while strategic CSR refers to practices where firms apply CSR to obtain the values. Philanthropic activities have been replaced by strategic CSR that help companies to create value and long-term sustainability (McWilliams & Siegel, 2001).

Besides the strategic perspective of CSR, the twenty-first century also witnessed the emergence of CSR research in the field of small and medium size enterprises (SMEs) (Preuss & Perschke, 2010). Prior scholar claimed that CSR practices in SMEs may be different from CSR engaged by larger firms (Roberts et al., 2006). The reason is that SMEs can manage their reputation and risks more effectively and the time of decision making is shorter than that in large companies. It enables SMEs to accustom to the new market rapidly and incorporate social and environmental benefit into their value (Jenkis, 2006). However, SMEs would be restricted in CSR implementation because they lack human resources and time to manager their relationship to key stakeholders (Princic, 2003).

Prior researchers also proposed that in last decade CSR has been linked to key actors in driving socially responsible activities (Bhattacharya & Sen, 2004; Moon, 2004), including corporate governance (Deegan et al., 2002), firm performance (Wang et al., 2008; Brammer & Millington, 2008), and globalization (Jenkins, 2005; Sethi, 2009).

2.3.8 The Summary of CSR Evolution

The summary of CSR evolution is shown in figure 2-4.

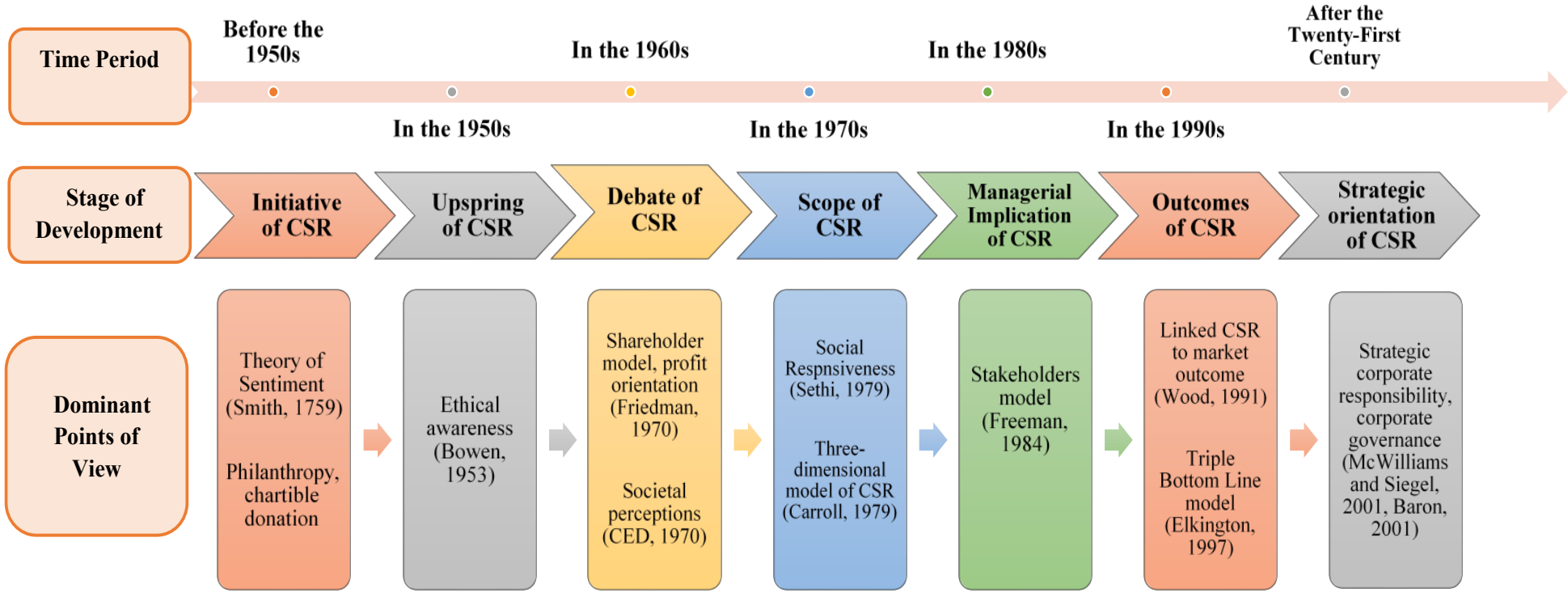

Figure 2-4 Summary of CSR evolution

2.4 CSR in Emerging Economies

There are many studies focusing on CSR in mature economies such as the United States, the UK, and other European countries (Crane & Matten, 2007). In these developed countries, companies have adapted CSR principles and criteria as well as CSR frameworks that have been established for a relatively long period of time. However, prior researchers claimed that such standards and principles, which were expanded on the basis of mature economies and tended to the U.S. context, have been criticized because of their limited global practicability (Lindgreen, Swaen, & Campbell, 2009). The appearance and composition of CSR varies across countries and particularly differs between developed countries and developing countries (Lin et al., 2005). Chapple and Moon (2005) also supported this proposition by investigating the differences in CSR practices among seven Asian countries. Their study was concerned with the website reporting of CSR, and the results indicated that there is no single pattern for CSR in Asia. They also advised that CSR relies on national factors for each country, and CSR practices are distinctly applied by companies according to specific national contexts.

Previous scholars have argued that countries at different phases of social and economic development have different concerns and priorities, while mature economies have greater concerns and a higher level of awareness in the field of CSR issues than emerging economies (Xiao et al., 2005; Lin et al., 2011). Xiao et al. (2005) compared CSR reporting in Hong Kong and the UK through a content analysis of CSR disclosure. They found that the amount, theme of CSR reporting between Hong Kong and the UK. are different due to the differential political costs and legitimacy threats created by different social and economic environments in these two countries.

Other researchers have suggested that companies perform CSR practices in different ways from nation to nation, because the cultural norms and traditions also differ (Matten & Moon, 2004). In Matten and Moon's subsequent study in 2008, it was

proposed that the differences in institutional environment, including political, educational, and cultural circumstances affect the ways companies treat CSR conceptions among the United States, the UK, and Europe (Matten & Moon, 2008). Visser (2006) also suggested that different cultural traditions impact CSR practices in business. In the mature economies, philanthropic activities are conventionally treated as socially responsible practices that need to be implemented by improving corporate reputation.

Even though there are considerable amounts of CSR studies investigating CSR for developed countries (Clarkson, 1995; Crane & Matten, 2007; Lin et al., 2011), as well as cross-national CSR comparisons, (Matten & Moon, 2004; Xiao et al., 2005; Griesse, 2007; Visser, 2006; Matten & Moon, 2008), there is still limited understanding of how CSR principles, standards, and frameworks are to be formed in the emerging economies. Scholars have indicated that CSR practices are beneficial to the companies that help them obtain many intangible competitive edges, such as in market reputation, satisfaction for both employees and customers, supportive tendencies from the government, and sustainable growth (Thomson & Heron, 2006; Surroca et al., 2010). Further, CSR implementation helps companies enhance their image and improve turnover rates and customer loyalty, and increase employee motivation (Surroca et al., 2010). On the other hand, a CSR program helps companies obtain organizational legitimacy from society (Rupley et al., 2012). These benefits have been noticed in the eyes of companies in developing countries and help companies to finally increase firm performance (Brammer & Millington, 2008; Surroca et al., 2010; Rupley et al., 2012).

However, companies in emerging economies still encounter major problems in effectively implementing their CSR plans. One of the reasons is that developing countries lack reasonable frameworks to accurately evaluate CSR performance (Visser 2006). Companies in developing countries are less likely to adapt internationally recognized CSR principles and standards. Further, prior studies (Matten & Moon, 2004; Welford, 2005) have suggested that cultural differences become the main difficulty for companies to employ CSR criteria in the emerging economies. Because of the existence

of differences among the developing countries themselves, the ways of structuring an adaptive framework of CSR becomes a major problem (Welford, 2005). Researchers have also claimed that emerging economies regard their economic responsibility as their primary obligation, followed by the philanthropic, legal, and discretionary responsibilities, in that order (Visser, 2006). This study aims to develop a systematic measurement of CSR for pharmaceutical companies in China, which is regarded as the biggest emerging economy in the world, and examine the link between CSR and firm performance by using the data available for the companies listed on the SHSE and SZSE.

2.5 CSR in China

CSR requires companies to deliver business activities in compliance with the law, and social expectations, including environmental protection, product safety, labor relations and rights, and community development. China has become a valuable research issue because of the increasing numbers of incidents in terms of product safety and pollution problems in recent years. The public has witnessed a series of scandals about low product quality, such as in the case of the poisonous milk powder from the Sanlu Group, and irresponsible production processes, such as sewage discharge from Harbin Pharma. Thus, the spreading image of irresponsibility demonstrated by Chinese companies has become the main cause of Chinese CSR development (Lin, 2010).

CSR study about theories and practices in Chinese business began in the 1990s Until the late 2010s CSR research was still immature compared with developed countries (Li, 2008). CSR was first introduced by western scholars and adapted for the Chinese market by accommodating adjustments based on political and economic circumstances in China. Yuan (1990) initially defined CSR as that, “the business should be obligated to in order to satisfy the social needs and conform to the benefits of society, country and even the whole human being.” He formed a multidimensional context for CSR that includes four aspects: tax, natural resources, environmental protection, and

customers.

Stakeholder theory was used to explore CSR issues in the late 1990s. Researchers argued that although economic benefit is the major decision-making factor, managers are still concerned with the interests of relevant stakeholders (Yang & Zhou, 1993). Liu (1999) extended CSR theory into the perspective of corporate governance and proposed that companies are necessary to address the needs of non-traditional stakeholders, such as government and the environment, rather than only paying attention to shareholders. In Liu's study, it is also suggested that the consideration of all stakeholders helps companies to obtain long-term competitive advantages.

Since the twenty-first century, the framework of CSR has developed a more practical perspective. There have been increasing numbers empirical studies of CSR since the turn of the century. Chen and Jia (2003) conducted a survey exploring the motivation of CSR for Chinese companies. Shen (2005) deployed an empirical study on the association between CSR and firm performance, and the result showed that CSR is positively related to financial performance. Xu and Yang (2007) offered a multidimensional model in CSR practices and explained the incentive for managers to apply CSR. This study delivers a broad view of CSR motivation based on surveys sent to 630 managers within 12 provinces of China. Li (2008) categorized previous CSR theory and attempted to construct a comprehensive evaluation system by clearly determining the appropriate measurements for CSR performance.

CSR practices have also been examined and regulated by the Chinese government and relevant authorities. Researchers have defined that the Chinese government has played an important role in CSR practices and reporting (Lin, 2010). In last decade, CSR advocates were glad to see improvement in CSR initiatives. The first public initiatives reflecting CSR conceptions was the 1994 Company Law. However, the 1994 Company Law did not apparently refer to CSR in detail, but it concerned some aspects of CSR, specifically related to the rights of employees in the company. It indicates the role of employees and requires companies to protect the advisory status of employees in the corporate decision-making process. Particularly, as

stated in Article 52 and Article 121, companies need to develop connections with trade unions and employees when proceeding with decisions regarding employee wage, welfare, and safe product processes. Companies are also required to invite employee representatives to participate in corresponding meetings (Chinese Company Law, 1994). Because of only one-sided views in labor relations, the 1994 Company Law was under criticism due to the incapacity to deal with the fast growth of the Chinese economy. The 2006 Company Law was launched and provides more explicit recognition of CSR. Article 5 indicates that "the company is obligated to comply with law and regulations, conform to social morality and business ethics, act in good faith, under the government and public supervision as well as undertake social responsibility" (Chinese Company Law, 2006). Further, the 2006 Company Law also requires companies to improve labor rights in corporate governance. The importance of labor protection was also highlighted in terms of employees' wages, work hours, welfare, insurance, and labor safety (Chinese Company Law, 2006).

Regarding the general principles of CSR in China, in 2008 SASAC published the "Guidance for Social Responsibility Implementation for the State-Owned Enterprise," controlled by the Central Government. It suggests that the Guide Opinion is a critical legal document clarifying the attitude of central authority with respect to CSR. There were roughly 150 state-owned enterprises subject to the Guide Opinion in 2008, and these companies were large in size, most of them listed on the SHSE and SZSE. Accordingly, it has been regarded as an important CSR regulation in China. The guideline has four parts related to CSR concepts and practices. The first part particularly explains the importance of CSR, while the second part tries to interpret the principles of CSR application. The third part concerns the major issues of CSR for the central-government-controlled state-owned enterprises. The last part regards the measurement of CSR implementation (SASAC, 2008). In a word, the guideline fundamentally contains most of the common topics that emerge in the international CSR standards.

On the other hand, CSR reporting has been exposed on the spotlight. In the mature economies, companies generally compulsorily report their social and

environmental performance to relevant stakeholders. In China, SEPA been working toward corporate environmental disclosure since 2007. This regulation requires heavily polluting enterprises to report their environmental information to society. In addition, the SZSE and SHSE have also launched guidelines of CSR disclosure for listed companies. The SZSE released the guide for social responsibility in 2006 and requires companies to achieve both economic and social sustainable development. By the end of April 2007, there were 20 listed companies on the SZSE releasing separate CSR reports via corporate websites. Further, the SHSE began to be involved in CSR reporting initiatives in 2008, by launching a guide on environmental information disclosure. In December 2008, SHSE continued to advocate for the development of CSR reporting and requires the following three types of listed companies to compulsorily release CSR reporting annually: the companies are listed in Corporate Governance Index, listed in both China and the overseas market at the same time, or belong to the financial industry. In the fiscal year for 2008, there were 290 listed companies issuing CSR reports. There were 258 CSR reports compulsorily disclosed, and the remaining 32 companies issued the report voluntarily. According to the latest statistics from SHSE in 2018, there were 797 listed companies that released CSR report and about 35.93% of them are voluntary disclosure (SHSE, 2018).

2.6 CSR in Chinese Pharmaceutical Companies

CSR perception practices have been emphasized by pharmaceutical companies in the last two decades (Esteban, 2008). Accompanied by the increasing demand for high-quality drugs and reliable medical services, the pharmaceutical industry is undertaking difficult challenges economically and politically in the global market (Smith, 2008). Due to investments and resources allocated to R&D and promotional activities (Porter, 1996), pharmaceutical companies feel pressures to effectively assign resources to CSR practices. In addition, external stakeholders deliver more concerns about the legitimacy of companies' day-to-day operations. Pharmaceutical companies are obligated to take CSR into consideration within their

strategic decision making (Wang & Xu, 2011).

The public expects pharmaceutical companies to provide drug-related products and services of higher quality. Critically, medication is directly associated with people's fitness. The importance of medication, the popularity of environmentalism, the globalization of business and the increase in buyer power has also led to the emergence of CSR (Lin et al., 2011). Accordingly, by pharmaceutical companies engaging in CSR strategies, they can realize benefits such as the improving their community goodwill and corporate image, as well as attracting CSR-related investors (Smith, 2008). Consequently, pharmaceutical companies have been recognized as critical carriers of CSR issues (Knoepfel, 2001). The previous research on CSR issues in the pharmaceutical industry includes the reduction of prices in HIV/AIDS medication, the low purchasing power of patients in poverty (De George, 2005), the reallocation of resources for tropical diseases (Leisinger, 2005), and the safety of drug-related products (Lin et al., 2011).

Chinese pharmaceutical companies have also emphasized the importance of CSR. According to the data provided by Hexun professional CSR rating agency, the pharmaceutical industry has been rated one of the top in CSR performance among all manufacturing industries in 2017 (Hexun, 2018). Further, the "Guidelines of CSR Practices for Chinese Pharmaceutical Companies" was released by the Chinese Pharmaceutical Enterprise Association (CPEA) in September 2017 (CPEA, 2018), to direct companies in better understanding the benefits of CSR and to provide guidance for CSR activities.

From Wang and Xu (2011)'s perspective, CSR receives increasing attention from various stakeholders for the following reasons:

(1) The first reason is about responsibility for product quality. The quality of drug-related products and services corresponds to human health, which is critical in the public's eyes. This responsibility includes the reliability of drug information disclosure and the safety of product treatments. Pharmaceutical companies should take care of low-income groups by providing high-quality products at low prices.

(2) The second reason is concerned with responsibility toward the supply chain. Pharmaceutical companies should ensure the safety and quality of raw materials put into the manufacturing process. Additionally, the safety and the reliability of the R&D process should also be taken into consideration.

(3) The third reason regards responsibility toward advertising. Advertising for drug-related products and services should be reliable and not over-advocating. Pharmaceutical companies should also supervise and control products' promotional activities.

(4) The fourth reason relates to responsibility towards health education. Pharmaceutical companies are obligated to educate local communities for disease prevention and the safe use of drugs. In addition, pharmaceutical companies need to intensify collaboration with local groups and associations in terms of health training.

(5) The fifth reason is responsibility toward recycling of expired drugs. Expired drugs have strong side effects that may be harmful to human health and the local environment. It is essential for pharmaceutical companies to establish an effective supervisory system to control recalls for medications as well as disposal of outdated drugs.

(6) The last reason is concerned with responsibility toward clinical and trial control. The pharmaceutical company should deliver clinical and trial tests in safe ways and supervise medical tests before the new launch of drug-related product and services.

In the last 10 years, there have been several critical accidents with drug-related products or services in China. Table 2-1 illustrates the accidents for China's pharmaceutical companies between 2006 and 2017.

Table 2-1 Accidents with drug-related products in China, 2006–2017

Date	Accident	Consequence
2017.12	Misleading advertising for eyedrops by SPAS	There was a significant drop in share price by 40% within a week.
2016.03	Injurious vaccine made by an illegal	Vaccines spread over 10 provinces,

	medical factory in the Shandong Province	and some children were infected.
2014.08	Counterfeit drugs to treat diabetes manufactured in the Henan Province.	Some patients were affected.
2013.12	Injurious vaccine from Kangtai Pharma in the Guangdong Province.	Seven newborn babies died, suspected to be related to the vaccine.
2012.04	Toxic capsules made by Hengtai Pharma in the Jiangsu Province.	Thirteen batches of capsules had excessive chromium.
2011.06	Plasticizer accident in Taiwan.	It spread to 294 companies and a total of 973 different products.
2009.02	Poor quality of Coptis chinensis injection in the Heilongjiang Province.	One death was reported in the accident.
2008.10	Injurious vaccine made by Huawei Pharma in the Shanxi Province.	One death was reported in the accident.
2006.05	Visible particles existed in glucose and sodium chloride injections in the Hebei Province.	Nine patients were affected. and adverse reactions occurred.

Source: Website of China Food and Drug Administration (2018)

2.7 Evaluation of CSR

There are various evaluation tools to measure the performance of CSR, such as CSR questionnaire surveys, content analysis, data on costs of CSR activities, reputation assessments and professional CSR ratings provided by agencies (Weber, 2008). Soana (2011) stated that different measurements delivered in CSR studies produce different findings on the nature of the relationship between CSR and firm performance.

Questionnaire surveys are normally completed by respondents who are various groups or individual stakeholders. The questionnaires are designed based on

stakeholders' perceptions about how the company performs its social responsibility. One of the representative questionnaires was designed according to Carroll's (1979) four-dimensional model (Aupperle, Carroll, & Hatfield, 1985). Regarding CSR questionnaires in China, Chen and Wang (2011) developed a CSR questionnaire for senior executives at Guangdong Enterprises, by investigating their manner towards CSR conception and practices. However, the CSR questionnaire was only concerned with respondents' attitudes about CSR issues, and it did not examine CSR practices conducted by the company. There is also some criticism of the questionnaire method because it is too subjective, collecting personal opinions from the respondents, which produces bias (Fan, 2011; Lange & Washburn, 2012).

Previous studies have implemented content analysis to measure CSR performance. Content analysis is a method for codifying the context of a piece of description into several groups or categories depending on the elected criteria (Wiseman, 1982). Wiseman's study developed 18 index items to measure quality of environmental disclosure. The items are classified into four different categories: economic factors, environmental litigation, pollution abatement items, and other environmentally related items. This procedure of rating is mainly based on both the presence or absence and the degree of specificity of the information provided. The score ranges from 0 to 3 depending, on the quality of information. A score of three means the information is presented in monetary or quantitative terms. A score of two means there are non-quantitative terms. A score of one means the information is mentioned only in general terms. A zero means no information is reported in the disclosure (Wiseman, 1982). However, the lack of validity of content analysis in terms of published corporate information may lead to the main limitation of being less widely used in CSR evaluation (Soana, 2011).

Reputation assessment has been regarded as a subjective ranking method to evaluate the performance of CSR based on professional reputation. (Weber, 2008). Fortune assesses a corporate reputation as follows: management quality, innovation, product quality, long-term investment, attraction and retaining of talent, healthiness

level of the financial system, application of corporate assets and responsibility for community and environment. The main challenge for reputation measurement is that the perceived value of company is easily affected by a corporation's previous financial record, so there is a possibility of biased reputation-based rating (Soana, 2011).

In addition, CSR performance can be measured by the costs spent on CSR-related activities such as charitable donations and well as the investments in community (Soana, 2011). Prior scholars have defined that the costs of social activities can help companies to build a better image and decrease social pressures against companies (Weshah, Dahiyat, Awwad, & Hajjat, 2012). Brammer and Millington (2008) used charitable donations as the measure of CSR and test its association with risk-adjusted measures of market performance. Wang et al. (2008) also used the relationship between charitable giving and financial performance.

Prior scholars have also suggested that CSR can be measured by independent and professional CSR rating agencies. Kinder, Lydenberg, and Domini (KLD) is one of the most frequently cited sources of CSR in the literature (Harrison & Freeman, 1999). The KLD index combines CSR into several perspectives, including corporate governance, diversity, community, employee relations, environment, human rights and product safety. It covers most industries, and 650 enterprises are contained in the database including Standard & Poor's (S&P) 500 companies. Another widespread rating system is the DJSI, launched in 1999. It evaluates CSR in three dimensions including economy, society, and environment. Concerning China's CSR rating system, the Hexun database is one of the biggest CSR evaluation systems. It began to evaluate CSR performance in 2010 and categorizes CSR measurement into five perspectives: shareholder, employee, customer and supplier, environment, and society. The RKS rating system is another common CSR evaluating system in Chinese CSR studies. It is mainly concerned with the quality of CSR information disclosure.

Even though CSR ratings have been frequently used to study CSR over time, Chen and Delmas (2011) proposed that professional ratings may suffer from a lack of adaptability towards a specific industry or individual. Furthermore, they suggested that

the CSR factors need to be adjusted by assigning weights based on stakeholders' preferences. The equal weights of CSR factors are inappropriate because different stakeholders deliver various perceptions and preferences, and they are not constant over time (Chen & Delmas, 2011). Pan (2014) also stated that different groups of stakeholders have different perceived values for social responsibility. In this study, CSR is measured by a weighted average of CSR performance indicators, while the weight is specifically determined by how the company perceive the importance of specific groups of stakeholders.

2.8 Measurement of Firm Performance

Previous studies have used various measurements of company performance in CSR studies. Prior researchers suggested that three types of performance can be developed: market-based, accounting-based and perceptual-based measures (Orlitzky et al., 2003).

The market-based measures proposed that shareholders can be treated as primary stakeholders (Cochran & Wood, 1984). The stock market participants make decisions depending on their discretion of past, current, and future stock returns and risks. The bid-ask process in the stock market affects the market prices of the companies. Wahba (2007) used content analysis to evaluate CSR and examined its association with firm performance by using market-based measures such as stock returns and Tobin's Q.

Accounting-based measurements can reflect management's discretion about corporate policies and strategy and are not easily affected by the market. Therefore, they are less likely to have been manipulated by the outsiders of the company, contributing to internal decision-making and managerial performance. Scholars have suggested that these measurements have been widely used in evaluating corporate performances (Yoshikawa & Phan, 2003). Typical accounting-based measurements include a firm's return on assets (ROA), return on equity (ROE), or earnings per share

(EPS), which all reflect the internal efficiency of companies' operations (Orlitzky et al., 2003). Corchran and Wood (1984) evaluated company performance using accounting returns, including the ratio of operating earnings to assets, and the ratio of operating earnings to sales. Hart and Ahuja (1996) used ROA, ROE, and return on sales (ROS) to examine the association between firm performance and emission reduction. Waddock and Grave (1997) also applied ROA, ROE, and ROS as accounting-based measurements.

Perceptual-based measures are subject to individual or personal interpretation about the performance of the companies. It requires survey respondents to offer subjective evaluation about, for instance, the business' "soundness of financial position," "wise application of corporate assets," or "financial target achievement compared with competitors" (Cochran & Wood, 1984; Orlitzky et al., 2003).

Taken together, prior studies suggested that different types of firm performance including market-based, accounting-based, or perceptual-based measurement relates to different perspective of the company, and each of them is subject to particular biases (McGuire, Sundgren, & Schneeweis, 1988). Accounting-based measures are based on historical perspective of performance, and they are easily affected by managerial manipulation and different policies about accounting procedures (Branch, 1983). On the other hand, the problem of market-based measures also exists. Researchers suggested that market-based measures only concentrate on investors' estimations. They are not enough to measure the companies because they assume that companies are only affected by market factors and do not take internal business process into consideration (Ullmann, 1985). Instead, scholars simultaneously used different measurements to evaluate firm performance within the same study. For example, McGuire et al. (1988) used both accounting-based and market-based measures to examine the relationships between CSR and firm performance.

In this study, the evaluation of firm performance are developed by using both accounting-based measurements such as ROA, ROE, and EPS, and market-based measurements such as Tobin's Q. These two types of measurements are less subject to

individual limitation and bias.

2.9 The Relationship between CSR and Firm Performance

The study of the relationship between CSR and firm performance has emerged in the literature over the decades. Whether this relationship is positive, negative, or irrelevant is still undefined. A prior study clarified that between 1972 and 2002 there were 127 studies that empirically investigated the association between CSR and firm performance (Margolis & Walsh, 2003). Bragdon and Marlin (1972) and Moskowitz (1972) initially investigated the association. Almost half of empirical results indicate that the application of CSR positively affects firm performance. There are only seven studies indicating a negative association. Twenty-eight CSR studies show that the relationship is not significant, and 20 studies deliver mixed sets of findings (Margolis & Walsh, 2003). Different theories using the association between CSR and firm performance have led to different empirical findings. The theories explaining the motivation of CSR include principal-agent theory (Jensen & Meckling, 1976; Aupperle, Carroll & Hatfield, 1985), stakeholder theory (Freeman, 1984; Clarkson, 1995), resource-based views (Barney, 1991; Russo & Fouts, 1997) and legitimacy theory (Sethi, 1979; Dowling and Pfeffer, 1975; Suchman, 1995). The details of relevant theory are depicted in the following sections.

2.9.1 Principal-agent Theory

Principal-agent theory suggests that good social performance conducted by companies is not always beneficial for financial performance. Friedman (1970) indicated that the priority of business is to “use its resources and engage in activities that designed to increase its profit so long as it stays within the rules of the game” (Friedman, 1970: 126). Other prior scholars have also suggested that socially irresponsible companies have fewer direct costs and have higher profit than socially

responsive companies. Therefore, companies with poor CSR performance pay more attention to profit maximization and obtain competitive advantages compared to the companies with good CSR performance (Aupprele, Carroll, & Hatfield, 1985).

Specifically, the costs arising from socially responsible activities pose negative effects on firm performance (Ullmann, 1985; Barnett & Salomon, 2006). CSR activities also trigger agency costs which distract corporate resources such as products and facilities. Undoubtedly, it may waste lots of cash, time, and effort to deal with social or environmental activities (Wang et al, 2008). Prior literature has also pointed out that it increases human resource costs and administrative costs because some companies plan to establish independent departments to deal with the matters of CSR issues (Brammer & Millington, 2003; McWilliams & Siegal, 2001). Hillman and Keim (2001) proposed that the participation in socially responsible activities deliver negative effects on share value. Campbell (2007) also contended that the companies in weak financial positions and poor economic circumstances are less likely to conduct CSR practices.

Further, the criticism of performing CSR activities stemmed from the principal-agent paradigm (Jensen & Meckling, 1976). The principal-agent theory examines a situation where an individual or group engaged in an economic relationship provides authority to another individual or group to perform on their behalf. Combining principal-agent theory into CSR perspective, the deficiency of strong control from shareholders offer opportunities for managers to use corporate resources in their personal ways and pursue own goals, which are probably contradictory to the targets of shareholders (Navarro, 1988). Prior scholars have also indicated that managerial decisions about philanthropic activities enable many top managers to increase personal reputation or further a political career in a smooth way but damage the firm's performance (Friedman, 1970).

Accordingly, based on principal-agent theory, the relationship between CSR and firm performance is negative. The related empirical studies in examining the relationship in terms of principal-agent theory is shown in table 2-2.

2.9.2 Stakeholder Theory

Stakeholder theory suggests that the better the company manager is associated with various groups that have related interest, or "stake" in the company, the better firm performance may be (Freeman, 1984). Stakeholders are individuals or groups who influence or are influenced by companies' activities (Clarkson, 1995). Primary stakeholders include shareholders, investors, employees, customers, suppliers, governments, and communities that "offer infrastructures and market, whose laws and regulations must be obeyed, and to whom taxes and other obligations may be due" (Clarkson, 1995:106). Secondary stakeholders include media and special interest groups that are "not engaged in transactions with the corporation and are not essential to its survival" (Clarkson, 1995:107).

Donaldson and Preston (1995) defined that stakeholder theory can be divided into three different approaches: descriptive, instrumental, and normative. Concerning the descriptive stakeholder theory, it refers to understanding how the company administrates its relationship with various groups of stakeholders and how the managers represent stakeholders' interests. Thus, the descriptive stakeholder approach pays attention to how the company reacts in the interest of stakeholders. Regarding normative stakeholder theory, it focuses on the results of engaging stakeholders in business management and explores the association between the management of stakeholders and the achievement of corporate targets. Normative stakeholder theory figures out the theoretical procedures relating to corporate activity

Table 2-2 Prior studies on principal-agent theory

Author	Journal	Sample	Variable of CSR	Variable of Firm Performance	Methodology	Relationship
Hillman & Kelm (2001)	Strategic Management Journal	S&P 500 firms for the year of 1994, 1995, and 1996	KLD index	Market value-added (MVA)	Least square Regression	Negative
Brammer & Millington (2008)	Strategic Management Journal	537 firms from London Stock Exchange during 1990–1999	Charitable Donation	Risk-adjusted measures of market performance	Panel data analysis	Negative
Wang et al. (2008)	Organization Science	817 firms from COMPUSTAT during 1986–1999	Charitable Giving	ROA and Tobin's Q	Panel data analysis	Negative
Chan et al. (2016)	North American Journal of economics and Finance	All listed U.S. firms from MSCI, ESG, STAT database during 1992–2010	CSR performance in MSCI ESG index	KZ index and Altman's Z-Score	Panel data analysis	Negative

and emphasizes the moral and philosophical aspect of business.

Engaging in CSR activities helps companies to establish effective management of relationships with key stakeholders that can create, develop and maintain the connection to important resources (Wood & Jones, 1995). For example, recognizing and administrating key stakeholders by the companies that are able to relieve the possibility of negative regulatory and legislative actions. From the perspective of managing relationships with employees, it can deliver important influences on attracting, retaining, and motivating employees, therefore enhancing overall productivity and increasing profitability (Turban & Greening, 1997). Additionally, companies can receive revenue by differentiating products or services, attracting more socially customers (Maignan, Ferrell, & Hult, 2000). CSR activities can also attract potential investments from socially responsive investors because the companies with good CSR performance are easily lobbying for tax breaks from local government (Graves & Waddock, 1994). Consequently, managing good relationships with stakeholders of the companies can enhance financial performance (Wood & Jones, 1995; Laan, Ees, & Witteloostuijn, 2007; Cordeiro & Tewari, 2014).

Accordingly, based on stakeholder theory, the relationship between CSR and firm performance is positive. The related empirically studies in examining the relationship in terms of stakeholder theory is shown in table 2-3.

2.9.3 Resource-based View

In order to further investigate the relationship between CSR and firm performance based on stakeholder theory, prior scholars extended their outlook to a resource-based view (RBV) framework that tries to connect CSR issues to company resources (Surroca, Tribo & Waddock, 2010). The modern proposition of RBV is suggested by Edith Penrose, considering a company to be a “pool of resources” (Hodgson, 1998). It tries to examine the association between companies’ internal characteristics and their performance. The differences in companies’ performance can be explained by the specific resources the company has acquired (Barney, 1991).

Table 2-3 Prior studies on stakeholder theory

Author	Journal	Sample	Variable of CSR	Variable of Firm Performance	Methodology	Relationship
Maignan et al. (2000)	Academy of Marketing Science	210 questionnaires from members of the American Marketing Association	Corporate citizenship 5-point scale	ROA, ROI, profit growth, and sales growth	Confirmatory factor model and structural equation model	Positive
Barnett & Saloman (2006)	Strategic Management Journal	61 funds from SRI during 1972–2000	Number of screens by SRI	Average monthly return of SRI fund	Panel data analysis	Positive
Laan et al. (2007)	Journal of Business Ethics	S&P 500 firms during 1997–2002	Fortune Corporate Reputation Index and KLD index	ROA and EPS	Hierarchical Regression analysis	Positive
Cordeiro & Tewari (2013)	Journal of Business Ethics	Largest U.S. firm ranked by Newsweek on 2009	Green score ranked by Newsweek Green Rankings	Cumulative abnormal return (CAR)	Fama-French 3-factor model	Positive

According to the RBV, the differences between companies' performance are mainly caused by the way the companies allocate their resources. Resources are strengths that are hard to acquire, develop, or replicate by other competitors (Wernerfelt, 1984; Barney, 1991).

Resources are seen as basic elements that companies use to transform input to output and deliver services (Mathews, 2002). They can be categorized as tangible, which are physical and financial assets, or intangible, which include corporate reputation, knowledge, experiences. and skills of employees, as well as loyalty of customers. However, resources have no productive ability and can only be considered as a superior advantage of the company. It is important to extend this to corporate capability, in the ways the company manages and coordinates a series of resources (Russo & Fouts, 1997). In this circumstance, capabilities are used to describe the extent to which a company can apply resources to achieve corporate targets. Both corporate resources and capabilities, are used by the company to construct and deliver their strategies (Mathews, 2002).

Prior scholars have conducted research on the connection between CSR issues and RBV. The studies began with a concentration on environmental aspects (Hart, 1995; Russo & Fouts, 1997; Ann, Wayne & Rob, 2012; Tang, Hull & Rothenberg, 2012). One of the important studies is Hart's (Hart, 1995), which mainly focused on environmental performance and highlighted that RBV can explain the acquisition of competitive advantage by recognizing new resources because of improved environmental performance. Prior literature also indicated the mediating role of intangible resources within the association between CSR and firm performance. Surroca et al. (2010) uncovered four intangibles that play mediating roles including: innovation resources, human resources, reputation, and culture. Taking creative resources as an example, the ability to innovate new products, technologies, and marketable ideas is critical for a company to continue to be a concern in the future (Thomson & Heron, 2006). This is because innovation is difficult for other companies to replicate and become a source of competitive advantage (Russo & Fouts, 1997). CSR

practices help companies to differentiate their products through environmentally friendly or socially friendly ways, then help companies to be more advanced in the eyes of the public.

RBV can be devoted to CSR development by providing an important viewpoint on how it affects firm performance. Prior researchers have suggested that CSR helps companies develop new resources internally, such as human resources, including employees' motivation and commitment. In addition, there are also external benefits of CSR, such as acquiring corporate reputation. Improving relations with external actors, such as investors, customers, suppliers and the public help a company build a positive image with stakeholders (Orlitzky et al., 2003). Therefore, the acquisition of both internal and external resources through CSR activities can positively affect firm performance.

Accordingly, based on RBV, the relationship between CSR and firm performance is positive. The related empirically studies in examining the relationship in terms of RBV is shown in table 2-4.

2.9.4 Legitimacy Theory

Previous literature has defined that "legitimacy theory is a generalized conception or perception that the actions of corporation are desirable, proper, or appropriate within the social system of norms, values, beliefs and definitions" (Suchman, 1995, p. 574). It is suggested that top management try to reach consistency between corporate activities and the values of public and society (Dowling & Pfeffer, 1975; Lindblom, 1994). Previous scholars also have proposed that legitimacy theory provides insight into a social contract between the company and society. Corporate survival and sustainable development depend on the capability to offer benefits of economic, social, and political aspects to the groups that relate to the corporation (Sethi, 1979). Specifically, a legitimacy gap will exist if the organizational legitimacy is damaged by the distraction of organizational behaviors from social values (Sethi, 1979).

Table 2-4 Prior studies on RBV

Author	Journal	Sample	Variable of CSR	Variable of Firm Performance	Methodology	Relationship
Hart and Ahuja (1996)	Business Strategy and Environment	127 firms from S&P's 500 list of corporations in 1989	Emissions reduction (EMRED)	ROS, ROA and ROE	Multiple OLS regression analysis	Positive
Surroca et al. (2010)	Strategic Management Journal	599 firms from 28 countries in Compustat database	Sustainlytics measure of CSR	Average 3-year Tobin's Q	Panel data analysis	Positive
Ann et al. (2012)	Journal of Business Ethics	171 small and medium enterprises (SMEs) in Australian manufacturing industry by survey	Measured by 27 items in terms of CSR's perception of managers	Respondents' perception about ROA and net profit to sales on a 5-point scale	Structural equation modelling	Positive
Tang et al. (2012)	Journal of Management Studies	130 firms from ESG MSCI database during 1995–2007	CSR performance in MSCI ESG index	ROA	Panel data analysis	Positive

Gray, Kouhy, and Lavers (1995) suggested that the legitimacy process can be described as the activities of top management to convince public and society that the companies are socially responsible. Specifically, there are four wide legitimate strategies used by companies to secure organizational legitimacy: informing stakeholders about improvements in corporate performance, intending to change stakeholders' perception of events, decentralizing concerns away from issues, and altering external expectations about matters (Lindblom, 1994). Suchman (1995) summarized the legitimate strategies, including the processes of gaining, maintaining, and repairing.

Incorporating corporate legitimacy into CSR, legitimate activities help companies develop strategic value and build up better corporate images (McWilliams et al., 2006). CSR practices help companies obtain organizational legitimacy from society (Rupley et al., 2012). After acting legitimately in the eyes of the public, companies can demonstrate their social worthiness and then receive continued inflow of capital, labor, and customers (Pfeffer & Salancik, 1978). In addition, enhancing corporate legitimacy helps companies to arrive at the commitment of stakeholders, resulting in lower risk, employee satisfaction, social recognition, and long-term sustainability (Bansal & Roth, 2000). Compliance with social expectations can safeguard some space for the freedom of action in pursing profit (Kuznetsov, Kuznetsova, & Warren, 2009). Therefore, legitimate practices assist the company to reach the improvement of firm performance (Haniffa & Cooke, 2005; Magness, 2006; Rupley et al., 2012).

Accordingly, based on legitimacy theory, the relationship between CSR and firm performance is positive. The related empirical studies examining the relationship in terms of legitimacy theory is shown in table 2-5.

Table 2-5 Prior studies on legitimacy theory

Author	Journal	Sample	Variable of CSR	Variable of Firm Performance	Methodology	Relationship
Haniffa & Cooke (2005)	Journal of Accounting Public Policy	160 firms from Kuala Lumpur Stock Exchange (KLSE) in 1996, 139 firms from KLSE in 2002	Corporate social disclosure index	ROE	Least square regression	Positive
Magness (2006)	Accounting, Auditing & Accountability Journal	44 listed Canadian companies in mining industry in 1995	Seven-point scoring factor for environmental disclosure	ROA	Least square regression	Positive
Rupley et al. (2012)	Journal of Accounting Public Policy	127 firms from Toxic Release Inventory (TRI) database	Environmental disclosure based on GRI	ROA	Panel data analysis	Positive

2.9.5 Conclusion

Different theories have been used to explain the association between CSR and firm performance (Margolis & Walsh, 2003). Stakeholder theory is used to explain a situation in which CSR helps companies build up and effectively manage relationships with key groups of stakeholders, including employees, customers, suppliers, government, and communities (Roberts, 1992; Liu & Anbumozhi, 2009), and sound associations with stakeholders provide possibilities for the companies to create, develop, and maintain important resources (Wood & Jones, 1995). In addition, improvement in the relationship positively affects stakeholders' decision making about potential investment, satisfaction, and product differentiation. Based on RBV (Barney, 1991), companies can be seen as the combination of different resources. Differences in firm performance can be explained by different resources obtained by companies (Barney, 1991). CSR practices help companies to develop both internal resources, such as human resources, and external resources such as reputation (Orlitzky et al., 2003). The resources are the strengths that are difficult for competitors to replicate (Wernerfelt, 1984; Barney, 1991) and are regarded as a source of competitive advantage (Russo & Fouts, 1997; Surroca et al., 2010). According to legitimacy theory (Sethi, 1979), the social contract between the company and society is highlighted by the explanation of corporate actions which are desirable, proper, or appropriate within the norms, values, and beliefs in the social system (Suchman, 1995). CSR activities can secure organizational legitimacy in the eyes of the public (Rupley et al, 2012) and help companies to develop better corporate images (McWilliams et al., 2006). The social worthiness and commitment of stakeholders as well as long-term sustainability can also be acquired by corporate performance in compliance with social expectations (Bansal & Roth, 2000).

Thus, the theories including stakeholder theory, RBV, and legitimacy theory provide points of view that CSR positively impacts on firm performance. However, principal-agent theory (Jensen & Meckling, 1976) releases a contradictory perspective about the engagement of CSR. This theory suggests that the absence of strong control

from shareholders can offer opportunities for managers to apply corporate resources in their personal ways. Thus, the pursuit of personal goals increases possibilities, contrary to shareholders' targets (Navarro, 1988). Philanthropic activities such as charitable donations enable top managers to increase their personal reputation as well as smooth the way for future political careers. (Friedman, 1970). Concerning agency costs, CSR practices trigger expenditures which consume corporate resources (Hillman & Keim; Campbell, 2007). Prior researchers also pointed out that the costs spent on CSR practices are large at the beginning stages (Russo & Fouts, 1997). Thus, principal-agent theory offers a contrasting point of view to other theories.

Taken together, the conclusion of different theories in explaining the relationship between CSR and firm performance is shown in figure 2-5.

2.10 Summary

This chapter offers the logic behind corporate engagement of CSR. Section 2.2 defines the concept of CSR, including the point of view from academia and international organizations such as WBCSD (WBCSD, 1998) and the European Commission (European Commission, 2001).

The evolution of CSR from the 1950s to the twenty-first century is further described in Section 2.3. Literature shows that CSR is developed under in stages, including philanthropy-oriented (Smith, 1759), ethical awareness (Bowen, 1953), shareholder-oriented (Friedman, 1970), stakeholder model (Freeman, 1984), triple-bottom-line perspective (Elkington, 1997), and strategy-oriented (McWilliams & Siegel, 2001).

Section 2.4 discusses the importance of CSR perception and practices in emerging economies. The immature development of CSR in developing countries leaves room for potential improvements (Visser, 2006).

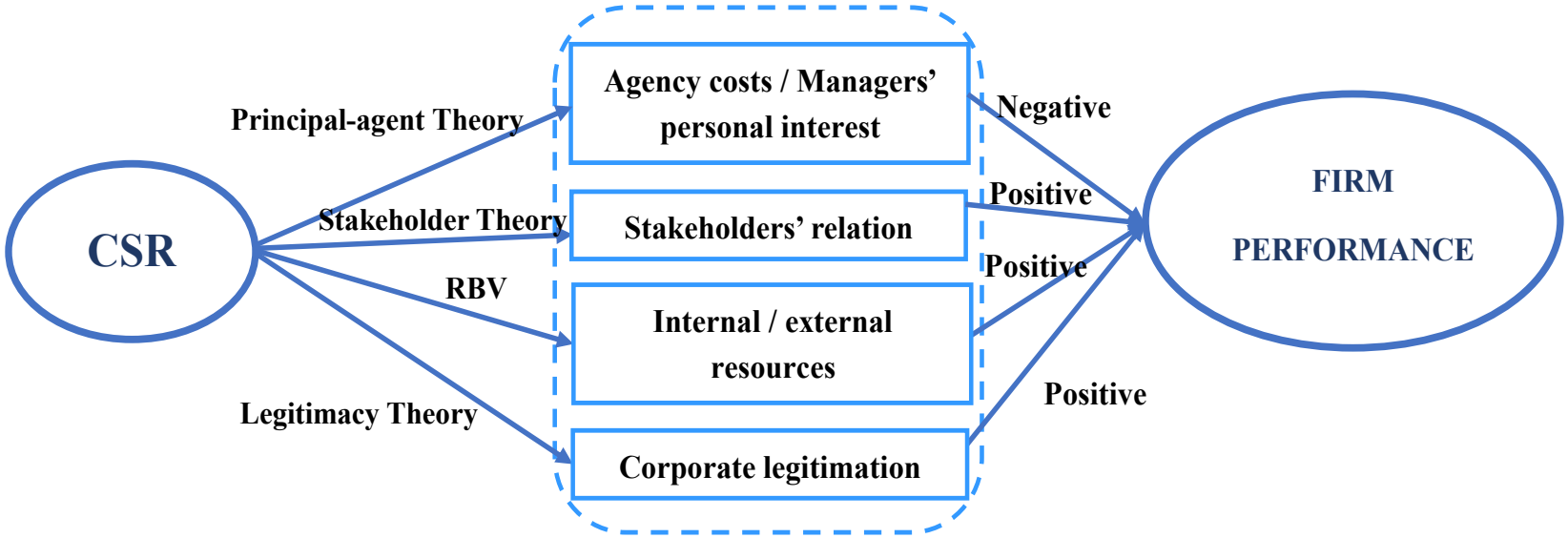

Figure 2-5 Theories on relationship between CSR and firm performance

Section 2.5 introduces the development of CSR in China. As the biggest emerging economy, China is struggling with CSR advancement (Li, 2008). Through reviewing Chinese CSR studies, it can be seen that the public has ever-higher expectations of CSR performance. The Chinese government has also actively taken part in CSR promotional activities (Lin, 2010).

The necessity of CSR implementation for pharmaceutical companies is discussed in Section 2.6. It highlights that the public is critically concerned with quality of medication, safety of supply chain and expired drugs, legitimacy of advertisement, promotion of health education, and reliability of trial control (Wang & Xu, 2011).

Section 2. 7 discusses the evaluation of CSR. It shows that professional CSR ratings by independent agencies is frequently applied in prior CSR studies (Chen & Delmas, 2011).

The measurements of firm performance are depicted in Section 2.8, finding that simultaneously applying both accounting-based measures such as ROA, ROE, and market-based measures such as Tobin's Q in the same study is beneficial because of reduced bias (McGuire et al., 1988).

Section 2.9 reviews the relationship between CSR and firm performance based on the outlines of different theories, including principal-agent theory, stakeholder theory, RBV, and legitimacy theory. The association is negative only in terms of principal-agent theory (Brammer & Millington, 2008), while other theories provide evidence of a positive relationship (Maignan et al., 2000; Surroca et al., 2010).

In conclusion, this chapter finds that CSR is a widely accepted concept and viewed as a key component in managers' decision making. Firm performance is affected by corporate engagement in CSR practices. This chapter also offers a theoretical basis for further development of hypotheses in next chapter.

Chapter 3: Hypotheses and Conceptual Model

3.1 Introduction

As discussed in earlier chapters, the relationship between CSR and firm performance has not sufficiently been investigated in emerging economies. This study intends to study this relationship by developing a suitable framework for Chinese context and establish an adaptive CSR measuring system to evaluate CSR practices for Chinese pharmaceutical companies.

The sections of Chapter 3 are organized in the following ways. Section 3.2 presents the use of stakeholder theory in order to identify relevant groups of stakeholders for Chinese pharmaceutical companies. The CSR measuring system in the context of Chinese circumstance is developed in Section 3.3. In Section 3.4, two hypotheses are demonstrated on the basis of stakeholder theory. The conceptual framework of this study is developed in Section 3.5. The last section summarizes the chapter.

3.2 Stakeholder Approach to Pharmaceutical's CSR

3.2.1 The Definition of Stakeholder Theory

The stakeholder approach began from the mid-1980s (Freeman, 1984). The traditional groups of related parties only include internal stakeholders of the company, such as shareholders and employees, which are not considered to be comprehensive by Freeman. He provided a new form of stakeholders by taking external groups of parties into consideration, such as local communities, society, and the environment. Therefore, stakeholder theory provides a new perspective for organizing thinking about corporate responsibilities. The proposition required the company to not only seek maximization of shareholder interests, but also to satisfy the needs of other stakeholders. Clarkson

(1995) added that the most important perspective of stakeholder theory is to figure out who the stakeholders of an organization are and how the organization fulfils their responsibility to them. It is suggested that these stakeholders are critical to the company because their potential investments are subject to how the company manages and maintains relations with them.

Concerning the definition of stakeholder theory, international organizations such as WBCSD (1998) create explanations for stakeholders, which are the groups including stockholders, workers, customers, suppliers, community, legislators, representatives from labor organizations, human rights groups, government, and non-governmental organizations (NGOs).

Cannon (1994) listed the groups and individuals of stakeholders and proposed stakeholders' primary and secondary expectations. The primary and secondary expectations of stakeholders are shown in table 3-1.

Table 3-1 Stakeholders' primary and secondary expectations

Stakeholder	Primary Expectations	Secondary Expectations
Shareholders	Economic	Added value
Employees	Remuneration	Training, satisfaction
Customers	Goods and services provided	Quality
Creditors	Reliability	Security
Suppliers	Payment	Long-term relationship
Community	Safety and security	Development of community
Government	Compliance of regulation	Improved competitiveness

Source: Cannon (1994)

3.2.2 The Classification of Stakeholder Theory

Donaldson and Preston (1995) suggested that it is possible to develop different ways to explain stakeholder theory. They classified three types of stakeholders, with descriptive, instrumental, and normative approaches. The following parts discuss

the concept and feature of each type of stakeholder theory.

3.2.2.1 Descriptive Stakeholder Theory

The aim of descriptive stakeholder theory is to understand how the company manages its relationship with stakeholders and how the managers represent stakeholders' interests. It focuses on how the company reacts to various stakeholder interests, by achieving different kinds of corporate goals. Donaldson and Preston (1995) pointed out that descriptive stakeholder theory can be used to describe the nature of the company, the pattern managers consider for administrating, how the board members believe in the interest of corporate policies, and how the company is physically managed.

3.2.2.2 Instrumental Stakeholder Theory

Instrumental stakeholder theory is used to investigate the organizational consequences of considering stakeholders in management, by exploring the connection between the practice of stakeholder management and the fulfillment of different corporate objectives, such as profitability and sustainable growth. It also suggests that stakeholder theory can be involved in part of corporate strategy, and stakeholders' value can be maximized in case of corporate concerns with key stakeholders' relationships (Donaldson & Preston, 1995).

3.2.2.3 Normative stakeholder theory

Donaldson and Preston (1995) suggested that the normative approach is the core of stakeholder theory because it identifies the theoretical procedure associated with corporate activities. The normative approach focuses on the moral and philosophical aspects and tries to answer questions such as, "what are the corporate responsibilities in term of stakeholders," and "why do companies not just pay attention to shareholders' interests, but also take care of the interests of other stakeholders?"

3.2.3 The Development of Stakeholder Theory

Before the 1960s, U.S. companies emphasized the importance of shareholders' interests and regarded the maximization of responsibility to shareholders as a priority. At the beginning of the 1960s, organizations began to consider the activities of customers along with environmental protection. This brought out increasing concerns about regulating corporate activities and can be seen as a period of enlightenment for stakeholder management. At that time, people began to be concerned with product quality, human rights, and labor relationships.

Freeman (1984) suggested the decision makers in the organization should take both shareholders and stakeholders into account. Additionally, Clarkson (1995) claimed that groups of stakeholders can be categorized as primary and secondary. He proposed that the primary stakeholders are those internal parties of the company, including employees, customers, and shareholders. The secondary stakeholders are external parties, such as society, religious organizations, and other NGOs. Eesley and Lenox (2006) further developed clarifications about secondary stakeholders. They considered that stakeholders should not be neglected because their actions are closely linked to resources and competitiveness. Wood (2010) also raised a suggestion that the company needs to recognize its responsibilities by fulfilling the expectations from stakeholders and contributing to a socially responsible mission. Wood also provided a viewpoint that it is essential to develop appropriate social controls to encourage the widespread positive effects of stakeholder theory.

3.2.4 Stakeholder Perspective of CSR

Based on the modern perspective of CSR and stakeholder theory, companies are required to take the interests of all parties into account and consider not only shareholders' interest. Instead, the way companies involve the employees, customers, suppliers, society, government, and other organizations is a key feature to succeed as a going-concern (Weiss, 2008). Socially responsible activities help companies improve relationships with different groups of stakeholders that potentially provide benefits for the company. Poor CSR performance leads to large penalties such as the collapse of

corporate reputation, reduced productivity, reduced customer loyalty, and ineffective information dissemination (Weiss, 2008).

A stakeholder approach has been commonly applied in prior CSR studies (Wood, 1991; Clarkson, 1995; Wood & Jones, 1995; Maignan et al., 1999; Barnett & Salomon, 2006). Wood (1991) developed a point of view that stakeholders are likely to evaluate CSR in different ways, depending on not only the matters in which they are interested, but also the "stakeholder-company" relationship that managers intend to maintain. Clarkson (1991) firstly conducted an empirical examination of CSR by using stakeholder model. He also extended stakeholder-based CSR research into a clear classification between primary stakeholders and secondary stakeholders (Clarkson, 1995). Wood and Jones (1995) implemented a stakeholder framework to review empirical literature on corporate social performance and discovered that different kinds of stakeholders deliver different expectations of CSR and offer different types of personal behaviors.

In order to examine CSR for listed pharmaceutical companies in China and construct an appropriate CSR measuring system, it is important to identify adaptive groups of stakeholders and evaluate CSR performance on how the company reacts to individuals or groups (Pan et al., 2014). Because of this, the measurement of CSR performance in this study is developed in terms of stakeholder theory.

3.2.5 Identifying Stakeholders for Pharmaceutical Companies

There are various CSR evaluation tools providing guidelines for CSR practices or their information disclosure based on stakeholder perspective. These guidelines help to identify relevant groups of stakeholders. One of the internationally applied CSR evaluation systems is the KLD, which has offered CSR data since 1990 and is regarded as the most frequently cited source of previous empirical CSR studies (Harrison & Freeman, 1999). KLD divides CSR into five perspectives of stakeholders: community, diversity, employee relations, environment, and product.

In addition, an international independent standards organization called GRI has

pioneered corporate sustainability reporting since 1997. It is the first and most widely applied global standard for CSR reporting. The new version of GRI is GRI 4.0 (GRI, 2014), which develops the framework with a multi stakeholder perspective and provides deeper clarifications of CSR perceptions and practices. According to the guidelines of the GRI 4.0 standard, it divides CSR practices into six dimensions: economy, environment, labor, human rights, society, and product safety (GRI, 2014).

Concerning Chinese CSR measurement systems, one of the biggest professional CSR rating systems is the Hexun, which began to evaluate CSR practices and information disclosure for listed companies in 2010. It is regarded as the first professional CSR rating system in mainland China and categorizes CSR into five different dimensions according to stakeholder perspective: shareholder, employee, customer and supplier, environment, and society (Hexun CSR Database, 2010).

Taken together, table 3-2 summarizes the groups of stakeholders identified by different sources of adapted CSR evaluation tools.

Table 3-2 Summary of identified stakeholders in adapted CSR evaluation

	Shareholder	Environment	Employee	Human Right	Society	Customer and Suppliers
KLD		√	√		√	√
GRI4.0	√	√	√	√	√	√
Hexun	√	√	√		√	√

Based on above identifications of stakeholders, as well as the stakeholder's framework proposed by Freeman (1984) mentioned in Section 3.2.1, it is possible to identify the relevant groups of stakeholders for China's pharmaceutical companies as follows:

(1) The first corresponding group of stakeholders regards shareholders. Shareholders are likely to see a sound corporate governance by providing clear rules and procedures for decision making about corporate strategies. Shareholders also claim to have higher returns of investment. Companies are expected to release a competitive

policy of dividend payout. Shareholders are also concerned with high-quality corporate disclosure in terms of corporate governance, financial performance, and CSR (Pan et al., 2014).

(2) The second corresponding group of stakeholders is concerned with employees. The responsibility of taking care of employees includes ensuring their occupational health and safety in the workplace, and delivering training and education. It is important for pharmaceutical companies to construct effective systems in supervising and controlling employees' health because of the occupational risks present during R&D, manufacturing, and the recycling process (Lin et al., 2011). In addition, pharmaceutical companies are expected to provide continuous education in terms of medication. Further, employees claim to have competitive salaries and good welfare (Lin et al., 2011).

(3) The third corresponding group of stakeholders is related to customers and suppliers. Pharmaceutical companies are expected to provide high-quality medications because drugs are directly associated with human life and health (Smith, 2008). It is necessary for pharmaceutical companies to regard safety of medication as a priority and ensure the processes of medication manufacture are done in the light of CFDA regulations. Concerning suppliers, the poor quality of raw materials significantly damages the safety of finished medications (Lin et al., 2011). Pharmaceutical companies should take care of the safety of raw materials and treat their suppliers in fair and equitable ways.

(4) The fourth corresponding group of stakeholders is concerned with the environment. Pharmaceutical companies are expected to protect the environment from both global and local perspectives (Smith, 2008). Some parts of medication are excreted and entered into waterways, posing a potential risk to the local environment. Pharmaceuticals also negatively impact on the environment by excessive disposals and discharges (Lin et al., 2011). It is important for companies to assess adverse effects and pay more attention to environmental protection. Any unused medicine and expired medication should also be treated in careful ways.

(5) The fifth corresponding group of stakeholders regards society. Pharmaceutical companies are expected to commit to improvement of the local community and the health of local residents. Pharmaceutical companies are also expected to perform as social citizens by promoting health-care education and actively donating in terms of medication or health-care development (Lin et al., 2011).

Taken together, figure 3-1 illustrates the groups of stakeholders for Chinese pharmaceutical companies.

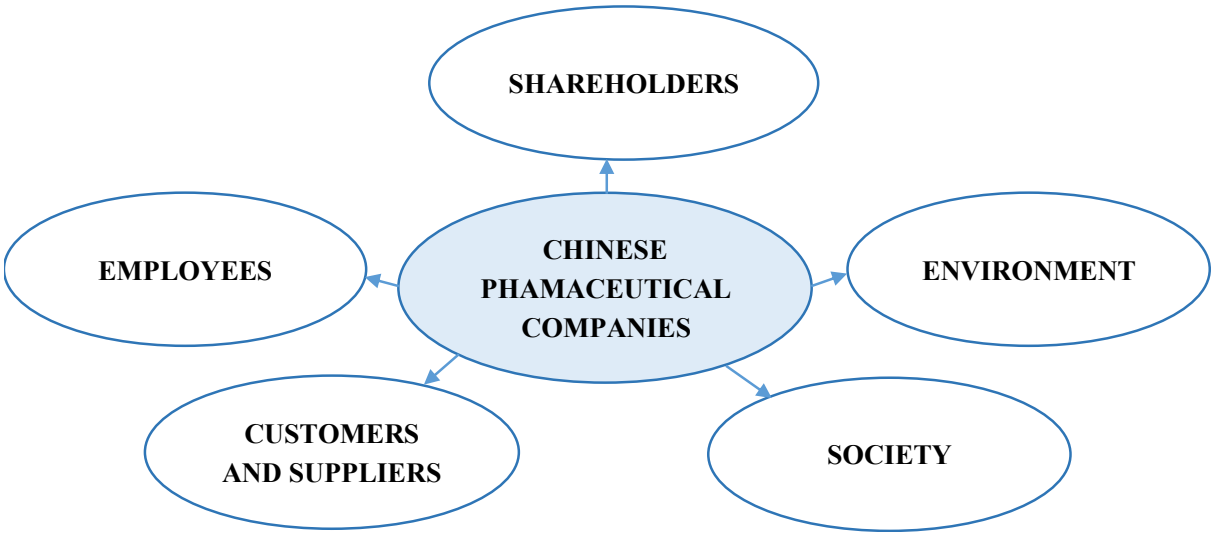

Figure 3-1 The groups of stakeholders for Chinese pharmaceutical companies

3.3 Establishment of CSR Measuring System

Based on the exploration of stakeholders for Chinese pharmaceutical companies, the measurement of CSR can be established. The measuring system is illustrated with three parts: selecting indicators of CSR performance, determining the weights of calculation, and forming the measuring system.

3.3.1 Selecting Indicators of CSR Performance

The indicators of CSR performance are selected based on Hexun's CSR measuring framework (Hexun CSR Database, 2010). The Hexun CSR rating system is one of the biggest independent CSR rating systems in China, providing professional CSR data for Chinese listed companies for a relatively long period of time (Pan et al.,

2014). It provides a total of 38 indicators to evaluate CSR performance based on the perspective of different groups of stakeholders. The performance of stakeholders' responsibility is divided into five groups, including shareholders, employees, customers and suppliers, the environment, and society (Hexun CSR Database, 2010)

Because of the wide implementation of the Hexun rating system in Chinese CSR (Lin et al., 2011; Pan et al., 2014), this study constructs 38 indicators that are consistent with Hexun's framework for CSR measurements. Table 3-3 presents the framework for measuring CSR performance based on the Hexun rating system.

3.3.2 Determining the Weight of Calculation

After the selection of indicators of CSR performance, this section attempts to weight components in order to organize the overall value of CSR. Weights are assigned to different groups of stakeholders based on the discussion of stakeholders' framework in Section 3.2.5.

An expert scoring method is applied (Pan et al., 2014) to organize the CSR measurement system. This method used for data collection consists of two rounds. In the first round, 20 experts who worked as managers in Chinese pharmaceutical companies were asked to give a score within a five-point scale framework according to their perceptions of how important it is that stakeholders' responsibility be fulfilled by the company. The spectrum of the score is from one to five, implying that the minimum (one) score represents strongly unconcerned with stakeholders' responsibility, while the maximum (five) score represents strongly concerned with stakeholders' responsibility.

Figure 3-2 represents the procedure of expert scoring method for CSR measurement.

Table 3-3 Framework for measuring CSR performance by Hexun

HEXUN'S FRAMEWORK OF CSR PERFORMANCE EVALUATION

Shareholder 100%					**Employee 100%**			**Customer and Supplier 100%**			**Environment 100%**	**Society 100%**
Profitability (33%)	**Debt Paying (10%)**	**Returns (27%)**	**Penalty (17%)**	**Creativity (13%)**	**Performance (33%)**	**Safety (33%)**	**Caring for Employees (34%)**	**Quality of Product (47%)**	**Customer Services (20%)**	**Fair and Anti-Bribery (33%)**	**Environmental Management (100%)**	**Social Investment (100%)**
Return on Equity (ROE) (7%)	Quick Ratio (1.5%)	Dividends /Financing Ratio (7%)	Number of Penalty by Stock Exchange (17%)	Product's Research and Development (R&D) (3%)	Per Employee Income (26%)	Periodic Safety Check (13%)	Policy of Caring (8%)	Policy of Quality Management (20%)	Customer Satisfaction (20%)	Fair Competition for Suppliers (20%)	Policy of Environmental Protection (10%)	Rate paying (50%)
Return of Assets (ROA) (7%)	Current Ratio (1.5%)	Dividends Yield (10%)		Creativity of Technology (3%)	Training for Employees (7%)	Safety Training (20%)	Number of Caring (13%)	Quality Management System (27%)		Training and Anti-Bribery (13%)	Environmental Management System (15%)	The Amount of Donation (50%)
Return on Sales (ROS) (7%)	Cash Ratio (1.5%)	Dividends/Distributed Profit Ratio (10%)		Number of Technological Programs in Creativity (7%)			Amount Spent for Caring (13%)				Amount Invested in Environmental Protection (25%)	
Return of Expenses (3%)	Equity Ratio (1.5%)										Control of Pollution Discharge (25%)	
Earnings per Share (EPS) (7%)	Assets/Liabilities Ratio (4%)										Applied Types of Green Energy (25%)	
Undistributed Profit per Share (2%)												

Source: Hexun CSR Database (2010)

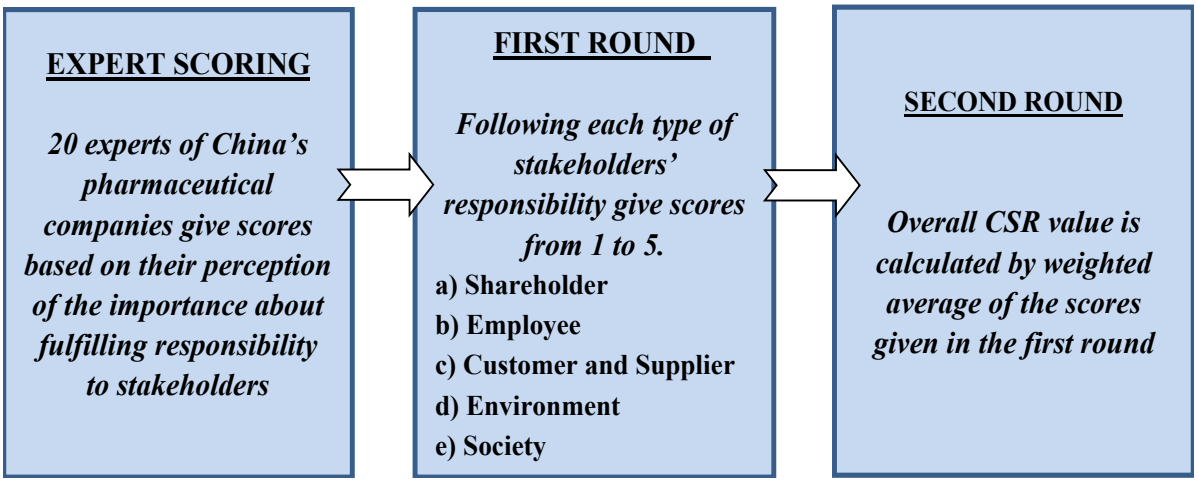

Figure 3-2 The procedure of expert scoring for CSR measurement

The experts scoring method is conducted by questionnaires sent to 20 experts. The pattern meets the Likert scale format, which is the most widely used approach in survey research (Allen & Seaman, 2007). The specific format of CSR questionnaire is presented in table 3-4.

Twenty respondents are the experts from Chinese pharmaceutical companies, including top and middle management as well as supervisors. The appointed pharmaceutical companies contain both state-owned enterprises and private companies, either listed or not listed in Chinese stock exchanges. The categories of information about respondents is shown in table 3-5.

The source of questionnaires is Sojump, which is one of the popular online-questionnaire tools in China. Questionnaires were sent to respondents via WeChat, which is the biggest and most widespread social software. All 20 respondents from China's pharmaceutical companies replied to the online questionnaires promptly, and no missing data and unreasonable information have been found. After the data were collected, a second round could be conducted by calculating the weights of stakeholders' dimension. Table 3-6 presents the details of calculation.

Table 3-4 Format of the CSR questionnaire

Stakeholders' Dimension	Strongly Unconcerned (Score 1)	Unconcerned (Score 2)	Neutral (Score 3)	Concerned (Score 4)	Strongly Concerned (Score 5)
Responsibility to Shareholders	◎	◎	◎	◎	◎
Responsibility to Employees	◎	◎	◎	◎	◎
Responsibility to Customers and Suppliers	◎	◎	◎	◎	◎
Responsibility to the Environment	◎	◎	◎	◎	◎
Responsibility to Society	◎	◎	◎	◎	◎

3.3.3 Forming the Measuring System

Taking the indicators of CSR performance mentioned in 3.3.1 and the weight of CSR calculation mentioned in 3.3.2 together, the CSR measuring system for China's pharmaceutical companies can be developed. The measuring system is shown in table 3-7.

Table 3-5 Information from questionnaire respondents

	State-owned Enterprise		Private Company		Total
	Listed in the Stock Exchanges	Not listed in the Stock Exchanges	Listed in the Stock Exchanges	Not listed in the Stock Exchanges	
Experts worked as top or middle management	1	0	1	2	4
Experts worked as supervisors	1	4	3	8	16
Total	2	4	4	10	20

Table 3-6 The calculation for the weight of stakeholders' dimension

Stakeholders' Dimension	Mean (full score is 5)	Weight
Responsibility to Shareholders	4.3	0.19
Responsibility to Employees	4.8	0.20
Responsibility to Customers and Suppliers	4.9	0.21
Responsibility to the Environment	5.0	0.22
Responsibility to Society	4.2	0.18
Total		1

Table 3-7 Framework of CSR measuring system

FRAMEWORK OF CSR MEASURING SYSTEM 100%

Responsibility to shareholders 19%					**Responsibility to employees 20%**			**Responsibility to customers and suppliers 21%**			**Responsibility to the environment 22%**	**Responsibility to society 18%**
Profitability (6%)	**Debt Paying (2%)**	**Returns (5%)**	**Penalty (4%)**	**Creativity (2%)**	**Performance (7%)**	**Safety (7%)**	**Caring for Employees (6%)**	**Quality of Product (10%)**	**Customer Services (4%)**	**Fair and Anti-Bribery (7%)**	**Environmental Management (22%)**	**Social Investment (18%)**
Return on Equity (ROE) (1%)	Quick Ratio (0.3%)	Dividends /Financing Ratio (1%)	Number of Penalty by Stock Exchange (4%)	Product's Research and Development (R&D) (0.5%)	Per Employee Income (5%)	Periodic Safety Check (3%)	Policy of Caring (1%)	Policy of Quality Management (4%)	Customer Satisfaction (4%)	Fair Competition for Suppliers (4%)	Policy of Environmental Protection (2.5%)	Rate paying (9%)
Return of Assets (ROA) (1%)	Current Ratio (0.3%)	Dividends Yield (2%)		Creativity of Technology (0.5%)	Training for Employees (2%)	Safety Training (4%)	Number of Caring (2.5%)	Quality Management System (6%)		Training and Anti-Bribery (3%)	Environmental Management System (3%)	The Amount of Donation (9%)
Return on Sales (ROS) (1%)	Cash Ratio (0.3%)	Dividends/Distributed Profit Ratio (1%)		Number of Technological Programs in Creativity (1%)			Amount Spent for Caring (2.5%)				Amount Invested in Environmental Protection (5.5%)	
Return of Expenses (0.6%)	Equity Ratio (0.3%)	Number of Penalty by Stock Exchange (2%)									Control of Pollution Discharge (5.5%)	
Earnings per Share (EPS) (1%)	Assets/Liabilities Ratio (0.8%)										Applied Types of Green Energy (5.5%)	
Undistributed Profit per Share (0.4%)												

3.4 Hypotheses

Based on the stakeholder theory discussed in Section 3.2, companies are involved not only in the relationship with shareholders, but also associated with all parties internally and externally (Freeman, 1984). Engagement in CSR activities helps companies to effectively manage relationships with their stakeholders, who can create, develop, and maintain the connection to important resources (Wood & Jones, 1995). The ways companies socially deal with matters surrounding employees, customers, suppliers, society, government, and other organizations are the key feature to succeeding in being a going-concern (Weiss, 2008). Therefore, a sound relationship with groups of stakeholders can provide benefits for companies. On the other hand, poor stakeholder relations are riskier for companies and makes them more vulnerable to corporate crises (Cornell & Shapiro, 1987; Barnett & Salomon, 2006). Therefore, managing good relationships with stakeholders can increase firm performance (Wood & Jones, 1995; Laan et al., 2007; Cordeiro & Tewari, 2014).

Hence, this study hypothesizes:

H1: In the Chinese market, pharmaceutical companies' engagements in CSR increase firm performance.

Concerning the fulfillment of stakeholders' responsibility, CSR practices can enhance the confidence of shareholders and attract more potential investors from the market (Barnett & Salomon, 2006; Branco & Rodrigues, 2006). From the perspective of fulfilling employees' responsibilities, a positive labor relationship helps companies to attract, retain, and motivate employees. Turnover may decrease with an increase in productivity (Turban & Greening, 1997); thus, firm performance increases (Freeman, 1984; Lin et al., 2011). Regarding the fulfillment of customers' responsibilities, a high quality of product and service can build customer loyalty and a better corporate image. (Branco & Rodrigues, 2006; Pan et al., 2014). The company can also receive revenue by differentiating products or services, therefore attracting more customers (Maignan

et al., 2000). In terms of fulfilling responsibility to the environment, a better CSR can increase operational efficiency and decrease insurance costs, which offsets the costs of implementing environmental improvement (Hart & Ahuja, 1996). Concerning fulfillment of society's responsibility, maintaining good social relations, such as community development and charitable donations, helps companies lobby for tax reductions or bargain for preferential policies with the government. (Waddock & Graves, 1997; Pan et al., 2014). Thus, the fulfillment of each aspect of stakeholders' responsibilities can increase firm performance (Barnett & Saloman, Laan et al., 2007).

Hence, this study hypothesizes:

H2: In the Chinese market, pharmaceutical companies' fulfillment of each aspect of stakeholders' responsibility increases firm performance

3.5 Conceptual Model

The conceptual model of this study is developed based on the outline of theories discussed in the literature review. In order to combine the research questions raised in Section 1.2 and the hypotheses discussed in Section 3.4, the model can be displayed in figure 3-3.

3.6 Summary

This chapter provides the rationale of stakeholder theory applied to raising the hypotheses. Section 3.2 discusses the classification and development of stakeholder theory, as well as its relation to CSR issues. The groups of stakeholders for Chinese pharmaceutical companies are also identified based on widely used international and Chinese CSR guidelines.

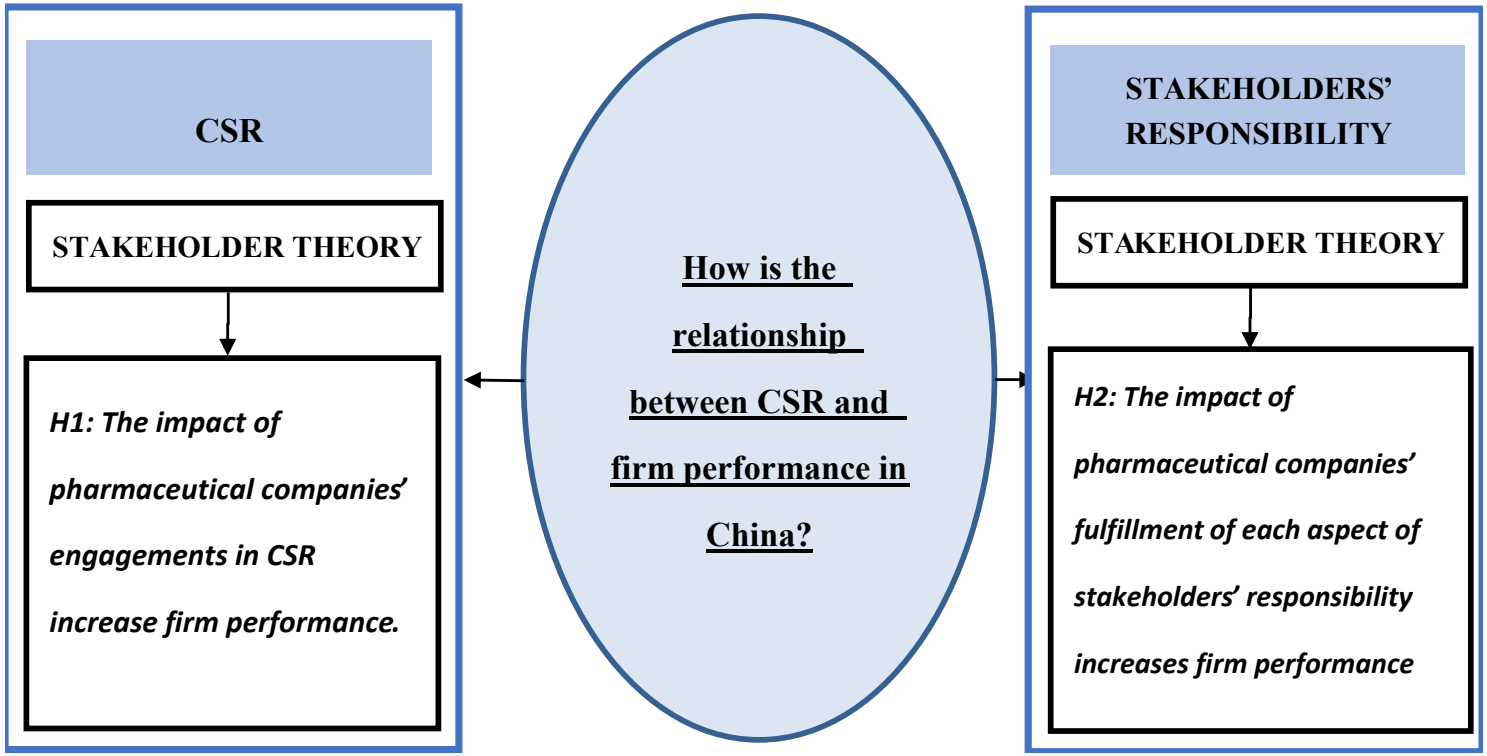

Figure 3-3 Conceptual model of the study

Section 3.3 presents the CSR measuring system, which is determined by the indicators of CSR performance and the weight of fulfilling responsibilities to specific stakeholders by the company. The ways of expert scoring and the calculations of the weight are also discussed.

Hypotheses are presented in Section 3.4. Based on stakeholder theory, the hypotheses of "CSR - Firm Performance" relationship and "Stakeholders' Responsibility – Firm Performance" are developed.

Section 3.5 concerns the conceptual model of this study. It outlines the framework of scientific mindset used to test the hypotheses and leads to the research method, which is presented in the next chapter.

Chapter 4: Research Method

4.1 Introduction

One of the research questions presented in Section 1.2 is concerned with the relationship between CSR and firm performance. In order to answer this research question, a mixed research method is used to qualitatively formulate a CSR measurement system and quantitatively examine the "CSR – Firm Performance" relationship. This chapter also discusses the sample, the collection of data, the measurement of variables, and the empirical models.

The sections of Chapter 4 are organized in the following ways. Section 4.2 presents the research paradigm. Section 4.3 figures out the research method. Section 4.4 shows the sample. Section 4.5 provides the sources of data. Section 4.6 discusses measurements of the independent variable, the dependent variable, and the control variable. Section 4.7 proposes empirical models. The last section summarizes this chapter.

4.2 Research Paradigm

The research paradigm enables researchers to identify how research should be delivered and defines how the world is exactly organized. Therefore, it provides a way to understand the objects of the world and the phenomenon of the matter during researchers' engagement with the world (Johnson & Duberley, 2000). A research paradigm is regarded as a perspective to identify the relationship between context and process by the way of applying a set of questions to the data (Johnson & Duberley, 2000; Corbin & Strauss, 2008). There are two assumptions in social science, either understanding the nature of the social world (ontology) or the grounds of knowledge (epistemology).

4.2.1 Ontology

Ontological assumption concerns the nature of the reality and addresses the following questions: a) how is the phenomenon to be formed, and b) how is the assumption about the real world to be developed? Researchers suggest that ontology deals with if the phenomenon is external to social actors or is the consequence of our knowledge and perception (Burrell & Morgan, 1979). It leads to two different perspectives concerning reality, which is either an objectivist approach or a constructivist approach. Objectivism provides a viewpoint that reality is external and independent from social actors. The world we live in exists objectively and is independent from people's cognitive structure. Constructivism provides a perspective that phenomena are created by different social actors; therefore, reality is constructed by scholars (Collis & Hussey, 2003).

4.2.2 Epistemology

Epistemological assumption is concerned with processes including the following aspects: how we intend to know reality, what kinds of knowledge can be considered in acceptable levels, what is considered to be evidence of knowledge, and how is the relationship between researcher and the knowledge to be received (Guba & Lincoln, 1994). Therefore, epistemology is concerned with researchers' assumptions about election of methods for exploring the nature of the world. Two schools of thought regarding epistemological assumptions as either positivism or interpretivism (Collins & Hussey, 2003; Bryman & Bell, 2007). Concerning positivism, researchers suggest that phenomena can be measured and observed scientifically via a particular research method of natural sciences. The output of the research can be presented with figures and numbers (Collins & Hussey, 2003). Interpretivism enables researchers to develop different ways to explain the phenomena by focusing on subjective understanding (Bryman & Bell, 2007).

4.2.3 Justification of Research Paradigm

Prior researchers have presented that positivism reflects the ways researchers communicate their knowledge in objective and visible manners (Collins & Hussey, 2003). This approach is used to understand the phenomena through both collecting facts and testing hypotheses. Data and information can be obtained and processed by researchers, and quantitative analysis can be delivered. Thus, reality can be examined objectively, and the consequence of the research is constructed with a higher degree of certainty. The positivistic paradigm is regarded as a preferred method in the empirical business research (Brand, 2009). Even though positivism is commonly adapted in previous business studies, prior researchers also propose that the social world is complicated and cannot be considered in only a positivistic way. The dynamic world we experience every day differs from the world the positivists believe in and address (Crotty, 1998).

In this study, positivism is chosen as an appropriate research paradigm. The aim for this research is to understand the reason for corporate engagement in CSR and explores the relationship between CSR and firm performance for Chinese pharmaceutical companies. The CSR and financial data are collected from independent and professional databases while the econometric model can be also developed to test the hypotheses. The facts and phenomena are finally examined by researchers through statistical analysis.

4.3 Research Method

4.3.1 Mixing Methods: Qualitative and Quantitative

Concerning business research, it has become more and more common for researchers to combine different sources, methods, and theories to investigate the research questions (Arksey & Knight, 1999). Prior scholars suggest that the combination of qualitative and quantitative methods is practical in social sciences

research, and there are no persistent differences between these two methods (Modell, 2009). They always complement each other within business research and produce more robust analysis and results. Therefore, the mixing method including qualitative and quantitative approaches enables researchers to take advantage of the strengths of each method (Miles & Huberman, 1994; Modell, 2009), and helps researchers decrease the weakness of any of them (Johnson & Onwuegbuzie, 2006).

In this study, the combination of qualitative and quantitative methods is implemented to collect necessary data for testing the hypotheses. The qualitative method is used to formulate a CSR measurement, and the quantitative method is further used to construct statistical analysis.

4.3.2 Qualitative Method: Measuring CSR

The qualitative method is used to explore an understanding of either phenomenon or situation and always begins as a situation in which researchers have no prior understanding of the phenomenon (Bogdan & Taylor, 1987). The most popular approach used in the qualitative method is case study, which explores a "purposive sample" to provide a deeper understanding of the phenomenon (Stake, 1995). In order to generate the data and analysis, the qualitative method always is conducted by interviews, group discussions, observations, questionnaires, and other materials (Stake, 1995).

In this study, the qualitative method is implemented to formulate the CSR measurement. As discussed in Section 3.3.2, the overall value of CSR is calculated by a weighted average of stakeholders' dimensions. These dimensions are made up by corporate fulfillment of stakeholders' responsibility. The weights are obtained by the scores given by experts based on their perceptions of how important the stakeholders' responsibilities need to be fulfilled. Experts are managers or supervisors who worked in Chinese pharmaceutical companies. Taken together, the expert scoring method is qualitatively presented in this study in order to develop the CSR measuring system.

4.3.3 Quantitative Research: Empirical Analysis

Quantitative research is used to examine the theories and hypotheses associated with the phenomenon. Through applying statistical, mathematical, or computational techniques, implementing the quantitative method can provide a fundamental connection between observation and mathematical expression. It can also verify if the hypotheses are true or false (Given, 2008). The quantitative method is commonly and widely applied in social science research, particularly in the fields of psychology, sociology, economy, marketing, and finance. Quantitative data takes a numerical form such as numbers, percentages, and statistics (Goertzen, 2017).

Regarding this study, quantitative research is used to develop the empirical analysis for examining the relationship between CSR and firm performance. The PCSE model is constructed to test the hypotheses. The reason for choosing this econometric model as the most suitable methodology is because it adapts both cross-sectional and time series data for a seven-year period.

4.4 Sample

The sample of this study consists of 125 listed pharmaceutical companies on both the SHSE and SZSE in mainland China. The classification of pharmaceutical companies should be categorized as “pharmaceutical manufacturing” under the “industry classification” by China’s Securities Regulatory Commission (CSRC) (CSRC, 2012). It compiles seven years of data from between 2010 and 2016, producing a panel data-set to statistical analysis. The filtering procedure of the data is presented as follows:

(1) First, the selected pharmaceutical companies should be identified as “C” that corresponds to the code of “manufacturing industry” based on CSRC’s documentation (CSRC, 2012).

(2) Second, the selected pharmaceutical company should be defined as “27” that corresponds to the code of “pharmaceutical manufacturing” based on CSRC’s documentation (CSRC, 2012).

(3) Third, the pharmaceutical companies identified as “special treatment (ST)” are eliminated from the population. “ST” means the companies have experienced abnormal financial conditions for consecutive years.

(4) Fourth, the companies are eliminated from the population if they lack either enough CSR or financial data for any year between 2010 and 2016.

The filtering procedure of data eliminates unqualified companies from of the population and arrives at the final panel data-set for a total of 875 firm-year observations. The sample companies are revealed in table 4-1.

4.5 Data Collection

As mentioned in Section 3.3.1, the indicators for CSR performance are chosen based on the Hexun’s CSR measuring framework (Hexun CSR Database, 2010), which is one of the biggest independent CSR rating systems in China. It provides professional CSR data for Chinese listed companies for a relatively long period of time (Pan et al., 2014). Thirty-eight indicators are developed to evaluate CSR performance based on different groups of stakeholders, including shareholders, employees, customers and suppliers, the environment, and society (Hexun CSR Database, 2010).

Prior researchers suggest that the Hexun CSR rating is a mature system because it has studied Chinese listed companies for eight years. Public also regards the Hexun CSR rating as one of the active promoters for socially responsible activities in mainland China (Pan et al., 2014; Ma, Jiang, & Li, 2015). Pan et al. (2014) uses Hexun’s CSR data to test the association between CSR and firm value for China’s listed mining companies. Ma et al. (2015) also applies the Hexun’s data to examine the link between CSR and accounting performance for the food and drinking industry. In this study, the performances of CSR are collected from the Hexun CSR rating.

Table 4-1 The sample companies

S/N	Code	Name of the company	S/N	Code	Name of the company
1	000004	CAU Technology	64	300049	Fu-rui Pharmaceutical
2	000078	Neptunus Group	65	300110	Huaren Pharmaceutical
3	000153	BBCA Pharmaceutical	66	300119	Ruipu Biological
4	000403	Shenghua Pharmaceutical	67	300122	Zhifei Biological
5	000423	Dongeejiao Group	68	300138	CCGB Biological
6	000513	Livzon Pharmaceutical	69	300142	Walvax Biotechnology
7	000518	Sihuan Biological	70	300158	Zhengdong Group
8	000538	Yunnai baiyao	71	300181	Zuoli Pharmaceutical
9	000545	Jinpu Group	72	300194	Fuan Pharmaceutical
10	000590	Guhan Group	73	300199	Hanyu Biological
11	000597	Northeast Pharmaceutical	74	300204	Staidson Bio-pharmaceutical
12	000606	Shenzhou Yiqiao	75	300239	Dongbao Biological
13	000623	Jilin Aodong Medical	76	300254	CY Pharmaceutical
14	000650	Renhe Pharmaceutical	77	300255	CSBIO Group
15	000661	Changchun Gaoxin	78	300267	Erkang Pharmaceutical
16	000739	Apeloa Pharmaceutical	79	300289	Leadman Biological
17	000756	Xinhua Pharmaceutical	80	300294	Boya Pharmaceutical
18	000766	Tonghua Jinma	81	600062	DCPC Pharmaceutical
19	000788	PKU Health care	82	600079	HumanWell Healthcare
20	000915	Sd-Wit Group	83	600129	Taiji Group
21	000919	Jinlin Pharmaceutical	84	600161	Tiantan Biological
22	000952	Guangji Pharmaceutical	85	600195	CAHIC Group
23	000989	JZT Pharmaceutical	86	600196	Fosun Pharmaceutical
24	000990	Chengzhi Group	87	600201	Jinyu Bio-technology
25	000999	999 Pharmaceutical	88	600211	Tibet Pharmaceutical
26	002001	NHU group	89	600222	Tailong Pharmaceutical

S/N	Code	Name of the company	S/N	Code	Name of the company
27	002004	Huapont Life Science	90	600252	Zhongheng Group
28	002007	Hualan Biological	91	600267	Hisun Pharmaceutical
29	002020	Jinxin Pharmaceutical	92	600276	Hengrui Medicine
30	002022	Kehua Biological	93	600285	Lingrui Pharmaceutical
31	002030	Daan Gene	94	600329	Zhongxin Pharmaceutical
32	002038	Shuanglu Pharmaceutical	95	600332	BYS Pharmaceutical
33	002099	Hisoar Pharmaceutical	96	600351	Yabao Pharmaceutical
34	002107	Wohua Pharmaceutical	97	600380	Joincare
35	002118	Zixin Pharmaceutical	98	600420	Shyndec Pharmaceutical
36	002166	Layn Biological	99	600422	KPC Pharmaceutical
37	002198	Jiaying Pharmaceutical	100	600436	Pien Tze Huang
38	002219	Hengkang Medical	101	600466	BRC Group
39	002252	Shanghai RAAS	102	600479	Qianjin Pharmaceutical
40	002275	Sanjin Pharmaceutical	103	600488	Tianyao Pharmaceutical
41	002287	Cheezheng Pharmaceutical	104	600513	Lianghuang Group
42	002294	Salubris Pharmaceutical	105	600518	Kangmei Pharmaceutical
43	002317	ZS Pharmaceutical	106	600521	Huahai Pharmaceutical
44	002332	Xianju Pharmaceutical	107	600530	Onlly Group
45	002349	Jinghua Pharmaceutical	108	600535	Tasly Group
46	002370	Yatai Pharmaceutical	109	600557	Kanion Pharmaceutical
47	002393	Lisheng Pharmaceutical	110	600572	Conba Group
48	002399	Hepalink Pharmaceutical	111	600594	Yibai Pharmaceutical
49	002412	Hansen Pharmaceutical	112	600613	Shengqi Pharmaceutical
50	002422	Kelun Pharmaceutical	113	600664	Hayao Pharmaceutical
51	002424	Bailing Pharmaceutical	114	600671	HZTM Pharmaceutical
52	002433	Pibao Pharmaceutical	115	600750	Jiangzhong Pharmaceutical
53	002437	Gloria Pharmaceutical	116	600771	Guangyuyuan
54	002550	Qianhong Bio-pharma	117	600781	Furen Pharmaceutical

S/N	Code	Name of the company	S/N	Code	Name of the company
55	002566	Yisheng Pharmaceutical	118	600789	Lukang Pharmaceutical
56	002603	Yiling Pharmaceutical	119	600803	ENN Group
57	002644	Foci Pharmaceutical	120	600812	Huabei Pharmaceutical
58	002653	Haisco Pharmaceutical	121	600829	RMTT Pharmaceutical
59	300006	Laimei Pharmaceutical	122	600867	Dongbao Pharmaceutical
60	300009	Anke Biological	123	600869	Zhihui Group
61	300016	Beilu Pharmaceutical	124	600976	Jianmin Group
62	300026	Chasesun Pharmaceutical	125	600993	Mayinglong
63	300039	Kaibao Pharmaceutical			

From another angle, the China Stock Market & Accounting Research (CSMAR) is used to collect firm performance including accounting and market-based information for Chinese pharmaceutical companies. CSMAR is regarded as one of the biggest databases, which contains full financial information for listed companies in China. It began to provide services to the public in 2002 and is commonly used by Chinese scholars for the collection of corporate financial data (Lin et al., 2011). In this study, financial data for Chinese pharmaceutical companies is collected from the CSMAR database.

4.6 Variable Measurement

4.6.1 Independent Variable: CSR

Regarding the CSR measuring system in Section 3.3, CSR is calculated by the weighted average of stakeholders' dimensions. These dimensions are made up by corporate fulfillment towards specific stakeholders' responsibility. The data about stakeholders' dimensions are collected from the Hexun CSR rating.

The expert scoring method is used to reach the weights by two rounds. In the first round, 20 experts worked as managers in Chinese pharmaceutical companies are asked to give a score within five-point scale framework according to their perceptions

about how the stakeholders' responsibility needs to be fulfilled. The second round is to formulate the CSR measurement based on the weighted average calculated by experts' scoring.

The procedure of measuring CSR is shown in figure 4-1.

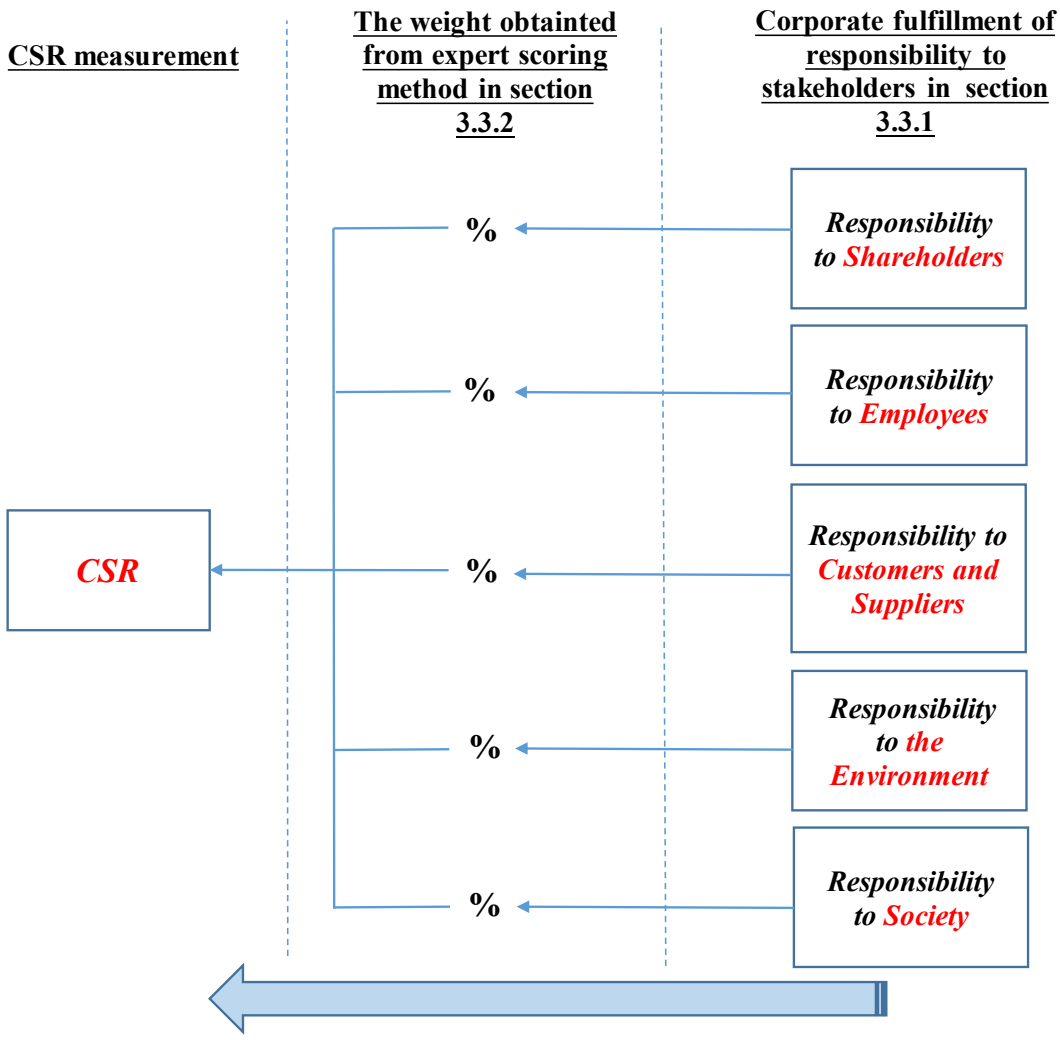

Figure 4-1 The detail of CSR computation

Taken together, the measurement of CSR is presented in a mathematical equation as follows:

$$\boldsymbol{CSR = W_1 \times CSR(SHA) + W_2 \times CSR(EMP) + W_3 \times CSR(CUST\&SUP) + W_4 \times CSR(ENV) + W_5 \times CSR(SOC)}, \quad (4.1)$$

where *W* is the weight obtained from expert scoring method discussed in Section 3.3.2. The *CSR(SHA)*, *CSR(EMP)*, *CSR(CUST&SUP)*, *CSR(ENV)* and *CSR(SOC)* are corporate fulfillment towards the dimensions of responsibilities towards shareholders, employees, customers and suppliers, the environment, and society, discussed in Section 3.3.1, respectively.

4.6.2 Dependent Variable: Firm Performance

As discussed in Section 2.8, previous researchers suggest that the measurement of firm performance can be categorized into three types: market-based, accounting-based, and perceptual-based (Orlitzky et al., 2003). McGuire et al. (1988) proposed that different types of firm performance used in the study deliver different perspectives of the company, and each of them is subject to individual bias. The market-based measure focuses on investors' estimation of the company. The bid-ask processes in the stock market affects a company's market price (Cochran & Wood, 1984). The shortcoming of the market-based measure is that it only considers market factors and has no consideration of internal business process. Prior research suggests that the market-based measure is more easily impacted by macroeconomic fluctuations (Ullman, 1985). On the other side, accounting-based measures are also commonly used in evaluating corporate performances (Yoshikawa & Phan, 2003). They reflect management's discretion about corporate policies and strategies and are less likely to be manipulated from outside the company. However, the accounting-based measure is only based on historical perspectives of the company, providing only past financial information (Branch, 1983). In order to overcome limitations of individually using either the accounting-based measure or the market-based measure, prior scholars suggest simultaneously using both of them in the same study. For example, McGuire et al. (1988) used accounting-based and market-based measures to empirically test the association between CSR and firm performance.

Typical accounting-based measurements include firm's ROA, ROE, and EPS (Orlitzky et al., 2003). Hart and Ahja (1996) applied ROA and ROE as accounting-

based measures to represent financial performance and examined the relationship to CSR. Waddock and Grave (1997) used ROA, ROE, and ROS to measure firm performance. Wang et al. (2008) used ROA as the measurement to test its association with CSR. Regarding market-based measurement, stock return and Tobin's Q are commonly used in prior research (Wahba, 2007; Wang et al., 2008; Surroca et al., 2010). Wahba (2007) delivered content analysis to evaluate CSR and examined its association with firm performance by using market-based measures such as stock returns and Tobin's Q.

In this study, both accounting-based measures and market-based measures are employed to measure the performance of Chinese pharmaceutical companies. ROA, ROE, EPS and Tobin's Q are appointed as the variables of firm performance in the statistical analysis.

4.6.3 Control Variable: Firm Size

Prior researchers suggest that the size of the firm is frequently used as the control variable when examine the relationship between CSR performance and financial performance (Ullman, 1985; Waddock & Graves, 1997). One earlier calculation for firm size is the total assets and the total sales (Waddock & Graves, 1997). Recent CSR studies also use the natural logarithm of total assets to measure firm size (Wang et al., 2008; Surroca et al., 2010). In this research, it employs the natural logarithm of total assets as the control variable.

4.7 Empirical Model

Based on the hypotheses developed in Section 3.4, the empirical models are developed by two perspectives as follows: the empirical models link to Hypothesis 1, and the empirical model link to Hypothesis 2.

4.7.1 Empirical Model Link to Hypothesis 1 (*H1*)

H1 is concerned with the association between overall CSR and firm performance. The empirical model related to *H1* is constructed as follows:

$$\boldsymbol{Tobin's\ Q_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.2)$$

$$\boldsymbol{ROA_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.3)$$

$$\boldsymbol{ROE_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.4)$$

$$\boldsymbol{EPS_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 LNTA_{it} + \varepsilon_{it},} \quad (4.5)$$

where CSR_{it} is the overall value of CSR for the Chinese pharmaceutical firm *i* in year *t*. $LNTA_{it}$ is the variable of firm size and is measured by the natural logarithm of total assets for the firm *i* in year *t*.

4.7.2 Empirical Model Link to Hypothesis 2 (*H2*)

The *H2* regards the impact of corporate fulfillment towards stakeholders' responsibility on firm performance. The empirical model related to *H2* is constructed into five dimensions of responsibility: to shareholders, employees, customers and suppliers, the environment, and society.

(1) The first dimension is corporate fulfillment of responsibility to shareholders. The following shows the empirical model.

$$\boldsymbol{Tobin's\ Q_{it} = \beta_0 + \beta_1 CSR(SHA)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.6)$$

$$\boldsymbol{ROA_{it} = \beta_0 + \beta_1 CSR(SHA)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.7)$$

$$\boldsymbol{ROE_{it} = \beta_0 + \beta_1 CSR(SHA)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.8)$$

$$\boldsymbol{EPS_{it} = \beta_0 + \beta_1 CSR(SHA)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.9)$$

(2) The second dimension is corporate fulfillment of responsibility to employees. The following shows the empirical model.

$$\boldsymbol{Tobin's\ Q_{it} = \beta_0 + \beta_1 CSR(EMP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.10)$$

$$\boldsymbol{ROA_{it} = \beta_0 + \beta_1 CSR(EMP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.11)$$

$$\boldsymbol{ROE_{it} = \beta_0 + \beta_1 CSR(EMP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.12)$$

$$\boldsymbol{EPS_{it} = \beta_0 + \beta_1 CSR(EMP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.13)$$

(3) The third dimension is corporate fulfillment of responsibility to customers and suppliers. The following shows the empirical model.

$$\boldsymbol{Tobin's\ Q_{it} = \beta_0 + \beta_1 CSR(CUST\&SUP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.14)$$

$$\boldsymbol{ROA_{it} = \beta_0 + \beta_1 CSR(CUST\&SUP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.15)$$

$$\boldsymbol{ROE_{it} = \beta_0 + \beta_1 CSR(CUST\&SUP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.16)$$

$$\boldsymbol{EPS_{it} = \beta_0 + \beta_1 CSR(CUST\&SUP)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.17)$$

(4) The fourth dimension is corporate fulfillment of responsibility to the environment. The following shows the empirical model.

$$\boldsymbol{Tobin's\ Q_{it} = \beta_0 + \beta_1 CSR(ENV)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.18)$$

$$\boldsymbol{ROA_{it} = \beta_0 + \beta_1 CSR(ENV)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.19)$$

$$\boldsymbol{ROE_{it} = \beta_0 + \beta_1 CSR(ENV)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.20)$$

$$\boldsymbol{EPS_{it} = \beta_0 + \beta_1 CSR(ENV)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.21)$$

(5) The fifth dimension is corporate fulfillment of responsibility to society. The following shows the empirical model.

$$\boldsymbol{Tobin's\ Q_{it} = \beta_0 + \beta_1 CSR(SOC)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.22)$$

$$\boldsymbol{ROA_{it} = \beta_0 + \beta_1 CSR(SOC)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.23)$$

$$\boldsymbol{ROE_{it} = \beta_0 + \beta_1 CSR(SOC)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.24)$$

$$\boldsymbol{EPS_{it} = \beta_0 + \beta_1 CSR(SOC)_{it} + \beta_2 LNTA_{it} + \varepsilon_{it}} \quad (4.25)$$

In above empirical models, $CSR(SHA)_{it}$, $CSR(EMP)_{it}$, $CSR(CUST\&SUP)_{it}$, $CSR(ENV)_{it}$, and $CSR(SOC)_{it}$ are, respectively, corporate fulfillment of responsibility to shareholders, employees, customers and suppliers, the environment, and society, for the Chinese pharmaceutical firm *i* in year *t*. $LNTA_{it}$ is the variable of firm size and measured by the natural logarithm of total assets for the firm *i* in year *t*.

4.8 Summary

This chapter describes the details of the research method. Section 4.2

discusses the research paradigm and justifies that positivism is an appropriate paradigm to be used in this study.

Section 4.3 presents the use of mixing research methods, along with the explanation of the use of the qualitative method for measuring CSR, and the adoption of the quantitative method for empirically testing the hypotheses.

Section 4.4 demonstrates the sample, which consists of data from 125 Chinese listed pharmaceutical companies for a seven-year period between 2010 and 2016. The details of sample companies include their security code and the name.

Section 4.5 discusses data collection. The performance of CSR is collected from the Hexun CSR rating, and the financial data are collected from the CSMAR database.

Section 4.6 shows the variable measurement. The independent variable is CSR, measured by the weight average of corporate fulfillment towards stakeholders' responsibility. Within the weights, they are calculated by the method of expert scoring. The dependent variable is firm performance, measured by both accounting-based measures, such as ROA, ROE, and EPS, and market-based measures, such as Tobin's Q. The control variable is the natural logarithm of total assets.

Section 4.7 develops the empirical models related to two hypotheses. The CSR and financial data are then analyzed, while empirical models are further used with a panel-data regression analysis, presented in the next chapter.

Chapter 5: Empirical Analysis

5.1 Introduction

This chapter contains the descriptive statistics and the results for each of the independent, dependent, and control variables. The statistical method used to examine the relationship between CSR and firm performance is also discussed. All empirical analyses were performed using the EViews 9.0.

The sections of Chapter 5 are organized in the following ways. Section 5.2 presents the descriptive statistics. Section 5.3 discusses the stationarity testing. Section 5.4 depicts the fixed and random effects testing. Section 5.5 shows the empirical results. The last section summarizes this chapter.

5.2 Descriptive Statistics

5.2.1 The Changes of Variables Over Time

The first section of descriptive statistics is concerned with the changes of independent variables and dependent variables over time. Three variables are presented as follows: CSR, stakeholders' responsibility, and firm performance.

5.2.1.1 CSR

The change of CSR for China's listed pharmaceutical companies between 2010 and 2016 is displayed in figure 5-1. It can summarize following findings for the seven-year period:

(1) First, CSR falls on the spectrum between 19.09 and 29.36.

(2) Second, CSR experiences fluctuate in this seven-year period. Specifically, it reaches a peak in 2013 and arrives at the lowest point in 2014. One of the possible reasons for the decrease of CSR in 2014 is that local government officially released the

CSR legislation in the Central Committee Meeting at the end of 2013. The listed companies felt pressure from legislative actions at that time and realized their obligations to report not only positive news but also negative information about their socially responsible activities.

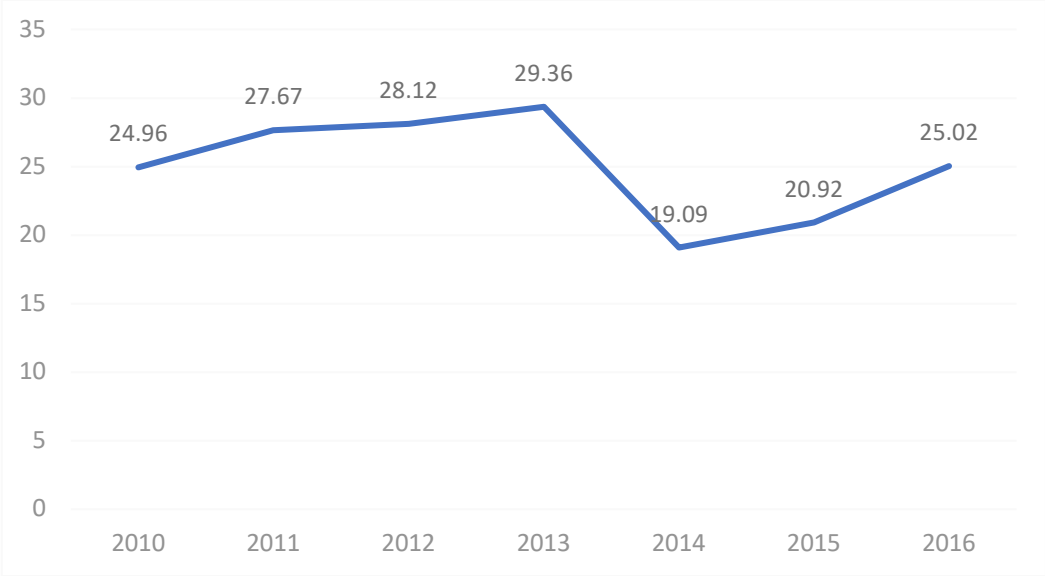

Figure 5-1 The change of CSR over time

5.2.1.2 Stakeholders' responsibility

The change of corporate fulfillment of responsibility to shareholders between 2010 and 2016 is shown in figure 5-2. It can summarize following findings for the seven-year period:

(1) First, the results show that responsibility to shareholders is best fulfilled by Chinese pharmaceutical companies, while responsibility to the environment is the worst fulfilled.

(2) Second, the fulfillment of responsibility to both shareholders and society is better than the average level, while the fulfillment of responsibility to employees, customers and suppliers, and the environment are poorer than the average level.

(3) Third, the measures of responsibility to both customers and suppliers and to the environment are declining in 2014. One of the possible reasons is that the Chinese State Council has released stricter regulations in terms of environmental protection in April 2014. Companies are forced to tighten their corporate policies concerning environmental practices. They are likely to become more conservative in environmental

investments.

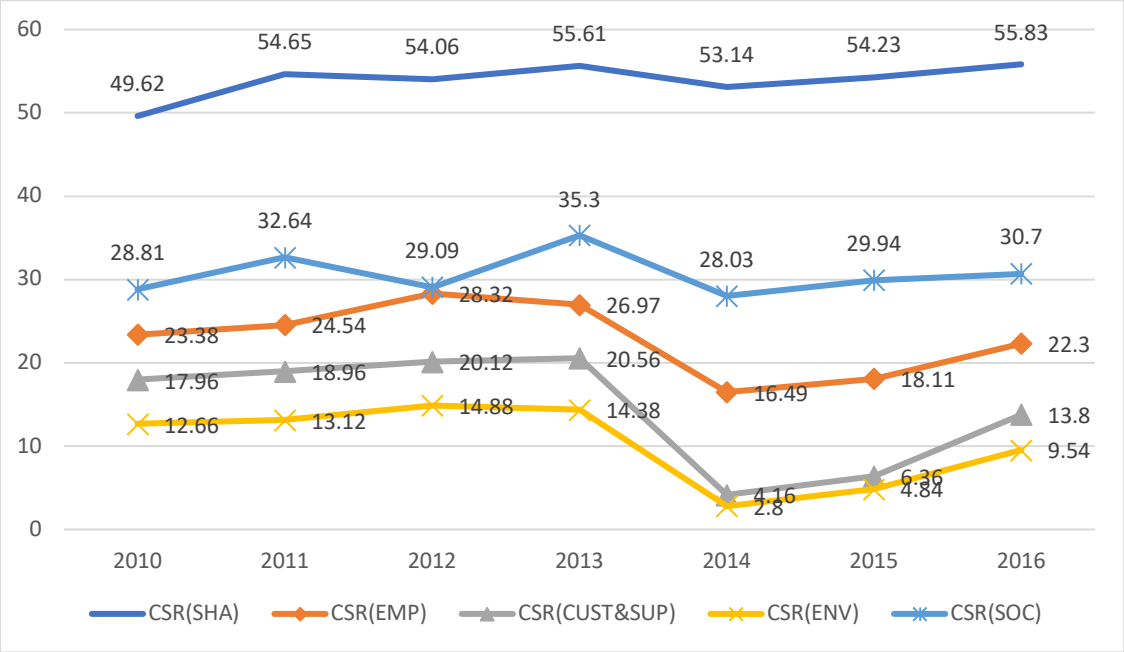

Figure 5-2 The change in stakeholders' responsibility over time

5.2.1.3. Firm Performance

Changes in firm performance between 2010 and 2016 are shown in figure 5-3. It can summarize following findings for the seven-year period:

(1) First, the results show that Tobin's Q declines in 2010 and recovers after 2012.

(2) Second, ROA, ROE, and EPS decrease after 2013, indicating that China experienced a weak economy in 2014. It also indicates that the period of firm performance decline is consistent with the drop-down of CSR, providing evidence of a potentially positive relationship between CSR and firm performance.

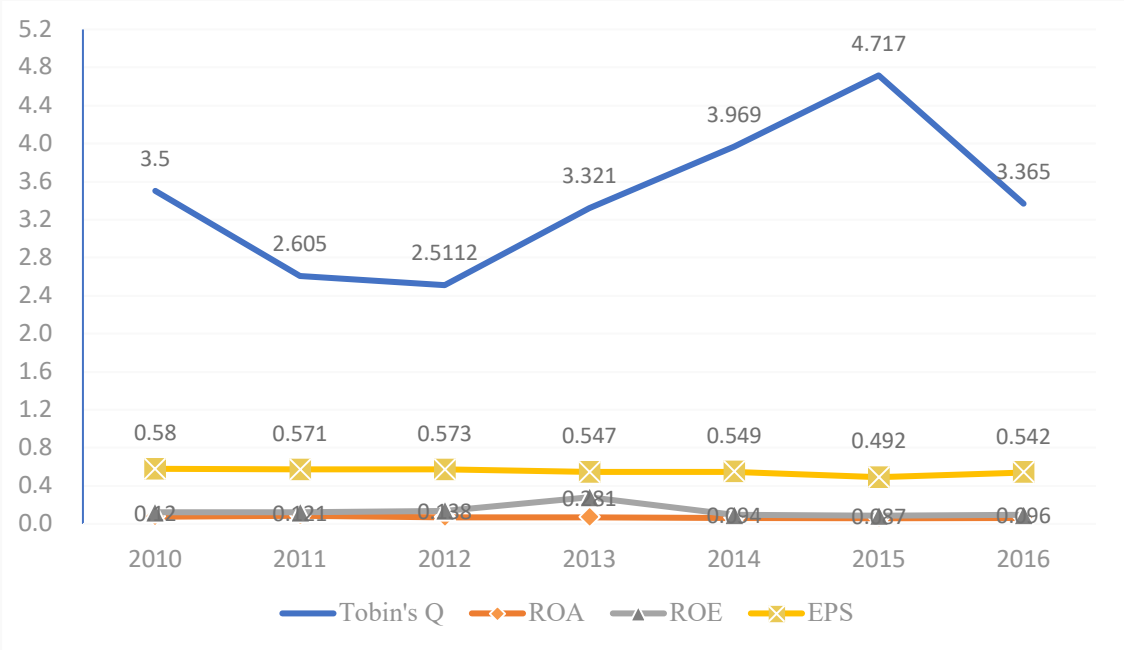

Figure 5-3 The change in firm performance over time

5.2.2 Descriptive Statistics

The descriptive statistics are shown in table 5-1. In order to examine the effect of multicollinearity, the variance inflation factors (VIF) test is developed. The results present that the VIF is far from the threshold of 10, indicating that no multicollinearity problems exist in the data. According to the descriptive statistics, the following summaries can be obtained.

(1) First, all variables conform to normal distribution. The data of ROE are right-skewed, but they are acceptable because the number of total observations is large, at 875.

(2) Second, Chinese pharmaceutical companies treat shareholders' responsibility as a priority and fulfill the best performance to shareholders. On the other hand, the companies regard responsibility to the environment as less important and deliver the worst performance to the environment. The highest quality of fulfillment of responsibility to shareholders indicates that Chinese pharmaceutical companies are more sensitive to financial matters and pay more attention to the needs of shareholders.

(3) Third, there are big differences between the maximum and the minimum

among corporate fulfillment of responsibility to shareholders, employees, customers and suppliers, the environment, and society. This result indicates that different pharmaceutical companies have various strategies in terms of how important the stakeholders' responsibilities need to be fulfilled. In addition, some companies attach great importance to CSR, and some of them are unconcerned with managing good relations with their stakeholders.

5.3 Stationarity Testing

With a statistical nature similar to time series analysis, panel data analysis also presents spurious regression problem if the data are not stationary. However, prior scholars have suggested spurious regression problems in panel data are nothing serious, like time series (Baltagi, 2005). Baltagi (2005) also pointed out that the panel data spurious regression provides a consistence estimation of the true value of the parameter as both numbers of observation (N) and time (T), which tend toward infinity. The reason is that a panel estimator makes an average across all individuals such that the information within the independent cross-section data in the panel delivers stronger signals than the pure time serious case.

In this study, the stationarity of panel data is not examined by unit root test and cointegration test. The reason is that the number of observations is 875, and the time period of analysis is only seven years. The N is many times greater than T, indicating a shorter time period and large cross-sectional data sets.

Table 5-1 Descriptive statistics

	No. of observ.	Median	Mean	Min.	Max.	S.D.	Skewness	Kurtosis
Dependent variables								
Tobin's Q	875	2.689	3.242	0	16.854	2.232	1.798	4.638
ROA	875	0.660	0.069	-0.298	0.494	0.641	0.204	6.255
ROE	875	0.095	0.106	-0.911	6.918	0.256	21.848	583.305
EPS	875	0.417	0.550	-1.148	4.100	0.593	1.960	6.422
Independent variables								
CSR	875	18.190	25.755	-6.346	88.560	19.502	1.575	1.217
CSR(SHA)	875	57.567	54.174	-11.433	92.333	20.466	-0.749	0.312
CSR(EMP)	875	12.300	22.874	0	100.000	26.016	1.582	1.416
CSR(CUST&SUP)	875	0	14.560	0	100.000	32.215	1.809	1.391
CSR(ENV)	875	0	10.400	0	100.000	23.642	2.026	2.648
CSR(SOC)	875	28.350	30.789	-50.000	85.000	16.489	-0.431	3.671
Control variable								
LNTA	875	21.669	21.716	19.032	25.0187	1.002	0.143	0.066

5.4 Fixed and Random Effects Testing

The fixed and random effects test is developed before implementing panel data regression analysis. This test is used to approximate the appropriate statistical model and includes two stages. First the test for the relationship between CSR and firm performance is presented. Second, the test for association between corporate fulfillment of responsibility to different stakeholders and firm performance is developed.

5.4.1 Testing for CSR and Firm Performance

The likelihood ratio test is used to test whether pooled regression model is applied or fixed effects exist in the data. If the result of the likelihood test is statistically significant, the further Hausman test is developed. If the result is insignificant, pool regression model is chosen as it is the most appropriate statistical model. Table 5-2 illustrates the statistical result of the likelihood test for relationship between CSR and firm performance.

Table 5-2 The likelihood test result of CSR and firm performance

Effects Test		Statistic	d.f.	Prob.
CSR and Tobin's Q	Cross-section F	7.078523	(124,713)	0.0000
	Cross-section Chi-square	674.075791	124	0.0000
CSR and ROA	Cross-section F	8.412004	(124,734)	0.0000
	Cross-section Chi-square	761.315644	124	0.0000
CSR and ROE	Cross-section F	0.986593	(124,733)	0.5261
	Cross-section Chi-square	132.741416	124	0.2794
CSR and EPS	Cross-section F	10.569817	(124,734)	0.0000
	Cross-section Chi-square	882.074199	124	0.0000

According to the statistical results of the likelihood test, fixed effects exist among the relationship between CSR and Tobin's Q, and ROA and EPS. The relationship between CSR and ROE is not statistically significant, so the pooled

regression model is developed.

The next step is to use the Hausman test to estimate if there are fixed effects or random effects. As mentioned above, the associations between CSR and Tobin's Q, and ROA and EPS need to be further examined by Hausman test. Table 5-3 shows the statistical results of these tests.

Table 5-3 The Hausman test result of CSR and firm performance

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
CSR and Tobin's Q	Cross-section random	13.467850	2	0.0012
CSR and ROA	Cross-section random	12.254183	2	0.0022
CSR and EPS	Cross-section random	19.032340	2	0.0001

Based on the statistical result of the likelihood test and Hausman test, a summary of statistical models in terms of the association between CSR and Tobin's Q, ROA, ROE, and EPS is obtained. The selected empirical models are shown in table 5-4.

Table 5-4 The selected models on CSR and firm performance

Overall CSR	With Tobin's Q	With ROA	With ROE	With EPS
Likelihood test result	$P < 0.05$	$P < 0.05$	$P > 0.05$	$P < 0.05$
Hausman test result	$P < 0.05$	$P < 0.05$	n/a	$P < 0.05$
Model selecting	Fixed effects	Fixed effects	Pooled	Fixed effects

5.4.2 Testing for Stakeholders' Responsibility and Firm Performance

The likelihood test and Hausman test are also implemented to estimate the appropriate models in terms of the association between corporate fulfillment of responsibility to stakeholders and firm performance. These tests consist of five groups of stakeholders as follows: shareholders, employees, customers and suppliers, environment, and society.

(1) First, the likelihood test is developed for examining the relationship between corporate fulfillment of responsibility to shareholders. The result of the test is shown in table 5-5.

Table 5-5 The likelihood test result of CSR(SHA) and firm performance

Effects Test		Statistic	d.f.	Prob.
CSR and Tobin's Q	Cross-section F	6.211197	(124,713)	0.0000
	Cross-section Chi-square	615.273097	124	0.0000
CSR and ROA	Cross-section F	5.148773	(124,734)	0.0000
	Cross-section Chi-square	538.850053	124	0.0000
CSR and ROE	Cross-section F	0.947638	(124,733)	0.6392
	Cross-section Chi-square	127.870886	124	0.3876
CSR and EPS	Cross-section F	9.619117	(124,734)	0.0000
	Cross-section Chi-square	830.943825	124	0.0000

Based on the statistical result of the likelihood test, it shows that fixed effects exist among the relationship between corporate fulfillment of responsibility to shareholders and Tobin's Q, ROA, and EPS. The relationship between CSR and ROE is not statistically significant, and therefore the pooled regression model is developed.

The next step is to deliver the Hausman test to estimate if there are fixed effects or random effects. Table 5-6 shows the statistical results of these tests.

Table 5-6 The Hausman test result of CSR(SHA) and firm performance

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
CSR and Tobin's Q	Cross-section random	25.804180	2	0.0000
CSR and ROA	Cross-section random	23.534943	2	0.0000
CSR and EPS	Cross-section random	23.268266	2	0.0000

Based on the statistical results of the likelihood test and Hausman test, the summary of statistical model in terms of the association between corporate fulfillment of responsibility to shareholders and Tobin's Q, ROA, ROE, and EPS is presented. The selected empirical models are shown in table 5-7.

Table 5-7 The selected models of CSR(SHA) and firm performance

CSR(SHA)	With Tobin's Q	With ROA	With ROE	With EPS
Likelihood test result	P < 0.05	P < 0.05	P > 0.05	P < 0.05
Hausman test result	P < 0.05	P < 0.05	n/a	P < 0.05
Model selecting	Fixed effects	Fixed effects	Pooled	Fixed effects

(2) Second, the likelihood test is used to examine the relationship between corporate fulfillment towards employees' responsibility. The result of the test is shown in table 5-8.

Table 5-8 The likelihood test result of CSR(EMP) and firm performance

Effects Test		Statistic	d.f.	Prob.
CSR and Tobin's Q	Cross-section F	7.163889	(124,713)	0.0000
	Cross-section Chi-square	679.646990	124	0.0000
CSR and ROA	Cross-section F	8.975971	(124,734)	0.0000
	Cross-section Chi-square	794.548017	124	0.0000
CSR and ROE	Cross-section F	0.981307	(124,733)	0.5416
	Cross-section Chi-square	132.082063	124	0.2930
CSR and EPS	Cross-section F	10.817998	(124,734)	0.0000
	Cross-section Chi-square	894.936688	124	0.0000

According to the statistical result of the likelihood test, it shows that the fixed effects exist among the relationship between corporate fulfillment of responsibility to employees and Tobin's Q, ROA, and EPS. The relationship between CSR and ROE is not statistically significant. In this circumstance, the pooled regression model is developed.

The next stage is to develop a Hausman test to estimate whether there are fixed effects or random effects. Table 5-9 shows the statistical result of these tests.

Table 5-9 The Hausman test result of CSR(EMP) and firm performance

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
CSR and Tobin's Q	Cross-section random	9.627851	2	0.0081
CSR and ROA	Cross-section random	12.001682	2	0.0025
CSR and EPS	Cross-section random	21.053238	2	0.0000

Based on the statistical results of the likelihood test and Hausman test, the summary of empirical model in terms of the association between corporate fulfillment of responsibility to employees and Tobin's Q, ROA, ROE, and EPS is shown. The selected empirical models are shown in table 5-10.

Table 5-10 The selected models of CSR(EMP) and firm performance

CSR(EMP)	With Tobin's Q	With ROA	With ROE	With EPS
Likelihood test result	P < 0.05	P < 0.05	P > 0.05	P < 0.05
Hausman test result	P < 0.05	P < 0.05	n/a	P < 0.05
Model selecting	Fixed effects	Fixed effects	Pooled	Fixed effects

(3) Third, the likelihood test is applied to examine the relationship between corporate fulfillment of responsibility to customers and suppliers'. The results of the test are presented in table 5-11.

Table 5-11 The likelihood test result of CSR(CUST&SUP) and firm performance

Effects Test		Statistic	d.f.	Prob.
CSR and Tobin's Q	Cross-section F	7.198293	(124,713)	0.0000
	Cross-section Chi-square	681.881876	124	0.0000
CSR and ROA	Cross-section F	9.172095	(124,734)	0.0000
	Cross-section Chi-square	805.810659	124	0.0000
CSR and ROE	Cross-section F	1.008461	(124,733)	0.4626
	Cross-section Chi-square	135.463446	124	0.2270
CSR and EPS	Cross-section F	11.287565	(124,734)	0.0000
	Cross-section Chi-square	918.759436	124	0.0000

Based on the empirical result of likelihood test, it indicates that the fixed

effects exist among the relationship between corporate fulfillment of responsibility to customers and suppliers and Tobin's Q, ROA, and EPS. The relationship between CSR and ROE is not statistically significant, and so the pooled regression model is developed.

The Hausman test is further developed in order to estimate if there are fixed effects or random effects. Table 5-12 shows the statistical results of these tests.

Table 5-12 The Hausman test result of CSR(CUST&SUP) and firm performance

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
CSR and Tobin's Q	Cross-section random	9.856272	2	0.0072
CSR and ROA	Cross-section random	11.166317	2	0.0038
CSR and EPS	Cross-section random	18.046369	2	0.0001

According to the statistical results of the likelihood test and Hausman test, the summary of empirical model in terms of the association between corporate fulfillment of responsibility to customers and suppliers and Tobin's Q, ROA, ROE, and EPS is presented. The selected empirical models are shown in table 5-13.

Table 5-13 The selected models of CSR(CUST&SUP) and firm performance

CSR(CUST&SUP)	With Tobin's Q	with ROA	with ROE	With EPS
Likelihood test result	P < 0.05	P < 0.05	P > 0.05	P < 0.05
Hausman test result	P < 0.05	P < 0.05	n/a	P < 0.05
Model selecting	Fixed effects	Fixed effects	Pooled	Fixed effects

(4) Fourth, the likelihood test is implemented to examine the relationship between corporate fulfillment of responsibility to the environment. The result of the test is shown in table 5-14.

Based on the statistical result of likelihood test, it presents that the fixed effects exist among the relationship between corporate fulfillment of responsibility to the environment, and Tobin's Q, ROA, and EPS. The relationship between CSR and ROE is not statistically significant, and therefore the pooled regression model is developed.

Table 5-14 The likelihood test result of CSR(ENV) and firm performance

Effects Test		Statistic	d.f.	Prob.
CSR and Tobin's Q	Cross-section F	7.232950	(124,713)	0.0000
	Cross-section Chi-square	684.127172	124	0.0000
CSR and ROA	Cross-section F	9.259291	(124,734)	0.0000
	Cross-section Chi-square	810.771063	124	0.0000
CSR and ROE	Cross-section F	0.994098	(124,733)	0.5042
	Cross-section Chi-square	133.676619	124	0.2607
CSR and EPS	Cross-section F	11.293519	(124,734)	0.0000
	Cross-section Chi-square	919.057323	124	0.0000

The next stage is to construct Hausman test to estimate whether there are fixed effects or random effects. Table 5-15 shows the statistical result of these tests.

Table 5-15 The Hausman test result of CSR(ENV) and firm performance

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
CSR and Tobin's Q	Cross-section random	7.984134	2	0.0185
CSR and ROA	Cross-section random	10.326912	2	0.0057
CSR and EPS	Cross-section random	16.138014	2	0.0003

According to the statistical results of the likelihood test and Hausman test, the summary of the empirical model in terms of the association between corporate fulfillment of responsibility to the environment and Tobin's Q, ROA, ROE, and EPS is obtained. The selected empirical models are shown in table 5-16.

Table 5-16 The selected models of CSR(ENV) and firm performance

CSR(ENV)	With Tobin's Q	With ROA	With ROE	With EPS
Likelihood test result	$P < 0.05$	$P < 0.05$	$P > 0.05$	$P < 0.05$
Hausman test result	$P < 0.05$	$P < 0.05$	n/a	$P < 0.05$
Model selecting	Fixed effects	Fixed effects	Pooled	Fixed effects

(5) Fifth, the likelihood test is applied to examine the relationship between corporate fulfillment of responsibility to society. The results of the test is shown in table

5-17.

Table 5-17 The likelihood test result of CSR(SOC) and firm performance

Effects Test		Statistic	d.f.	Prob.
CSR and Tobin's Q	Cross-section F	7.278817	(124,713)	0.0000
	Cross-section Chi-square	687.089519	124	0.0000
CSR and ROA	Cross-section F	9.844031	(124,734)	0.0000
	Cross-section Chi-square	843.317137	124	0.0000
CSR and ROE	Cross-section F	1.016081	(124,733)	0.4408
	Cross-section Chi-square	136.410005	124	0.2104
CSR and EPS	Cross-section F	11.854460	(124,734)	0.0000
	Cross-section Chi-square	946.668519	124	0.0000

According to the empirical result of the likelihood test, it indicates that the fixed effects exist among the relationship between corporate fulfillment of responsibility to the environment and Tobin's Q, ROA, and EPS. The relationship between CSR and ROE is not statistically significant, and the pooled regression model is developed.

The Hausman test is further developed in order to estimate if there are fixed effects or random effects. Table 5-18 indicates the statistical result of these tests.

Table 5-18 The Hausman test result of CSR(SOC) and firm performance

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
CSR and Tobin's Q	Cross-section random	3.856884	2	0.1454
CSR and ROA	Cross-section random	7.626673	2	0.0221
CSR and EPS	Cross-section random	15.085142	2	0.0005

Based on the statistical results of the likelihood test and Hausman test, the summary of empirical model in terms of the association between corporate fulfillment of responsibility to society and Tobin's Q, ROA, ROE, and EPS is obtained. The selected empirical models are shown in table 5-19.

Table 5-19 The selected models of CSR(SOC) and firm performance

CSR(SOC)	With Tobin's Q	With ROA	With ROE	With EPS
Likelihood test result	P < 0.05	P < 0.05	P > 0.05	P < 0.05
Hausman test result	P > 0.05	P < 0.05	n/a	P < 0.05
Model selecting	Random effects	Fixed effects	Pooled	Fixed effects

5.5 Empirical Results

5.5.1 CSR and Firm Performance

The empirical results of the association between CSR and firm performance are depicted in two perspectives as follows: the results, and the test of hypotheses.

5.5.1.1. Results

The PCSE model is used to run the panel data. Table 5-20 shows the results of panel regression analysis. They indicate that CSR is positively and significantly related to ROA (β = 0.0003, $p \leqslant 0.01$), ROE (β = 0.0020, $p \leqslant 0.01$), and EPS (β = 0.0026, $p \leqslant 0.01$). Overall CSR is negatively and not significantly related to Tobin's Q (β = -0.0019, $p > 0.01$). The R^2 in Model 4.3 and Model 4.5 are 0.9163 and 0.8605, respectively, indicating that these two models are good fit to the data.

5.5.1.2. Tests of hypothesis

The results indicate that the relationship between CSR and Tobin's Q is negative, but they are not statistically related. CSR are positively related to ROA, ROE, and EPS, providing support for Hypothesis 1 (*H1*). Thus, empirical results prove *H1*, indicating that pharmaceutical companies' engagements in CSR increase firm performance.

Table 5-20 Panel regression results for CSR and firm performance

	Dependent Variables			
	Tobin's Q (Model 4.2)	ROA (Model 4.3)	ROE Model (4.4)	EPS Model (4.5)
Independent variable				
CSR	-0.0019	0.0003***	0.0020***	0.0026***
Control Variable				
Size	-0.5567**	-0.0087***	-0.0003	0.0438***
Constant	15.3886***	0.2495***	0.0556	-0.4700***
F test	21.1090***	63.8245***	276.4483***	35.9451***
R^2	0.7886	0.9163	0.3921	0.8605
Number of observations	875	875	875	875

Notes: Significant at $^{*}p \leqslant 0.10$, $^{**}p \leqslant 0.05$, $^{***}p \leqslant 0.01$ (two-tailed test). T-statistics are shown in parentheses.

5.5.2 Stakeholders' Responsibility and Firm Performance

The empirical results of the association between corporate fulfillment of responsibility to stakeholders and firm performance are described in two perspectives: the results and the test of hypotheses.

5.5.2.1. Results

The PCSE model is applied to run the data. The econometric models are used to test five different groups of stakeholders as follows: shareholders, employees, customers and suppliers, the environment, and society.

(1) First, the relationship between corporate fulfillment of responsibility to shareholders and firm performance is examined by panel regression. Table 5-21 shows the empirical results and indicates that CSR(SHA) positively relates to Tobin's Q (β =

0.0038, $p \leqslant 0.05$), ROA ($\beta = 0.0016$, $p \leqslant 0.01$), ROE ($\beta = 0.0026$, $p \leqslant 0.01$) and EPS ($\beta = 0.0105$, $p \leqslant 0.01$). Thus, fulfilling responsibility to shareholders can enhance firm performance, which is evaluated by both market-based measures (e.g. Tobin's Q) and accounting-based measures (e.g., ROA, ROE, and EPS). The R^2 in Model 4.6, Model 4.7, and Model 4.9 are 0.8040, 0.9248, and 0.8638, respectively, indicating that these three models are well fit to the data.

Table 5-21 Panel regression results for CSR(SHA) and firm performance

	Dependent Variables			
	Tobin's Q (Model 4.6)	ROA (Model 4.7)	ROE (Model 4.8)	EPS (Model 4.9)
Independent variable				
CSR(SHA)	0.0038**	0.0016***	0.0026***	0.0105***
Control Variable				
Size	-0.5517**	-0.0152***	-0.0054***	-0.0103
Constant	15.0252***	0.3146***	0.0654*	0.2070
F test	23.2128***	71.6795***	852.4053***	36.9584***
R^2	0.8040	0.9248	0.6655	0.8638
Number of observations	875	875	875	875

Notes: Significant at * $p \leqslant 0.10$, ** $p \leqslant 0.05$, *** $p \leqslant 0.01$ (two-tailed test). T-statistics are shown in parentheses.

(2) Second, the relationship between corporate fulfillment of responsibility to employees and firm performance is tested by panel regression. Table 5-22 shows the empirical results and indicates that CSR(EMP) positively relates to ROA ($\beta = 0.0001$, $p \leq 0.01$), ROE ($\beta = 0.0012$, $p \leqslant 0.01$), and EPS ($\beta = 0.0005$, $p \leqslant 0.10$). The improvement of labor relationship helps companies to increase employees' satisfaction and decrease turnover. Employees are also motivated, so company-wide productivity is increased. Therefore, corporate fulfillment towards employees' responsibility can

increase firm performance. CSR is negatively related to Tobin's Q, but this relationship is not statistically significant (β = -0.0017, $p > 0.01$). One of the possible reasons for this insignificant relationship is that Tobin's Q reflects expectations from outsiders of the company and is easily affected by stock market participants. The R^2 values in Model 4.10, Model 4.11, and Model 4.13 are 0.7921, 0.9160, and 0.8407, respectively, indicating that these three models are well fit to the data.

Table 5-22 Panel regression results for CSR(EMP) and firm performance

	Dependent Variables			
	Tobin's Q (Model 4.10)	ROA (Model 4.11)	ROE (Model 4.12)	EPS (Model 4.13)
Independent variable				
CSR(EMP)	-0.0017	0.0001***	0.0012***	0.0005*
Control Variable				
Size	-0.5584**	-0.0088***	-0.0006	0.0399***
Constant	15.4164***	0.2589***	0.0838*	-0.3288*
F test	21.5611***	63.5429***	165.5060***	30.7407***
R^2	0.7921	0.9160	0.2786	0.8407
Number of observations	875	875	875	875

Notes: Significant at * $p \leqslant 0.10$, ** $p \leqslant 0.05$, *** $p \leqslant 0.01$ (two-tailed test). T-statistics are shown in parentheses.

(3) Third, the relationship between corporate fulfillment of responsibility to customers and suppliers and firm performance is examined by panel regression. Table 5-23 shows the empirical results and indicates that CSR(CUST&SUP) positively relates to ROA (β = 0.0001, $p \leqslant 0.05$) and ROE (β = 0.0008, $p \leqslant 0.01$). Therefore, managing better relationships with customers and suppliers can generate corporate loyalty and build a better corporate image. In this circumstance, corporate fulfillment of responsibility to customers and suppliers can enhance firm performance. CSR is

negatively related to Tobin's Q, but this relationship is not statistically significant (β = -0.0014, $p > 0.01$). CSR also insignificantly relates to EPS ($\beta = 0.0001$, $p > 0.01$). One of the possible reasons for these insignificant relationships is that both Tobin's Q and EPS are easily affected by market factors rather than internal decision making by the company. The R^2 in Model 4.14, Model 4.15, and Model 4.17 are 0.7905, 0.9179, and 0.8412, respectively, indicating that these three models are well fit to the data.

Table 5-23 Panel regression results for CSR(CUST&SUP) and firm performance

	Dependent Variables			
	Tobin's Q (Model 4.14)	ROA (Model 4.15)	ROE (Model 4.16)	EPS (Model 4.17)
Independent variable				
CSR(CUST&SUP)	-0.0014	0.0001**	0.0008***	0.0001
Control Variable				
Size	-0.5599**	-0.0086***	0.0042*	0.0394***
Constant	15.4291***	0.2567***	-0.0033	-0.3074
F test	21.3583***	65.1099***	136.6981***	30.8572***
R^2	0.7905	0.9179	0.2419	0.8412
Number of observation	875	875	875	875

Notes: Significant at * $p \leqslant 0.10$, ** $p \leq 0.05$, *** $p \leqslant 0.01$ (two-tailed test). T-statistics are shown in parentheses.

(4) Fourth, the relationship between corporate fulfillment of responsibility to the environment and firm performance is tested by panel regression. Table 5-24 shows the empirical results and indicates that CSR(ENV) positively relates to ROA (β = 0.0001, $p \leqslant 0.05$) and ROE ($\beta = 0.0009$, $p \leqslant 0.01$). Therefore, the better practices of environmental protection can attract more environment-sensitive investments. Companies can also get environmental legitimacy from regulatory authorities. In this circumstance, corporate fulfillment of responsibility to the environment can increase firm performance. CSR is negatively related to Tobin's Q, but this relationship is not

statistically significant (β = -0.0016, p > 0.01). CSR also insignificantly relates to EPS (β = 0.0002, p > 0.01). The R^2 in Model 4.18, Model 4.19, and Model 4.21 are 0.7908, 0.9191, and 0.8409, respectively, indicating that these three models are well fit to the data.

Table 5-24 Panel regression results for CSR(ENV) and firm performance

	Dependent Variables			
	Tobin's Q (Model 4.18)	ROA (Model 4.19)	ROE (Model 4.20)	EPS (Model 4.21)
Independent variable				
CSR(ENV)	-0.0016	0.0001**	0.0009***	0.0002
Control Variable				
Size	-0.5590**	-0.0086***	0.0047*	0.0410***
Constant	15.4048***	0.2568***	-0.0112	-0.3451*
F test	21.3897***	66.1762***	80.6246***	30.7992***
R^2	0.7908	0.9191	0.1584	0.8409
Number of observations	875	875	875	875

Notes: Significant at * $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$ (two-tailed test). T-statistics are shown in parentheses.

(5) Fifth, the relationship between corporate fulfillment of responsibility to society and firm performance is examined by panel regression. Table 5-25 shows the empirical results and indicates that CSR(SOC) positively relates to ROA (β = 0.0001, $p \leq 0.05$) and ROE (β = 0.0004, $p \leq 0.01$). Therefore, maintaining good social relations such as community development and charitable donations helps companies to lobby for tax reductions or bargain for other preferential policies. In this circumstance, corporate fulfillment of responsibility to the society can enhance firm performance. CSR is negatively related to Tobin's Q, but this relationship is not statistically significant (β = -0.0023, p > 0.01). CSR also insignificantly relates to EPS (β = 0.0010, p > 0.01). The R^2 in the Model 4.23 and the Model 4.25 are 0.9108 and 0.7032, respectively, indicating

that these two models are good fit to the data.

Table 5-25 Panel regression results for CSR(SOC) and firm performance

	Dependent Variables			
	Tobin's Q (Model 4.22)	ROA (Model 4.23)	ROE (Model 4.24)	EPS (Model 4.25)
Independent variable				
CSR(SOC)	-0.0023	0.0001**	0.0004***	0.0010
Control Variable				
Size	-0.6762**	-0.0089***	0.0078***	0.0304
Constant	18.0021***	0.2613***	-0.0786*	-0.1426
F test	28.0973***	59.4448***	22.1256***	13.8043***
R^2	0.0629	0.9108	0.0491	0.7032
Number of observations	875	875	875	875

Notes: Significant at * $p \leq 0.10$, ** $p \leqslant 0.05$, *** $p \leqslant 0.01$ (two-tailed test). T-statistics are shown in parentheses.

5.5.2.2. Test of Hypotheses

The results show that corporate fulfillment of responsibility to shareholders is positively related to Tobin's Q, ROA, ROE, and EPS. There is a positive relationship between corporate fulfillment of responsibility to employees and firm performance measured by ROA, ROE, and EPS. In addition, fulfillment of corporate responsibility to customers and suppliers, the environment, and society have a positive impact on ROA and ROE. All of these statistical results support Hypothesis 2 (*H2*), indicating that the impact of pharmaceutical companies' fulfillments to each aspect of stakeholders' responsibility increase firm performance.

5.6 Summary

This chapter develops the empirical analysis. Section 5.2 shows the sample descriptive. The change of the data over time is initially discussed, along with the descriptive statistics for independent, dependent, and control variables.

Section 5.3 presents the test of stationarity. The unit root test and cointegration test have not been developed for this study because of the large cross-sectional data set and the short time-span employed in the panel data set.

Section 5.4 performs the fixed and random effects testing. The likelihood test and Hausman test are both presented to figure out the appropriate econometric models used for empirical analysis.

The panel regression analysis is presented in Section 5.5. The PCSE model is used to examine the relationship between CSR and firm performance. The conclusions are shown as follows:

(1) There is a significant positive relationship between CSR and firm performance (measured by ROA, ROE, and EPS).

(2) There is a significant positive relationship between corporate fulfillment of responsibility to shareholders and firm performance (measured by Tobin's Q, ROA, ROE, and EPS).

(3) There is a significant positive relationship between corporate fulfillment of responsibility to employees and firm performance (measured by ROA, ROE, and EPS).

(4) There is a significant positive relationship between corporate fulfillment of responsibility to customers and suppliers and firm performance (measured by ROA and ROE).

(5) There is a significant positive relationship between corporate fulfillment of responsibility to the environment and firm performance (measured by ROA and ROE).

(6) There is a significant positive relationship between corporate fulfillment of responsibility to society and firm performance (measured by ROA and ROE).

The empirical results indicate that there is a positive relationship between CSR and firm performance in support of *H1* and *H2*. Based on the empirical analysis, the next chapter arrives at the conclusion of this study.

Chapter 6: Conclusion

6.1 Introduction

The aim of this study is to investigate the engagements of CSR practices for Chinese pharmaceutical companies. This research purpose is to explore how CSR is measured, and what the relationship is between CSR and firm performance. The statistical analysis developed in Section 5.5 supports the hypotheses raised in Section 3.4. This chapter presents the conclusion of this study.

The sections of Chapter 6 are organized in the following ways. Section 6.2 discusses the achievements of the research including how research questions are to be answered, how hypotheses are to be reviewed, and how research problems are to be explained. Section 6.3 provides the recommendation. Section 6.4 presents the contribution. Section 6.5 proposes the limitations. Section 6.6 raises suggestions for further research.

6.2 Achievement of the Research

6.2.1 Addressing the Research Questions

Two research questions are developed at the start of this study. The review of literature and the development of empirical analysis can address these research questions. The responses to the research questions are interpreted in detail as follows:

(1) The first of research question addressed is:

RQ1: What are the adaptable CSR measurements in the context of Chinese pharmaceutical companies?

The establishment of a CSR measuring system is described in Section 3.3. The measuring system is developed based on the stakeholder theory and is specific to the Chinese context. There are three stages in organizing the measurement. First, the

indicators of CSR performance are selected on the basis of Hexun's CSR measuring framework, which is one of the biggest CSR rating systems in China. Thirty-eight indicators are identified based on the perspectives of different groups of stakeholders. Second, the weights of different responsibilities to stakeholders fulfilled by the company are determined. It uses an expert scoring method for both obtaining the data and calculating the weight. Twenty experts who worked as managers or supervisors in Chinese pharmaceutical companies are asked to give a score within a five-point scale according to their perceptions about the importance of the responsibility to the stakeholder. The results show that the weight of responsibility to the environment is the highest with 22%, followed by responsibility to customers and suppliers, employees, shareholders, and society, with 21%, 20%, 19%. and 18%, respectively. Third, the CSR measuring system is formed. The details of the measurement are discussed in Section 3.3.3.

(2) The second of research question addressed is:

RQ2: What is the relationship between CSR and firm performance?

The empirical result shows that there is a positive relationship between CSR and firm performance. The statistical results also present that fulfillment of corporate responsibility to shareholders, employees, customers and suppliers, the environment, and society can also improve firm performance. There are significant positive relationships between CSR and accounting-based measures, including ROA, ROE, and EPS but an insignificant negative relationship between CSR and market-based measures such as Tobin's Q. The correlation coefficient between CSR and firm performance is lower than 0.01, indicating that the CSR engagements only contribute a tiny part to the improvement of firm performance.

6.2.2 Reviewing the Hypotheses

The statistical models performed in Section 5.5 test the hypotheses of this study. The review of hypotheses is shown as follows:

(1) The first of hypothesis reviewed is:

H1: In the Chinese market, pharmaceutical companies' engagement in CSR can increase firm performance.

The empirical result of this study indicates that *H1* can be accepted. There is a significant positive relationship between CSR and ROA, ROE, and EPS, presenting that Chinese pharmaceutical companies' engagement in CSR can increase firm performance.

(2) The second of hypothesis reviewed is:

H2: In Chinese market, pharmaceutical companies' fulfillment of each aspect of responsibility to stakeholders increases firm performance.

The statistical results show that *H2* can be accepted. There are significant positive relationships between corporate fulfillment of responsibility to shareholders and Tobin's Q, ROA, ROE, and EPS. Concerning corporate fulfillment of responsibility to employees, associations with ROA, ROE, and EPS are significantly positive. Corporate fulfillment of responsibility to customers and suppliers, the environment, and society also significantly and positively impact ROA and ROE. Thus, Chinese pharmaceutical companies' fulfillment of each aspect of responsibility to stakeholders can increase firm performance.

6.2.3. Clarifying the Research Problem

The research problem of this study set out to clarify is:

RP: "Why do China's pharmaceutical companies participate in CSR issues?"

The theoretical basis of this study concludes that participation in CSR practices helps companies effectively manage their relationships with stakeholders. For example, the fulfillment of responsibility to shareholders enhance shareholders' confidence and help companies to attract more potential investors from the market. A better labor relationship helps companies retain technical workers and motivate employees in the organization. Offering safe and high-quality products can differentiate

companies' goods in the eyes of customers. Maintaining good relations with society through community development and charitable donations helps companies lobby for tax reductions or bargain for other preferential policies with the government.

The hypotheses presented in the conceptual framework are tested by using the PCSE model in Section 5.5. The empirical results support the hypotheses and justify that CSR practices help pharmaceutical companies to improve their financial performance.

Taken together, participation in CSR issues helps companies improve their relations with key stakeholders, gain continuous economic benefits, and achieve long-term survival against fierce competition.

6.3 Recommendation

The recommendation is concerned with how research findings are to be used in practice. Three recommendations are presented:

(1) First, the poor CSR performance of Chinese listed pharmaceutical companies provides room for regulatory improvement by the government. Chinese authorities can strengthen their control and supervision of CSR practices. Stricter policies in terms of CSR issues can impose on listed companies. Under the robust regulatory environment, companies must perform in socially responsible ways because greater penalty costs are incurred in cases of CSR violation.

(2) Second, there are insignificant associations between CSR and Tobin's Q or EPS. These empirical findings indicate that the importance of CSR needs to be attached to Chinese stock markets. The CSRC and the Chinese Securities Association need to impose more rigid rules on CSR information disclosure. Regulating CSR reports in more strict and careful ways can put more pressure on listed companies and force them to provide high-quality CSR information to the public.

(3) Third, the policies of either CSR subsidies or tax deductions need to be

concerned with governmental authority. The low correlation coefficient between CSR and firm performance indicates that CSR only contributes a tiny part to the growth of financial performance. If the economic benefits are too weak to notice, companies may ignore CSR practices or even treat them as financial threats. Thus, the government can provide allowances for CSR investments or release tax-free policies with respect to community developments or charitable donations.

6.4 Contribution of this Study

This study makes two contributions to the literature:

(1) First, a comprehensive investigation of the relationship between CSR and firm performance is developed. Prior researchers have examined this relationship in both mature and emerging economies, but few have studied it the context of the medical industry within emerging economies such as in Chinese pharmaceutical companies. Thus, this study presents an important contribution to the CSR literature in the Chinese pharmaceutical industry.

(2) Second, this study attempts to develop a CSR measuring system for Chinese pharmaceutical companies. The expert scoring method is used to evaluate how important it is that responsibility to the stakeholders be fulfilled. The measuring system contains both primary data acquired from a questionnaire sent to the experts and secondary data from the CSR database collected from Hexun's CSR rating. The establishment of a CSR measuring system in the context of pharmaceutical companies also contributes to CSR research in China.

(3) Third, this study applies a mixing research method by combining both qualitative and quantitative methods, which also contributes to Chinese CSR literature because previous studies in China have mainly used only a quantitative method to investigate CSR.

6.5 Limitation of this Study

The limitations of this study consist of three perspectives, as follows:

(1) First, this study only uses a seven-year period between 2010 and 2016, representing a relatively short period of time in the panel data regression analysis. Additionally, only listed pharmaceutical companies are chosen for the sample, creating a bias to represent the whole industry.

(2) Second, this study develops an expert scoring method to construct a CSR measuring system. The number of respondents is only twenty, indicating a limited sample size. The limited number of respondents is subject to one-sided bias.

(3) Third, this study identifies stakeholders of Chinese pharmaceutical companies as being shareholders, employees, customers and suppliers, the environment, and society. However, other stakeholders who have not been mentioned in this study also affect corporate decision making, such as the government, NGOs, and other organizations. The absence of all groups of stakeholders creates imprecision in the CSR measurement.

6.6 Suggestions for Further Research

Suggestions for further research of CSR studies in China are presented in two areas as follows:

(1) First, further CSR study can consider how the time lag affects the relationship between CSR and firm performance. The change in financial performance may react to CSR's engagement one or even a few years later. In other words, long-term firm performance can be chosen as the dependent variable in future research.

(2) Second, other factors explaining the engagement in CSR practices can be also identified. Besides the improvement of financial performance, globalization can also lead to increasing involvement in CSR, which needs to be discussed in future research.

6.7 Summary

The literature review points out that CSR helps companies improve their relations with stakeholders. In addition to academia, the public is increasingly concerned with companies' engagement in CSR practices. This study explores CSR in China, the biggest emerging economy. Through empirical analysis and testing the hypotheses, the research questions and research problem are addressed. This study supports the argument that the relationship between CSR and firm performance is positive in the context of pharmaceutical industry in China.

[This page is deliberately left blank.]

Bibliography

AA1000. (2008). *AA1000 Accountability Principles Standard. Institute of Social and Ethical Accountability Guidelines.* London, UK.

Ann, T. N., Wayne, O., & Rob, H. (2012). Capabilities, proactive CSR and financial performance in SMEs: empirical evidence from Australian manufacturing industry sector. *Journal of Business Ethics,* 109 (4), 483-500.

Allen, I. E. & Seaman, C. A. (2007). Likert scales and data analyses. *Quality Progress,* 40 (7), 64-65.

Aupperle, K. E., Carroll, A. B., & Hatfield, J. D. (1985). An empirical examination of the relationship between corporate social responsibility and profitability. *Academy of Management Journal,* 28 (2), 446-463.

Arksey, H. & Knight, P. (1999). *Interviewing for Social Scientists.* London, UK: SAGE Publications.

Baltagi, B. (2008). *Econometric analysis of panel data.* Hoboken, New Jersey: John Wiley & Sons.

Bansal, P. & Roth, K. (2000). Why companies go green: a model of ecological responsiveness. *Academy of Management Journal,* 43, 717-736.

Barnett, M. L. & Salomon. R. M. (2006). Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. *Strategic Management Journal*. 27 (2), 1101-1122.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management,* 17 (1), 771-792.

Baron, D. (2001). Private politics, corporate social responsibility and integrated strategy. *Journal of economics and Management Strategy,* 10 (1), 7-45.

Bhattacharya, C. B. & Sen, S. (2004). Doing better at doing good: when, why, and how consumers respond to corporate social initiatives. *California Management Review*, 47 (1), 9-24.

Bichta, C. (2003). Corporate socially responsible (CSR) practices in the context of Greek industry. *Corporate Social Responsibility & Environmental Management*, 10 (1), 12-24.

Bogdan, R. & Taylor, S. (1987). Looking at the bright side: A positive approach to qualitative policy and evaluation research. *Qualitative Sociology,* 13 (2), 183-192.

Bragdon, J. H. & Marlin, J. (1972). Is pollution profitable? *Risk Management,* 19 (4), 9-18.

Brammer, S. & Millington, A. (2008). Does it pay to be different? An analysis of the relationship between corporate social and financial performance. *Strategic Management Journal,* 29 (12), 1325-1343.

Branch, B. (1983). *Misleading accounting: The danger and the potential.* Working paper, University of Massachusetts.

Brand, V. (2009). Empirical business ethics research and paradigm analysis. *Journal of Business Ethics,* 86 (4), 429-449.

Branco, M. C. & Rodrigues, L. L. (2006). Corporate social responsibility and resource-based perspective. Journal of Business Ethics, 69 (2), 111-132.

Bryman, A. & Bell, E. (2007). The Ethics of Management Research: An Exploratory Content Analysis. Briti*sh Journal of Management,* 18 (1), 63-77.

Burrell, G. & Morgan, G. (1979). *Sociology paradigm and organizational analysis: Elements of the sociology of corporate life.* Portsmouth: Heinemann.

Campbell, T., Raphael, D., & Macfie, A. (1977). Adam Smith: The theory of moral sentiments. *Proceedings of the National Academy of Sciences,* 27 (109), 359.

Campbell, J. L. (2007). Why would corporations behave in socially responsible ways? an institutional theory of corporate social responsibility. *Academy of Management Review,* 32 (3), 946-967.

Cannon, T. (1994). *Corporate responsibility: a textbook on business ethics, governance, environment: roles and responsibilities.* London, UK: Pitman Press.

Carroll, A. B. (1974). Corporate social responsibility: Its managerial impact and implications. *Journal of Business Research,* 2 (1), 75-88.

Carroll, A. B. (1979). The pyramid of corporate social responsibility. Toward the moral management of organizational stakeholders. *Business Horizons,* 34 (4), 39-48.

Carroll, A. B. (2008). *A History of Corporate Social Responsibility: Concepts and Practices.* Oxford, UK: Oxford University Press.

Chapple, W. & Moon, J. (2005). Corporate social responsibility (CSR) in Asia: a seven-country study of CSR web site reporting. *Business & Society,* 44 (4), 415-441.

Chan, C. Y., Chou, D. W., & Lo, H. C. (2016). Do financial constraints matter when firm engage in CSR? *North American Journal of economics and Finance*, 39.

Chen, C. & Delmas, M. (2011). Measuring corporate social performance: an efficiency perspective. P*roduction and Operations Management,* 20 (6), 789-904.

Chen, H., & Wang, X. (2011). Corporate social responsibility and corporate financial performance in China: an empirical research from Chinese firms. *Corporate Governance*, 11(4), 361-370.

Chen, H. H. & Jia, S. H. (2003). The evolution of CSR: the study based on social-

political theory. Journal of Chinese Industrial Economy, 12, 85-92. In Chinese.

China Food and Drug Administration. (2018, March 30). The News of Drug-related product accidents. Retrieved April 15, 2018, from http://samr.cfda.gov.cn/WS01/CL0412/

China's Securities Regulatory Commission. (2012). I*ndustrial category for listed companies.* Beijing, China.

Cochran, P. L. & Wood, R. A. (1984). Corporate social responsibility and financial performance. Academy of Management Journal, 27 (1), 42-56.

Collis, J. & Hussey, R. (2013). *Business research: A practical guide for undergraduate and postgraduate students.* Hampshire, UK: Palgrave Macmillan.

Cornell B. & Shapiro, A. C. (1987). Corporate stakeholders and corporate finance. Financial Management, 16 (1), 5-14.

Clarkson, M. B. E. (1991). *Defining, evaluating, and managing corporate social performance: The stakeholder management model.* Greenwich: JAI Press.

Clarkson, M. B. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of Management Review*, 20 (1), 92-117.

Collins, J. & Hussey, R. (2003). *Business research.* Hampshire, UK: Palgrave Macmillan.

Corbin, J. & Strauss, A. (2008). *Basics of qualitative research.* Thousand Oaks: Sage Publications.

Crodeiro, J. J. & Tewari, M. (2014). Firm characteristics, industry context, and investor reactions to environmental CSR: A stakeholder theory approach. *Journal of Business Ethics,* 130 (4), 833-849.

Crane, A. & Matten, D. (2007). *Business ethics: managing corporate citizenship and sustainability in the age of globalization.* Oxford, UK: Oxford University Press.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process.* London, UK: SAGE Publications.

Dahlsrud, A. (2008). How corporate social responsibility is defined: an analysis of 37 definitions. *Corporate Social Responsibility & Environmental Management,* 15 (1), 1-13.

Davis, K. (1960). Can business afford to ignore social responsibilities? C*alifornia Management Review,* 2 (3), 70-76.

De George, R. T. (2005). Intellectual property and pharmaceutical drugs: an ethical

analysis. *Business Ethics Quarterly,* 15 (4), 549-575.

Deegan, C., Rankin, M., & Tobin, J. (2002). An examination of the corporate social and environmental disclosures of BHP from 1983-1997: a test of legitimacy theory. *Accounting, Auditing & Accountability Journal*, 15 (3), 312-343.

Donaldson, T. & Preston, L. E. (1995). The stakeholder theory of the corporation:

Concepts, evidence and implications. *Academy of Management Review,* 20 (1), 65-91.

Dowling, J. & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific Sociological Review,* 18 (1), 122-126.

Du, S., Bhattacharya, C. B., & Sen, S. (2011). Corporate social responsibility and competitive advantage: overcoming the trust barrier. *Management Science, 57,* 1528-1545.

Ducassy, I. (2013). Does corporate social responsibility pay off in times of crisis? An alternate perspective on the relationship between financial and corporate social performance. *Corporate Social Responsibility Environment Management, 20*, 157-167.

Eesley, C. E. & Lenox, M. (2011). Secondary stakeholder actions and the selection of firm targets. *Social Science Electronic Publishing*, Working Paper No. 104. Available at SSRN: https://ssrn.com/abstract=1926944

Elkington, J. (1994). Towards the sustainable corporation: win-win-win business strategies for sustainable development. *California Management Review,* 36 (2), 90-100.

Fan, H. H. (2011). The construction of CSR evaluation system. *Journal of Enterprise Study, 3,* 198-200. In Chinese.

Frederick, W. C. (1994). From CSR1 to CSR2: The maturing of business-and-society thought. *Business & Society,* 33 (2), 150-164.

Freeman, R. E. (1984). *Strategic Management: A Stakeholder Approach*. Boston: Pittman

Friedman, M. (1970). The social responsibility of business is to increase its profit. *New York Time Magazine, 6,* 173-178.

Given, L. M. (2008). *The sage encyclopedia of qualitative research methods.* Los Angeles, California: SAGE Publications.

Goertzen, M. J. (2017). Introduction to quantitative research and data. *Library Technology Reports.* 53 (4), 12-18.

Graves, S. B. & Waddock, S. A. (1994). Institutional owners and corporate social performance. *Academy of Management Journal,* 37, 1034-1046.

Gray, R. H., Kouhy, R., & Lavers, S. (1995). Constructing a research database of social and environmental reporting by UK companies: a methodological note. *Accounting, Auditing &Accountability Journal*, 8 (2), 78-101.

Gray, R., Javad, M., Power, D., & Sinclair, C. (2001). Social and environmental disclosure and corporate characteristics: A research note and extension. *Journal of Business Finance & Accounting,* 28 (3), 327-356.

Griesse, M.A. (2007). The geographic, political, and economic context for corporate social responsibility in Brazil. *Journal of Business Ethics,* 73 (1), 21-37.

Guba, E. G. & Lincoln, Y. S. (1994). *Handbook of qualitative research.* London, UK: SAGE Publications.

Halme, M. & Huse, M. (1997). The influence of corporate governance, industry and country factors on environmental reporting. *Scandinavia Journal of Management*, 13 (2), 137-157.

Haniffa, R. M. & Cooke, T. E. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy, 24* (5), 391-430.

Harrison, J. S. & Freeman, R. E. (1999). Stakeholders, social responsibility, and performance: Empirical evidence and theoretical perspectives. *Academy of Management Journal,* 42 (5), 479-485.

Hart, S. L. (1995). A natural resource-based view of the firm. *Academy of Management Review,* 20 (4), 986-1014.

Hart, S. L. & Ahuja, G. (1996). Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business strategy and the Environment,* 5 (1), 30-37.

Hexun CSR Database. (2010, June 30). *The Evaluation of CSR.* Retrieved December 31, 2017, from http://stockdata.stock.hexun.com/zrbg/Plate.aspx

Hillman, A. & Keim, G. (2001). Shareholder value, stakeholder management, and social issues: What's the bottom line? S*trategic Management Journal,* 22, 125-139.

Hodgson, G. M. (1998). Evolutionary and competence-based theories of the firm, *Journal of Economic Studies,* 25, 25-56.

Johnson, P. & Duberley, J. (2000). *Understanding management research: An introduction to epistemology.* London, UK: SAGE Publications

Jenkins, H. (2006). Small business champions for corporate social responsibility. *Journal of Business Ethics*, 67 (3), 241-256.

Jenkins, R. (2005). Globalization, corporate social responsibility and poverty.

International Affairs, 81 (3), 525-540.

Jensen, M. & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial economics*, *3*, 305-360.

Jo, H. & Harjoto, M. A. (2011). Corporate governance and firm value: The impact of corporate social responsibility. *Journal of Business Ethics*, 103 (3), 351-383.

Jones, T. M. (1980). Corporate social responsibility revisited, redefined. *California Management Review,* 22 (3), 59-67.

Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review,* 20 (2), 404-437.

Kakabadse, N. K., Rozuel, C., & Lee-Davies, L. (2005). Corporate social responsibility and stakeholder approach: a conceptual review. *International Journal of Business Government and Ethics,* 1 (4), 277-302.

Knoepfel, I. (2001), Dow Jones sustainability group index: a global benchmark for corporate sustainability. *Corporate Environmental Strategy,* 8 (1), 6-15.

Kolk, A., Hong, P., & Dolen, W. V. (2010). Corporate social responsibility in china: an analysis of domestic and foreign retailers' sustainability dimensions. *Business Strategy and the Environment, 1*9 (5), 289-303.

Kuznetsov, A., Kuznetsova, O., & Warren, R. (2009). CSR and the legitimacy of business in transition economies: the case of Russia. *Scandinavian Journal of Management,* 25, 37-45.

Laan, G. V. D., Ees, H. V., & Witteloostuijn, A. V. (2008). Corporate social and financial performance: an extended stakeholder theory, and empirical test with accounting measures. *Journal of Business Ethics,* 79, 299-310.

Lange, D. & Washburn, N. T. (2012). Understanding attributions of corporate social irresponsibility. *Academy of Management Review,* 37 (2), 300-326.

Lindgreen, A., Swaen, V., & Campbell, T. (2009). Corporate Social Responsibility Practices in Developing and Transitional Countries: Botswana and Malawi. *Journal of Business Ethics*, 90 (3), 429-440.

Leisinger, K. M. (2005). The corporate social responsibility of the pharmaceutical industry: Idealism without illusion and realism without resignation. *Business Ethics Quarterly,* 15 (4), 577-594.

Levitt, T. (1958). The dangers of social responsibility. *Harvard Business Review,* 36 (5), 41-50.

Li, X. Z. (2008). The construction of CSR measuring system. *Finance and Accounting Monthly, 8,* 11-12. In Chinese.

Li, Z. (2008). The cross-national comparison of CSR information disclosure among France, America and Japan. *Accounting and Finance, 2*, 40-42. In Chinese.

Lin, L. W. (2010). Corporate social responsibility in China: window dressing or structural change. *Berkeley Journal of International Law,* 28 (1), 64-100.

Lin, X. F., Xiao. D. D., Liu. W. J., & Liu, C.J. (2011). The analysis and model reconstruction of corporate social responsibility in Chinese pharmaceutical companies. *Medicine and Society,* 24 (7), 368-371. In Chinese.

Lindblom, C. K. (1994). *The implications of organizational legitimacy for corporate social performance and disclosure*. Working Paper, American Accounting Association Public Interest Section, USA.

Liu, J. H. (1999). *Corporate social responsibility in business.* Beijing: Law Press. In Chinese.

Liu, X. B. & Anbumozhi, V. (2009). Determinants factors of corporate environmental information disclosure: An empirical study of Chinese listed companies. *Journal of Cleaner Production*, *17*, 593-600.

Ma, A. Y., Jiang Z. H., & Li, W. (2015). The relationship between CSR and financial performance: An empirical study for food and drinking companies. *Communication of Finance and Accounting*, *33,* 109-111. In Chinese.

Magness, V. (2006). Strategic posture, financial performance and environmental disclosure: an empirical test of legitimacy theory. *Accounting, Auditing & Accountability Journal,* 19 (4), 540-563.

Maignan, I., Ferrell, O. C., & Hult, G. T. M. (2000). Corporate citizenship in two countries: The case of the United States and France. *Journal of business Ethics,* 23 (3), 283-297.

Margolis, J. D. & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly,* 48 (2), 268-305.

Mathews, J. A. (2002). A resource-based view of schumpeterian economic dynamics, *Journal of Evolutionary economics,* 12, 29-54.

Matten, D. & Moon, J. (2004). Corporate social responsibility education in Europe. *Journal of Business Ethics,* 54 (4), 323-337.

Matten, D. & Moon, J. (2008). Implicit and explicit CSR: a conceptual framework for a comparative understanding of corporate social responsibility. *The Academy of*

Management Review, 33 (2), 404-424.

McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *The Academy of Management Journal,* 31 (4), 854-872.

McWilliams, A. & Siegel, D. S. (2000). Corporate social responsibility and financial performance: Correlation or miss specification? *Strategic Management Journal,* 21 (5), 603-609.

McWilliams, A. & Siegel, D. S. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of Management Review,* 26 (1), 117-127.

McWilliams, A., Siegel, D. S., & Wright, P. M. (2006). Corporate social responsibility: Strategic implications. *Journal of Management Studies,* 43 (1), 1-18.

Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook.* London, UK: SAGE Publications.

Modell, S. (2009). In defense of triangulation: A critical realist approach to mixed methods research in management accounting. *Management Accounting Research*, 20 (3), 208-211.

Moon, J. (2004). Government as a driver of corporate social responsibility: The UK in comparative perspective. *ICCSR Working Papers*, No. 20, Nottingham: University of Nottingham.

Moon, J., Crane, A., & Matten, D. (2005). Can corporation be citizen? Corporate citizenship as a metaphor for business participation in society. *Business Ethics Quarterly,* 15 (3), 429-453.

Moskowitz, M. (1972). Choosing socially responsible stocks. *Business and Society Review,* 1 (1), 71-75.

Murphy, P. R. & Poist, R. F. (2002). Socially responsible logistics: an exploratory study. *Transportation Journal*, *41*, 23-36.

Navarro, P. (1988). Why do corporations give to charity? *Journal of Business,* 61 (1), 65-93.

Onwuegbuzie, A. J. & Johnson, R. B. (2006). The validity issue in mixed research. *Research in the Schools,* 13 (1), 48-63.

Orlitzky, M., Rynes, S. L., & Schmidt, F. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, *24* (3), 403-441.

Pan, X. (2015). *The relationship between CSR and financial performance for Chinese mineral companies.* Doctoral Dissertation, China University of Geoscience (Beijing).

Pan, X., Sha, J., Zhang, H., & Ke, W. (2014). Relationship between Corporate Social Responsibility and Financial Performance in the Mineral Industry: Evidence from Chinese Mineral Firms. *Sustainability,* 6 (7), 4077-4101.

Pfeffer, J. & Salancik, G. R. (1978). The external control of organizations: A resource dependence perspective. *American Journal of Sociology*, 87 (3), 23-35.

Porter, M. E. (1996). *Strategy for business.* London, UK: SAGE Publications.

Preuss, L. & Perschke, J. (2010). Slipstreaming the larger boats: Social responsibility in medium-sized businesses. *Journal of Business Ethics*, 92 (4), 531-551.

Princic, L. (2003). *Engaging small business in corporate social responsibility*. Vancouver, BC: Canadian Business for Social Responsibility.

Roberts, C. B. (1992). Determinants of corporate social responsibility disclosure: an application of stakeholder theory. *Accounting, Organization and Society*, 17 (6), 595-612.

Roberts, S., Lawson, R., & Nicholls, J. (2006). Generating regional-scale improvements in SME corporate responsibility performance: Lessons from responsibility northwest. *Journal of Business Ethics*, 67 (3), 275-286.

Rupley, K. H., Brown, D., & Marshall, R. S. (2012). Governance, media and the quality of environmental disclosure. *Journal of Accounting and Public Policy,* 31 (6), 610-640.

Russo, M. V. & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal,* 40 (3), 534-559.

Sethi, S. P. (1979). A conceptual framework for environmental analysis of social issues and evaluation of business response patterns. *Academy of management review,* 4 (1), 63-74.

Sethi, S. P. (2009). Globalization and the good corporation. *Journal of Business Ethics*, 87, 1-2.

Shen, H. T. (2005). *The influence of CSR on financial performance.* Doctoral Dissertation, Xiamen University. In Chinese.

Smith, N. C. (2003). Corporate social responsibility: whether or how? *California management review,* 45 (4), 52-76.

Smith, N. C. & Ward H. (2007). Corporate Social Responsibility at a crossroads? *Business Strategy Review,* 18 (1), 16-21.

Smith, A. D. (2008). Corporate social responsibility practices in the pharmaceutical industry. *Business Strategy Series,* 9 (6), 306-315.

Soana, M. (2011). The relationship between corporate social performance and corporate financial performance in the banking sector. *Journal of Business Ethics*, 104, 133-148.

Stake, R. (1995). *The art of case study research.* Thousand Oaks, CA: SAGE Publications.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review,* 20 (3), 571-610.

Surroca, J. Tribo, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: the role of intangible resources. *Strategic Management Journal,* 31 (5), 463-490.

Tang, Z., Hull, C. E., & Rothenburg, S. (2012). How corporate social responsibility engagement strategy moderates the CSR-Finance performance relationship. *Journal of Management Studies,* 49 (7), 1274-1303.

Thomson, M. & Heron, P. (2006). Relational quality and innovative performance in R&D based science and technology firms. *Human Resource Management Journal,* 16 (10), 28-47.

Turban, D. B. & Greening, D. W. (1997). Corporate social performance and organizational attractiveness to prospective employees. *Academy of Management Journal*, 40 (3), 658-672.

Ullmann, A. (1985). Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance. *Academy of Management Review*, *10*, 540-577.

Visser, W. (2006). *Corporate Citizenship in a Development Perspective.* Copenhagen, Denmark: Copenhagen Business School Press.

Vogel, D. J. (2005). Is there a market for virtue? The business case for corporate social responsibility. California management review, 47 (4), 19-45.

Waddock, S. A. & Graves, S. B. (1997). Quality of management and quality of stakeholder relations: are they synonymous? *Business & Society,* 36 (3), 250-279.

Wahba, H. (2007). Does the market value corporate environmental responsibility? An empirical examination. *Corporate Social Responsibility and Environmental Management,* 15 (2), 89-99.

Wang, M. B., Qin, C., & Kong, D. M. (2008). Corporate social responsibility, investor behaviors, and stock market returns: Evidence from a natural experiment in China. *Journal of Accounting Research,* 18 (5), 180-199. In Chinese.

Wang, X. Q. & Xu, P. (2011). The empirical study on CSR for Pharmaceutical firms

based on stakeholder theory. *The Study of Industrial economics, 7,* 97-98. In Chinese.

WBCSD. (1998). *The Business Case for Sustainable Development: Making a Difference towards the Johannesburg Summit 2002 and beyond*, World Business Council for Sustainable Development. Switzerland, Geneva.

Weber, M. (2008). The business case for corporate social responsibility: A company-level measurement approach for CSR. *European Management Journal,* 26 (4), 247-261.

Weiss, J. W. (2008). *Business ethics: a stakeholder and issues management approach.* Cincinnati, U.S.: South-Western College Publications.

Welford, R. (2004). Corporate social responsibility in Europe and Asia: critical elements and best practice. *Journal of corporate citizenship,* 13 (1), 31-47.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management* Journal, 5 (2), 171-180.

Weshah, S. R., Dahiyat, A. A., Awwad, M. R. A., & Hajjat, E. S. (2012). The impact of adopting corporate social responsibility on corporate financial performance: evidence from Jordanian banks. *Interdisciplinary Journal of Contemporary Research in Business,* 4 (5), 34-44.

Windsor, D. (2001) The future of corporate social responsibility. *International Journal of Organizational Analysis,* 9 (3), 225-256.

Wiseman, J. (1982). An evaluation of environmental disclosure made in corporate annual reports. *Accounting, Organizations and Society,* 7 (1), 53-62.

Wood, D. J. (1991). Corporate social performance revisited. *Academy of Management Review,* 16 (4), 691-718.

Wood, D. J. & Jones, R. E. (1995). Stakeholder mismatching: A theoretical problem in empirical research on corporate social performance. *The International Journal of Organizational Analysis,* 3 (3), 229-267.

Wood, D. J. (2010). Measuring corporate social performance: a review. *International Journal of Management Reviews,* 12 (1), 50-84.

Xiao, J. Z., Gao, S. S., Heravi, S., & Cheung, Y. C. Q. (2005). The impact of social and economic development on corporate social and environmental disclosure in Hong Kong and the U.K.. *Advanced in International Accounting, 18*, 219-243.

Xu, S. K. & Yang, R. D. (2007). The conclusion of conceptual model of CSR. *Journal of Chinese Industrial economics*, 5, 71-79. In Chinese.

Yang, R. L. & Zhou, L. A. (1993). *The application of stakeholder theory.* Beijing:

Chinese economics and Science Press. In Chinese.

Yoshikawa, T. & Phan, P. H. (2003). The performance implications of ownership-governance reform. *European Management Journal*, 22 (6), 698-706.

Yuan, J. F. (1990). *Corporate social responsibility.* Beijing: Ocean Publications. In Chinese.

Other Reference

China Academy of Social Science. (2017). *Blue Book of CSR*.

China's Securities Regulatory Commission. (2015). *Industry Classification*.

Chinese Company Law. (1994). *Article 52*.

Chinese Company Law. (1994). *Article 121*.

Chinese Company Law. (2006). *Article 5*.

Chinese Pharmaceutical Enterprise Association. (2018). *Guidelines of CSR Practices for Chinese Pharmaceutical Companies*.

European Commission. (2001). *Green Paper*.

GRI. (2014). *Global Reporting Initiative 4.0*.

ISO 26000. (2010). *Guidelines on Social Responsibility*.

Hexun. (2010). *Hexun's Framework of CSR Performance Evaluation*.

Hexun. (2018). *CSR Ranking*.

OECD. (2001). *Guidelines for Multinational Companie*s.

Shanghai Stock Exchange. (2008). *Guide on environmental information disclosure*.

Shenzhen Stock Exchange. (2006). *Guideline of Social Responsibility*.

State-Owned Assets Supervision and Administration Commission of the State Council. (2008). *Guidance for Social Responsibility Implementation for the Stated-Owned Enterprise*.