



**CORPORATE SOCIAL RESPONSIBILITY  
IMPLEMENTATION AND PRODUCTIVITY: EVIDENCE FROM  
MANUFACTURING CORPORATIONS IN INDONESIA**

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This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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## **Abstract**

This study aims to investigate the impact of Corporate Social Responsibility (CSR) and Productivity of the manufacturing corporations that is listed on Indonesia Stock Exchange from 2007-2013. Corporate Social Responsibility (CSR), known as the element of sustainability reporting, provides crucial information relating social aspect, environmental impact, occupational safety, human rights, and energy utilization of the corporations. The control variables are used in this study are size, growth opportunity, Return on Assets (ROA) and Leverage ratio.

The samples are manufacturing corporations which are listed on Indonesia Stock Exchange (IDX) period 2004-2013. The data are the Annual Report and Financial Report from each corporation and collected from Indonesia Stock Exchange and Indonesia Capital Market Directory (ICMD).

Based on the statistical result of the study, only CSR variable that significantly affects the productivity in positive sign. However, other control variables give various sign but not significantly influence.

## **Keywords**

Corporate Social Responsibility, CSR, Productivity, Leverage, Return on Assets, ROA, Manufacturing Corporations.



# Chapter 1

## Introduction

### 1.1 Background

In recent years, the attention of the corporations around the world regarding social disclosure has drastically improved. Epstein and Friedman (1994) affirmed, the social information is an essential part of the annual report provided by the firms, which prompts the positive perspective from the individual investors. Therefore, the needs of social aspect, environment and financial information generates the existence of so-called sustainability reporting.

According to Global Reporting Initiative<sup>1</sup> (2006), sustainability reporting is the word used to denote the social, environment and financial impact of economic activities that is provided by the firms, for example, triple bottom line<sup>2</sup> (3P), social responsibility disclosure, and so forth. Hence, the sustainability reporting, provides crucial information relating social aspect, environmental impact, occupational safety, human rights, and energy utilization of the corporations (Hackston and Milne, 1996).

It has shown since 1970, the awareness of social disclosure and implementation has grown rapidly. European countries have committed to the Corporate Social Responsibility (CSR) policy earlier than developing countries, in particularly in philanthropy agenda (Crane et al, 2008). Nevertheless, the research

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<sup>1</sup> Global Reporting Initiative (GRI) is an independent organization, which initiate and promote the importance of sustainability reporting for the organizations, such as the business entity, NGO, governments and other organizations. Since 1990's, GRI enact the international accepted regulation regarding the sustainability reporting, and publish the guidelines of the effect brought by the business and organization activities. ([www.globalreporting.org](http://www.globalreporting.org)).

<sup>2</sup> Triple bottom line was first introduced by John Elkington in 1994. It is started to be applied since 1990's by the business companies, consists 3 basic principles, people, planet and profits. Triple bottom line provides the view of companies that want to be sustainable must pay attention to the 3P. In addition, to pursuit the maximum profit, the company also pay attention to and involved in the fulfilment of the welfare society (people) and contribute in maintaining the environmental sustainability. "*We began using the term in public, which early launch platforms, including an article in the California Management Review on 'win-win-win' business strategies (Elkington,1994) , sustainability's report engaging Stakeholders and my 1997 book cannibals with Forks: The Triple Bottom Line of 21<sup>st</sup> Century Business (Elkington, 1997). In 1995, we also developed the 3P formulation, 'people, planet, and profits', later adopted by Shell for its first Shell Report and now widely used in Netherlands as the 3Ps.*" (Elkington, 2004: 2).

about CSR in the last decade elaborate the components of CSR consists six major of assessments, environment, energy, occupational health and safety, women's position and ethnic minorities, products safety and community involvement (Hackston and Milne, 2002). CSR implementation has also improved since the global climate change issues has increased rapidly. In Indonesia, environmental issues become very crucial that needs to be seriously concerned, since most of the natural disasters has happened as a result of the impact of bad environmental management.

A growing number of CSR implication is triggered by the environmental dilemma and the competition among the corporations to catch the public attention in developing their performance, not only economically but also socially. CSR relates to the corporate's responsibility as one of the criteria of positive contribution to environmental and societal. As a solution to operationalize the economic activities, CSR is not only for the interest of the shareholders as internal sector of the corporations, but also for positively attracting the attention of the stakeholders, such as, government, NGO, environmental activist, and local community, that contribute to the corporate sustainability. In accordance with GRI (2006) concept, associated with 3 P principles, profit, people and planet, which defined business as not only profit oriented, but also mutually affected to the human welfare and the sustainability of the planet.

An important statement by Porter and Kramer (2006), *"To say broadly that business and society need each other might seem like a cliché, but it is also the basic truth that will pull companies out of the muddle that their current corporate-responsibility thinking has created. Successful corporations need a healthy society. Education, health care, and equal opportunity are essential to a productive workforce. Safe products and working conditions not only attract customers but lower the internal costs of accidents. Not only does corporate activity affect society, but external social conditions also influence corporations, for better and for worse. These are outside-in linkages"* (Porter and Kramer, 2006: 5-6). This research refers to previous assertion that social activities and performance of business entity will extremely affect to the productivity and sustainability of the company.

## **1.2 Indication of the research topic**

CSR is recently discussed and debated in contemporary business and management and among the government system, public sector organizations, NGOs,

and intergovernmental organizations, such as the UN, the World Bank, and so forth. This concept is a management idea that has risen its popularity throughout the global business community during the past decade.

Crane et al (2008), in the book entitled “Corporate Social Responsibility” explains about the characters of the enterprise currently in the view of public and society unavoidably raised, as public embarrassment (negative) and good behaviour (positive) participation. In addition, most top Multinational Corporation and small companies promotes CSR activities and projects in ample array from government to society. (Crane et al., 2008).

### **1.3 Relevance and Justification of the Research Topic**

In local economic development studies, CSR clearly defined as a tool of the companies to develop competitive advantage, while also meeting a growing social demand for corporate ethics and greater accountability for its social and environmental performance. The CSR implementation evaluation generally concern on several aspects such as philanthropy, Good corporate citizenship, compliance with community standards, aligned with the business, creates, and measure value not just giving (Helmsing, 2014).

In addition, Utting (2007) supported this opinion that CSR assessment focus on discrete sectors, such as environmental management, working conditions, labor rights, business-community relations and corporate accountability structures and mechanisms. Some foundations often take as their point of departure the economic, social and environmental components recognized in the concept of ‘sustainable development’; nevertheless, other perspectives emphasize on human rights and labor issue. Furthermore, this research offers an examination towards the relationship of CSR and productivity of manufacturing corporations in Indonesia, focused on macro and micro impacts of both individual firms and the global value chains with which they are associated.

In accordance with these perspectives, Vilanova (2009) mentioned that there is a mutual correlation between corporate competitiveness and CSR. The first indication comes from learning process when CSR contributes in business process. After which, by learning consistently, the companies create innovations and improvements. The innovative process, eventually result in what so called ‘competitiveness’ of the firm.

Empirical evidences provide various results of CSR and economic performance, financial performance and productivity of the companies. Social disclosure level generates the positive image of the company to the stakeholders; hence, the credibility and performance of the company will increase. Based on this view, the study hypothesized that corporate social disclosure and productivity is positively correlated.

This research purpose is to evaluate manufacturing enterprises, which were listed in Indonesia Stock Exchange from 2004 to 2014, regarding the commitment in implementing CSR policies and the correlation with productivity of the firms. This investigation will only focus on the manufacturing industry by considering two major causes:

1. Due to the manufacturing corporations in Indonesian Stock Exchange is the highest proportion compared to other subsectors;
2. Manufacturing sectors is the biggest contributors to the social impact, in particularly environment and employment;
3. Manufacturing sector is classified as the *high-profile* industry, which means widely known by the society due to their economic activities and closely related to the environmental impact (Preston, 1977 in Hackston and Milne, 1996).

Above justifications are in accordance with Sun and Stuebs (2011) assumption, manufacturing corporations such as chemical industry always be a cynosure from the stakeholders, since the operational practice affect the environmental condition straightaway.

Manufacturing sector listed in IDX is divided into 3 sub sectors: basic materials and chemical industry, consumption goods industry and other industries. Firstly, basic material and chemical subsector consist of construction materials, ceramics, metal industry, chemical, plastic, livestock feed, wood processing, and pulp and paper. Secondly, consumption goods is classified into food and beverage, cigarette, medicines, cosmetic and housewares. Finally, other industries include machineries, automobile, textile, and electronic equipment.

## **1.4 Objective of the Study and Research Question**

The objective of this research is to investigate the influence of Corporate Social Responsibility (CSR) on productivity of manufacturing corporations in Indonesia, in particularly the firms listed on Indonesia Stock Exchange (IDX). For this, the research will address following questions:

1. Does the CSR disclosure affect the productivity rate of manufacturing firms?
2. Do the control variables, Size, growth opportunity, ROA and leverage affect the productivity of manufacturing firms?

## **1.5 Risks and Limitation of the Research**

The main possible challenge in this research is the availability data of annual reports and financial reports by certain enterprises in certain years. It might because prevailing CSR regulation in Indonesia is still relatively new, compared to the emerging countries, developed countries or other Asian countries. Another possibility is the CSR report of the firms in Indonesia was not transparently published for certain periods; whereas the publication of CSR report in Annual Report and financial report will add more information provided to potential investors and stakeholders.

The limitation of the research is because this study only focuses on the period after CSR law regulated by the Government, due to limitation of time to observe and evaluate the reports and the availability of the data.

## **1.6 Organizational of the Paper**

The rest of the paper is organized as follows: chapter 2 presents the core definition and conceptual framework of Corporate Social Responsibility, productivity, and the empirical results of prior literatures, which represents the correlation between the variables, chapter 3 describes the CSR development in Indonesia, regulation and several results of the studies. Chapter 4 describes the methodology and data used in this research Chapter 5 elaborates regression-based analysis and discussion of the model constructed. Finally, chapter 6 provides the conclusion of this research.

## **Chapter 2 Theoretical Framework and Empirical Evidence**

### **2.1 Stakeholder Theory**

Since 1970, CSR's conceptual framework has been acknowledged as the emergence of stakeholder theory, which is denoted as the strategies and practices related with stakeholder, law provisions, the appreciation to the society and environment and the consistency of the economic entity to contribute in sustainability development. Stakeholder theory focuses on the position of stakeholder among the society, and a firm is owned by the stakeholder, not shareholder (Belkaoui, 1989). Furthermore, the presence of the corporation is determined by the support and contribution of the stakeholders, in this case the government, NGO, society, etc.

The background of stakeholder approach is the desire to build a framework that is responsive to the issues faced by managers at that time, namely environmental change (Freeman and McVea, 2001). This study also highlighted the purpose of the stakeholder management is to design methods to manage different groups and the result of relationships strategically.

Gray et al. (1995) also stated that the company's continuation depends on the stakeholders' support, and the support should be found from the activity's company. Furthermore, social disclosure is considered as a part of effective dialogue activity between the company and the stakeholders. The company is not the only entity that operate to its own interests, but to get the back up from stakeholders the firms should provide benefits for the stakeholders.

Freeman and McVea (2001) defined stakeholder as any group or individual who affects or is affected by the achievement of the company. Additionally, stakeholders are categorized into two elements based on the characteristics, namely primary and secondary (Clarkson, 1995). Firstly, primary stakeholder, means a person or a group without which the company could not persist for going concern; for example: shareholders, investors, employees, customers, suppliers, along with a group that is defined as a public stakeholders, namely, the Government and community. Last category is secondary stakeholders as-

certained as those that affects or is affected the company, yet they do not relate to the company's transactions and not essentially existed.

By two type of stakeholders above, the primary stakeholders are the most influential for the firms, since it has a high power towards the availability of company's resources. Moreover, Chairiri and Ghozali (2007) mentioned that when the stakeholders control the important resources for the company, then the company responds by the best way to satisfy the stakeholders' desires. In agreement with Gray et al. (1995), stakeholder theory is generally related to the strategies of the company used to manage stakeholders.

Stakeholder theory presents any level of enterprise's responsibility and the compulsion of the company to maintain a good affiliation with stakeholders by accommodating their wishes and needs, especially since the stakeholders have the authority in controlling the company's resources availability (Freeman, 2001). Based on Stakeholder approach, an organization will strive to meet the demands of interested parties (stakeholders), such as employees, suppliers, and investors and the society. Geoffrey (2004) in their study shows that CSR activities can be a beneficial element as a corporate strategy, contributing to the risk management and maintaining relationships that can deliver long term positive impact. Therefore, based on the stakeholder theory, this study proposes a possibility that corporate social responsibility disclosure and implementation will positively effect to the productivity of manufacturing corporations.

## **2.2 Legitimacy Theory**

The companies are increasingly appreciative that the survival of the company also depends on the company's relationship with society and the environment where the company is operating. In line with legitimacy theory stating that the company has an agreement with the society to conduct its activities based on the values of justice, and how the company response to the various interest groups to legitimize the actions of companies (Tilt, 1994 in Haniffa et al, 2005).

Legitimacy theory is another theory underpinned the CSR concept. Due to the influence of the wider community can determine the allocation of financial resources and other economic resources, companies tend to use performance-based environmental and disclosure of environmental information to justify or

legitimize the activity of the company in the public viewpoint (Gray et al., 1995).

Legitimacy is a condition where the value of business entity equals to the value of the social community; meanwhile, the entity is an essential part of the community (Lindholm, 1993). Furthermore, legitimacy theory is focusing on the interaction between the companies and communities (Ulmann, 1982; in Ghazali and Chariri, 2007). Ghazali and Chariri (2007) affirms that legitimacy theory is social contract with the society where the company operates and uses natural resources for economic activities. Public expectation of the firms can be spatially explicit and implicit. (Deegan, 2000).

The embodiment of legitimacy theory in the business world consists of CSR activities and reports. By implementing CSR, it is expected the company would obtain social legitimacy and maximizing the financial power. CSR disclosure in financial reporting and annual report are methods for the companies to build, maintain and legitimize the contribution the of the business entity economically and politically (Guthrie and Parker, 1990).

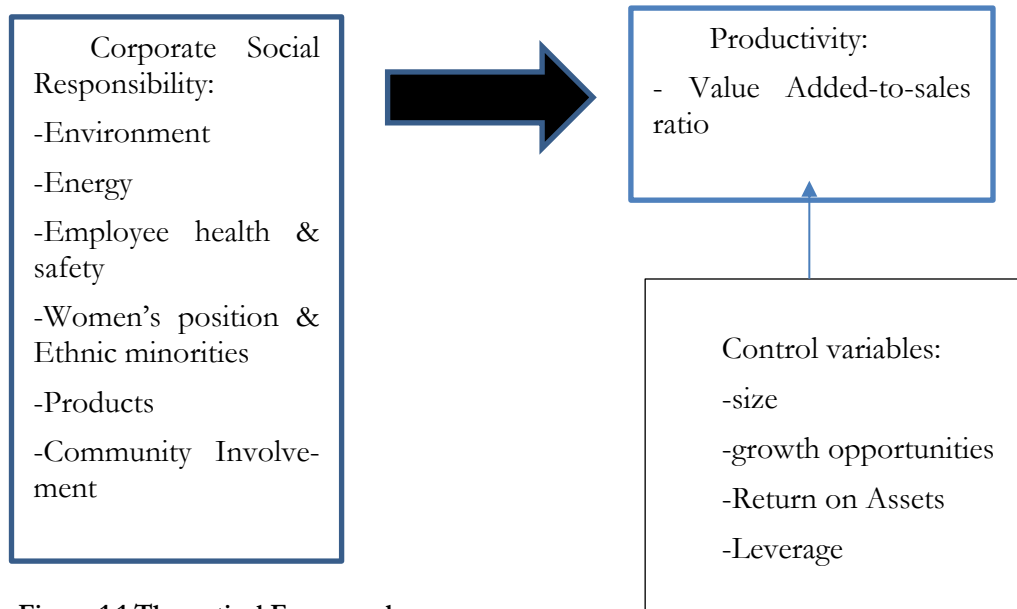
Investment decision-making is influenced by various things, one of which is a good reputation of the company. In accordance with the survey conducted by the Economist intelligence (2006), found that there was 85 percent of senior executives and investors from various sectors of organizations consider CSR as a primary factor in decision making. By this consideration, the investors tend to have a good reputation, since the investors are confident that a good image can be earned by good performance of the company as well. The better the performance shown in the financial and annual report, the more investors would invest their capital in a company. Furthermore, it would accelerate the capital investment and boost the stock price (Economic news, 2006).

### **2.3 Corporate Social Responsibility definition.**

CSR as defined by the European Commission is *“a concept whereby companies integrate social and environmental concerns in their business operations and in their business interaction with their stakeholders on a voluntary basis”* (Crane et al., 2008: 6). Based on this definition, CSR relates to the commitment of the firm in prioritizing the social values and environmental issues as well as profit maximizing. There-



fore, this research investigates the connection between CSR implementation of the manufacturing firms regarding its productivity level.



**Figure 1.1 Theoretical Framework**

Crane et al (2008) elaborated the basic features of corporate social responsibility into six elements: voluntary, internalizing or managing externalities, multiple stakeholder orientation, alignment of social and economic responsibilities, practices and values, and beyond philanthropy (Crane, 2008: 7-8). According to some evaluation of CSR activities, the paradigm of CSR is mainly about the philanthropy remains current issue for some regions in the world, “*in fact, the CSR action is more than just philanthropy projects, but how the entire operations of the firm give positive impact upon society*”(Crane et al, 2008: 8).

Dyllick and Hockerts (2002) in their research also stated three major keys in practicing the corporate social responsibility management can be achieved by integrating economic, social and environment, known as triple bottom line (Elkington (1997) in Dyllick and Hockerts (2002)). According to Wibisono (2007), triple bottom line is utilized as an external reporting tool, which designed for shareholders and other financial statement users. Besides to report the economic information and performance of the company, triple bottom line also provides the information quarterly and annually regarding the achievement of the company on environmental and social dimensions. Furthermore,

Elkington (2004) also briefly elaborated triple bottom line concept into three following components:

#### 1. Profit

As the most essential element of business entity, profits also becomes the primary goal for the companies. The company still must be oriented to seek the economic benefits, while it is allowed to continue and develop the operational activities. The activity can be used to accelerate the profit, such as, by improving productivity and cost efficiency; in addition the company has a competitive advantage that can add value to the greatest extent possible.

#### 2. People

People imply that the company must have concern to develop human welfare. By realizing the community around the company is one of significant stakeholders, since the support of local communities is indispensable for the existence, survival, and development of the company. Moreover, community is inseparable element, then companies must devote to provide the optimal benefit to society. For instance, by granting the scholarships for the students around the company, the establishment of education and health facilities, and empowering the local economic capacity.

#### 3. Planet

This element means that the company and environment have cause and effect relationship, where if the company concern about the environmental impact and the neighbourhood is conferring a benefit to the company. The company is obliged to pay attention to the environment and sustainable diversity, such as, green development, the improvement of residential infrastructures, and the development of tourism (ecotourism).

### 2.3.1 The element of CSR

This research adopts 78 CSR elements from the prior investigations by Ernst and Ernst (1978), Guthrie and Parker (1990), and Gray et al. (1995a) in Hackston and Milne (1996). The evaluation consists of 6 sub sectors; environment, energy, employee and safety, women's position and ethnic minorities, products and community involvement.

Hanifa et al. (2005) also used the measurement of CSRI, namely *content analysis*<sup>3</sup>, which calculates the variety in CSR elements depends on sectors of the industry. This approach basically used dichotomy methods, by scoring the whole of CSR elements with 0 and 1 (Haniffa et al, 2005)

## 2.4 Productivity

Investment through the training and the increase of human resources investment is very important. Due to experience, skill and knowledge possessed, human resources have an economic value for the company that creates all of our productivity and the ability to adapt. The incremental of productivity of each employees or human capital requires the cost of investment in human capital which deals with motivation, supervision, and retain employees in anticipating the return in the future. (Flamholtz and Lacey, 1981). In the improvement of productivity and anticipation return, there are important factors, such as market conditions unions, business strategies and technology, that could affect the costs related to human resources management.

Suhendah (2012) ascertained productivity of the company measures effectiveness of the companies in utilizing owned resources to generate income companies. The productivity of the firm operations requires good investments for assets that are the short-term, including inventory and accounts receivable; and long-term, such as property, planning and equipment. Productivity captures the relationship between the levels of operations of the firms with assets can be measured by the activity. This research investigate the productivity by referring the value added-to-sales ratio by Spring<sup>4</sup> (2011), which proposed a productivity study in Singapore.

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<sup>3</sup> Lindenmann (1983) defined content analysis as *“a means for taking messages that are conveyed as part of the communication process, coding and classifying them as precisely and objectively as possible and then summarizing and explaining them quantitatively”* (lindenmann, 1983 in Sayekti and Wondabio (2007: 12-13).

<sup>4</sup> Spring Singapore is independent board under the Ministry of Trade and industry supervision. This agency is dictated to assist and control the economic and financial growth of the corporations in Singapore. Furthermore, this development institution also commanded by the central government to create a cooperation with other agency in creating innovation and developing the technology in order to advance international standard of quality assurances infrastructure and safety of general customer for products and services in Singapore ([www.spring.gov.sg](http://www.spring.gov.sg)).

According to Spring (2011) value added approach provides the net wealth created by firms, and measures the differences between sales and the cost of materials and services incurred to generate the sales. Additionally, the study proposed several advantages of value added methods; firstly, value added gauges each of output currency and characterize the resources owned by the company. Secondly, due to the simple measurement consists of profit and loss report of the company. Thirdly, because of the connectivity of employers and employees in accelerating the financial and economic growth; therefore, the value added shows the most outstanding performance achieved by each part of the company. Lastly, value added approach is generally used as a measurement of the productivity for manufacturing and service companies (Spring, 2011: 19).

Hence, in accordance with a study conducted by Vilanova (2010), postulated the competitiveness is an essential part of firm's management and basic indicator for productivity and financial achievement (Porter, 1985 in Vilanova, 2010). Furthermore the study affirms, *"understanding competitiveness not solely as productivity, but as the ability of a company to design, produce and or market products superior to those offered by competitors, considering the price and non-price qualities"*(De cruz and Rugman (1992) in Vilanova (2010: 20)).

## **2.5 Firm Size**

Hackstone and Milne (1996) presented in the research that agency theory and legitimacy theory exposed the association between Corporate Social Disclosure and size disclosure. The study confirmed the larger companies applied more social activities in order to get positive image and perspective from the shareholders (Cowen et al in Hackstone and Milne, 1996: 81). By using different sector of corporations as the sample, this research re-investigated the effect of Corporate Social Disclosure and responsibility and firm size in Indonesia manufacturing sector.

Haniffa et al. (2005) asserted in the study examined the impact of culture and governance on corporate social reporting, size of the firms determine the level of social disclosure, *"larger companies are also subject to greater scrutiny by various groups in society and therefore would be under greater pressure to disclose their social activities to legitimise their business"* (Cowen et al., 1987 in Haniffa et al., 2005: 401-402).

## **2.6 Growth opportunities**

A study conducted by Sayekti (2007) illustrated the direct correlation between firm's growth and financing requirement. Furthermore, some studies demonstrate that the higher of firms growth, the greater the demand for financing the firms expansion. Hence, the potential growth of the company becomes important factor that determine its dividend policy.

The company classifies by having the opportunity to grow higher if the company has a positive response from the market, which is indicated by the magnitude of the stock market value of the company's shares that is higher than the value of the book (Tsoutsoura, 2004). By the existence of potential growth in terms of long-term growth, the investors are expecting to gain more profit in the future. Additionally, in a study by Carroll et al (2010), discovered the enterprises that experience high growth will result in larger of accounting profit and high price of shares compared to the enterprises that experience the low level of growth.

Sun and Stuebs (2013), emphasized the growth opportunity level would affect the size of dividend payment for the shareholders. This is a signal about the company's growth in the future. The consequence of growth opportunity of the company, would affect the amount of funding needed for investment, correspondingly the management of the firm prompts to maximize the company growth in each period. The growth of a company will be directly related to the needs of budget allocation.

## **2.7 Return on Asset (ROA)**

ROA is a profitability indicator, which is used as business attractiveness to promote good image of the company to the stakeholders. The assertion from Bowman and Haire (1976) in Hackston and Milne (1996) told that the relationship between CSR disclosure and corporate profitability has been postulated to reflect the view that social sensitivity requires the same managerial style in order to create the company's profit. Furthermore, disclosure of CSR reflects an approach to management in addressing environmental dynamic and multi-dimensional environment and ability to confront the social reactions in people

needs. Thus, the management skills need to be considered in order to survive within the current enterprises (Cowen et al., 1987 in Heckston and Milne, 1996).

According to Sun and Stuebs (2011), Corporate Social Reporting have positive effect on Return on Assets (ROA) as the ratio of net income to the total asset, and Return on Equity (ROE) ratio as profitability indicators. By knowing this ratio, the company can be judged whether it has been efficient in utilizing the overall assets or capital stock owners in the operational activities.

## 2.8 Leverage

Leverage indicates the capital structure of the company and measures debt proportion divided by the equity of company. Leverage ratio is the proportion of total debt on the average shareholders, also used to give an analysis of capital structure owned by the corporation. Leverage provides an overview of capital structure owned by the company; thus, can be assisted by the level of unpaid off debt risk. Scott (2000) affirmed that the higher level of leverage delivers the higher possibility of debt contract violation, then the manager will attempt to report the higher current profits compared to future profit. Hence, high level of leverage ratio leads to low level of CSR disclosure in order to publish higher level of current profit. Also, the manager adopts the best accounting method to escalate the current profit.

According to Belkaoui and Karpik (1989) the decision of CSR disclosure level follows an expenditure for the disclosure of the lowers revenue. A company with high ratio of leverage results in a high supervision carried out by debtholder on the activities of the company. Moreover, agency theory confirms that the management of the company will decrease the social responsibility disclosure which has been committed to persuade the debtholders' point of view.

Leverage can be defined as the level of dependency of the company to the debt in financing the activities, thus the leverage also reflects the financial risk of the company. Sembiring (2005) stated in the research the indicators were used to measure the level of leverage is *Debt to Equity Ratio* (DER).

## 2.9 Empirical Evidence

This section presents the empirical findings and the relation to the theory above. Most of prior literatures investigated the correlation between (a) CSR and financial performance, (b) CSR and economic performance, and (c) CSR and productivity. Some of the results are positive, such as Balabanis et al (1998) in their research, demonstrated that the corporations listed in London Stock Exchange, which disclosed the CSR have positive correlation with the profitability indicator, namely gross profit to sales ratio. In addition philanthropy activities, such as donation, did not influence economic performance variables. However, there was negative correlation between CSR disclosure and capital markets performance.

Gamerschlag et al (2011) investigated 130 listed companies in Germany, found that there was positive correlation between corporate social disclosure (CSD) and industry type. The higher level of pollution from activities of a company, the higher the priority the company in presenting the report on environmental issues, *“the result consistent with the political cost theory, firms appear to disclose CSR information to reduce the potential impact of additional regulation, taxes, and other activities that may negatively affect the firm’s value. Failure to remove informational asymmetries (i.e., lower disclosure) may result in more occupational safety regulation, higher anti-pollution taxes and consumer boycotts that may reduce the firm’s value”* (Gamerschlag et al, 2011:257).

Related research conducted by Suhendah (2012), which analysed the relationship between intellectual capital with profitability, productivity and market assessment, provided empirical evidence that the intellectual capital positively significant impact on profitability and negatively significant productivity, yet not significant to the market assessment. The result of the investigation is also accordance with resource-based theory<sup>5</sup> that explains that companies can maintain productivity with a competitive advantage owned by the company, by

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<sup>5</sup> Resource Based Theory or View (RBV) was introduced in the mid of 1980’s by several studies and researches in strategic management department. This theory presents the importance of competitive advantage of an enterprise by utilizing the material and non-material resource. RBV becomes popular and mainstream in company’s strategic management as other alternative besides market-based theory or view.

implementing strategy to create value added of the company, which cannot be easily imitate by the competitors.

This study refers to Sun and Stuebs (2013), which examined the CSR and firm productivity in the Chemical industry in the United States within 1998-2009. They found that CSR reports and implementation of the chemical firms inter-link with the rate of productivity. The study investigated 170 largest chemical industry in United States due to the major contribution for the Gross Domestic Product of the Nation and suggested the chemical industry as the largest sector that contributes to the environmental impact. Furthermore, they applied Data Envelopment Analysis (DEA) as productivity indicator, natural log of the total assets, Return on Assets and Leverage ratio as control variables. The overall findings represents that the higher level of CSR performance resulted in higher rate productivity of chemical firms in US. The study supported the validity of Vilanova et al (2009), which postulated the productivity as determinant of competitiveness and learning process takes places when a firm integrates CSR activities into business practices.



## Chapter 3 CSR in Indonesia

Among the existence of global competition, company managements commit to put an ample endeavour to survive by creativity. This creativity means that the companies are not only focus on multiplying their profitability ratio, but also accomplish the integration of social elements. Due to the sustainability principle, profit orientation will not assure the growth of the company in a long term impact. In fact, several studies show the sensibility of social community regarding the environmental and social dimensions.

International Financial Reporting Standard<sup>6</sup> (IFRS) mandated international standard as a legal requirement to provide financial report, which have been applied by worldwide corporations. Indonesia as a middle-income developing country (UNCTAD, 2014), has continuously adopted the international financial standard since 2008 as a mandatory requirement for financial reporting, acknowledged as Financial reporting standard (Standar Akuntansi Keuangan). Moreover, DeFond et al (2011) confirmed by the result of the study, the growth of foreign investment and international regulation of financial reporting increase high of comparability, reliability and credibility of the statement. Gray and Milne (2002) affirmed that sustainability is not always claimed as the efficiency of natural resources allocation; in addition, involves the equality of distribution among the generations continuously.

### 3.1 CSR Standard and Regulation

In general, some studies confirms that in Indonesia, CSR practises is counted in low level compared to the other southeast Asia countries such as Malaysia and Singapore. However, in 2007, Indonesia has started to impose the official regulation concerning CSR performance, which leads the companies in Indonesia to provide the CSR reports officially (Simon and Fredrik (2009). Before

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<sup>6</sup> IFRS is the international standard of accounting principle which is regulated and published by the non-profit foundation, International Accounting Standards Board (IASB) to provide internationally recognized and accepted regulation in order to facilitate the accounting communication and help the stakeholders around the world in providing the financial report, or other activities related to the financial accounting concept.

2007, within the scope of Indonesian territory, the accounting standard of Indonesia had not obliged the companies to reveal social information and the social consequences that occur in practice companies expresses it on a voluntary basis. In addition, Indonesian Accountant Association<sup>7</sup> (IAI) implicitly in the statement of Financial Accounting Standards (PSAK) no. 1(revised 2004) paragraph 9 suggests to express the social issues as follows:

*“The company may also present additional reports, such as the report on the environment and reports added value (value added statement), particularly for industries where environment factors hold an important role and for the industry that considers employees as a group of users report that play an important role”.* (Indonesia Accounting Standard, 2004).

The disclosure of social activities and the environment for the companies register their stock exchange have also been regulated in BAPEPAM regulation no.KEO-13bl/2006 on 7 December 2006. The purpose of this rule is to give a clear illustration about the performance management to the public. It is also expected to make the management reveals other information on the outside that has been required. Besides the reporting, the implementation of social responsibility and the environment are arranged in the act of limited liability company. The article 74 paragraph 1 to 4, which was approved by the council representatives on July 2007, stated that:

- Article 74 paragraph 1 states that the company running its business activities in the field and or pertaining to natural resources is obligated to carry out the social and environmental responsibility.
- Article 74 verse 2 states that social and environmental responsibility are the obligations of the company regarding the budget and calculation of the company cost, which is implemented with regard to its appropriateness and fairness.
- Article 74 paragraph 3 emphasizes that the company that fails to perform its obligation as article 1, subject to the sanction in accordance with the provisions of legislation.

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<sup>7</sup> IAI is also independent organization in Indonesia, established under control of IASB, which also issues the financial accounting regulation adopted with IFRS, that is called Financial Accounting Standards, in Indonesia terms, called PSAK (Peraturaturan Standar Akuntansi Keuangan).

- Article 74 paragraph 4 stipulated further provisions regarding social and environmental responsibility be regulated by the government regulation.

Furthermore, the existence of CSR in Indonesia is regulated in Law no. 40 year 2007 on Limited Liability Company. Article 77 paragraph 1 of the law stipulates that the company who operates its business activities in the field and/ or pertaining to natural resources are obliged to implement social responsibility and the environment. In Act no. 25 of 2007 on capital investment, article 15 (b) states that any investors are obliged to carry out corporate social responsibility. The importance of CSR disclosure has made many researches to conduct research and discussion about the company's practices and motivation toward CSR.

### **3.2 CSR Studies in Indonesia**

Some researches related to the CSR disclosure have been widely conducted, both within and outside the country. For instance, studies conducted by Belkaoui and Krapik (1989); Cowen (1987), Hackston and Milne (1996), Sembiring et al. (2005), which examined the factors that affect the disclosure of CSR. Among the factors being variables in the study are the size of the company, profitability, leverage and the size of the board of commissioners. The influence of the size of the company against the disclosure of CSR is reflected in Agency theory, which explains that large companies have large agency costs; hence, those large companies will disclose information more than small companies. However, not all studies support the relationship between the sizes of the company with CSR, since the unsuccessful investigations showed the relationship between two variables.

A survey conducted by Basamalah and Jermias (2005) demonstrated that the main reason for the company management to expose the social reporting is for strategic purpose. Although it is not compulsory, but the result tells that most of companies has begun to reveal the social information through CSR reports in various levels, in particularly the companies listed on the Indonesia Stock Exchange. From the viewpoint of economics, the company would express any information if such information contributes to enhance the value of the com-

pany. (Verecchia, 1983, in Basamalah et al, 2005). Hence, by implementing CSR, it is expected the company would obtain social legitimacy and maximize their financial competency in the long-term (Kiroyan (2006) in Sayekti and Wondabio (2007). This attestation indicates that the corporation which applies the CSR would acquire positive respond from the market participants.

The disclosure of social responsibility the company is a scenario that makes the company no longer encounter the responsibility that is based on single bottom line. The awareness over the significance of this disclosure is underpinned by the notion that the company does not only have economic and legal obligations to the shareholders, but also the obligations towards the other contracting parties' concerns. The research also refers to Sembiring (2005) and Anggraini (2006), which investigated the companies listed in Indonesia stock exchange during 2000-2004. The result confirmed inconsistency of the previous studies, to this extent encourage the research to re-examine empirically about the social responsibility disclosure and productivity in manufacturing companies.

As reported by Sembiring (2005), the larger scale of enterprise, the larger of agency costs, and the broader of social information disclosure. The influence of the size of the company against the disclosure of social responsibility is reflected in agency theory, which explains that large companies have large agency costs and social responsibility disclosure. Furthermore, profitability can be portrayed from the net profit of margin, which represents the capabilities of the company in generating net profit. Leverage gives an overview of the structure of capital owned by the company and the level of unpaid off debts.

Meek et al. (1995) in the study stated that the company with high level of leverage tends to reduce social responsibility disclosure. This study suggested that other factors that contribute to the social responsibility disclosure is the board of commissioners. By the authority, the board of commissioners can provide a fairly strong influence to strictly control the management in order to reveal the social information. A company that has a larger size of the board of commissioners will publish more the social information.

The next factor of CSR is environmental performance, which measures the environmental performance based on PROPER corporate environmental per-

formance. Administered by the ministry of environment, PROPER uses colors to classify the corporate achievement, ranging from the best gold, green, blue, red, and black for the worst, in order to regularly announce to the community to ease the society in adopting the environmental management strategy by assisting the existing colors. Hence, the companies that participate in PROPER assessment most likely have performed well environmentally, and the level of disclosure is noticeably greater compared to the companies that does not participate in the evaluation. This results is supported by Rakhiemah (2009), who found the positive correlation between environmental performance and corporate social responsibility disclosure.

Sayekti (2007) conducted a study about the effect of CSR on earning response coefficient, and the results proves that investor gives highly appreciation towards CSR disclosure in annual report of the corporations. Moreover, CSR disclosure contributes positive outcomes for the companies; however, it also derives negative impact on earning response coefficient, which means that CSR publication is partly responsible for increasing the reputation of the company.

Zuhroh et al. (2003) empirically tested the impact of broad social disclosure on the investor reaction that indicated through the trading volume of the company's shares, which are categorized in a high profile industry. Furthermore, Zuhroh et al. (2003) identified that social disclosure in the annual report of the companies affect the trade volume of stocks of the companies that are classified as a high profile.

Indonesia is a country that consists of an integrated various culture and environment. The government realizes the importance of to keep the environment especially the company's activity that is closely related to the environment. Before 2007, CSR disclosure was still merely voluntary, and the government of Indonesia in 2007 passed a law limited company no. 40 article 74 in 2007. The act requires that industry or the corporations to administer, but the obligation does not constitute a burden. The development process of a country is not only the responsibility of the government and the business entity, but every human with their own roles in order to realize the social well-being and manage-

ment of the quality of life and the community. Industry and corporate also act to foster a healthy economic growth taking into account environment factors.

Since implementation of limited liability legislation, companies in Indonesia began to express their social responsibility activities in the annual report, particularly the companies that its field of business deals with the environment. Therefore, this study is aiming to investigate the impact of social responsibility towards the productivity of the companies in both short term and long term on the basis of the aspects contained in the sustainability reporting companies that can affect the achievement of the companies. The company, which provided the sample is devoted to the manufacturing corporations.

Mindset becomes an obstacle for the companies to perform the sustainable management, for example, the management of the company still assumes that the lowest price level is the most affected factors of the society in purchasing-decision making (Rahadini, 2010). Additionally, Rahadini (2010) stated that most companies have successfully implemented the social and environmental aspect, yet the community is precisely assessing that the company is failed to attract the public sympathy. The purpose of the company is to contribute to the society to create a good impression, but sometimes cannot be well received. This is because in applying environmental and social aspects of sustainability, they are not regulated and supported by a good concept (Rahadini, 2010).

Gyorgy et al (2008) affirms that the activities of company can affect the natural environment and society by influencing consumption patterns. Increasing awareness of environmental and social can affect the ability to determine the attitude of consumers so that it becomes a priority in the future. In studies of Budiarsi (2005:125) mentioned that there are several reason why social and environmental responsibility are becoming very important in the formation of the image or reputation of the company. Firstly, transparency factor, means that company provides an ample of accessibility of environmental and social performance for the society. After which, knowledge of consumers in selecting the products and companies that not only underlies his business from financial sector, but also evaluate the social and environmental aspect. Third factor is

sustainability. In addition, last factor is globalization currently where the communities want a balance between the desire of the business entity and public.

A research conducted by Sayekti (2007), showed the familiarity of corporate sustainability and management in Indonesia was still very low, only 8.5 percent of the companies listed on the IDX that has published their social disclosure and activities. The company should not see sustainability as a threat or a burden, because at the present time those shareholders and investors prefer companies that can create long term value. Likewise, by taking into account 3p, the society conceives that the company will be able to continually establish market potential for the sustainability of products and services, as well as in the same time will be successfully reduce and avoid the cost of sustainable and risks.

A study conducted by Simon and Frederik (2009), provided qualitative investigation regarding the CSR in Indonesia, in particularly for several small medium enterprises (SMEs). They found that the fulfilment of CSR report among the corporations in Indonesia are applied as an approach to acquire good reputation from social perspective and actualize competitive advantage.

However, there are some researchers who say that CSR and performance companies have a positive relationship (Lopez et al, 2007), which is demonstrated by the determinant of a model based on the excellence of the company economic ability to describe the paradigm of corporate social responsibility activities.

At the present time, there are various conflicts in Indonesia, such as damage as a by-product of the excessive exploitation and imbalance of the environmental management as well as the disposal system from the factories, the incremental of pollution and environmental degradation. Moreover, welfare issue is increasingly frequent and results in demonstration and protest, the community demands of a policy that behaviour by the association is not partial to them such as the provision.

In this case, the manufacturing company has a considerable contribution in issues such as pollution, waste, product safety and labor. Due to manufacturing company is the sector of company, which the most people interact with. From the operational perspective, manufacturing will inevitably produce waste production and closely associated with the environmental pollution issues. The

production process is conducted by the company, requires to have qualified labor in the production department, and it is exactly connected with occupational safety issue. Furthermore, due to society as the consumers of the companies, manufacturing companies should strictly concern about the product safety and security matters. The reputation among society is considered as primary factor for the company to disclose the product performance to the community, for instance, ISO 9000 and 9001 achievement. This is a brief description why manufacturing company should be the target for the research of social corporate disclosure and responsibility.

A research conducted by Indonesia Business Links (2011) presented that even though the implementation of CSR in Indonesia has been written in the Law, but in fact, the practice of CSR are still far from the international-recognised standard. Furthermore, the research also reported that the result of Focus Group Discussion (FGD) of 20 Chief Executive Officer (CEO) of enterprises in Indonesia, regarding the obligations of CSR project, which is included into corporate law of the States. The corporate law declared that the majority of Indonesian CEO do not definitely believe and conceive that corporate social responsibility activities listed into the law firm will assist and ensure are mutually beneficial for the company and local communities.

In 2004, Saidi and Abidin found that the responsibility in environmental aspect still reached the lowest rate in Indonesia, especially budget allocation for environmental management in that time was the smallest portion of total CSR budget plan compared to social service, education and health facilities support fund. This study also confirmed that from total of 279 social activities for 1 year period performed by the corporations in Indonesia with total budget allocation of 115, 3 Billion Rupiahs, social service achieved the largest proportion, followed by housing development infrastructure as the lowest contribution of total budget.

Tanudjaya (2006) mentioned that the impediments of CSR practice inevitably encountered by the firms. From economics' point of view, cynical argument assumed that CSR concept literally in maximizing returns for shareholders by sacrificing other things related. Meanwhile, the opponent suggested that there



will be commercial benefit behind social projects, which enhance the firms' reputation in the public and government perspective.

However, Tanudjaya (2006) also elaborated briefly, CSR also brings several advantages to the corporations and community in Indonesia. Firstly, it can be confirmed, the companies that undertake the social activities by considering environmental effect will create a good reputation or good brand image to the various level of business. From consumer point of view, the company that performs better on environment responsibility is considered as a company that can properly manage and utilize natural resources in benefit of consumer and companies. In addition, from the viewpoint of the investors, companies that commit on environmental issue rated as low-risk business and perfectly profitable for investment, due to considering long-term investment.

Secondly, CSR activities eliminate social conflict around the company, means business activity of the company certainly delivers the degradation of environment as caused by the misconduct of company's environmental strategy. Therefore, CSR positively lower social conflict in terms of the habitant around the enterprise.

After which, CSR contributes to enhance the cooperation with stakeholders, such as, by engaging the local governments and NGO in doing environmental conservation, then the company can easily create a good partnership with the stakeholders.

Last advantage is CSR activity distinguishes the company with all the competitors, means that by applying the CSR strategy, the company will be a role model and have the opportunity to show the comparative advantage, as a result the company creates positive value compared to the other competitors, which do not have SCR activities.

## Chapter 4 Methodology and Data

### 4.1 Data

The research will use secondary data sources for answering research questions. Data will be collected from annual report and financial report of manufacturing corporations from Indonesia Stock Exchange (IDX), Indonesia Capital Market Directory (ICMD), and *Pojok BEI* (a specific institution in several universities in Indonesia, which concern on Stock exchange management and marketing). In addition, the CSR reports and implementation will be evaluated from annual reports of the enterprises for 7 years period (2007-2013) and productivity of the firms will be calculated based on the financial and annual reports of the companies.

### 4.2 Variables

The variable are used in the study refers to several studies, as table below:

**Table 4.1 Variables Definition and Source**

<b>Variable</b>	<b>Definition</b>	<b>Source</b>
Productivity	The effectiveness of the company in using and utilizing resources to generate the profit	Annual report and financial report from IDX
Corporate Social Responsibility	Consists of 6 sub sectors; environment, energy, employee and safety, women's position and ethnic minorities, products and community involvement.	Annual report from IDX
Firm Size	Indicator used to classify the company size by Natural Logarithm of	Annual report and financial report from IDX

	Assets	
Growth Opportunities	Indicator used to compare the past sale level and current sale level	Annual report and financial report from IDX
Return on Assets (ROA)	Profitability indicator used to compare between Net profit and total Asset	Annual report and financial report from IDX
Leverage	Indicator used to describe Capital structure of the company	Annual report and financial report from IDX

#### 4.2.1 Productivity

In this research, Productivity measurement is based on Spring (2011), value added-to-sales ratio, which measure the proportion of sales created by the organisation over and above purchased materials and services. This ratio as the productivity measurement, measure the efficiency in use of purchases, favourable price differentials between products and purchases, or good control of stocks. The formula as following below,

$$\begin{aligned} \text{Value added-to-sales ratio} &= \frac{\text{value added}}{\text{sales}} \\ &= \frac{\text{sales} - \text{cost of Purchased goods and services}}{\text{sales}} \end{aligned}$$

#### 4.2.2 Corporate Social Responsibility

This study is the replication of prior research, but in different indicators and measurement. CSR elements cover 6 major sectors, environment, energy, employee health and safety, women's position and ethnic minorities, products, and community involvement (Hackstone and Milne, 1996: 105-108). Corporate social disclosure index (CSDI) calculation is done using the dichotomy approach by Wondabio (2007), for illustration, each item in the CSR research instrument rated 1 if disclosed and 0 if it is not disclosed. The formulation as below:

$$CSDI_j = \frac{\sum X_{ij}}{n_j}$$

CSDI<sub>j</sub>: Corporate Social Disclosure Index for firms j;

n<sub>j</sub>: the total of CSR items are 78; and

X<sub>ij</sub>: 1 for item disclosed and 0 for item not disclosed

#### 4.2.3 Control Variables

The control variables refers to the research conducted by Sun and Stuebs (2013), which investigates the corporate social responsibility and firm productivity from the chemical industry sector in the United States.

a. Size

$$\text{Size} = \text{Ln (total Asset)}$$

According to Belkaoui and Karpik (1989), the size of the company affect the level of information that is provided in the annual report. It means that a large company will express information more than the small company. As suggested in Balabanis et al.(1998), the size of the company can affect extensive disclosure of information in their financial statements. In general, the larger companies reveals more information as an effort to reduce the cost of the agency.

b. Growth opportunities

$$\text{Growth Opportunity} = \frac{\text{Total Sales } t - \text{Total Sales } t-1}{\text{Total Sales } t}$$

c. Return on Asset

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Asset}}$$

d. Leverage ratio

$$\text{Leverage} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

The expected results for each variable in this research based on the hypothesis are as following:

1. Corporate Social Responsibility Index is expected to give positive impact on productivity of the manufacturing firms. It means that the wider of companies disclose about the CSR, the higher productivity.
2. Size of the firm is expected to give positive effect on productivity, which defined if the larger size of the company, the higher of productivity level.
3. Opportunity growth is expected to give positive effect on productivity. It is expected the higher of a company's growth level, the higher productivity rate.
4. Return on Assets is expected to give positive effect on productivity. ROA as profitability indicator is predicted to be higher, in line with the productivity level of the company.
5. Leverage ratio is expected to give positive effect on productivity. It illustrates that a firm with high level of risk contributes to high productivity rate.

### 4.3 Methodology

The approach used in this study are descriptive and quantitative analysis approach. Decriptive analysis is used to elaborate and explains the implementation of Corporate Social Responsibility disclosure and activities based on evaluation and several interviews conducted by the author. Meanwhile, the quantitative analysis is used to examine statistically the relationship between the CSR and productivity of the manufacturing companies in Indonesia; in this case, the manufacturing firms listed on Indonesia Stock Exchange, which represents the largest manufacturing companies in this country.

#### 4.3.1 Model Specification

Economic model proposed in this research is as follow:

Model 1

$$\text{PROD}_{it} = \alpha_0 + \alpha_1 \text{CSR}_{it} + \alpha_2 \text{SIZE}_{it} + \alpha_3 \text{GROWTH}_{it} + \alpha_4 \text{ROA}_{it} + \alpha_5 \text{LEV}_{it} + e_i$$

Model 2

$$\mathbf{PROD}_{it} = \alpha_0 + \alpha_1 \mathbf{CSR}_{it} + \alpha_2 \mathbf{SIZE}_{it} + \alpha_3 \mathbf{GROWTH}_{it} + \alpha_5 \mathbf{LEV}_{it} + e_i$$

Model 3

$$\ln \mathbf{PROD}_{it} = \alpha_0 + \alpha_1 \mathbf{CSR}_{it} + \alpha_2 \mathbf{SIZE}_{it} + \alpha_3 \mathbf{GROWTH}_{it} + \alpha_5 \mathbf{LEV}_{it} + e_i$$

Where:

PROD: Productivity

CSR: Corporate social responsibility index

Control variables:

SIZE: Size of the firms (Natural log of Total Assets)

GROWTH: Growth opportunities (market equity ratio)

ROA: Return on Assets Ratio

LEV: Leverage ratio (Total liabilities per debt ratio of a firm)

#### **4.3.2 Measures Productivity CSR and control variables with Econometric Model**

This paper uses panel data, which also defined as cross-sectional time series, “describes a wide range of methods for analyzing observations on  $I$  analytical units or cases, repeated over  $t$  points in time.” (Hamilton, 2004: 191). According to Hsiao (2003) and Klevmarken (1989) in Baltagi (2005), there are several reason of the benefit for using panel data:

1. Panel data has an ability to control individual heterogeneity, which means individuals, companies or other things are heterogeneous can be controlled by using panel data to avoid bias.
2. Panel data provides various information, variabilities, degree of freedom and decrease the collinearity issue between variables.
3. By using panel data, it is capable to observe the dynamics of estimation adjustment of variable at a particular moment and these change and speed of adjustment can be monitored.
4. Panel data enable to identify and measure the detected and undetected impact.
5. Panel data obtained by unit of observation; furthermore, there are many variables can be measured accurately in order to prevent bias.

Nachrowi (2006) described three methods to estimate by using panel data:

1. Ordinary Least Square method, defined as the integrating process the both of the data, cross-section and time-series. After integrating, the data is used in OLS estimation.
2. Fixed effect method, used since there is possibility of inconstant intercept; in other word the intercept for each individual and time of observations are changeable.
3. Random effect method, used to estimate the error, by using the uncorrelated individuals and times in the observation. This technique also calculates the correlated error all along the time series and cross section.

## Chapter 5 Finding and Interpretations

### 5.1 Corporate Social Responsibility Disclosures and Activities

Due to the unavailability of CSR reports for 7 years of period completely, the total observation for this research is only 573 for all the periods for 7 years. The unavailability the data because of in the early year of observation, 2007, 2008 and 2009, there was still less than a half number of companies, which published and provided the CSR disclosure in annual report; meanwhile, the number slightly increase year by year.

The number of manufacturing companies, which listed on Indonesia Stock Exchange also grew considerably, but fluctuated from 2009 to 2012. This number because of the various date of '*go public*' companies. For example, some companies that have listed in 2008 and 2009, stopped for '*go public*' and sale the stock in the next period (2010). The following table summarizes the number of observed companies in this research:

Table 5.1  
Manufacturing companies listed on IDX and provided CSR reports

year	Listed in IDX (IPO)	Availability of CSR reports
2007	120 companies	41 companies
2008	122 companies	53 companies
2009	124 companies	70 companies
2010	118 companies	99 companies
2011	130 companies	95 companies
2012	132 companies	108 companies
2013	137 companies	109 companies

Since involving different numbers of corporations in each year for 7 years period, this study uses unbalanced panel data analysis, which defined as the alternative to use when the number of time periods as T, is different with individuals i (Mayer, 2010). Based on the evaluation of CSR report of the manufacturing companies sector, the CSR index has various numbers from 0.03846 (minimum) until 0.9872 (maximum).



In this study, the CSR score classification as the below table description:

Table 5.2 CSR index Category

<b>Category</b>	<b>Score</b>
Low	0-0.399
Medium	0.4-0.699
High	0.7-1

There are several primary elements that are explained in CSR reports:

1. Environmental impact and Energy efficiency

This substantial feature indicates that the manufacturing firms concern on environmental impact, such as pollution reduction by operational activities, natural resource conservation, waste management, and re-forestation. For most of manufacturing companies, which gained CSR score 0.7 above, those companies are awarded ISO 14001 by international organisation. ISO 14001 is developed by International Organization for Standardization, evaluates 5 aspect of the companies; (1) environmental strategy, (2) environmental planning, (3) implementation of the strategy, (4) inspection and repair, and (5) management evaluation (National Standardization Agency of Indonesia, 2011). Another assessment is PROPER rating achievement, which pioneered by the State Minister for the Environment, from the highest to the lowest rate, consists of gold, green, blue, red and black, respectively. Based on the observation, 10 highest corporations are awarded ISO 14001 and Proper rating achievement consecutively, yet PT. Indofood (INDF), PT. Arwana Citra Mulya (ARNA) and PT Pan Brothers (PBRX) for exception, since the availability the CSR disclosure started from 2008, 2009 and 2010. Most of the rest observation have ISO 14001 certifications, but not for all the observation periods and PROPER rating achievement as well. The interpretation is the larger scale of companies, the greater demands by stakeholders for the companies to report the activities related to the environment. This fact in line with CSR evaluation that most of high profile and multinational companies tend to provided environmental and sustainability reporting comprehen-

sively, compared to medium and small firms. For instance, the top 10 companies in the depicted figure 5.1.

## 2. Activities in Occupational Health and Safety (OHS)

The indicators for this element are zero workplace incidents, safety awareness programs socialisation, and Occupational Health and Safety Aspects (OHSAS) certifications. Most of manufacturing companies have disclosed and implemented the safety and health programs for the workers, but only a few numbers of companies, which is awarded OHSAS certifications. Occupational health and safety system covers all related aspects in production and operational of the companies, by totally considering the impact on environment, society and workers; and encourage positive impacts of business operational activities.

## 3. Product Development

This vital aspect of assessment revealed the research and development, packaging, quality of the product, and international certification of the product (ISO 9000 or ISO 9001). In addition, most of top 10 companies accommodate the product quality report consists of several characteristics related to the environment, green strategy, green process, and green employees. In particularly for green product, the main goal of this principle is to formulate the environmentally friendly product and services.

## 4. Community Involvement

This element consists of charity activities, such as education sponsorship, part-time employment, medical research support, art exhibition, national health campaign, local industry empowerment. Based on the evaluation of CSR on each companies and years, most of manufacturing companies have conducted the social activities, in fact, the top 10 lowest score of CSR index companies are still ignore the obligation to perform philanthropy activities. However, the medium and high level

of CSR index disclosure companies have organized charity and philanthropy activities, related to the local community empowerment, the development of health facility and religious service infrastructure, education sponsorship and scholarship, 1000 tree plantations, and other activities related to the local community development.

Based on several interviews and evaluations of manufacturing firms CSR disclosure, there are several weaknesses in terms of the reporting and performance. In general, CSR activities perception in Indonesia is mostly about philanthropy activities performance, since most of company management and stakeholder still misunderstanding towards the real CSR concept. Based on several interview that conducted by the author, most of the companies, especially for small and medium enterprises in Indonesia preferred to allocate huge number of budget to philanthropy projects rather than other sectors of social disclosure component. This condition due to, different point of view between the companies and stakeholders regarding the basic principle of CSR reporting and activities. Further, CSR practices in Indonesia even becomes problematic when some local governments asking for CSR funds from companies to be handed over on the local government in order to manage and adapt to the regional development strategy. Again, it represents misperception of how CSR should be seen in management, governments and stakeholder's point of view.

Second important point is the CSR implementation determinant in Indonesia is inseparable from the culture and governance condition. For instance, the multidimensional of culture and religion will result in CSR application. Another highlight is, in Indonesia, the attention to minorities empowerment is still in minimum level. Further, based on the evaluation, only 3 enterprises that consistently commit in minorities empowerment, namely ASTRA International (ASII), SMGR and SMCB.

This research also supported by the interview with some people from accounting department, who responsible in controlling the CSR implementation and reporting. Based on the interview, most of multinational corporations such as Holcim, Astra International, Astra Autoparts, Unilever and Tjiwi Kimia pulp and Paper implement the CSR strategies under international committee con-

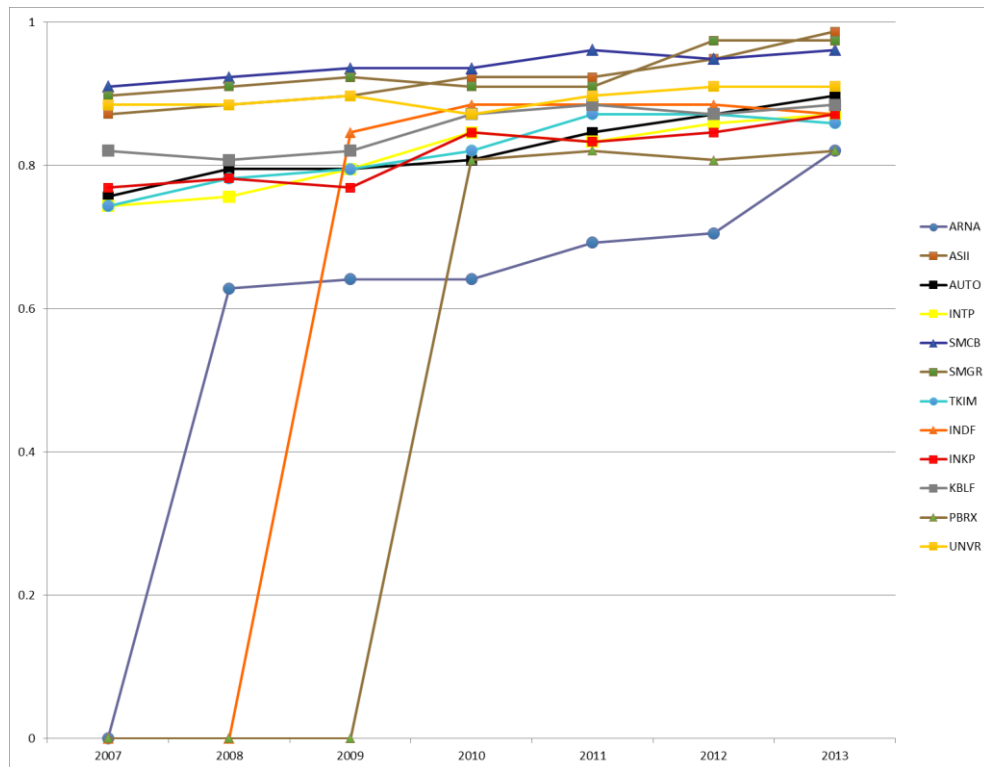
trol. Those companies have independent committee in controlling and planning the budgetary system and process for CSR activities. For illustration, holcim and Indocement Corporation has consolidated companies in some provinces level, which allocated the donation for local community empowerment as its social responsibility. The international committee assure the consolidated companies to distribute the donation meet the target that has been set. In fact, triple bottom line concept has been applied as a pressure from the stakeholders to minimize local conflict, since companies in Indonesia only concern on the local community around the corporation.

Most of companies emphasizes that the CSR projects is not all about money and budgetary system matters; further, the keyword is sustainable concept, which means CSR programs more about community involvement in utilizing natural resources in order to eliminate social, economy and political impediments that leads to an increased standard of living. As an illustration, vocational training for underprivileged areas that is organized by ASTRA international. The important objective of this program is to assist the student in poverty area in accessing appropriate education and skills in order to create better young generation for the future.

Based on the evaluation of the data, mostly the CSR reports for period 2007-2009 only concerned on environmental impact and philanthropy activities, except for certain firms such as Holcim, Indocement, Unilever, tjiwi Kimia pulp and paper and Astra international. Those companies consistently has been awarded international standardization certification regarding environmental management, occupational safety and product.

Figure 5.1

The Top 10 Companies with The Highest Score of CSR disclosure in 2013

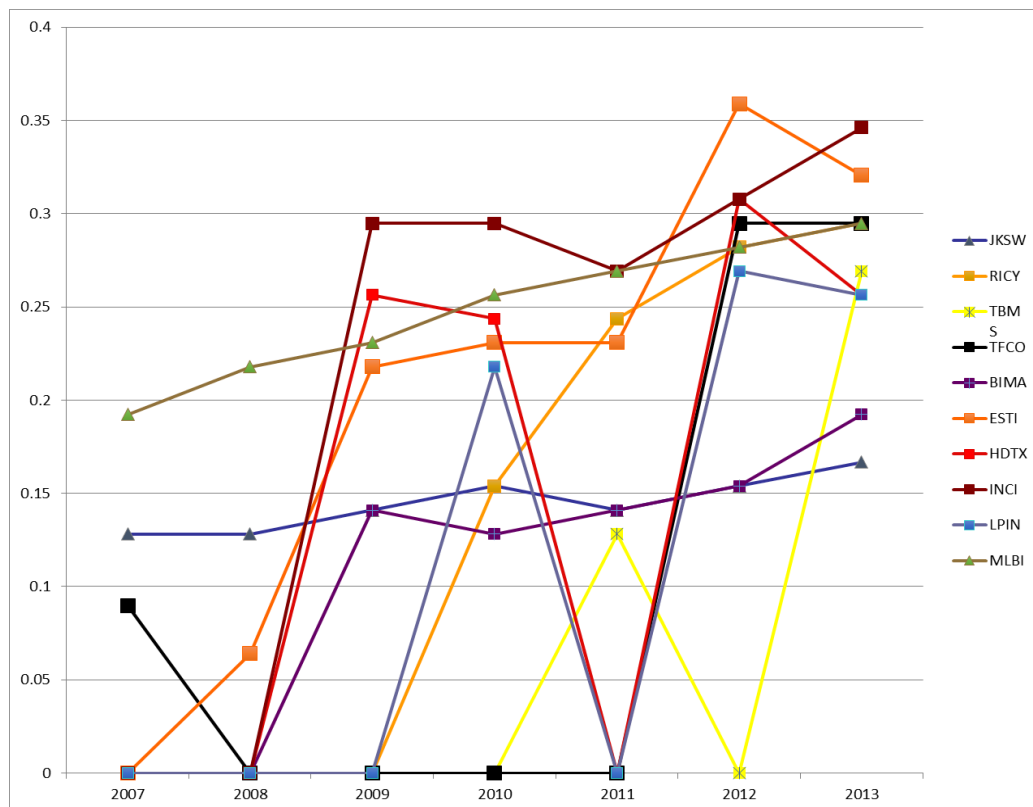


Source: Author's own illustration based on Annual Report from Indonesia Stock Exchange (IDX)

The graphic above portrays the top 10 manufacturing companies listed on Indonesia Stock Exchange, which consistently implement and disclose the CSR reports and activities from the validation year of CSR law no. 40 year 2007 about the limited ability firm corporate social responsibility. ASII (PT Astra International), SMCB as a subsidiary company of Holcim Cement enterprise, SMGR (PT. Semen Indonesia), UNVR (PT. Unilever), AUTO (PT. Astra Autopart), KBLF (PT. Kalbe), INKP (PT. Indah Kiat and Paper Products), INTP (PT Indocement) subsidiary company of Heidelberg Cement Group, TKIM (Tjiwi Kimia Paper Products), PBRX (PT. Pan Brothers), ARNA (PT. Arwana Citra Mulya).

The 10 lowest score of CSR index is as illustrated below (Graph 5.2)

Figure 5.2  
The Top 10 Companies with The Highest Score of CSR disclosure in 2013



Source: Author's own illustration based on Annual Report from Indonesia Stock Exchange (IDX)

The lowest companies that provides and perform CSR reports and actions are: PT Jakarta Kyoei Steel Works Tbk (JKSW), PT. Ricky Putra Globalindo (RICY), PT. Tembaga Mulia Semanan Tbk (TBMS), PT. Primarindo (BIMA), PT. Ever Shine Tex Tbk (ESTI), PT. Pania Indo Resources Tbk. (HDTX), PT. Intanwijaya Internasional Tbk. (INCI), PT. Multi Prima Sejahtera Tbk. (LPIN), and PT. Multi Bintang Indonesia Tbk. (MLBI).

Majority of the firms with index from 0.03 and 0.3 are the corporations that provide the CSR report only organization structure and philanthropic activities, such as educational financing, infrastructure reconstruction and com-

munity programs. However, the CSR index with the results above 0.7 are the corporations that published their CSR reports by covering all aspects of CSR requirements. In environmental aspect, they have accomplished the international certification for environmental management or ISO 14001 and awarded certification from State minister of environment, or generally known as PROPER. For occupational sector, the corporations awarded international occupational health and safety management system (OHSAS). ISO 9000 award indicates that the product of the corporations fulfilled the international standard and requirements based on safety consumption, the quality and packaging system evaluation.

## 5.2 Analysis of the Model

This section presents the statistical result based on Stata program computation.

The estimation is divided into 3 categories:

Table 5.3 The Estimation of Productivity and CSR (model 1)

Dependent Variable: Productivity			
Variables	OLS	Fixed Effect	Random Effect
CSR	0.1993*** (0.04240)	0.1227* (0.06466)	0.1495*** (0.05078)
Size	-0.0037 (0.00737)	-0.0105 (0.01526)	-0.0071 (0.00844)
Growth	0.0416 (0.02828)	0.0182 (0.02372)	0.0216 (0.02380)
ROA	0.0945 (0.06616)	0.0142 (0.01562)	0.0316 (0.03082)
Leverage	-0.0001*** (-0.00001)	-0.00001*** (-0.00001)	-0.00003*** (-0.00001)
Constant	0.2167 (0.19834)	0.4566 (0.40759)	0.3382 (0.22720)
Number Observation	682	682	682
R-Squared	0.0827	0.0177	0.0167

Source: Author's computation based on Annual and Financial Report of Manufacturing firms listed on IDX

Note: Standard errors are shown in parentheses

Level of significance is shown by \*\*\*, \*\*, and \*, represents 1, 5, 10% significance level respectively.

The result above presents the regression result after using OLS, FE and RE. Since the result of Prob F < 10% by using F test, it indicates that the null hypothesis is rejected and fixed effect estimation is chosen. In addition, based on Hausman test, the result of Chi Square is 25, 88 with probability is 0.0001 or less than  $\alpha=10\%$ .

Table 5.4 The Estimation of Productivity and CSR without ROA  
(Model 2)

Dependent Variable: Productivity			
Variables	OLS	Fixed Effect	Random Effect
CSR	0.2139*** (0.04361)	0.1245* (0.06536)	0.1516*** (0.05226)
Size	-0.0039 (0.00739)	-0.0101 (0.01521)	-0.0071 (0.00866)
Growth	0.0446 (0.02936)	0.0192 (0.02411)	0.0232 (0.02437)
Leverage	-0.0001*** (0.00001)	-0.00001** (0.00001)	-0.00002*** (0.00001)
Constant	0.2257 (0.19804)	0.4475 (0.40627)	0.3410 (0.23218)
Number Observation	682	682	682
R-Squared	0.0493	0.0164	0.0161

Source: Author's computation based on Annual and Financial Report of Manufacturing firms listed on IDX

Note: Standard errors are shown in parentheses

Level of significance is shown by \*\*\*, \*\*, and \*, represents 1, 5, 10% significance level respectively.

Table 5.2 portrays the regression result of OLS, FE and RE when ROA variable is omitted, since there is possibility if ROA as profitability and productivity indicators are correlated or the same characters. Based on the results, it illustrates that prob F <  $\alpha=10\%$ , which means rejected null hypothesis. Furthermore, the Hausman test result shows that Chi square value is 5.16 and the probability is 0. 2713 or bigger than  $\alpha=10\%$  and random effect is selected as the best model to use.



Table 5.5 The Estimation of Productivity (log) and CSR (Model 3)

Dependent Variable: Productivity			
Variables	OLS	Fixed Effect	Random Effect
CSR	0.3258*** (0.09512)	-0.1076 (0.22651)	0.1253 (0.15308)
Size	-0.0152 (0.01117)	-0.0534* (0.03190)	-0.0210 (0.01622)
Growth	0.0279 (0.02985)	-0.0089 (0.01879)	0.0091 (0.01927)
Leverage	-0.0002*** (0.00002)	-0.00003* (0.00002)	-0.00007*** (0.00002)
Constant	-0.5412 (0.29162)	0.7681 (0.95032)	-0.2859 (0.44669)
Number Observation	684	684	684
R-Squared	0.0145	0.0071	0.0000

Source: Author's computation based on Annual and Financial Report of Manufacturing firms listed on IDX

Note: Standard errors are shown in parentheses

Level of significance is shown by \*\*\*, \*\*, and \*, represents 1, 5, 10% significance level respectively.

The estimation of model 3 above shows that by using OLS the prob  $F < \alpha = 10\%$  and reject null hypothesis. However, the result of Hausman test shows the Chi square results is 6.29 and the probability is 0.1788, which means bigger than  $\alpha = 10\%$ . As a result, random effect is the selected model.

### 5.3 Discussion

#### 5.3.1 The effect of Corporate Social Responsibility on Productivity of Manufacturing Companies in Indonesia.

According to Statistical result in Model 1 and Model 2, the corporate social responsibility positively affects the productivity of the firms. This result is in accordance with the reference of this study by Sun and Stuebs (2013) that found there is positive correlation between the CSR and productivity in Chemical companies in US. The possible explanation is since the enforcement of

CSR law by the government, the development of CSR strategy increase gradually as a company's strategy to accelerate the productivity level.

In line with study by Balabanis et al (1988), Belkaoui (1989), Tsoutsoura (2004) and Gamerschlag et al (2011), which found the positive significant influence between CSR disclosure and profitability indicator or financial performance. Those research used ROE, ROI and market performance as the indicator for the financial performance.

### **5.3.2 The Effect of Size, Growth, Return on Assets and Leverage Ratio on Productivity of Manufacturing Companies in Indonesia.**

According to the result on model 1, 2 and 3, presents that the sign of the relationship between size and the productivity is negative and statistically insignificant, which means that the size of the firms does not affect the productivity achievement. However, growth and ROA positively affect the level of productivity but not significant. This inconsistent with the previous research by Sun and Stuebs (2013), which proposed the possibility that the companies with high ROA indicates high productivity.

Meanwhile, the leverage ratio negatively significant connected to the productivity. This also contradictory with the results from Sun and Stuebs (2013), which affirmed a company with a high risk leads to high productivity (Sun and Stuebs, 2013: 260).

Possible explanation for the result that there are other determinants of productivity achievement of a company, rather than size, growth, ROA and leverage. In terms of management science, productivity has several type, related to the profit maximization, employees and external factor such as community. Furthermore, several other determinants that contributes to stimulate the productivity rate are, good corporate governance, leadership strategy, cost effectiveness, natural resource utilization or quality of the product. These other factors could be possible challenge become variables for the next research regarding the productivity of the company.

## **5.4 Implication of the Research**

This study is expected to become the input and a proper source for business players, entrepreneurship, investors, related capital market institution, the accounting standard authors, and the government that might have to be considered an obvious and definite rules to regulate the CSR disclosure in annual reports. Due to the lack of awareness for social responsibility in Indonesia, this study is hoped to provide a basic clue for the society that CSR is not only a matter of obligation, but also the basic needs for all the level of the company to commit in sustainable growth. As we know that CSR actions and Millennium Development Programs (MDG's) are mutual correlated to create a brand new development goals based on the similar foundations, economic, social and environment.

## Chapter 6 Conclusion

The core objective of this research paper is to investigate the relationship between Corporate Social Responsibility disclosure and Productivity of the manufacturing firms in Indonesia. The productivity level is measured by Value added ratio and CSR index disclosure are adopted by earlier literatures. The purpose of manufacturing firms become the object of observation is due to the largest impact on environmental management and degradation brought by manufacturing process. Other reason is since manufacturing industry is classified as high profile, which represents the manufacturing sector in Indonesia. Thus, the author investigates how far the CSR reports that the firms disclose transparently towards the stakeholders, especially for society.

Based on statistical evidence support the hypothesis that CSR disclosure positively influence productivity rate of manufacturing firms. Nevertheless, other control variables not significantly affect the productivity level. Moreover, the research depicts that CSR disclosure contribute in accelerating productivity level, due to CSR reports and activities related to the image and reputation of the companies. However, in Indonesia, the level of contribution of the CSR in determining the productivity is still low compared to prior research in other countries, such as Malaysia, China, United States and Germany. It probably due to the low awareness of the application of corporate sustainability management and the implementation of CSR regulation is still relatively new compared to developed countries. the lack of comprehension regarding corporate social reporting and activities apparently due to several causes in terms of mind-set and culture: (1) the different of orientation between business and sustainability management, between current and future orientation; (2) the accounting conventional perspective, which the enforcement of social activities and environment will interrupt the profit maximization process, due to there will be a vast number of cost in order to arrange the budget for social sector; (3) CSR disclosure and activities are only prioritized for large scale companies; further, small and medium firms will ignore the social obligation; (4) the last possibility is because of consumer preference, which is not related to the social actions and evaluation, but more about affordable price level.

However, the evidence of prior surveys in Indonesia provided the development of CSR reporting and practices quality. Due to the social reporting offers huge number of idea and opportunity to create new innovations and engaging local community in order to increase the efficiency and productivity. Furthermore, by concerning on the social and environmental impact, a company will create new value added that distinguishes it to other company competitors.

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## Appendix 1: Checklist of categories of social disclosure

The following is a taxonomy of the types of corporate social disclosure that form the substance of the content analysis of annual reports. The content is adopted by Ng (1985) in Hackstone and Milne (1996):

### *Environment*

1. pollution control in the conduct of the business operations; capital, operating and Research and development expenditures for pollution abatement;
2. statements indicating that the company's operations are non-polluting or that they are in compliance with pollution laws and regulations;
3. statements indicating that pollution from operations has been or will be reduced;
4. prevention or repair of damage to the environment resulting from processing or natural resources, e.g. land reclamation or reforestation;
5. conservation of natural resources, e.g. recycling glass, metals, oil, water and paper;
6. using recycled materials;
7. receiving an award relating to the company's environmental programs or policies;
8. designing facilities harmonious with the environment;
9. contributions in terms of cash or art/sculptures to beautify the environment;
10. Restoring historical buildings/structures.
11. undertaking environmental impact studies to monitor the company's impact on the environment;
12. wildlife conservation;
13. Protection of the environment, e.g. pest control.

### *Energy*

14. using energy more efficiently during the manufacturing process;
15. utilizing waste materials for energy production;
16. disclosing energy savings resulting from product recycling;
17. discussing the company's efforts to reduce energy consumption;
18. disclosing increased energy efficiency of products;
19. research aimed at improving energy efficiency of products;
20. Disclosing the company's energy policies.

### *Employee health and safety*

21. reducing or eliminating pollutants, irritants, or hazards in the work environment;
22. promoting employee safety and physical or mental health;
23. disclosing accident statistics;
24. complying with health and safety standards and regulations;
25. receiving a safety award;
26. establishing a safety department/committee/policy;
27. conducting research to improve work safety;
28. *Providing low cost health care for employees.*

*Employee other*

Employment of minorities or women

29. recruiting or employing racial minorities and/or women;
30. disclosing percentage or number of minority and/or women employees in the
31. workforce and/or in the various managerial levels;
32. establishing goals for minority representation in the workforce;
33. programs or the advancement of minorities in the workplace;
34. employment of other special interest groups, e.g. the handicapped, ex-convicts or former drug addicts;
35. Disclosures about internal advancement statistics.
36. training employees through in-house programs;
37. giving financial assistance to employees in educational institutions or continuing  
Education courses;
38. Establishment of trainee centers.

Employee assistance/benefits

39. providing assistance or guidance to employees who are in the process of retiring or who have been made redundant;
40. providing staff accommodation/staff home ownership schemes;
41. Providing recreational activities/facilities.

Employee remuneration

42. providing amount and/or percentage figures for salaries, wages, PAYE taxes, Superannuation;
43. Any policies/objectives/reasons for the company's remuneration package/schemes.

Employee profiles

44. providing the number of employees in the company and/or at each branch/subsidiary;
45. providing the occupations/managerial levels involved;
46. providing the disposition of staff – where the staff are stationed and the number involved;
47. providing statistics on the number of staff, the length of service in the company and their age groups;
48. Providing per employee statistics, e.g. assets per employee and sales per employee; providing information on the qualifications of employees recruited.
49. providing information on the *existence of* or amount and value of shares offered to employees under a share purchase scheme *or pension programs*;
50. Providing any other profit sharing schemes.
51. providing information on the company/management's relationships with the  
Employees in an effort to improve job satisfaction and employee motivation;
52. providing information on the stability of the workers' jobs and the company's future;
53. providing information on the availability of a separate employee report
54. providing information about any awards for effective communication with employees;
55. Providing information about communication with employees on management styles and management programs which may directly affect the employees.

#### Industrial relations

56. reporting on the company's relationship with trade unions and/or workers;
57. reporting on any strikes, industrial actions/activities and the resultant losses in terms of time and productivity;
58. Providing information on how industrial action was reduced/negotiated.

#### *Products*

##### Product development

59. information on developments related to the company's products, including its  
Packaging, e.g. making containers reusable;
60. the amount/percentage figures of research and development expenditure and/or its benefits
61. Information on any research projects set up by the company to improve its product in any way.
62. disclosing that products meet applicable safety standards;
63. making products safer for consumers;
64. conducting safety research on the company's products;
65. disclosing improved or more sanitary procedures in the processing and preparation of products;

66. Information on the safety of the firm's product.
67. information on the quality of the firm's products as reflected in prizes/awards received; *verifiable information that the quality of the firm's product has increased (e.g. ISO 9000).*

*Community involvement*

68. donations of cash, products or employee services to support established community activities, events, organizations, education and the arts;
69. summer or part-time employment of students;
70. sponsoring public health projects;
71. aiding medical research;
72. sponsoring educational conferences, seminars or art exhibits;
73. other special community related activities, e.g. opening the company's facilities to the public;
74. supporting the scholarship programs;
75. supporting national pride/government sponsored campaigns;
76. Supporting the development of local industries or community programs and activities.

*Others*

77. *Corporate objectives/policies: general disclosure of corporate objectives/policies relating to the social responsibility of the company to the various segments of society.*
78. disclosing/reporting to groups in society other than shareholders and employees, e.g. consumers; any other information that relates to the social responsibility of the company.

# MODEL 1

```
. xtset id year, yearly
      panel variable: id (unbalanced)
      time variable: year, 2007 to 2013
      delta: 1 year
```

```
. summarize prod csr size growth roa leverage
```

Variable	Obs	Mean	Std. Dev.	Min	Max
prod	763	.2154078	.2501856	-1.752042	1.164282
csr	575	.5356251	.2382115	.0384615	.9871795
size	747	27.88511	1.80249	20.81858	32.99697
growth	761	.0185124	.725742	-10.75729	1
roa	763	.0979569	.4275401	-1.74	8.8
leverage	763	8.02412	134.1477	-36.7413	2837.7

```
. reg prod csr size growth roa leverage, robust
```

```
Linear regression                               Number of obs =   573
                                                F( 5, 567) = 20.10
                                                Prob > F = 0.0000
                                                R-squared = 0.0827
                                                Root MSE = .23234
```

prod	Robust				
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
csr	.1993276	.0424084	4.70	0.000	.1160309 .2826243
size	-.0037568	.0073727	-0.51	0.611	-.0182379 .0107243
growth	.0416746	.0282881	1.47	0.141	-.0138876 .0972369
roa	.0945343	.0661645	1.43	0.154	-.0354231 .2244917
leverage	-.0000836	9.52e-06	-8.79	0.000	-.0001023 -.0000649
_cons	.2167306	.1983483	1.09	0.275	-.1728566 .6063177

```
. xtreg prod csr size growth roa leverage, robust fe
```

```
Fixed-effects (within) regression             Number of obs =   573
Group variable: id                           Number of groups =  109
```

```
R-sq:  within = 0.0177                       Obs per group: min =   1
        between = 0.0910                       avg = 5.3
        overall = 0.0509                       max = 7
```

```
F(5,108) = 1.48
corr(u_i, Xb) = 0.1321                       Prob > F = 0.2027
```

(Std. Err. adjusted for 109 clusters in id)

prod	Robust				
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
csr	.1227302	.0646601	1.90	0.060	-.0054373 .2508976
size	-.010516	.0152648	-0.69	0.492	-.0407736 .0197415
growth	.0182296	.023725	0.77	0.444	-.0287975 .0652567
roa	.0142302	.0156235	0.91	0.364	-.0167382 .0451986
leverage	-.0000147	6.68e-06	-2.20	0.030	-.000028 -1.48e-06
_cons	.4566472	.4075979	1.12	0.265	-.3512826 1.264577
sigma_u	.18698919				
sigma_e	.15725034				
rho	.58575004	(fraction of variance due to u_i)			

```

. xtreg prod csr size growth roa leverage, robust re

Random-effects GLS regression           Number of obs   =   573
Group variable: id                     Number of groups =   109

R-sq:  within = 0.0167                 Obs per group: min =    1
      between = 0.1301                   avg =             5.3
      overall = 0.0721                   max =             7

                                           Wald chi2(5)     =   21.99
corr(u_i, X) = 0 (assumed)             Prob > chi2      =   0.0005

```

(Std. Err. adjusted for 109 clusters in id)

prod	Robust				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
csr	.1495685	.0507849	2.95	0.003	.050032 .249105
size	-.0071292	.008441	-0.84	0.398	-.0236732 .0094148
growth	.0216796	.0238076	0.91	0.362	-.0249823 .0683416
roa	.0316414	.0308273	1.03	0.305	-.0287791 .0920618
leverage	-.0000261	6.52e-06	-4.01	0.000	-.0000389 -.0000133
_cons	.3382984	.2272047	1.49	0.136	-.1070146 .7836114
sigma_u	.16138564				
sigma_e	.15725034				
rho	.51297595 (fraction of variance due to u_i)				

```

. xtreg prod csr size growth roa leverage, robust re

Random-effects GLS regression           Number of obs   =   573
Group variable: id                     Number of groups =   109

R-sq:  within = 0.0167                 Obs per group: min =    1
      between = 0.1301                   avg =             5.3
      overall = 0.0721                   max =             7

                                           Wald chi2(5)     =   21.99
corr(u_i, X) = 0 (assumed)             Prob > chi2      =   0.0005

```

(Std. Err. adjusted for 109 clusters in id)

prod	Robust				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
csr	.1495685	.0507849	2.95	0.003	.050032 .249105
size	-.0071292	.008441	-0.84	0.398	-.0236732 .0094148
growth	.0216796	.0238076	0.91	0.362	-.0249823 .0683416
roa	.0316414	.0308273	1.03	0.305	-.0287791 .0920618
leverage	-.0000261	6.52e-06	-4.01	0.000	-.0000389 -.0000133
_cons	.3382984	.2272047	1.49	0.136	-.1070146 .7836114
sigma_u	.16138564				
sigma_e	.15725034				
rho	.51297595 (fraction of variance due to u_i)				

```

. quietly xtreg prod csr size growth roa leverage, fe
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. estimates store fe
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. quietly xtreg prod csr size growth roa leverage, re
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. estimates store re
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. hausman fe re

```

	----- Coefficients -----			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
csr	.1227302	.1495685	-.0268383	.0232002
size	-.010516	-.0071292	-.0033868	.0091484
growth	.0182296	.0216796	-.00345	.0019651
roa	.0142302	.0316414	-.0174111	.0051563
leverage	-.0000147	-.0000261	.0000114	5.33e-06

b = consistent under Ho and Ha; obtained from xtreg  
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(5) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
= 25.88  
Prob>chi2 = 0.0001

```

. xtreg prod csr size growth roa leverage, robust fe

```

```

Fixed-effects (within) regression      Number of obs   =   573
Group variable: id                    Number of groups =   109

R-sq:  within = 0.0177                 Obs per group:  min =    1
      between = 0.0910                  avg             =   5.3
      overall  = 0.0509                  max             =    7

                                           F(5,108)       =    1.48
corr(u_i, Xb) = 0.1321                 Prob > F        =   0.2027

```

(Std. Err. adjusted for 109 clusters in id)

prod	Robust				
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
csr	.1227302	.0646601	1.90	0.060	-.0054373 .2508976
size	-.010516	.0152648	-0.69	0.492	-.0407736 .0197415
growth	.0182296	.023725	0.77	0.444	-.0287975 .0652567
roa	.0142302	.0156235	0.91	0.364	-.0167382 .0451986
leverage	-.0000147	6.68e-06	-2.20	0.030	-.0000028 -1.48e-06
_cons	.4566472	.4075979	1.12	0.265	-.3512826 1.264577
sigma_u	.18698919				
sigma_e	.15725034				
rho	.58575004 (fraction of variance due to u_i)				

-----more-----



## MODEL 2

```
. reg prod csr size growth leverage, robust
```

```
Linear regression                               Number of obs =    573
                                                F( 4, 568) = 22.67
                                                Prob > F      = 0.0000
                                                R-squared    = 0.0493
                                                Root MSE    = .23633
```

prod	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
csr	.2139726	.0436165	4.91	0.000	.1283033	.2996418
size	-.0039849	.0073973	-0.54	0.590	-.0185142	.0105445
growth	.0446026	.0293618	1.52	0.129	-.0130683	.1022736
leverage	-.0000899	9.59e-06	-9.37	0.000	-.0001087	-.0000711
_cons	.2257251	.1980425	1.14	0.255	-.16326	.6147102

```
. xtreg prod csr size growth leverage, robust fe
```

```
Fixed-effects (within) regression           Number of obs   =    573
Group variable: id                         Number of groups =    109

R-sq:  within = 0.0164                      Obs per group: min =    1
        between = 0.0641                      avg           =    5.3
        overall = 0.0369                      max           =    7

                                                F(4,108)       =    1.71
corr(u_i, Xb) = 0.0933                      Prob > F        =    0.1535
```

(Std. Err. adjusted for 109 clusters in id)

prod	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
csr	.1245564	.0653634	1.91	0.059	-.0050051	.254118
size	-.0101709	.0152103	-0.67	0.505	-.0403203	.0199785
growth	.0192296	.0241114	0.80	0.427	-.0285634	.0670226
leverage	-.0000148	6.79e-06	-2.19	0.031	-.0000283	-1.38e-06
_cons	.4475463	.4062754	1.10	0.273	-.3577619	1.252855
sigma_u	.18822529					
sigma_e	.1571806					
rho	.58915864	(fraction of variance due to u_i)				

. xtreg prod csr size growth leverage, robust re

```

Random-effects GLS regression           Number of obs   =       573
Group variable: id                     Number of groups =       109

R-sq:  within = 0.0161                 Obs per group: min =       1
        between = 0.0750                 avg =           5.3
        overall = 0.0458                 max =           7

Wald chi2(4) =       18.79
corr(u_i, X) = 0 (assumed)             Prob > chi2     =       0.0009

```

(Std. Err. adjusted for 109 clusters in id)

prod	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
csr	.1516375	.0522663	2.90	0.004	.0491974	.2540775
size	-.0071617	.0086561	-0.83	0.408	-.0241274	.009804
growth	.023266	.0243779	0.95	0.340	-.0245139	.0710459
leverage	-.0000254	6.71e-06	-3.78	0.000	-.0000385	-.0000122
_cons	.3410253	.232181	1.47	0.142	-.1140411	.7960917
sigma_u	.17233746					
sigma_e	.1571806					
rho	.54589994	(fraction of variance due to u_i)				

. xtreg prod csr size growth leverage, robust re

```

Random-effects GLS regression           Number of obs   =       573
Group variable: id                     Number of groups =       109

R-sq:  within = 0.0161                 Obs per group: min =       1
        between = 0.0750                 avg =           5.3
        overall = 0.0458                 max =           7

Wald chi2(4) =       18.79
corr(u_i, X) = 0 (assumed)             Prob > chi2     =       0.0009

```

(Std. Err. adjusted for 109 clusters in id)

prod	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
csr	.1516375	.0522663	2.90	0.004	.0491974	.2540775
size	-.0071617	.0086561	-0.83	0.408	-.0241274	.009804
growth	.023266	.0243779	0.95	0.340	-.0245139	.0710459
leverage	-.0000254	6.71e-06	-3.78	0.000	-.0000385	-.0000122
_cons	.3410253	.232181	1.47	0.142	-.1140411	.7960917
sigma_u	.17233746					
sigma_e	.1571806					
rho	.54589994	(fraction of variance due to u_i)				

```

. quietly xtreg prod csr size growth leverage, fe
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. estimates store fe
.
. quietly xtreg prod csr size growth leverage, re
.
. estimates store re
.
. hausman fe re

```

	Coefficients			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
csr	.1245564	.1516375	-.027081	.0229727
size	-.0101709	-.0071617	-.0030092	.0089733
growth	.0192296	.023266	-.0040364	.0023537
leverage	-.0000148	-.0000254	.0000106	.0000103

b = consistent under Ho and Ha; obtained from xtreg  
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
= 5.16  
Prob>chi2 = 0.2713

```

. xtreg prod csr size growth leverage, robust fe

```

```

Fixed-effects (within) regression      Number of obs   =   573
Group variable: id                    Number of groups =   109

R-sq:  within = 0.0164                 Obs per group: min =    1
      between = 0.0641                 avg =             5.3
      overall  = 0.0369                 max =             7

                                         F(4,108)       =    1.71
corr(u_i, Xb) = 0.0933                 Prob > F       =    0.1535

```

(Std. Err. adjusted for 109 clusters in id)

prod	Robust		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
csr	.1245564	.0653634	1.91	0.059	-.0050051	.254118
size	-.0101709	.0152103	-0.67	0.505	-.0403203	.0199785
growth	.0192296	.0241114	0.80	0.427	-.0285634	.0670226
leverage	-.0000148	6.79e-06	-2.19	0.031	-.0000283	-1.38e-06
_cons	.4475463	.4062754	1.10	0.273	-.3577619	1.252855
sigma_u	.18822529					
sigma_e	.1571806					
rho	.58915864 (fraction of variance due to u_i)					

### MODEL 3

```
. reg lnprod csr size growth leverage, robust
```

```
Linear regression                               Number of obs =      545
                                                F( 4, 540) =    24.72
                                                Prob > F      =    0.0000
                                                R-squared    =    0.0145
                                                Root MSE    =    .58473
```

lnprod	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
csr	.3258116	.0951274	3.43	0.001	.1389465	.5126767
size	-.0152257	.0111789	-1.36	0.174	-.0371851	.0067337
growth	.0279964	.0298526	0.94	0.349	-.030645	.0866378
leverage	-.0001641	.0000186	-8.83	0.000	-.0002006	-.0001276
_cons	-.5412123	.2916219	-1.86	0.064	-1.114065	.03164

```
. xtreg lnprod csr size growth leverage, robust fe
```

```
Fixed-effects (within) regression           Number of obs      =      545
Group variable: id                         Number of groups   =     109

R-sq:  within = 0.0071                     Obs per group: min =      1
       between = 0.0012                    avg               =     5.0
       overall = 0.0014                    max               =      7
```

```
corr(u_i, Xb) = -0.3062                    F(4,108)          =     32.66
                                                Prob > F          =     0.0000
```

(Std. Err. adjusted for 109 clusters in id)

lnprod	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
csr	-.1076767	.2265097	-0.48	0.635	-.5566582	.3413049
size	-.0533987	.0319002	-1.67	0.097	-.1166304	.009833
growth	-.0088952	.0187973	-0.47	0.637	-.0461546	.0283643
leverage	-.0000311	.000017	-1.83	0.070	-.0000648	2.54e-06
_cons	.7681368	.9503242	0.81	0.421	-1.115571	2.651844
sigma_u	.43330736					
sigma_e	.46979364					
rho	.45966473	(fraction of variance due to u_i)				

```

. xtreg lnprod csr size growth leverage, robust re

Random-effects GLS regression           Number of obs   =       545
Group variable: id                     Number of groups =       109

R-sq:  within = 0.0000                 Obs per group:  min =         1
      between = 0.0421                  avg =             5.0
      overall = 0.0063                  max =             7

                                         Wald chi2(4)    =       69.94
corr(u_i, X) = 0 (assumed)             Prob > chi2     =       0.0000

```

(Std. Err. adjusted for 109 clusters in id)

lnprod	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
csr	.1253142	.1530846	0.82	0.413	-.1747261	.4253544
size	-.0210339	.0162258	-1.30	0.195	-.052836	.0107681
growth	.009146	.0192668	0.47	0.635	-.0286162	.0469081
leverage	-.0000713	.0000168	-4.23	0.000	-.0001043	-.0000382
_cons	-.2859388	.4466933	-0.64	0.522	-1.161442	.5895639
sigma_u	.32895926					
sigma_e	.46979364					
rho	.32899827	(fraction of variance due to u_i)				

```

. xtreg lnprod csr size growth leverage, robust re

Random-effects GLS regression           Number of obs   =       545
Group variable: id                     Number of groups =       109

R-sq:  within = 0.0000                 Obs per group:  min =         1
      between = 0.0421                  avg =             5.0
      overall = 0.0063                  max =             7

                                         Wald chi2(4)    =       69.94
corr(u_i, X) = 0 (assumed)             Prob > chi2     =       0.0000

```

(Std. Err. adjusted for 109 clusters in id)

lnprod	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
csr	.1253142	.1530846	0.82	0.413	-.1747261	.4253544
size	-.0210339	.0162258	-1.30	0.195	-.052836	.0107681
growth	.009146	.0192668	0.47	0.635	-.0286162	.0469081
leverage	-.0000713	.0000168	-4.23	0.000	-.0001043	-.0000382
_cons	-.2859388	.4466933	-0.64	0.522	-1.161442	.5895639
sigma_u	.32895926					
sigma_e	.46979364					
rho	.32899827	(fraction of variance due to u_i)				

```

. quietly xtreg lnprod csr size growth leverage, fe
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. estimates store fe
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. quietly xtreg prod csr size growth leverage, re
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. estimates store re
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. hausman fe re

```

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
csr	-.1076767	.1516375	-.2593141	.1555424
size	-.0533987	-.0071617	-.046237	.0379386
growth	-.0088952	.023266	-.0321612	.0373164
leverage	-.0000311	-.0000254	-5.76e-06	.0002039

b = consistent under Ho and Ha; obtained from xtreg  
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
= 6.29  
Prob>chi2 = 0.1788

```

. xtreg lnprod csr size growth leverage, robust fe

```

```

Fixed-effects (within) regression          Number of obs   =   545
Group variable: id                        Number of groups =   109

R-sq:  within = 0.0071                    Obs per group:  min =    1
        between = 0.0012                  avg           =    5.0
        overall = 0.0014                  max           =    7

                                           F(4,108)       =   32.66
corr(u_i, Xb) = -0.3062                   Prob > F        =   0.0000

```

(Std. Err. adjusted for 109 clusters in id)

lnprod	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
csr	-.1076767	.2265097	-0.48	0.635	-.5566582	.3413049
size	-.0533987	.0319002	-1.67	0.097	-.1166304	.009833
growth	-.0088952	.0187973	-0.47	0.637	-.0461546	.0283643
leverage	-.0000311	.000017	-1.83	0.070	-.0000648	2.54e-06
_cons	.7681368	.9503242	0.81	0.421	-1.115571	2.651844
sigma_u	.43330736					
sigma_e	.46979364					
rho	.45966473	(fraction of variance due to u_i)				