# Social Responsibility, Internal Governance and Manufacturing Growth

# Odpowiedzialność społeczna, zarządzanie wewnętrzne a wzrost produkcji

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## Abstract

This article presents a structural equation model for exploring the impact of social responsibility, which been divided into responsibility for the internal stakeholder and responsibility for the external stakeholder, as well as internal governance on Chinese manufacturing growth on the basis of data collected from 500 manufacturing enterprises in the East region of China. Our results show that both social responsibility and internal governance have a positive impact on manufacturing growth and promote sustainable development in manufacturing. In addition, social responsibility has a positive impact on internal governance, and the internal governance plays a partial intermediary role in the impact of social responsibility on manufacturing growth. These findings signify that it is important for Chinese Manufacturing to undertake Social Responsibility, and it can provide a beneficial guidance for Chinese Manufacturing Growth and help strengthen the competitive advantage of manufacturing industry.

Key words: social responsibility; internal governance; manufacturing growth; structural equation model

## Streszczenie

Artykuł przedstawia model równania strukturalnego odnoszący się do społecznej odpowiedzialności, wyróżniając w jej ramach odpowiedzialność za wewnętrznego oraz zewnętrznego akcjonariusza i wewnętrzne zarządzanie w kontekście wzrostu produkcji w Chinach, w oparciu o informacje uzyskane z 500 firm pochodzących ze wschodniej części kraju. Przeprowadzona analiza pokazuje, że zarówno społeczna odpowiedzialność, jak i wewnętrzne zarządzanie, mają pozytywny wpływ na wzrost produkcji i promocję zrównoważonego wytwarzania. Ponadto społeczna odpowiedzialność ma pozytywny wpływ na wewnętrzne zarządzanie, a w oddziaływaniu społecznej odpowiedzialności na wzrost produkcji, wewnętrzne zarządzane odgrywa po części rolę pośrednika. Uzyskane rezultaty wskazują, że społeczna odpowiedzialność jest ważna, może pełnić rolę dobrego doradcy w kontekście wzrostu chińskiej produkcji i pomóc w zwiększeniu konkurencyjnej przewagi dla przemysłu wytwórczego.

**Slowa kluczowe:** odpowiedzialność społeczna, zarządzanie wewnętrzne, wzrost produkcji, model równania strukturalnego

#### 1. Introduction

As a strategic branch, advanced development of manufacturing industries is the prerequisite for most countries to achieve industrialization and is also the pillar of the country's economic development and enhances its strength comprehensively. This is especially important in China, where industrialization is still at the initial stage. Manufacturing is not only a major component of Chinese economy, which provides the main material basis for industrialization and modernization, but also a key factor to social and economic sustainable development (Zhang, 2013). Therefore, under the policy of constructing a harmonious society in China, guiding manufacturing attention to stakeholder's demands and consciously bearing social responsibility has become an urgent need for Chinese manufacturing, as well as for the Chinese society, in order to maintain a healthy and sustainable development.

The in-depth development of economic globalization and the continued adjustment of world industrial structure speed up the transfer of manufacturing from the developed countries to the developing countries. At the same time, the rapid development of high-growth industry, including iron and steel industry, automobile industry and equipment industry etc., will promote China to undertake this international industrial transfer action and thus become the world's manufacturing base. However, since the introduction of reforms and opening up, China's economic level has gradually narrowed the gap with the developed Western countries, which resulted in raising the living standards of people. Additionally, the characteristics denoting early development stage of Chinese labor, such as low wages and low welfare, do not exist anymore. Therefore, at the present stage, China's manufacturing is facing enormous challenges of change, including the continuing rise of raw materials and energy prices, introduction of various government regulations, the fading advantage of low-cost labor, which consist of conventional core competence (Ding, 2010), as well as the demand of creating a harmonious society and the enhancing the social responsibility awareness. All these factors forced Chinese manufacturing enterprises to make appropriate adjustments. Wang Ruixiang, the president of China Machinery Industry, claimed at Social Responsibility Forum of equipment manufacturing industry in 2013 that fulfilling the social responsibility is an important measure to enhance manufacturing competitiveness and a powerful guarantee for achieving sustainable development in manufacturing. He also proposed that if manufacturing industry could seize the China's transformation opportunity and fulfill the social responsibility conscientiously, it would be possible for them to overturn the traditional development model and ensure the improvement in the growth of quality.

The theory of corporate social responsibility comes from the article entitled Businessmen's social responsibility written by Bowen (1953), and it was introduced to China in 2001. In 2002, China Securities Regulatory Commission issued Corporate Governance Guidelines clearly requiring the listed companies to pay attention to corporate social responsibility. In 2006, new Company Law explicitly required that companies engaged in business activities must shoulder social responsibility; at the same year, Shenzhen Stock Exchange established Shenzhen Stock Exchange listed company social responsibility guidelines which advocated listing companies actively committed to social responsibility. In 2012, SAC (Supervision and Administration Commission) further suggested that all central corporate should issue a high quality social responsibility report. Public opinion, government regulation and corporate sustainable development, all these require enterprises not only should care about the shareholder wealth but should also pay attention to stakeholders' interests and fulfill social responsibility in a conscious manner. However, in practice, many scandals, such as poison capsule event, Foxconn event and so on, made public anxious about the socially responsible behavior related to manufacturing. What social responsibility should the manufacturing industries assume and what will be its impact on the long-term development performance of a company, have become important practical problems restricting the sustainable development of manufacturing. The existing research about manufacturing growth mostly concerns the matters related to the industry concentration, firm size, and profitability. Other topics including, for instance, what is the social responsibility of manufacturing and how does the social responsibility affect the growth of manufacturing, are rarely involved. On the basis of the above-mentioned analvsis, this study investigates the manufacturing growth problem from the perspective of social responsibility, which has an important theoretical and practical significance and can provide useful guidance for manufacturing growth and thus strengthen the competitive advantage of manufacturing.

#### 2. Research theories and hypothesis

### 2.1. Related theory

#### 2.1.1. Manufacturing growth

Manufacturing growth corresponds to the process experienced by manufacturing companies, from weak, small and immature to mature, powerful and competitive ones, occurring under the combined effects of dynamic mechanism in their life cycle. Manufacturing growth is reflected in two dimensions, i.e. *quantity promotion* and *quality promotion*. Quantity promotion refers to the increase in the output value and overall size expansion and so on; on the hand, quality promotion refers to technology maturity and organization rationalization (Zhou, 2000). Zhang

(2013) proposed that the overall development of manufacturing industry should include the following connotations: (1) improvement of competitiveness of enterprises; (2) increase of enterprise value; (3) rationalization of enterprise behavior and enterprise system.

Growth factors directly determine the path of manufacturing growth path and its efficiency. Hence, the related analysis is important for the scholars intending to explore how the manufacturing growth may be improved. Shah (2003) and Gungor (1999) believed that the frowth of manufacturing is mainly influenced by the external environment which consists of customers, shareholders, community and government regulations. Vachon (2008), Ward (2000) and Ilgin (2010) thought the heterogeneity and dynamic characteristics of manufacturing resources is the basic factor to promote the growth of manufacturing in a sustainable manner. Zhu (2003) suggested that the driving force behind the manufacturing growth comes from the improvement of core competitiveness which is brought by technological innovation and continuous changing. Yang (2010) believed that the factors governing manufacturing growth still constitute a black box, that is, the influencing factors are complicated, involving knowledge, evolution, innovation, legal and other aspects. On the basis of the influence factors, scholars constructed a variety of manufacturing growth index. Dunne (1992), Delmar (1997), and Merz (1995) thought that the volume of sales constitutes a parameter which is suitable for measuring the manufacturing growth. Pesaran (1995) & Kuroiwa (2010) considered the employment opportunity as the growth index conform-

Table 1. Indicators of manufacturing growth

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Authors	Indicators of			
	manufacturing growth			
Karnani (1982), Dunne				
(1992), Merz (1995),	sales volume			
Delmar (1997)				
Penrose (1959),	employment			
Kogut (1992)	opportunities			
Enoch (1978),				
Fagerberg (1988),	unit labor cost			
Menzler-Hokkanen				
(1989)				
Gustavsson and Lundberg	enterprise scale, total			
(1999), Tinvall (2004)	output and trade			
	openness			
Cheng and Xin (2003)	the main business			
	income			
Wang and He (2005),	main business growth			
Yao (2006)	rate, net profit growth			
	rate			
Sun (2006), Zeng (2007)	Tobin Q			
Zhang (2002), Zhang	market share, export			
(2003), Chen (2006)	growth rate			
	sales growth rate, the			
Lu (2002),	proportion of output			
Li and Han (2005)	value accounted for			
	GDP, profit rate			

ing to the viewpoint of resource determinism in man agement theory, and it seems to be a reasonable choice. Cheng & Xing (2003) studied the relationship between growth, capital structure, and scale by using the main business income to express the growth of manufacturing. Their obtained results showed that there was a significant positive correlation between scale and growth. The statistics of specific construction index found in existing literature was shown in table 1.

As evident from the practice situation and study literature both Chinese manufacturing industry and scholars are concerned more about the financial dimension. The main business growth rate, net profit growth rate and total assets market value, have become the key factors to measure the manufacturing growth. In comparison, few scholars choose stakeholders and internal governance as the factors to measure manufacturing growth. On the basis of the above-mentioned analysis, this paper aims to make an appropriate amendment and to discuss the manufacturing growth from the dimension of social responsibility and internal governance.

#### 2.1.2. Social responsibility

The improvement of material living standards, and the education level, as well as opening to the outside world, constitute the people's expectations towards the corporate social responsibility, thus setting the development trend of social responsibility for all enterprises in the world. As for the Chinese manufacturing industry, which is moving towards the international market, this trend is undoubtedly a new challenge. As early as 1953, Bowen proposed that corporate social responsibility is derived from society expectations towards an enterprise and the enterprise needs to develop policies, make decisions and take actions in accordance with the requirements of social goals and values. The social contract and values must be respected by the manufacturing industry, when they fulfill their own social role and deal with their relationship with the society. There are more than 100 different definitions in the existing research and some of them are controversial. With the increasing impact of corporate social responsibility and the increasing scope and intensity of public's attention, conducting in-depth studies and attempting to solve this problem has become a common aspiration of both academia and business community.

Carroll (1979) created a *four responsibilities* concept framework based on social responsibility object and claimed that corporate social responsibility includes economic, legal, ethical and voluntary responsibilities (the latter was subsequently changed to *charitable responsibility*). The *four responsibilities* conceptual framework reveals that enterprises cannot be solely responsible for the interests of shareholders, but should also assume responsibility for the interests of all defined stakeholders, including shareholders, managers, employees, consumers, suppliers,

government, natural environment, community, etc. This definition by Carroll is actually close to the concept of corporate responsibility proposed by Brammer (2007), and also consistent with the concept of comprehensive social responsibility claimed by Zhou (2005), as its aim is to emphasize the role and function of enterprise in the whole society. Clarkson (1995) defines the stakeholders of enterprise based on legitimacy, power and urgency first, and then advocates that an enterprise should be responsible for ensuring all stakeholders can share the enterprise's residual ownership and residual control rights. This proposition combines the corporate social responsibility and daily business activities in an appropriate manner, so that the corporate social responsibility can be implemented in specific practice.

Similarly, based on the stakeholder theory, Chang (2004a) carried out an in-depth analysis on the scope of enterprise's responsibility for internal stakeholders (employee). On the other hand, Ju et al. (2005) and Jin (2006) studied the responsibility of an enterprise for the external stakeholder (customer). You (2003) divided social responsibility into six dimensions, on the basis of the source of the pressure exerted on the manager in the consideration and implementation of the management decisions: responsibility to the public, to the investors, to the customer, to the government, to the competitors, and to the staff. He also put forward the main responsibility behavior of each dimension.

Specifically, employing the stakeholder theory to study corporate social responsibility has the following benefits: (1) it defines the object of social responsibility; (2) it defines the specific contents of social responsibility; (3) it defines the scope of social responsibility; (4) it provides scientific methods for measuring the social responsibility. Based on this theory, this article divided social responsibility of manufacturing into two dimensions from the perspective of stakeholders: social responsibility to the internal stakeholders the external stakeholders. The internal stakeholders mainly include shareholders, managers and employees, whereas the external stakeholders mainly include creditors, suppliers, distributors and consumers, as well as to the government, environment and community.

#### 2.1.3. Internal governance

The concept of internal governance was proposed by Williamson (1975). He attributed *internal governance* to *system* category, claimed that internal governance mainly becomes effective in system environment. In the early 1980s, *internal governance* concept began to emerge in economic literature. Blair (1995) believed that internal governance is the relationship between stakeholders, as well as the institutional arrangements for formulating this relationship, and pointed out that the interests of creditors, customers, the board of directors, management and employees should be placed in the same position

as the interests of shareholders. Qian (1995) defined the internal governance on the basis of the practice of developed market economy as: a whole set of institutional arrangements to deal with the relationship between different stakeholders (shareholders, lenders, management and staff, etc.), including: how to configure and exercise the control right; how to monitor and evaluate the board of directors, managers and employees; how to set up and implement an incentive mechanism, etc. Tirole (2001) points out that internal control is a system design, which can improve the welfare level of all stakeholders and, at the same time, restrain supervising the operator.

From the perspective of the internal governance evolution and the range of stakeholders involved, the concept of internal governance can be understood as a series of legal, institutional and cultural institution arrangements involved in the organization mode of enterprises, control mechanisms and the distribution of interests. It is not only related to operator's restraint, incentive mechanism design and institutional arrangement, but also to the arrangement of incentive and constraint system for all stakeholders. It does not only correspond to the governance problems related to shareholders, the board of directors, the board of supervisors and management, but also to the relationship among shareholders, creditors, suppliers, employees, government, community and other stakeholders. Xu (2009) believes that the internal governance can bring two advantages to an organization: (1) Forecasting – the internal control can better internalize the shock cost brought by the external operation of an organization and also can quickly and timely make appropriate response to the relevant events based on the advantage provided by information. (2) Direct change in the performance – the internal governance is a routine control program which, by supervising and adjusting the behavior of managers, can guarantee that operators will make an optimized operation. Therefore, it plays a leading role in improving the management efficiency of an organization. Xu (2009) even proposed that the ownership control mechanism, i.e. the board supervision mechanism and the operator incentive mechanism should be set as the measurement index for the internal governance of Chinese manufacturing industry.

### 2.2. Hypothesis deduction

2.2.1. Social responsibility and manufacturing growth

Jones (1995) believed that the reason why an enterprise should bear social responsibility and be concerned about stakeholders' interests is because the social responsibility will help the enterprise become more profitable. If the enterprise takes the risk to neglect the social responsibility and oppose the interests of stakeholders, it may endanger their own survival. In other words, an enterprise needs to take the social responsibility and consider the stakeholders' interests, because these can be used as a means and tools to achieve the purpose of enterprise management. If assuming the social responsibility does not help an enterprise to improve their performance or even deteriorates it, no enterprise will assume the social responsibility anymore. Therefore, the practical significance of studying social responsibility is obvious: if the assumed social responsibility has positive impact on the enterprise performance, enterprises will actively take the social responsibility for their own interests as an entity pursuing profit maximization, and this is also what the society expects. If the impact is negative or there is no significant relationship between them, an enterprise will evade assuming social responsibility in order to avoid taking the risk. Thus, if we want enterprises to take the social responsibility, we should find other ways rather than rely on the enterprise's will or initiative. This problem has drawm the interest of many researchers for its important theoretical and practical value. Greenley & Foxall (1997) used the data from a questionnaire survey to examine the relationship between the social responsibility and the performance of an enterprise. Results show that the social responsibility and corporate performance are positively related in the case of controlling market growth, but this relationship depends on external environment and has been regulated by malicious competition. Waddock & Graves (1997A, 1997b) use the stakeholder relationship (SR) - representing the corporate social performance – and the perceived corporate management level (PMQ) representing corporate overall performance to research. Results show that the social performance of an enterprise and corporate overall performance have a very significant positive correlation. Li (2006a) takes 521 Listing Corporation in Shanghai stock exchange as a sample to study the relevance of enterprise social responsibility and enterprise value. He drew the following conclusions: in the short term, the greater the social responsibility behavior, the lower the value of enterprise; however, in the long term, the assumed social responsibility would not reduce the value of enterprise. Shen (2006) also studied the relationship between the social responsibility performance of an enterprise (CSP) and its financial performance (CFP). The results showed that they were positive correlated to a significant degree. Based on these analyzes, this paper puts forward the following hypothesis:

Hypothesis 1: undertaking social responsibility has a positive effect on manufacturing growth.

Most of the previous studies show that companies can set up high quality stakeholder relationships by taking social responsibility to meet stakeholders interests. These relationships can subsequently reduce risks, promote innovation, enhance reputation, expand market, increase opportunities, and establish competitive advantage (Wheeler & Svendsen, 2003). However, the social responsibility in previous studies has seldom been defined as the responsibility for the internal stakeholders and the responsibility for

the external stakeholders. Actively assuming responsibility for external stakeholders is important in the modern market economy and is related to enterprise financing, government support and public recognition, etc. This can not only affect the reputation brand awareness, and even the soft power of an enterprise, but also its sustainable development. On the other hand, by meeting and balancing the requirements of the internal stakeholders, an enterprise can improve their ability to meet the external stakeholders' needs and improve the security of the enterprise growth performance. According to the previous definition on the operation of the social responsibility (Wood, 2003; Wu, 2006; Wheeler, 2003), if one enterprise assumes higher responsibility for the internal stakeholders and neglects the responsibility for the external stakeholders, whereas another enterprise neglects the responsibility for the internal stakeholders and commits higher responsibility for the external stakeholders, these two enterprises may have the same social responsibility performance. This is because all these studies believe that there is no difference between the responsibility for the external stakeholders and the responsibility for the internal stakeholders. This approach will not make understand people why enterprises take responsibility for different stakeholders. The impact on the growth of an enterprise is different, and may even mislead the direction of its social responsibility behavior towards the responsibility object. In this paper, we will discuss the influence of assuming the responsibility for the internal stakeholders and the responsibility for the internal stakeholders on manufacturing growth, respectively. Only in this way, we can truly understand the different influence of various types of social responsibility behavior on the enterprise growth. Therefore, this paper puts forward the following two sub-hypotheses:

Hypothesis 1-1: undertaking social responsibility for the internal stakeholders has a positive impact on manufacturing growth.

Hypothesis 1-2: undertaking social responsibility for the external stakeholders has a positive impact on the manufacturing growth.

2.2.2. Social responsibility and internal governance Early theory research about the social responsibility of an enterprise mainly focuses on the concept and moral level. On the basis of the early research on the social responsibility concept, Ackerman (1973), Bauer (1976) and Frederic (1978) proposed three phases of enterprise social responsibility management process: Understanding social needs – Person in charge – Organization participation. This process turned the research on the social responsibility of an enterprise from the level of concept to the level of management. These authors believe that assuming social responsibility is not a burden to an enterprise, but rather it can be seen as a long-term investment behavior and will bring a competitive advantage and

return in future. Therefore, the internal governance system adapted to social responsibility should embody the following characteristics: (1) It should encourage managers to consider the business behavior from the perspective of social responsibility and increase the weight of long-term incentives in managerial incentive model. (2) The organization's mission, vision and organizational spirit, should be characterized by greater social responsibility. (3) The organization, its rules and regulations etc., cannot stay in line with the requirements of laws and regulations and meet the relevant interest groups only. Instead, they should be reformed in accordance with the requirements of the social responsibility. Only in this way, an enterprise can meet the development requirements of the social responsibility at this stage. Social responsibility is a kind of enterprise resource reserves which can be transformed into its competitive advantage. Without it, an enterprise will fall into a passive condition and can even be eliminated when the market changes. However, the category and content of social responsibility are not fixed and they can be transformed into each other under certain conditions; therefore, the internal governance variables of an organization which are affected by them will be transformed as well. That is, the management objects and social responsibility level of an enterprise are different in different stages, and this difference is ultimately reflected in the internal governance of the organization, which is the internal cause of undertaking the social responsibility.

Hypothesis 2: undertaking the social responsibility has a positive effect on the internal governance.

Hypothesis 2-1: undertaking the responsibility for the internal stakeholders has a positive impact on the internal governance.

Hypothesis 2-2: undertaking the responsibility for the external stakeholders has a positive impact on the internal governance.

# 2.2.3. Internal governance and manufacturing growth

Principal-agent theory believes that the purpose of the internal governance is to monitor operators' behavior to protect owners' interests and promote longterm growth of enterprises. In the real economy, this process is realized through specific internal governance mechanism, which mainly includes ownership, board supervision and operator incentive mechanisms.

The ownership mechanism governance mainly concerns the governance of ownership concentration degree and ownership balance. Horinouchi & Hanasaki (2004) made an empirical analysis on Japanese enterprises from 1970 to 2000. Their results show that ownership concentration is positively correlated with the corporate performance. Xu (2006) took 4845 listed Chinese corporations as the research sample in order to make a linear regression analysis

and shows that there is a significant positive correlation between the ownership concentration and the corporate performance. Nagar (2000) found that the performance of a company which has a number of major shareholders holding a similar proportion of shareholding or the first largest shareholder holding a higher proportion of shares, is better than other companies. Chen (2004) and Lin (2005) claimed that ownership balance mechanism has a positive effect on the corporate performance. Among the studies on the effect of board supervision mechanism on the manufacturing growth Holmstrom (1991) thinks that setting up a board supervision mechanism will produce a better incentive for the operator. However, most of remaining literature presents a more pessimistic conclusion that the board supervision mechanism has almost no effect on the performance of a (Baysinger, 1985; Bhagat, company Miyashima, 2004). Empirical research results and the original intention of establishment-independent director supervision mechanism are not the same. If the independent director system and the corporate performance are irrelevant, why did enterprises generally implement such a mechanism? This seems to be a contradiction and requires conducting a further in-depth study. In theoretical research about the influence of managers' incentive mechanism on the growth of enterprises, Song (2005) selected the listing corporation, which been listed before 2002 as the research sample. The results show that the operator holding and company performance are not or weakly related. However, the research based on listed manufacturing industries carried out by Litenberger (1994), Sasaki & Yonezawa (2000), Long Palk (2001), Gao & Song (2007) shows that the relation between operator holding and corporate performance is positive.

Since the beginning of a new century, large Multi-National enterprises have entered the Chinese manufacturing market through direct investment and expand a strong competition dependent on its absolute advantage of capital, technology and management. All these factors made the competition among domestic manufacturing enterprises become intense. The fierce competition stimulates the consciousness of enterprises, as they not only learn the limitations of advanced technology, but also reference and improve the advanced internal governance mode positively. Chen (2009) divided Taiwanese manufacturing industry into high ability enterprises, medium capacity enterprises and low capacity enterprises three categories according to the internal learning and governance capacity. His empirical analysis was based on the structural equation model shows that the improvement of governance has a positive effect on the establishing a competitive advantage of an enterprise. On the basis of the practical situation and literature, this paper puts forward the following hypothesis:

Hypothesis 3: the internal governance has a positive effect on the manufacturing growth.

# 2.2.4. Social responsibility, internal governance and manufacturing growth

In the studies on how an enterprise takes social responsibility, scholars usually study it from the perspective of enterprise behavior. The widely accepted 3D model of principle-process-result, built by Wood (1991), is also increasingly often given with the meaning of enterprise behavior. The definition of corporate social responsibility principle has been transformed from the government and social level to the enterprise level and has become the specific guiding principle of dealing with the social responsibility. Effective corporate governance used internal control mechanism to inhibit stakeholders' opportunistic behavior, improve the stakeholder information symmetry, protect stakeholder's legitimate rights, and ultimately maximize the stakeholder interests as well as promote taking social responsibility by an enterprise in an effective manner (Denis, 2000). At the same time, in the process of internal governance, the value for stakeholders is created and the perfection of ownership mechanism, board supervision mechanism, operator incentive mechanism are all beneficial to reducing the uncertainty of management results, improving the completeness of contractual liability to stakeholders, reducing the post-supervision cost, ensuring the effective supply of exclusive right capital and related resources, and ultimately benefiting the value creation of stakeholders and the whole process of enterprise growth.

In conclusion, it is not difficult to see that the social responsibility behavior of an enterprise has a certain influence on the internal governance, and the internal governance will affect the overall level of enterprise governance through the ownership mechanism, the board supervision mechanism and the operator incentive mechanism, thereby affecting the growth of their performance. On the basis of this observation, this paper puts forward the following hypothesis: Hypothesis 4: In the impact of social responsibility on manufacturing growth, the internal governance

#### 3. Research design

#### 3.1. Research framework

plays an intermediary role.

After reviewing the related theories and putting forward the hypothesis, the research framework of this paper is shown in Figure 1. The independent variable of the structure is social responsibility, the medium variable is internal governance and the dependent variable is manufacturing growth.

## 3.2. Sample selection and data collection

Under the assistance of Shanghai Municipal Science and Technology Commission, Shanghai Business Association, Anhui Business Association, Shanghai Automotive Industry Corporation, Tongji University

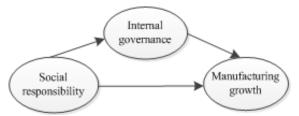


Figure 1. Framework of this paper

MBA project, University of Science & Technology of China MBA center and other units, carrying out this research has taken nine months from pre-investigation to the questionnaire revision by expert at the end of the formal research. Three kinds of investigation methods have been used: (1) sending questionnaires by e-mail according to business yellow pages; (2) researchers making an appointment with enterprises senior managers and filling in questionnaires face to face; (3) asking the employees of randomly selected sample enterprises who were also MBA students of Tongji University or University of Science & Technology of China, to fill in paper questionnaires in classroom and take them back on the spot. In the period from September 2014 to May 2015, 500 questionnaires were distributed and 301 questionnaires were returned, only 251 questionnaires were valid, so the total recovery rate was 60.2% and the effective questionnaire recovery rate was 50.2%. As far as the type of manufacturing is concerned, the sample distribution is as follows: Food manufacturing has 97 (19.4%), Tobacco manufacturing has 83 (16.6%), Textile manufacturing has 70 (14%), Furniture manufacturing has 60 (12%), Paper product manufacturing has 35 (7%), Chemical products manufacturing has 31 (6.2%), Metal products manufacturing has 29 (5.8%), General equipment manufacturing has 16 (3.2%), and Automobile manufacturing has 79 (15.8%). Regarding the amount of capital, the sample distribution as follows: 1 billion Yuan or more has 115 (23%), 500 million -1 billion Yuan has 53 (10.6%), 100 million -500 million Yuan has 46 (9.2%), 50 million -100 million Yuan has 37 (7.4%), 10 million -50 million Yuan has 68 (13.6%), 181 have less than 10 million Yuan 181 (36.2%). In the case of the total number of employees, the sample distribution is as follows: over 1000 people have 155 (31%), 501 to 1000 people have 48 (9.6%), 201 to 500 people have 76 (15.2%), 101 to 200 people have 56 (11.2%), less than 100 people have 165 (33%).

# 3.3. The operational definition and measurement of variables

In order to ensure the validity and reliability of the measurement tool, this paper will adopt the scale which has been used in the international literature. Before the questionnaire was formally finalized and investigation, we had conducted a preliminary investigation on some experts and managers in order to evaluate the accuracy of questionnaire and language, then modified the questionnaire according to the re-

sults. We have used Likert scale in designing the questionnaire.

(1) Social responsibility. This paper argues that the social responsibility is the responsibility of manufacturing towards the internal and external stakeholders. The existing social responsibility measurement methods include: the measurement based on annual report content analysis (Bowman, 1975; Ingram, 1978; Preston, 1978; Abbott, 1979; Anderson, 1980); the measurement based on pollution index (Griffin, 1997); the perception measurement based on questionnaire survey (Aupperle, 1985; Maignan, 2000); measurement based on reputation index (Wokutch, 1991; Moskowitz, 1972), and the measurement based on professional organization database (such as KLD, PIRC, IMUG) (Marquez & Fombrun, 2005). The main advantage of the perception measurement based on questionnaire survey is that its operation is very simple and the object of the survey is individual which does not necessitate the use of high cost multi-source information. The corporate citizenship measurement tool has been developed by Isabelle Maignan. It is very popular in practice and shows good psychometric characteristics (Maignan, Ferrell, 2000). In this paper, the measurement scale of the social responsibility employed the modified questionnaire which comes from Maignan and Ferrell et al. The social responsibility will be from two sub-dimensions, i.e. responsibility for the internal stakeholders (including 5 question items) and responsibility for the external stakeholders (including 6 question items).

- (2) Internal governance. On the basis of the internal governance mechanism proposed by Xu (2006), this paper defined the internal governance as: implementation of governance to the agent, so as to carry out a set of property rights system arrangement of residual control and residual claim rights among the various interests of a company. On the basis of the study conducted by Xu (2006) and Hermalin (2000), we will divide the internal governance into three dimensions: the ownership mechanism, the board supervision mechanism and the operator incentive mechanism. Each dimension includes 3 question items.
- (3) Manufacturing growth. The growth of manufacturing is mainly concerned about the operation and development of manufacturing industry in a certain period of time. Its evaluation mechanism in the existing literature is generally used as a market performance evaluation mechanism. On the basis of the existing manufacturing growth evaluation system, this paper takes the annual financial report data as the basis, selects the scale expansion ability index to reflect the manufacturing growth quantity characteristics, and selects the profitability growth and operational level improve index to reflect the manufacturing growth quality characteristics. Among them, the characteristics reflecting manufacturing growth include 3 question items: the employee's number growth rate, the owner's equity growth rate and the

fixed asset growth rate; reflecting the quality characteristics of manufacturing growth includes 3 question items too: growth of accounts receivable turnover rate, growth of inventory turnover rate and growth of cash and its equivalent turnover rate.

#### 3.4. Reliability and validity analysis

As shown in Table 2, the consistency coefficient of the social responsibility, internal governance and manufacturing growth are 0.879, 0.843 and 0.872 respectively, the Cronbach's variables are all more than 0.7, the total scale is 0.942. Therefore, the reliability of each sub-scale and total scale is good, and the scale has good reliability as well.

This paper uses exploratory factor analysis and confirmatory factor analysis to test the content validity and construct a validity of measuring tool. The exploratory analysis results related to social responsibility, internal governance and manufacturing growth were shown in table 3. KMO of three variables are 0.832, 0.757, 0.856 respectively. Barlett Test of Sphericity is 0.000 (\*\*\*). The results show that the effect is good and the next factor analysis can be carried out.

In order to further guarantee the validity of measurement tool, we use AMOS17.0 statistical software for conducting data confirmatory factor analysis. We mainly make a model suitability test based on the measurement pattern to test whether the variable has enough convergent validity. Bagozzi &Yi (1988) thought the ideal numerical range of fitness index is: GFI, CFI are more than 0.9 (0.8 can also be accepted); RMR is less than 0.05; RMSEA should be less than 0.05 (0.08 can also be accepted), the results were shown in table 4.

As can be seen from table 4 the model validation index of the questionnaire was at an acceptable level, which indicated that the questionnaire had good construct validity.

#### 4. Data analysis and results

#### 4.1. Correlation analysis

After inspecting the construct validity of each subscale, we investigated the correlation between variables first in order to reveal the intensity of statistical relation, and to provide a basis for further description of the relationship. The average, standard deviation and correlation coefficient of each scale were statistically analyzed and the results were shown in Table 5.

As can be seen from table 5, there is a significant correlation between the variables.

#### 4.2. Structural equation model analyses

In order to explain the influence of two sub-dimensions of social responsibility (responsibility for the internal stakeholder and responsibility for the external stakeholder) on the internal governance and manufacturing growth and the different intermediary po-

Table 2. Cronbach's  $\alpha$  of the variable

Category of subscale			Cronbach's α		
Social responsibility (11)	responsibility for internal stakeholders (5)	0.970	0.852		
Social responsibility (11)	responsibility for external stakeholders (6) 0.879		0.866		
	ownership mechanism (3)		0. 920		
Internal governance (9)	board supervision mechanism (3)	0.843	0. 758		
	operator incentive mechanism (3)		0. 761		
Manufacturing growth (6)		0.8	372		

Table 3. KMO and Bartlett's

KMO and Bartlett's		Social re-	Internal	Manufacturing
		sponsibility	governance	growth
Kaiser-Meyer-C	0. 832	0. 757	0. 856	
Bartlett's Test of Sphericity	Degree of freedom		1002. 258	605. 226
			37	16
	significance probability	0.000	0.000	0.000

Table 4. Confirmatory factor analysis results

Fit index	x²/ df	GFI	CFI	TLI	RMR	RMSEA	NFI
Social responsibility	1.103	0.952	0.967	0.967	0.024	0.029	0.914
Internal governance	1.715	0.959	0.975	0.970	0.026	0.070	0.923
Manufacturing growth	1.677	0.905	0.947	0.901	0.044	0.074	0.934

Table 5. Statistical description and Correlation between research variables

dote 5. Statistical description and Confedence research variables								
	1	1.1	1.2	2	2.1	2.2	2.3	3
1 Social responsibility	1							
1.1 responsibility for internal stakeholder	0.832***	1						
1.2 responsibility for external stakeholder	0.851***	0.442**	1					
2 Internal governance	0.689**	0.597**	0.579**	1				
2.1 ownership mecha- nism	0.418**	0.346**	0.364**	0. 752***	1			
2.2board supervision mechanism	0.600**	0.519**	0.501**	0. 767***	0.337**	1		
2.3 operator incentive mechanism	0.597**	0.530**	0.483**	0. 764***	0.333**	0.485**	1	
3 Manufacturing growth	0.635**	0.545**	0.535**	0.673**	0.451**	0.518**	0.594**	1
mean	3.67	3.76	3.60	3.56	3.40	3.63	3.64	3.15
standard deviation	0.66	0.78	0.71	0.66	0.67	0.77	0.66	0.58

Note: \*\*\*indicates P < 0.001, \*\*indicates P < 0.01, \*indicates P < 0.05

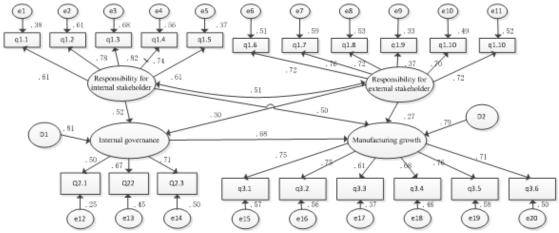


Figure 2. First order mediation model

U	. Fitting index of First order inediation model							
	Fitting index	x <sup>2</sup> /df	CFI	RMSEA	AIC	ECVI		
	Criterion	<5	>0.90	< 0.08	As small as possible	As small as possible		
	Default model	1.918	0.920	0.051	437.385	0.842		
	Saturated model	-	1.000	-	449.000	0.899		
	Independence model	11 564	0.000	0.198	2459 741	8 199		

Table 6. Fitting index of First order mediation model

Table 7. Path coefficients and the verification results of hypothesis

Paths	estimated value	standard value	S E	C R	Р
Internal governance←responsibility for internal stakeholder	0.642	0.516	0.072	5.978	***
Internal governance←responsibility for external stakeholder	0.735	0.500	0.061	6.171	***
Manufacturing growth←Internal governance	0.748	0.584	0.584	2.774	0.004 (**)
Manufacturing growth←responsibility for internal stakeholder	0.485	0.303	0.303	2.091	0.033 (*)
Manufacturing growth←responsibility for external stakeholder	0.336	0.272	0.272	3.088	0.040 (*)

sition and role of intermediate variable's (internal governance) on the two sub-dimensions, we establish a first order mediation model containing the two sub-dimensions especially. According to the existing literature, we use AMOS17.0 software to establish a structure model including 4 latent variables (responsibility for the internal stakeholder, responsibility for the external stakeholder, internal governance, and the manufacturing growth). The above-mentioned analysis of the reliability and validity shows that both these factors are acceptable for all 4 latent variables. Therefore, in this paper, for the purpose of measuring the internal governance, we take the mean score of the first level factor as the factor score at first, and then take the first level factor as the multiple measure index of the second level variable. Specifically, we adopt the mean score of each factor in questionnaire as the index of potential variables. The overall analysis model is shown in Figure 2 (the potential variable is represented by an ellipse, and the observed variable is represented by a rectangle).

The main fitting index of the model is shown in table 6. We can see that the score of  $x^2$ / df is 1.918, far less than the acceptance criteria score of 5; CFI is 0.920, greater than the acceptance criteria 0.90; RMSEA index is 0.051, less than the acceptance criteria 0.08; information index AIC and ECVI are smaller than the score of Saturated model and Independence model, comply with the index evaluation criteria. The overall fitting of the model is good, so the structural equation modeling is acceptable and model does not need to be corrected.

Estimated parameters of internal governance and manufacturing growth have all passed the test. Among the impact path, the completely standardized effect value of responsibility for internal stakeholder

and internal governance is 0.516 (P $\leq$ 0.001), thus passing the significance test; the completely standardized effect value of responsibility for external stakeholder and internal governance is 0.500 (P< 0.001), and passes the significance test too; the results indicate that there is a significant positive relationship between the two sub-dimensions of the social responsibility and the internal governance. The completely standardized effect value of the internal governance and manufacturing growth is 0.584 (P=0.004<0.05), passing the significance test, and showing that there is a significant positive relationship between the internal governance and manufacturing growth; the completely standardized effect value of responsibility for internal stakeholder and manufacturing growth is 0.303 (P=0.033 < 0.05), passed the significance test as well; the completely standardized effect value of responsibility for the external stakeholder and manufacturing growth is 0.272 (P=0.040<0.05), passed the significance test too, thus indicating that there is also a significant positive relationship between the two sub-dimensions of the social responsibility and manufacturing growth. All the calculated results were shown in Table 7.

# 5. Results discussion and implications for manufacturing growth

On the basis of combining the relevant literature, this paper first presents a model for analyzing the relationship between the social responsibility (including the responsibility for the internal stakeholder and responsibility for the external stakeholder), the internal governance and the manufacturing growth (inclu-

ding the ownership mechanism, the board directors mechanism and the operator incentive mechanism), and puts forward the corresponding research hypothesis. Then, statistical software was used to collect the data from 500 manufacturing enterprises in East China and verify the proposed hypothesis, as well as the expected results.

Now we will discuss the study results in-depth in order to trigger more thinking and provide inspiration.

#### 5.1. Results discussion

Through testing and verifying the relationship model of the social responsibility and the manufacturing growth, we found that the completely standardized effect value of social responsibility and manufacturing growth is 0.871 (P < 0.001) thus passing the significance test. This indicates that the positive correlation between the social responsibility and the manufacturing growth is significant, which supports the hypothesis 1. Taking responsibility for the internal stakeholder and the external stakeholder as potential variables to built a relationship model of the potential variables and the manufacturing growth, we also found - through testing and verifying the relationship model – that the completely standardized effect value of responsibility for the internal stakeholder and manufacturing growth is 0.402 (P  $\leq 0.001$ ), whereas the completely standardized effect value of responsibility for the external stakeholder and manufacturing growth is 0.412 (P<0.001). These values have a high level significance, showing that potential variables have a significant positive effect on manufacturing growth which strongly supports the hypothesis 1-1 and hypothesis 1-2.

The completely standardized effect value of social responsibility and the internal governance is 0.772 (P=0.009<0.01) passing the significance test, and showing that take social responsibility has a significant positive effect on the internal governance and confirms the hypothesis 2. These results of the empirical analysis are consistent with the partial view of Maignan and Ferrell. Although the social responsibility is a common phenomenon, using it to achieve sustainable development is a difficult thing. Therefore, effectively managing the social responsibility behavior in the manufacturing industry to promote the internal governance mechanism and improve their competitive advantages is a problem worthy of further exploration.

The completely standardized effect value of the internal governance and the manufacturing growth is 0.570 (P=0.007 < 0.01), which is enough to pass the significance test, and shows that the internal governance has a significant positive effect on the manufacturing growth, which confirms the hypothesis 3. The results of this empirical analysis are consistent with view of Xu (2006). In recent years, due to the development of a harmonious society, manufacturing is increasingly dependent on the social responsibility to realize the added value and establish competitive ad-

vantage, so we should pay more attention to the social responsibility effect on the internal governance process in the course of research on the manufacturing growth, and put focus on the effect path, analysis and description of the impact path carefully to find out the method of improving the manufacturing growth efficiency.

In the structural equation, there are two paths of social responsibility influencing the manufacturing growth. The first path is social responsibility having a direct impact on manufacturing growth, in this path, the completely standardized effect value is 0.871 (P <0.001) and the direct effect value is 0.413 (P=0.09 < 0.01). The other path of social responsibility influencing manufacturing growth is through the internal governance, the indirect effect value is 0.440 (the completely standardized effect value of social responsibility and internal governance is 0.772, P< 0.001; the completely standardized effect value of the internal governance and manufacturing growth is 0.570, P=0.07 < 0.01). In this path, the internal governance is an intermediary variable between social responsibility and manufacturing growth. The indirect effect produced by intermediate variable is greater than the direct effect of social responsibility on manufacturing growth. Therefore, the internal governance will enlarge the influence of social responsibility on manufacturing growth, and this result confirms the hypothesis 4.

## 5.2 Implications for manufacturing growth

Undertaking social responsibility is a means for modern manufacturing to obtain competitive advantage. Through assuming social responsibility, the manufacturing industry can meet the stakeholders' requirements efficiently, establish a high quality relationship with them and finally obtain the competitive advantage. As far as the methods of acquiring competitive advantage are concerned, there is no essential difference between the social responsibility behavior and other means. Within the stakeholder theory framework, the social responsibility of manufacturing is not only the responsibility for shareholders, but for all stakeholders, including shareholders, managers, general staff and other internal stakeholders, as well as the responsibility for consumers, suppliers, creditors, distributors, government, natural environment, community and other external stakeholders. However, whether it is to bear responsibility for the internal stakeholders or for the external stakeholders, faced with rising society expectations, the manufacturing enterprises should actively seek for the compromise between their own interests and social interests, through taking the social responsibility to reduce risks, improve the reputation, and increase the opportunities. The essence of social responsibility behavior is the adjustment of the management mechanism. When the ownership mechanism, the board supervision mechanism and the operator incentive mechanism are beneficial to the development strategy and policy, the enterprise social responsibility performance will be more and more obvious. Therefore, establishing internal governance mechanism with bidirectional substitution effect is the only efficient way to improve the social responsibility behavior in industry.

In the actual operation process of manufacturing, the internal governance and social responsibility are all in crucial position, as they are indispensable in mutual promotion and mutual transformation. From the perspective of value creation, they are the core resources of enterprises, which should be combined consciously and promote sustainable development of an enterprise through integration. Many aspects of the internal governance have significant effects on the manufacturing growth performance. Among them, the ownership mechanism, the board supervision mechanism and the operator incentive mechanism have a significant promoting role. Therefore, improving the ownership mechanism, strengthening the board supervision mechanism and enhancing the operator incentive mechanism all have become a reasonable choice to guarantee the efficient performance of social responsibility and improvement in the manufacturing growth.

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