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# Corporate social responsibility disclosure and financial performance: evidence from Thailand

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# **Corporate Social Responsibility Disclosure and Financial Performance: Evidence from Thailand**

**A thesis submitted in fulfilment of the  
requirements for the award of the degree**

**DOCTOR OF PHILOSOPHY**

**From**

**UNIVERSITY OF  
WOLLONGONG**



**by**

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**2015**

## **CERTIFICATION**

I, Wisutorn Jitaree, declare that this study, submitted in fulfilment of the requirements for the award of Doctor in Philosophy in the School of Accounting, Economics and Finance, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualification at any other academic institution.

Wisutorn Jitaree

May 2015

## **ABSTRACT**

Corporate social responsibility (CSR) has become a strategic agenda for businesses in many countries. The (CSR) disclosure practices have been developed over the last three decades in the area of financial reporting. Many (CSR) practices in emerging markets emerged from practices and frameworks of developed countries. The number of CSR frameworks and principles has considerably increased both in academic and business environments. In Thailand, most of the CSR concepts and principles are also developed based on the framework of developed countries but they still remain a voluntary mechanism. However, there are momentous differences between Thai and other developed countries' context in implementing CSR practices. These differences include many factors: culture, natural business systems, and geographical aspects. The application of CSR disclosures in Thailand still remains in embryonic form. Thus, this study's main purpose is to investigate the extent of CSR disclosures by Thai public listed companies, in particular, identifying the current practices of CSR disclosures, and the relationship between the level of CSR disclosures and firm financial performance from 2009 to 2011. To investigate such a relationship, a CSR checklist is developed to identify CSR practices in Thai companies. In developing a CSR checklist, the published annual reports are analysed for the frequency of CSR practices. A dichotomous process was utilised to develop an index based on five CSR dimensions including: environment, energy, employee, community and product dimensions. This CSR checklist covered 45 CSR activities of Thai companies. CSR disclosures are then analysed and examined using content analysis.

The second objective of this study is to examine the relationship between the extent of CSR disclosure and financial performance (FP) of Thai listed firms. The sample data used in this study comprises 323 companies listed on the Stock Exchange of Thailand (SET). The period of the study is selected for three years from 2009 to 2011. This particular period was chosen because my PhD started in 2011 and Thai studies on CSR disclosure and financial performance using post global financial crisis after 2008 are fairly limited. CSR practices, financial performance and firms' specific characteristics are obtained from companies' annual reports and SETSMART database. The considered variables are CSR index, financial performance measures. The financial performance measures include: ROA, NPM,

EPS and TBQ. The considered control variables are firm size, firm leverage, company age and the percentage of independent directors on companies' boards. Three groups of data are examined separately by four regression models including cross-sectional model, the pooled ordinary least squares model, the random effects model and the fixed effects model. This study has tested the results for their robustness using two stages least square (2SLS).

The findings from the CSR disclosure analysis show that Thai companies are more likely to disclose CSR information regarding community and employee information. These two categories are the most disclosed CSR themes in the Thai context. However, energy disclosure is the least disclosed theme by Thai companies. Furthermore, by comparing each industry, the results indicate that all industries tend to disclose CSR activities under community information rather than other aspects. The results from the empirical analysis provide some evidences of positive relationships between financial performance and CSR disclosure for each group of data. Firstly, the results from all company groups show that there are strong positive relationships between CSR disclosure and ROA, NPM, and Tobin's Q. Secondly, the results from the manufacturing group reveal a positive and significant relationship between CSR disclosure and ROA, NPM, while for non-manufacturing industry, CSR disclosure also has a positive relationship with TBQ. Lastly, for the financial group, the findings are similar with all companies group and the non-manufacturing group. As well, CSR disclosure is not related to earnings per share (EPS) in all models. This study adds further evidence to the literature on the relationship between CSR disclosure and financial performance in an emerging country. In particular, it is found that there is a strong positive relationship between CSR disclosure and financial performance measures in terms of ROA, NPM and TBQ for the three sample groups. In addition, this study provides an empirical examination of CSR disclosure by using a constructed CSR index based on CSR disclosures by listed Thai companies.

This study concluded that on the basis of stakeholder and legitimacy theory, the extent of corporate social responsibility information disclosed in Thai companies' annual reports are similar, and firm specific characteristics have an impact on CSR disclosure. These two theories can help to explain the significance of CSR disclosure on improving financial performance in Thailand.

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## **LIST OF ABBREVIATIONS**

2SLS	Two Stage Least Squares
AGE	Age of Company
CED	Corporate Environmental Disclosure
CEP	Corporate Environmental Performance
CFP	Corporate Financial Performance
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility Disclosure
CSRI	Corporate Social Responsibility Disclosure Index
DJSI	Dow Jones Sustainability Index
EBITDA	Earnings before Interest Tax and Depreciation
EPS	Earnings per Share
FP	Financial Performance
GRI	Global Reporting Initiative
IDIRECTOR	the percentage of independent director on board of director
INDUS	Industry Type
ISO	International Organization for Standardization
KLD	Kinder Lydenberg and Domini
LEV	Debt to Equity Ratio
MAI	Market for Alternative Investment
NFP	Non-Financial Performance
NPM	Net Profit Margin
OCSR	Observatory on Corporate Social Responsibility
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
ROA	Return of Assets
ROE	Return on Equity
ROS	Return on Sales
SEC	Securities and Exchange Commission of Thailand
SET	Stock Exchange of Thailand
SIZE	Firm Size
TBL	Triple Bottom Line

TBQ	Tobin's Q
UN	United Nations
VED	Voluntary Environmental Disclosure



## LIST OF PUBLICATIONS

### Refereed Conference Papers

Jitaree, W, Lodh, SC and Bhati, S 2014, *The relationship between corporate social responsibility disclosure and financial performance: Evidence from Thailand*, The Twenty-sixth Asian-Pacific Conference on International Accounting Issues, Taipei, Taiwan, October 26-29, 2014.

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Corporate social responsibility (CSR) has become a strategic agenda for businesses in many countries. In recent times, businesses in developed countries have started disclosing their social, environmental, community involvement, professional development of employees and other CSR-related information in annual financial reports. There is a considerable growth in the number of firms which have disclosed social responsibility activities (Guthrie and Parker, 1989; Gray *et al.*, 1995a). For example, KPMG (2011) reveals that 62% of 378 global companies surveyed in October 2010 have a corporate social responsibility strategy and claim this is an increase of over 50% since 2008 (p. 13). In addition, KPMG (2011) also suggests that firms that have engaged in CSR will gain an opportunity to obtain competitive benefits, drive innovation, improve financial performance and create genuine bottom line outcomes.

There exist a large number of studies on the disclosures of CSR in financial reports using various dimensions, countries and markets (Guthrie and Parker, 1989; Deegan and Gordon, 1996; Mathews, 1997; O'Dwyer, 2001; Deegan *et al.*, 2002; Murphy and Abeysekera, 2008; Clarkson *et al.*, 2011). Some studies also have investigated the empirical relationship between corporate social responsibility disclosures and financial performance (Griffin and Mahon, 1997; McWilliams and Siegel, 2000; Chen and Wang, 2011). However, the results of these studies have often been conflicting and mixed. Some studies have argued that there is a positive association between financial performance and corporate social responsibility practices (Waddock and Graves, 1997; Van de Velde *et al.*, 2005; Peters and Mullen, 2009; Choi *et al.*, 2010; Kwanbo, 2011; Michelon, 2011; Oeyono *et al.*, 2011). On the other hand, several studies also found a negative correlation (Mittal *et al.*, 2008; Crisóstomo *et al.*, 2011) as well as neutral relationships (Preston and O'Bannon, 1997; McWilliams and Siegel, 2000; Moneva and Ortas, 2008; Kimbro and Melendy, 2010) between CSR disclosures and financial performance.

The relationship between CSR disclosures and financial performance is examined in this study in a number of ways. First, this study explores the extent of

current corporate social responsibility (CSR) disclosure of listed companies in an emerging country, namely, Thailand. Second, it investigates the determinants of corporate social responsibility practices of Thai listed firms in a number of industries. Third, the study examines the relationship between the level of CSR disclosure and financial performance.

The following sections of this chapter provide the statement of the problem of investigation, motivation of the study, research questions, purpose of the study, scope of the study, research methodology, structure of thesis, contributions of the study and summary.

## **1.2 Research Problem**

Businesses are often aware of, and concerned about, the impact of their activities on the environment, communities, employees and other relevant stakeholders. Numerous Thai firms have realised the potential benefits of being involved in CSR activities. Many companies in Thailand have adopted disclosure guidelines for their businesses in order to report their CSR activities (Kuasirikun and Sherer, 2004; Ratanajongkol *et al.*, 2006). The Stock Exchange of Thailand (SET) has launched CSR awards for listed firms to promote CSR practices. However, Thai businesses continue to face significant challenges in participating in CSR activities (in terms of social marketing activities, community development or public relations) and the level of understanding of CSR is still not very high (Prayukvong and Olsen, 2009). Despite these challenges, some prior research has investigated the disclosure practices of corporate social responsibility in Thailand (Kuasirikun and Sherer, 2004; Ratanajongkol *et al.*, 2006; Sastararужи and Wottrich, 2008; Prayukvong and Olsen, 2009; Rajanakorn, 2012; Suttipun and Stanton, 2012c).

This study intends to investigate the extent of disclosure of CSR practices amongst Thai public companies. It will also examine the interactions between CSR disclosure levels and financial performance. This is undertaken using data collected from the annual reports of firms listed on the Stock Exchange of Thailand (SET).

This study is found to be justified on a number of reasons. *Firstly*, most of the prior studies on CSR disclosures have focused on corporations in developed countries, including, Australia (Deegan *et al.*, 2000; Tilt, 2001; Deegan *et al.*, 2002;

Cowan and Gadenne, 2005; Cuganesan *et al.*, 2007; Guthrie and Farneti, 2008), Canada (Zeghal and Ahmed, 1990; Magness, 2006), USA (Meek *et al.*, 1995; Darus *et al.*, 2009; Saida, 2009) and Europe (Gray *et al.*, 1995a; Stittle *et al.*, 1997; Cormier and Magnan, 2003; Dragomir, 2010). There exists a limited number of studies on CSR being carried out using the context of developing countries (Simpson and Kohers, 2002; Hossain *et al.*, 2006; Chang, 2010; Khan *et al.*, 2010; Rashid *et al.*, 2010). In particular, studies on CSR disclosure and its relationship with financial performance research in Thailand are still limited in number. The empirical results from this study may be different from those of other developing countries. This could be due to differences in CSR practices between Thailand and other developing economies. Such differences may occur due to variations in the definitions of CSR, cultural issues, laws and regulations.

*Secondly*, using the context of Thailand, a few extant studies were conducted in the early 2000s when CSR disclosure was not a common practice e.g. Connelly and Limpaphayom (2004), Kuasirikun and Sherer (2004) and Ratanajongkol *et al.* (2006). Although the promotion of CSR practices among Thai listed firms has evolved since the 1990s (Foran, 2001), the development of CSR was in fact intensified in 2006 and culminated in the establishment of the Corporate Social Responsibility Institute (CSRI) in 2007 by the Stock Exchange of Thailand. Even though Thai firms have adopted several CSR frameworks, such efforts have limitations due to the voluntary nature of disclosures (Kuasirikun and Sherer, 2004).

*Thirdly*, a number of studies have also focused on specific industries but with an involvement of using small sample size. For example, Ratanajongkol *et al.* (2006) examined CSR disclosure of 50 Thai listed firms between 1997 and 2001. In another study, Suttipun and Stanton (2012c) examined the determinant of environmental disclosure of 75 listed firms. In addition, Janamrung and Issarawornrawanich (2013) investigated the relationship between CSR and financial performance of firms in industrial products and resources industries. Furthermore, Henderson (2007) and Wuncharoen (2013) investigated CSR disclosure in the hotel industry in Thailand. Sastararужи and Wottrich (2008) explore CSR disclosure in the construction industry. The limited sample size and the focus on specific industries in previous studies might have affected the consistency and generated differing results. This may limit their relevance for understanding CSR practices in the Thai context. *Fourthly*, it is

apparent that very few studies have investigated the relationship between CSR and the financial performance of Thai companies. There are good reasons to believe that the results of those studies might not be conclusive. For example, Wuncharoen (2013) states that the model for his study did not include control variables which could have weakened the results obtained. Janamrung and Issarawornrawanich (2013) suggest that the scoring of CSR index based on KLD rating and CSR disclosure guidelines excluded some CSR disclosure items which might have affected the findings of their study.

*Finally*, it is also apparent that a number of Thai studies on CSR in the post global financial crisis period (i.e. year 2008 and onwards) is fairly limited as well (cf., Eua-anant *et al.*, 2011; Suttipun and Stanton, 2012c; Janamrung and Issarawornrawanich, 2013; Wuncharoen, 2013). Nevertheless, the global financial crisis is likely to have an influence on firms investment in CSR activities. For example, Pongpattananon and Tansuwanarat (2011) has argued that the impact of the financial crisis was widespread in Thailand. In addition, Chandoevwit (2010) has documented that the global crisis had a short-term impact on economic growth in the Thai manufacturing industry.

Based on the above research gaps in CSR studies in Thailand, this study will attempt to carry out an investigation on CSR disclosure and financial performance in Thailand along several dimensions. These include further examination of CSR disclosures using extended dimensions; larger sample size; longer and more recent period of study; and a wider coverage of industries.

### **1.3 Research Questions**

As discussed in the background of the study, the understanding of CSR practices in Thailand is not high. Some companies have adopted and developed CSR guidelines to report their CSR activities. Thai companies reported CSR activities on a voluntary basis and only a few studies have been conducted on CSR disclosure in Thailand. As a result, further investigations of the extent of CSR disclosure need to be examined.

The primary research questions for this study are as follows:

- What is the current state of CSR disclosure by listed companies in Thailand?
- Is there a relationship between CSR disclosure and company financial performance in Thailand?
- What is the relationship between each dimension of CSR disclosure and financial performance?
- What is the impact of different firm characteristics, such as firm size, firm age, firm leverage and independent director on board, on CSR disclosure?

## 1.4 Objectives of the Study

The US sub-prime crisis started in 2007. While the worst of the global financial crisis has been weakened, economic depression still be with almost all countries for a period (Chirathivat and Mallikamas, 2010). The world's GDP was decreased from 5.0% to 2.2% in 2009 because the economic outlook was weakened by the 2008 financial crisis (Kritayanavaj, 2010, p. 42). The crisis directly and indirectly affects Thai economy via a slowdown in the demand for exports, sharp decreasing growth and employment rates since the last three month of 2008 (Chandoevrit, 2010; Pongpattananon and Tansuwanarat, 2011). It is possible that the impact of the global financial crisis in 2008 might influence the extent of CSR disclosure. This study aims to examine the extent of CSR disclosure and its relationship to financial performance in the period after the global economic crisis in 2008. The objectives of this study are summarised below:

***(a) To examine the extent of corporate social responsibility disclosure of Thai public companies over the years 2009 to 2011;***

Under this objective, examination of the practices and the levels of CSR disclosure of Thai listed companies are examined based on content analysis, which is constructed using a CSR checklist developed from previous studies. The CSR checklist is developed with five themes (environment, energy, employee, community and product) representing CSR dimensions investigated in the study.

***(b) To examine the empirical relationship between the extent of CSR disclosure and financial performance of firms listed on Stock Exchange of Thailand (SET).***

This study analyses the relationship between CSR disclosure and financial performance indicators. It is hypothesised that the level of CSR disclosure is positively related to financial performance. This hypothesis is tested using three groups of data, namely, all companies, manufacturing companies, and non-manufacturing companies (is the last category being further classified into non-financial and financial companies).

## **1.5 Scope of the Study**

This study is based on public companies listed on the Stock Exchange of Thailand (SET). The purposes of this study are accomplished via two empirical examinations. *Firstly*, an examination of the practices of CSR disclosure is carried out, and *secondly*, an investigation of the relationship between CSR disclosure and financial performance is conducted.

The first empirical examination is based on a content analysis of annual reports of Thai listed companies. There are 323 companies included in the sample data. The extent of CSR disclosure is evaluated based on a CSR checklist that covers five stakeholder groups: namely, environment, energy, employee, community and products or services.

The second investigation examines the relationship between CSR disclosure and firm financial performance in three sets of firms: all firms, manufacturing firms and non-manufacturing firms.

## **1.6 Research Methodology**

The methodology used in this study is drawn from the existing body of literature on CSR disclosure and firm financial performance. The key components of the methodology used are as follows.

*Firstly*, this study reviews the literature in order to understand the practices of measuring CSR disclosure. This leads to the construction of a CSR disclosure index.

*Secondly*, the theories of CSR are reviewed in order to provide a theoretical understanding of the determinants of CSR disclosure. These theories include the legitimacy and stakeholder theories.

*Thirdly*, econometric models are used to empirically analyse the relationship between CSR disclosure and financial performance.

*Lastly*, the results from the empirical analysis are interpreted and analysed. The results from this study are compared with findings from other studies to address research objectives and research questions.

## **1.7 Contributions and Significance of Research**

This study makes further contributions to the literature in several areas.

*Firstly*, this study is expected to contribute a further understanding of the practices of CSR disclosures in developing countries and more specifically, in Thailand. This would be considered an important contribution as most of the existing studies about CSR disclosure have been conducted in developed countries, with fewer studies focussed on in developing countries and even fewer focussed on Thailand. Further, the purpose of this study does simplify the general CSR disclosures of Thailand. It has endeavoured to identify current practices of CSR disclosures of firms in difference industries, which supports the main objective as well.

*Secondly*, this study is also considered to be the first comprehensive examination of the relationship between CSR disclosure and financial performance of firms listed on the Stock Exchange of Thailand (SET). Previous studies have been carried out by using small sample sizes, focusing on single industries and using short time periods. In contrast, this study utilizes a larger sample size (969 observations) covering all industries during the post-global financial crisis period (2009-2011).

*Thirdly*, this study is expected to contribute in enhanced understanding of management theories, especially in clarifying CSR disclosure, as well as stakeholder theory and legitimacy theory underlying CSR disclosure of firms in Thailand context.

*Fourthly*, this study makes a significant methodological contribution to CSR disclosure studies in Thailand by applying a CSR index. This is the first study to use



a dichotomous process to gather CSR information and create a CSR index for Thai companies. It is also the first time that an instrumental variable estimation technique is used to analyse the empirical relationship between CSR disclosure and the financial performance of Thai companies.

*Finally*, this study is expected to strengthen the quality of research on CSR disclosure and financial performance in Thailand. In particular, it is expected to contribute towards a better understanding of the firm characteristics that influence CSR disclosure. While the impacts of firm characteristics on CSR disclosure have been examined in other developed and other developing countries, these characteristics could be different in the Thailand context. This study will provide a clearer image about the impacts of firm characteristics on CSR disclosure in Thailand.

## **1.8 Organisations of the Remaining Chapters**

This study consists of eight chapters. Chapter two reviews the literature on CSR disclosure and financial performance. It begins with a discussion about the theoretical underpinning related to CSR disclosure. This chapter then explains the practices of CSR disclosure from developed and emerging countries and the current status of CSR disclosure in Thai context. This chapter reviews the issues on the relationship between CSR disclosure and financial performance from Western, Europe and Asian countries.

Chapter three elaborates on the data and methodology for this study. The data comes from 323 annual reports of companies listed on the Stock Exchange of Thailand (SET) between the year 2009 and 2011 covering financial data and CSR data. This chapter then describes four econometric models developed for this study. The first and second models investigate the association between CSR disclosure and financial performance that defines CSR disclosure as a dependent variable and an independent variable. The third model covers each dimension of CSR disclosure to evaluate the impact of these variables on financial performance measures. The fourth model is two stage least square (2SLS) to measure the robustness of the models. The descriptions of each variable in the model are provided in this chapter. The last part of this chapter provides development of hypotheses that include three main

hypotheses and models of the analyses used for examination with a breakdown for different financial performance measures.

Chapter four presents results and discussions from the analysis of the extent of CSR disclosure in Thailand. This chapter reports and discusses the practices of CSR disclosure investigated by content analysis for all samples and for each industry including: (1) agro & food, (2) consumer products, (3) financials, (4) industrials, (5) property and construction, (6) resources, (7) services and (8) technology. In addition, the financial ratio of all companies and each industry type are presented and discussed in a separate section. The last part of this chapter provides a discussion and a summary of the extent of CSR disclosure in Thailand.

Chapter five of the study reports the results from the regression analysis of models presented in Chapter 3 for all companies listed on SET between 2009 and 2011. This chapter provides descriptive statistics for each variable of all data in the sample, multicollinearity test, and homoscedasticity test. The results from empirical analysis between CSR disclosure and financial performances are presented with each financial performance measures including: (i) ROA, (ii) NPM, (iii) EPS and (iv) TBQ. The next section in this chapter presents the findings of the robustness test for each financial performance indicator as described in Chapter 3. By going through the results of each variable, the last section discusses and compares the results with earlier studies.

Chapter six focuses on the results from the examination of the relationship between CSR disclosure and financial performance of firms listed in manufacturing as compared with firms listed in non-manufacturing. This chapter first reports and compares the descriptive statistics from both industry groups. The next section presents the impact of CSR disclosure on financial performance indicators, and then the impact of financial performance on CSR disclosure is presented. The next section provides analysis of the robustness test of the relationship between CSR disclosures and financial performance measures. The final section deals with the discussion of findings of this chapter as compared with prior literature.

Chapter seven examines the impact of CSR disclosure on financial performance measures of firms listed in financial and non-financial industries. The first section provides a brief discussion of the descriptive statistics of both industries. This is followed by an analysis of the relationship between CSR disclosure and

financial performance for both industries. The next section presents the results from the association of each dimension of CSR disclosure and financial performance. The last section provides the discussion of the findings in this chapter as compared with earlier studies.

Chapter eight provides a summary of the main results and findings of the research in relation to the research objectives and questions in chapters four, five, six and seven. It highlights the contribution from this study for Thai companies and researchers. The conclusion and recommendations from the empirical analysis, along with the limitations to the study, are outlined, and provide directions for future research.

## **1.9 Summary and Conclusions**

This introductory chapter presents an introduction of an analysis of corporate social responsibility disclosure and financial performance from Thailand. This chapter presents research problems related to this study, research questions, objectives, scope of the study, research methodology, structure of the chapters and summary of contributions and significance made by this study.

This study attempts to highlight gaps in existing Thai studies on CSR disclosure. These gaps are: (1) Thai studies on CSR disclosure and its relationship with financial performance research are still limited; (2) a few extant studies were conducted in the early 2000s when CSR disclosure was not a common practice (3); a number of studies also focused on specific industries but with an involvement using only small sample size; (4) only a very few studies have investigated the relationship between CSR and financial performance of Thai companies, and (5) a number of Thai studies on CSR in the post-global-financial crisis period are fairly limited. Based on the above, this study intends to investigate the extent of disclosure of CSR practices amongst Thai public companies. It will also examine the interactions between CSR disclosure levels and financial performance. This examination is undertaken using data collected from the annual reports of firms listed on the Stock Exchange of Thailand (SET) over the years 2009 to 2011.

This study makes further contributions to the literature in several areas. *Firstly*, this study is expected to contribute to a further understanding of the practices

of CSR disclosures in Thailand. *Secondly*, this study is also considered to be the first comprehensive examination of the relationship between CSR disclosure and financial performance of firms listed on the Stock Exchange of Thailand (SET). *Thirdly*, this study is expected to contribute to enhancing understanding of management theories in clarifying CSR disclosure, especially in regards to stakeholder theory and legitimacy theory underlying CSR disclosure of firms in Thailand context. *Fourthly*, this study makes a significant methodological contribution to CSR disclosure studies in Thailand by applying CSR index. *Finally*, this study is expected to strengthen the quality of future research on CSR disclosure and financial performance in Thailand.

This structure of this study is organised into eight chapters. The next chapter presents a review of the literature on CSR disclosure and financial performance.

## **CHAPTER 2**

### **THEORETICAL PERSPECTIVES AND BACKGROUND LITERATURE ON CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE**

#### **2.1 Introduction**

The purpose of this chapter is to present a review of the literature on corporate social responsibility (CSR) disclosures. This includes studies relating to theoretical background on CSR disclosures in Thailand and other countries, and the relationship between CSR disclosure and financial performance. CSR disclosure is becoming an important source of competitiveness and communication tools for stakeholders. Many Thai companies have attempted to develop a framework regarding CSR activities. However, an understanding of CSR concepts and disclosure in Thailand is currently limited. After the global financial crisis, Thai businesses are confronting challenging times in evaluating CSR activities in terms of public relations, community development and social marketing activities. There are many challenges for Thai businesses in order to sustain and promote CSR. Disclosing CSR information helps to enhance companies' reputations (Prayukvong and Olsen, 2009).

From Thai evidence, Kuasirikun and Sherer (2004) suggest that the pressures from social and environmental legislation have increased but the level of social and environmental disclosure was absent. It seems that CSR and environmental legislation was not encouraging firms to report their CSR activities. They noted that

“there appears to have been insufficiently rigorous application of mandatory legislation by companies, possibly due to the absence of a stringent monitoring or inspection system, when economic downturn occurred. Moreover, although there are social and environmental pressure groups in Thailand, these groups are neither adequately proactive nor demanding in terms of corporate social and environmental information” (p.651).

A number of studies have highlighted different theories in the literature which attempt to explain CSR disclosure. Examples of these theories are: legitimacy theory; stakeholder theory; institutional theory; political theory; stewardship theory and agency theory. However, most theories of CSR disclosure offer a single analytical

perspective which could have limitations in explaining CSR issues. This study makes use of specific theories which have been used to explain CSR disclosure in previous studies. The theories on CSR include legitimacy theory (Gray *et al.*, 1995a; Deegan *et al.*, 2002; Campbell, 2004; Islam, 2009) and stakeholder's theory (Roberts, 1992; Clarkson, 1995; Eljido-Ten, 2004; Cowan and Gadenne, 2005; van der Laan Smith *et al.*, 2005; Eljido-Ten, 2007; Islam and Deegan, 2008) as the two main theories. These two theoretical approaches to CSR have explained CSR in the context of developed countries such as the USA, UK and Australia. The broader conceptual and contextual setting of CSR disclosures in Thailand is different from those in developed countries, because CSR disclosure is not mandatory in Thailand. This chapter provides an analysis of legitimacy theory and stakeholder theory for the purpose of their suitability to CSR disclosures in the context of Thailand.

This chapter is organised as follows. In section 2.2, the definition of CSR is presented. Section 2.3 provides the literature on the theoretical background of CSR disclosure in particularly legitimacy theory and stakeholder theory are discussed in this section. In section 2.4, empirical studies related to CSR disclosure in the context of developed, developing countries and Thailand are reviewed. The literature on the relationship between CSR disclosure and financial performance is discussed in section 2.5. A summary and conclusion of this chapter is presented in section 2.6.

## **2.2 Definition of Corporate Social Responsibility**

Corporate social responsibility (CSR) has become a strategic issue for organisations which attempt to communicate their ethical activities to various stakeholders group. Kotler and Lee (2005) defined corporate social responsibility as “a commitment to improve community well-being through discretionary business practices and contributions for corporate resources” and “corporate social initiatives are major activities undertaken by a corporation to support social causes and to fulfil commitments to corporate social responsibility” (p.3).

This definition suggests that organisations undertaking CSR will conduct their business not only for making profits for shareholders but also to improve accountability of these organisations towards internal and external stakeholders. The organisations might contribute their available resources such as cash, products or

services, or employees to improve community well-being. Organisations can communicate their activities with particular stakeholder groups via CSR activities. Kotler and Lee (2005) argue that CSR is increasing. Firms which participate in CSR activities will gain potential benefits. It appears that such participation looks good and feels good to stakeholders. Tsoutsoura (2004) indicates that companies' operating costs can be reduced by engaging in CSR projects. For example, reducing the use of packaging material or planning for proper routes to deliver products can reduce the cost of operations. Sandhu and Kapoor (2010) highlight that business might gain benefits from undertaking CSR activities, such as improved performance, reduced cost, increased sales and enhanced reputation. As well, Bayoud and Kavanagh (2012) suggest that CSR information attracts foreign investors, enhances company reputation, increases financial performance and improves employee commitment.

As stated earlier, the main objective of this study is to investigate the relationship between CSR disclosure and financial performance of listed companies in Thailand. The CSR activities in Thailand are still on a voluntary basis in order that the expectations of all stakeholders are met. Thus, there is an expectation that via investing in CSR activities, Thai companies can improve their financial performance. In other words, stakeholders expect to get something more in return, other than simply products or services. That is, CSR is expected to bring additional benefits to companies. Five dimensions of CSR disclosure index are covered in this study. These are: environment, energy, employees, community and products.

## **2.3 Theoretical Background and Empirical Evidence**

This section provides theoretical backgrounds relevant to the study. There are several theories to explain the reasons why companies engage in corporate social responsibility. These include legitimacy theory, stakeholder theory, institutional theory, political economy theory, stewardship theory and agency theory. However, there is no single theory which can be used to completely explain the engagement in CSR. There is a view that a given single theory could have some limitations in explaining CSR practices. Thus, this section elaborates on theories in relation to CSR in order to understand their principles and relevance in analysing CSR issues.

The first theory to be considered is legitimacy theory. Guthrie and Parker (1989) argued that legitimacy theory is based on the perception that business is conducted in society through a social contract which management agrees to fulfil, based on a number of social requirements in return for approval of its goals. According to these authors, legitimacy theory is related to the power of the society and emphasises the interaction between business and social contracts. This theory leads managers to manage their organisations in several ways, the most important being that they should follow the laws in order to remain legitimate. The second theory for consideration is stakeholder theory. Stakeholder theory leads organisations to create value and satisfy all stakeholder groups rather than the requirements of one or two groups within organisation.

The third theory under consideration is political economy theory, which is defined as the relationship between organisations, economics, politics and how organisations develop and implement their policies and strategies in different economic contexts. This theory leads organisations to analyse how they can develop their profitability based on the fact that numerous interest groups exist within society and the organisation has to reconcile its own interests in relating to the interest of these groups. For example, business culture in Thailand is different from that in developed countries (Rajanakorn, 2012). CSR is not mandatory in Thailand (Kuasirikun and Sherer, 2004).

Berle and Means (1932) and Jensen and Meckling (1976) described agency theory as the relationship of principal (Owners) and agent (Managers). According to this theory, managers should maximise profits for the shareholders or owners of the organisation. However, agency problems arise when managers have different visions and goals from those of stakeholders about CSR. This could affect managerial decisions and policies about CSR. Stewardship theory is focused on the motivation of CEOs, empowering structures, and the facilitative and incumbency roles of chairpersons. This theory argues that managers try to increase the effectiveness of organisations and generate maximum benefits to shareholders based on the leadership provided to them (Donaldson and Davis, 1991).

These theories have been developed to explain CSR practices in developed countries, and may not be suitable for developing countries such as Thailand. There is an enormous difference between developed and developing economies. It is



necessary that these theories be examined in a different context, particularly in the developing countries context. Gray *et al*, (1995a), suggested that different perspectives between legitimacy and stakeholder theory may not be seen as competing for explanations on CSR disclosure, but that they may be used to explain different issues at various degrees of resolution. One single theoretical perspective or one level of determination cannot fully explain CSR practices because CSR activities are very complex. Stakeholder theory focuses on all stakeholder groups whereas legitimacy theory appears to reflect the expectations of society at large (Islam and Deegan, 2008). Although much of the discussions of stakeholder and legitimacy theories on CSR disclosure have been adopted in the Western management communities, there is a limited amount of literature on the extent of Thai companies' CSR disclosure practices and its relationship to financial performance. The next section describes the legitimacy and stakeholder theories in an attempt to explain the extent of CSR disclosure and its relationship to financial performance in the Thai context in particular.

### **2.3.1 Legitimacy Theory**

Legitimacy theory has been widely used in social and accounting literature to explain why companies disclose social and environmental information. Suchman (1995) defined legitimacy theory as: “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.” (p.574)

Legitimacy theory is based on the perception that the rights and responsibility of companies come from society. Business has to operate within the boundaries of society in order to meet the expectations of society, which include provision of better goods and services to society. As an organisation is a part of a large social system, business needs to operate within a social system, without any negative impact to society (Deegan, 2002). This could lead organisations to achieve their goals and sustain their profits. Suchman (1995) identified three forms of legitimacy: pragmatic (based on audience self-interest); moral (based on normative approval) and cognitive (based on comprehensibility and taken-for-grantedness), which is used in terms of manipulation and garnering societal support. These three forms have been used to explain the link of CSR with legitimacy theory. Guthrie and Parker (1989) and

O'Donovan (2002) argued that legitimacy theory is based on the perception that business is conducted in society through a social contract which management agrees to achieve, based on a number of social requirements, in return for approval of its goals. Organisations need to behave and disclose enough information for society to judge whether or not a company is a good corporate citizen. The companies perceived as "good corporate citizens" perform according to social commitments.

For this purpose, (i.e. performing as good corporate citizens), businesses may need to change the process of their organisations. Newson and Deegan (2002) argued that legitimacy theory is supposed to be influenced by the disclosure of information and not just by changes in business actions. When society's expectations change, businesses will be required to demonstrate a change in their operation strategies. O'Donovan (2002) argued that business attempts to change social expectations, perceptions or values via several approaches as a part of the legitimating process. This is very important to the organisations, because some activities of organisations are subject to risks which may impact the objective of these organisations.

Lindblom (1994) and Gray *et al*, (1995a) identified four strategies or approaches on how organisations gain legitimacy. The first approach is that an organisation may need to educate and inform its relevant public about the changing of the organisation's performance and actions. This approach is used to identify the legitimacy gap between action and actual failure performance of the organisation. The second approach is to change the perceptions of the society without changing actual organisational behaviour. This approach is to be used when a legitimacy gap has risen between business and society. The third approach is that organisations may need to manipulate social perception by drawing public attention away from current issues to other related issues. This approach could divert public expectations from a given current situation. The fourth approach is that an organisation may need to change public expectation when society has an incorrect expectation of its performance.

However, this study is not focused on the process of legitimacy, but on the application of legitimacy to CSR literature.

### 2.3.2 Legitimacy Theory and Corporate Social Responsibility Disclosure

Legitimacy theory is commonly used in academic literature to address the link between a company's financial performances with CSR disclosure. A number of studies have adopted legitimacy theory to explain why companies engage in CSR activities, how organisations gain and maintain their legitimacy. Legitimacy theory can be used as motivation for companies to disclose their social and environmental activities. It is argued that managers will report more CSR activities when they are forced to do so by communities. Legitimacy theory is the main theory to describe social and environmental disclosure (Deegan and Gordon, 1996; O'Donovan, 2000; Deegan, 2002).

Patten (1991) investigated whether the voluntary social disclosures are related to public pressure or profitability in the USA. He claimed that the disclosure of CSR in annual reports has been applied to report the movement of social activities in firms. Due to public pressures, companies with large size and specific industries may report more frequently about CSR and compare those characteristics to their company's performance. Larger firms are more exposed in the media, and thus are more likely to undertake CSR activities to cultivate their public image. Some industries receive more public attention than others, which put pressures on firms in these industries to undertake CSR activities. Thus, firm size and industry type can be used as variables related to CSR according to legitimacy theory.

Gray *et al.*, (1995a) adopted legitimacy theory to examine corporate social and environmental reporting in the UK from 1979 to 1991. Their results indicate that CSR disclosure increased significantly throughout the period of their study. An increase in CSR disclosure can be explained by legitimacy theory. The disclosures on customer relations, health and safety, environmental and energy increased during the period of study. The health and safety disclosures tend to represent the "changing perceptions" of society and provided an example of legitimization strategy. However, the extent of customer and energy disclosure could not be explained by using legitimacy theory, because these two dimensions of disclosures constituted only a small proportion of environmental disclosure (Gray *et al.*, 1995a).

Deegan and Rankin (1996) used legitimacy theory to clarify the systematic changes in corporate environmental disclosure policy of prosecuted firms in Australia. Their results indicate that there is a significant increase in disclosing

positive environmental information by prosecuted Australian firms. Corporate management of these firms used disclosure policy mainly to gain legitimation. In particular, the legitimation attempts were focused on disclosure of good environmental news.

Further research by Clarke and Gibson-Sweet (1999) examined corporate social disclosures in the management of company reputation in the UK. They argued that companies used annual reports as media to communicate their CSR activities to society. They concluded that larger firms and firms with a high public presence are likely to disclose and communicate about corporate social responsibility involvement. Only a very few firms produced a separate report for their environmental activities. It can be argued that annual reports were used as legitimisation tools to communicate with the relevant public in order to maintain their legitimacy.

Campbell (2000) conducted a study on a UK company, Marks and Spencer, to examine whether legitimacy theory or political economy theory is more applicable in explaining corporate social responsibility disclosure and to understand the causes of variability in the amount of social disclosure for the period 1969-1997. Their results show that the level of CSR disclosure of the British company Marks and Spencer increased in the period from 1969 to 1997. They found support for legitimacy theory because variations of CSR reporting by Marks and Spencer came as a result of social opinion and were motivated to garner social support. He also argued that the findings were consistent with legitimacy theory.

Deegan *et al*, (2000), reviewed the response of Australian firms to five major events that impact the environment, health, and safety of employees and community members by examining the reports of the Exxon Valdez, Bhopal disasters, the Moura Mine disaster in Queensland, the Iron Baron oil spill and the Kirki oil spill. The results of their study indicate that after the incident, the amount of total and positive incident-related disclosure is larger than before the incident. This finding is consistent with legitimacy theory, since firms want to improve their social image after disaster. This provides further evidence on changes in the disclosure policies of firms after major disasters. These are examples of legitimisation of CSR reporting.

Cormier and Gordon's (2001) used legitimacy theory to analyse changes in social and environmental disclosure strategies of three electric utilities, two publicly

owned firms and one privately owned firm in Canada. They found that government-owned enterprises disclosed more CSR information than the privately-owned firms. The level of disclosure correlated with the size of the company and ownership type. The largest utility owned by government provided better disclosure of CSR activities than the smaller firms. These findings support the view that environmental disclosure helps in dealing with public pressure on government firms. When the size of government-owned enterprise increases, firm appears to be more visible and accountable.

Mobus (2005) used legitimacy theory to investigate the association between mandatory environmental performance disclosure and subsequent environmental regulatory performance by examining refining firms in the USA. The findings of this study illustrate that mandatory disclosure of environmental legal sanctions violations were followed by subsequent regulatory compliance. The result suggests that companies would disclose higher amounts of environmental regulatory compliance information after being penalised for noncompliance. Thus, legitimacy theory provides an explanation for the corporate reaction after legal sanctions for non-compliance.

O'Dwyer *et al*, (2005), surveyed the views of Irish social and environmental non-governmental organisations (NGOs) towards the adequacy and potential of sustainability reports. The results show that respondents supported more sustainability reports and verification of stand-alone report and annual reports by external users. These results are consistent with legitimacy theory. Organisations need to improve their current sustainability reporting practices, because NGOs appear to be suspicious of the motivation of their sustainability activity. Improvement in sustainability reporting practices could lead to greater acceptance of organisational motivation by NGOs providing them with legitimacy.

Cuganesan *et al*, (2007), used legitimacy theory to examine CSR reporting in Australian food and beverage sector. They proposed that high-profile companies use several disclosure policies in order to change social expectations, sensitivity, and deflecting awareness. They are likely to report more CSR activities than lower profile companies. The reason is that the main product of high-profile companies might have some negative qualities. It would be more difficult for them to alter existing products, but less costly to employ legitimisation policies relating to

changing social expectations, sensitivity, and deflecting awareness about suspect products. The disclosure level of companies on CSR might be influenced by two factors: the level of a firm's profile and/or defects present in products of the firm. In line with the legitimacy theory, this explains as to why high-profile firms tend to report more CSR activities.

Chatterjee and Mir (2008) examined the status of environmental disclosure using website and annual reports of Indian firms for the year 2003 and 2004. They found that there is no compulsion for Indian companies to disclose environmental information. Most of the companies disclosed environmental activities on websites rather than in annual reports. They also reported CSR events and activities under the director's report/management discussion and analysis sections. They did not disclose any bad news in their reports. Their explanation was that the disclosure on the company's websites helps create a positive public reputation. This increased the legitimacy of companies and is consistent with legitimacy theory.

Islam and Deegan (2008) conducted a study using the companies in the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) to examine the motivations of managers of organisations in Bangladesh towards the perception of pressures being exerted by external stakeholder groups. The results demonstrated that Bangladesh industry is influenced by the global community's expectations. The social and environmental expectations, the global community's expectations and the pressure can be exerted on an industry in a developing country as well. When there was a pressure, the BGMEA managers responded appropriately. This is consistent with legitimacy theory, in that companies may maintain their "license to operate" by fulfilling the expectations of the community at large.

Archel *et al*, (2009) examined the connection between the legitimising policies of firms and the distinctive political environment at the Volkswagen factory in Navarra, Spain. In their study, social and environmental disclosure of the firm was examined through principle arrangement of the State. Social environmental disclosure was used by the firm via management of social perception strategically to legalise a lean production and flexible working strategy. These results demonstrate that legitimacy theory could be used to identify the social and environmental disclosure practices of an organisation. The organisation attempted to use information to manipulate and change the public perceptions of corporate social

performance at a satisfactory level. This helped the organisation in obtaining legitimacy for their strategy.

Reverte (2009) examined the influence of a number of firm and industry characteristics and media exposure on CSR disclosure practices of Spanish listed firms. His findings suggest that larger firms engaged in environmentally sensitive industries with higher media exposure have higher CSR scores than other firms. Larger firms provided higher levels of disclosure in order to gain legitimacy with society.

Cormier *et al*, (2011) examined the effect of social and environmental disclosure on the diminishing information asymmetry between managers and stock market participants. The results illustrated that the extent of CSR disclosure is shaped by firm size, environmental news exposure, leverage and environmental performance. In particular, environmental performance was found to have a direct impact on CSR disclosure. Firms with high pollution appear to report CSR more than low polluting firms. It is argued that higher levels of CSR disclosure help the polluting firms in gaining legitimacy through a higher level of disclosure.

Lanis and Richardson (2013) tested legitimacy theory by comparing CSR disclosure and tax aggressive and non-tax aggressive firms from forty Australian corporations between the year 2001 and 2006. The sample was based on firms engaged in tax aggressive activities with Australian Taxation Office. A content analysis was used to gather CSR information, and financial data was retrieved from the Aspect-Huntley database. ROA, market to book ratio, capital intensity, leverage and firm size were controlled. The empirical analysis revealed that there was a positive relationship between CSR and tax aggressiveness, firm size, leverage, capital intensity and market to book ratio. These findings support the suggestion of legitimacy theory that tax aggressive firms engage in CSR activities in order to remain legitimate in the eyes of their stakeholders. When firm size, leverage, capital intensity and market to book ratio increase, firms appear to disclose more CSR.

Business endeavours to develop into a legitimate culture by shifting from symbolic to substantive disclosures. O'Donovan (2002) argued that companies have obligations to perform within the community's expected and socially acceptable behaviour. Legitimacy theory helps, in part, to explain the extent to which CSR activities are disclosed by firms. Firms provide disclosures determined by law or

regulations in order to gain legitimacy with the state. Additional disclosures are made by firms which have more visibility in terms of size, pollution or other industrial issues. Thus, the level of CSR disclosure is determined by the requirement of firms to remain legitimate with society.

It can be concluded that firm size, industry type, profile of the company, leverage, disclosure policy, community expectations and environmental news exposure can be used as variables related to CSR, according to legitimacy theory. However, each study founded in legitimacy theory tends to focus only on specific aspects of CSR. The decision about which indicators are to be examined depends on the availability of data. This study uses firm size, industry type and leverage of firm as further variables which may be related to CSR as explained above, using the legitimacy theory.

### **2.3.3 Stakeholder Theory**

Stakeholder theory is the second theory used to explain the motivation of firms to report their environmental and social activity. As defined by Freeman (2010), 'stakeholder' can be defined as "any group or individual who can affect or is affected by the achievement of an organization's purpose (p.53)". The term 'stakeholder' includes a wide range of interest groups who are involved in organisation. This approach focuses on various stakeholder groups within society and accepts different views of stakeholder groups about how organisations should operate in the society. This approach considers all stakeholders affected by a firm's behaviour, including shareholders, suppliers and distributors, customers, employee, competitor, activists, media, legislators, academics, indigenous people, academia competitors, labour organisations, local communities, and government agencies.

According to Donaldson and Preston (1995), stakeholder theory can be categorised into three aspects, which are (1) descriptive accuracy, (2) instrumental power and (3) normative validity. The aim of descriptive theory is to explain characteristics and behaviours of a company, and how organisations manage and communicate with stakeholders to achieve the corporate goals. The instrumental theory is used to identify the connections between corporate performance (such as profitability and growth) and stakeholder management. The normative theory is used to interpret identification of morals for operation and management of corporations



and to answer why companies focus on stakeholder's benefit rather than completely on shareholder's interest.

Deegan *et al.*, (2000) argued that stakeholder theory can be divided into two branches; the ethical (moral) branch and a positive (managerial) branch. The ethical branch is based on the premise that "all stakeholders have the right to be treated fairly by an organisation, and that managers should manage the organisation for the benefit of all stakeholders". This suggests that all stakeholders have the right to be provided with information about how a company's activities influence them. The stakeholders need to know all information, including information about toxic waste, water contamination, social supports, even information which may not be directly relevant related to them. The positive branch is based on the argument that organisations will respond to society through stakeholder power in order to influence corporate management. Based on this perspective, organisations will produce information targeted to the concerns and expectations of specific groups or powerful stakeholder related to organisation. As a result, firms' information disclosure will be used as a strategy to maintain the support of powerful stakeholders (Deegan and Blomquist, 2006; Islam and Deegan, 2008).

Previous studies on social responsibility have identified the role of stakeholders in influencing firm decisions (McGuire *et al.*, 1988). The CSR model of stakeholder analysis extends the corporate planning model to contain external pressures on firms that may suppose adversarial positions (Roberts, 1992). Jensen (2001) argued that managers should make judgments for the interests of all stakeholders in a firm. Although it may be difficult for managers to identify the essential trade-offs between these competing interests of various stakeholders, the managers are expected to balance these interests in the best interest of the firm. Stakeholder theory helps in explaining these competing interests and their effect on managerial decision making. Stakeholder theory is used to evaluate the impact of financial performance, strategic planning and the concentration of stakeholders on the amount of CSR disclosure made by firms (Roberts, 1992).

According to stakeholder theory, organisations aim to balance the expectation of all stakeholder groups through their operation. Organisations need to secure their relationship with all stakeholders evenly. Managers should consider and maintain the expectation of all stakeholder groups when they make corporate disclosure decision.

Stakeholder theory was used in this current study to explain what motivates companies to disclose CSR information. Five areas of CSR disclosure are identified in this study which may satisfy various stakeholders in the firm including environment, energy, employee, community and products (customer) (Hackston and Milne, 1996; Hossain *et al.*, 2006; Aras *et al.*, 2010; Islam and Deegan, 2010). This is because different stakeholders may have divergent impact on organisations.

#### **2.3.4 Stakeholder Theory and Corporate Social Responsibility Disclosure**

Stakeholder theory has been applied to explain the motivations of firms regarding corporate social responsibility disclosure. Many of the discussions of stakeholder theory focus on the assumption that stakeholder's theory can explain the extent of CSR disclosure. A number of studies used stakeholder's theory to explain why organisations disclose social and environmental information. The discussions on the application of stakeholder theory in relation to CSR are discussed further as follows.

In terms of reporting social and environmental information to various stakeholder groups, Roberts (1992) used stakeholder theory to explain corporate social responsibility disclosure. The results of this study indicate that the levels of CSR disclosure are significantly related to the measures of stakeholder power, economic performance and strategic posture. The results were found to support a stakeholder perception in analysing CSR decision.

Epstein and Freedman (1994) point out that a majority of the respondents in their survey required firms to report more social and environment impacts for all stakeholders, but did support the report of the economic impact to environmental and community groups. These results suggest that the disclosures of social impact on external stakeholder groups were considered more important than the disclosure of economic impact. It also reflects that social disclosures should be provided to all stakeholders who have the right to know.

Ruf *et al.*, (2001), examined the association between corporate social performance (CSP) and financial performance (FP) using stakeholder theory to explain how changes in CSP are related to change in FP measures. The results of this study indicate that changes in CSP have a positive impact on growth in sales for current and following year. Return on sales was found to be positively and

significantly related to change in CSR in the third year. These results provide evidence of support to stakeholder theory, in that the main stakeholder group, shareholders, will gain financial benefit when organisations maintain the expectation of all stakeholders.

Kent and Chan (2003) employed stakeholder theory to explain the quantity and quality of Australian voluntary environmental disclosure using the three-dimensional model from Ullmann (1985) which included stakeholder's power, strategic posture and economic performance. The results from this study show that stakeholder power dimension (as measured by shareholder, regulator and lobby groups) and strategic posture dimension (as measured by content of mission statement and existence of social responsibility committees) were found to be significant in explaining CSR disclosure. The results suggest that shareholders, regulators and lobby groups are the main stakeholder groups, who can demand environmental information in annual reports. The application of strategic posture dimension suggests that firms should disclose their CSR activities in mission statements.

Elijido-Ten (2007) adopted stakeholder's theory to explain corporate environmental behaviour of Australian listed firms. This study applied three dimensional frameworks from Ullmann (1985) which included stakeholder's power, strategic posture and economic performance. Elijido-Ten results show that the levels of environmental activities were influenced by stakeholder power (as measured by ownership dispersion, the industry sensitivity characterised by the governmental sanctions) and strategic posture (as measured by the management's concern for the environment) dimensions. The results were found to be supported by stakeholder theory, in that stakeholder power and strategic posture are important factors motivating the judgment to disclose higher environmental activities in corporate strategic plans.

Vormedal and Ruud (2009) investigated whether social, political and regulatory characteristics and developments influence the quality of CSR disclosures in the Norwegian context. They attempted to evaluate mandatory reporting and voluntary reporting using data from annual reports and firms' non-financial reports. Their results conclude that nationality, market, social, political and legal characteristics were related to the level and quality of CSR disclosure. The findings

are consistent with stakeholder theory, in that the levels of stakeholder pressure such as international profile are the drivers for companies to report more sustainability information in terms of quantity and quality of reporting.

Orij (2010) used stakeholder theory to investigate whether the extent of CSR disclosure was related to national cultures such as secrecy, generic types of cultures, masculinity and long-term orientation. The results of this study show that corporate social responsibility disclosures were found to be impacted by national cultures. The results are consistent with stakeholder theory, in that a country-specific stakeholder orientation was found to be associated with CSR disclosure. This finding suggests that national cultures are the main factors motivating managers to disclose high levels of CSR disclosure.

Hamid and Atan (2011) investigated the relationship between the nature of ownerships structure and the degree of CSR disclosure made by Malaysian telecommunication firms from the year 2002 to 2005. The trend of CSR disclosure was increasing over the period. Their results also show that community disclosure was the most disclosed term, suggesting the influences of stakeholders on firm's social performance. Stakeholder theory is used in explaining the patterns in CSR disclosure; CSR activities of companies are focused on community issues because community is considered most influential stakeholders.

## **2.4 Empirical Research in Corporate Social Responsibility Disclosure**

There are a number of studies which have discussed the disclosure of corporate social responsibility from different points of view and contexts (see, for example, Deegan and Gordon, 1996; Kuasirikun and Sherer, 2004; Khemir and Baccouche, 2010; Menassa, 2010). These studies have used different CSR concepts in their research. Empirical literature on CSR disclosure explains practices, determinants, and patterns of disclosure as presented in the following sections.

### **2.4.1 Corporate Social Responsibility Disclosure in Developed and Developing Countries**

Prior studies regarding the investigation of CSR disclosure have covered various countries and contexts. The studies of CSR in the western countries have provided more progressive benchmarks, while studies on developing countries focus on whether the companies disclosed CSR information or not. It appears that the trend of CSR disclosure is increasing. Gray *et al*, (1995a) reviewed CSR literature in the UK the year 1979 to 1991, and indicates that there has been a substantial change in the pattern of social and environmental disclosure during that period. Campbell (2000) analysed the data obtained from the UK company Marks and Spencer's annual reports from 1969 to 1997 and concluded that the trend of CSR disclosure grew over the period. Campbell (2004) reviewed the volume of voluntary environmental disclosure from ten UK firms across five sectors between 1974 and 2000. He found that the frequency of environmental disclosure was relatively small in the early 1980s, followed by a rapid growth in the late 1980s, and in the early 1990s. Hartman *et al*, (2007), analysed the CSR activities of 16 multinational firms in the US and European Union (EU). In their study, content analysis was used to investigate the communication of CSR disclosure by focusing on language, citizenship, corporate accountability and moral commitment. Their results illustrated that US-based companies were focused on economic terms, while EU firms concentrated on both economic and sustainability terms. The context, meaning and use of words among the US and EU firms were found to be different.

In the developing country context, some studies were conducted on Bangladesh, which contributed to the Bangladeshi literature on CSR disclosure. Belal (2000) investigated the environmental reporting practices of thirty firms from Bangladesh in the year 1996. The results show that about 90% of firms in the sample reported environmental-related activities. However, the percentage of environmental disclosure decreased when the energy-related information was not included as disclosure items of environmental information. The results suggest that environmental practices in Bangladesh were mainly descriptive. Hossain *et al*, (2006) reviewed the pattern of CSR disclosure of companies in Bangladesh in the year 2003. Their results show that social and environmental information was the basis of disclosure in annual reports by approximately 10% of firms. The information

disclosed related to environmental data, employee information, community and other related information, energy and products information in a narrative form. Sobhani *et al*, (2009) examined CSR practices of companies listed on the stock exchange in Bangladesh in the year 2008. Their results indicate that the disclosure level has been increasing over the decade, with all the firms in their sample disclosing at least one item on human resources. About 47% of firms disclosed community information, 23% disclosed consumer and product information, 19% disclosed environmental information, and 18% disclosed other issues.

Menassa (2010) investigated the characteristics and nature of CSR disclosure in the Lebanese banking industry. The findings illustrated that human resources and product and customers-related disclosures were largely reported by Lebanese banks, while the disclosure on quality and degree of environment activities was weak. Their studies suggest that there was no significant difference in CSR disclosure behaviour of non-listed banks, banks with an overseas presence, and listed banks in Lebanon. Bayoud and Kavanagh (2012) explored the practices of CSR disclosure in Libya by using interviews from managers of organisations. Their results indicate that reporting CSR information in annual reports is important for company performance. Libyan managers argue that CSR can help firms to achieve goals such as to satisfy the expectation of stakeholders, protect employees' interests, assist investors, and clarify the contribution of company toward society.

In Singapore, Tsang (1998) provided evidence on CSR disclosure of banking, hotel and food and beverages industries. The findings of this study show that the level of CSR disclosure in three sectors was growing from 1986 to 1995. Ahmed Haji (2013) studied CSR disclosure in Malaysia. The findings show that the level and quality of CSR disclosures increased between two years of study. However, Noronha *et al*, (2013) examined corporate social reporting in China. Their results show that the practices of CSR disclosure for Chinese listed enterprises are in the early stage. It is still far behind those in the western countries.

A number of researchers have identified numerous factors which are associated with CSR practices such as firm characteristics and corporate governance variables. Hackston and Milne (1996) highlighted that firm size and type of industry were found to be significantly related to the level of CSR disclosures. High-profile firms have a stronger relationship than low-profile firms. The study of CSR and firm

size was conducted by Udayasankar (2008), who has drawn the conclusion that large and small firms were more likely to participate in CSR, while middle-sized firms had least participation in CSR disclosure. Cormier *et al*, (2011) examined the effect of CSR disclosure on information asymmetry reduction between managers and stock market participants. The data was gathered from 137 non-financial participants' websites on the Toronto Stock Exchange in the year 2005. The results reported that CSR disclosure was influence by firm size, leverage, environmental news exposure and environmental performance. Recently, the results of Ahmed Haji (2013) show that director ownership, government ownership and firm size had a significant impact on the extent and quality of CSR disclosure.

Some studies show corporate governance variables have a direct impact on the extent of CSR disclosure. Adams (2002) investigated the internal contextual factors influencing CSR disclosure, which can be divided into three categories: corporate characteristics, general contextual factors and internal contextual factors. The data was collected in interviews with four German firms and three British firms in the chemical and pharmaceutical industry in 1998. The main finding was that the internal background variables have considerable influence on the comprehensiveness, quantity, quality and completeness of CSR reporting. Variables such as country of origin, firm size, and firm culture were shown to have an impact on decision-making and the process of reporting. The findings were consistent with the Malaysian study conducted by Haniffa and Cooke (2002, 2005), which showed that corporate governance variables, such as boards dominated by Malay directors or executive directors, board chairs who are dominant family members, chairs with multiple directorships, chairs who are non-executive directors (which includes those with foreign share ownership), were found to be related to the level of corporate social disclosure. In the Thai context, Virakul *et al*, (2009) found that CEO leadership, firm performance and stakeholders' expectations were driving factors behind CSR activities of four Thai firms that obtained the top CSR awards in Thailand. In another study, Rouf (2011) showed that the number of independent non-executive directors was associated with the extent of CSR disclosure. Other control variables such as board audit committee, board of directors and return on equity were positively correlated with CSR disclosure.

Saida (2009) found that the country of origin of multinational corporations appears to affect the extent of environmental disclosure. This is consistent with Sastararuji and Wottich (2008) who explored CSR disclosure in the construction industry in Sweden, Thailand and Brazil. They found that the regional factors influenced the level of CSR disclosure in these countries. Thai firms focussed on economic perspectives in the corporate governance section, whereas Swedish companies considered the sustainability and environmental perspectives and Brazilian firms concentrated on social and community views. Boesso and Kumar's (2007) study of Italian and US companies found that market complexity, relevance of intangible assets and stakeholder management affect the quality and amount of corporate voluntary disclosures. Islam and Deegan (2008) investigated the motivation of companies in Bangladesh on reporting CSR information. They found that the pressure from stakeholder groups on social performance was directly associated with CSR disclosure.

McWilliams and Siegel (2000) suggested that R&D intensity has a positive correlation with CSR disclosure. This is consistent with recent evidence from Padgett and Galan (2010), who examined the impact of research and development (R&D) intensity on CSR disclosure. Their findings show that there is a strong relationship between R&D intensity and CSR disclosure, especially in manufacturing industries. Their variables includes firm size, industry type, cultural dimensions, country of origin, firm characteristics, firm culture and other factors which had a direct effect on the extent of CSR disclosure. Burritt and Schaltegger (2010) explored sustainability accounting and reporting by using a systematic review technique. Their results support the finding that there are various factors which influenced CSR reporting. These include management decision making, score keeping, a critical approach and problem solving. Ho (2011) investigated the relationship between the geographic environment of corporate social performance (CSP) and the national culture of forty-nine countries based on Hofstede's cultural dimensions (including power distance index, individualism, masculinity, impact of economic development and uncertainty avoidance). Their findings indicate that national culture, level of economic development, firm reputations and geographic region have an impact on corporate social performance. Michelon (2011) carried out study on the effect of firms' reputations on CSR disclosure for fifty firms using the Down Jones Sustainability



Index (DJSI) and Down Jones Global Index in 2003. The results highlighted that not only firms with a strong reputation, but also European firms, larger firms and firms in sensitive industries were found to be significantly associated with CSR disclosure.

Zeghal and Ahmed (1990) studied the disclosure of social responsibility in Canadian firms. They claimed that a little social information, especially in brochures and advertisements, may not be complete and seemed to target specific groups. As a result, CSR disclosure of firms might be biased and questionable. Gray *et al*, (1995a), suggested some uncertain conclusions about CSR disclosure. They concluded that CSR reporting is not a systematic action, and is not linked to firm profitability in the same period. It tends to be related to size of firm, industry effect and country of ultimate ownership. Deegan and Gordon (1996) and Stittle *et al*, (1997) argued that a huge amount of environmental disclosure is mostly over-descriptive, unrelated and focused only on positive environmental information and environmental groups. Adams (2002) evaluated the degree of ethical, social and environmental reporting in Alpha Company and measured the disclosure guidelines from GRI and the Institute of Social and Ethical Accountability and the industry's own "responsible care" initiative. Their findings indicate that there is a need for "completeness" of reporting, because the disclosure of ethical, social and environmental reporting was not showing a great level of accountability. This result suggests that various measures should be considered to develop accountability and there is need to overhaul corporate governance systems, a need for mandatory audit requirement for MNC's, and a need to develop audit guidelines and reporting guidelines. These would help companies to increase their level of accountability and report more environmental information. Solomon (2006) claimed that institutional investors need private firms in the UK to report their social, ethical and environmental (SEE) information, because the public SEE disclosure was not sufficient to make decisions for portfolio investment. Skouloudis *et al*, (2009) argued that there is a gap in Greek firms' annual reports because primary issues were missed and internal systems and processes to gather CSR information needed to be developed.

#### **2.4.2 Corporate Social Responsibility Disclosure in Thailand**

Following on the use of CSR disclosure in developed countries, Thai companies have been engaging in CSR disclosure over the last three decades. As such, Thai businesses are concerned about the impact of their activities on the environment, communities, employees and other relevant stakeholders. Since the 1990's, many Thai firms have been involved and have developed CSR frameworks in order to maintain their reputations (Foran, 2001). There are several frameworks on CSR such as UN Global Compact, ISO, OECD, GRI and Securities and Exchange Commission of Thailand (SEC) framework which can be used by Thai companies to report their CSR related activities. However, those frameworks may have some limitations for businesses in Thailand because those frameworks have been developed in western countries, which are different from developing countries, particularly from Thai companies, because economics, regulations and culture are different in Thailand as compared to western countries. In Thailand, CSR is based on voluntary action by companies. There are currently no requirements from the Thai government for companies to conduct CSR. The development of CSR in Thailand intensified in 2006, when the Stock Exchange of Thailand (SET) announced the first SET CSR Awards for public companies which show outstanding responsibility towards communities and society (CSRI, 2011). The Corporate Social Responsibility Institute (CSR Institute) was founded in 2007 by SET. At the same time a working group was founded by SEC in order to encourage public firms to adopt CSR in their business and launch CSR guidelines for Thai business as a voluntary concept (Wedel, 2007). CSR disclosure is not mandated by the Thai government, but it has been supported by the government. In February 2011, the Ministry of Industry in Thailand launched ISO26000 guidelines for social responsibility on a voluntary basis to assist Thai companies to meet customers' expectations, enhance competitiveness, and maintain their reputations. In September 2013, the CSR Institute published a disclosure framework on CSR best practices for each industry, which was adopted from UNGC, GRI and ISO 26000. These guidelines would help and encourage listed companies on SET and market for alternative investment (MAI).

Several attempts have been made to study the disclosure of corporate social responsibility by companies in Thailand. For example, Kuasirikun and Sherer (2004) examined the extent and degree of social and environmental disclosure of Thai

public companies in 1993 and compared these with 1999. Their research findings revealed that employee information is the most disclosed information in Thai annual reports, followed by environmental information. The chairperson's report, operational review and separate sections are the usual locations for CSR disclosure. They also suggest that there is an inconsistent and irregular social and environmental disclosure in annual reports of Thai companies, and believe that there is a need for this type of disclosure to be legalized. They support the introduction of strong evaluation of corporate social and environmental performance for Thai companies.

Wuncharoen (2013) reviewed the literature on CSR disclosure and financial performance of the hotel sector in Thailand. Their results found that the activities of 5-star and 4 star hotels in Thailand are related to CSR, while 3-star hotels are not interested in CSR. This study examined the relationship between CSR disclosure and two accounting-based performance measures by using 148 hotel companies in Kho Samui Island. Their results also concluded that return of assets (ROA) of 5-star and 4-star hotels were statistically significant and positively related to CSR disclosure. Returns on equity (ROE) of 5-star hotels were also statistically significant and positively correlated with CSR disclosure. The author pointed out that the results did not include some related control variables in the analysis and used data only for 2011, so the results seemed to be inconsistent with previous studies. Janamrung and Issarawornrawanich (2013) carried out a similar study of the relationship between CSR reporting and financial performance. The firms in their sample contained 204 listed firms in the industrial products and resources sectors which were listed on the Stock Exchange of Thailand (SET) between 2010 and 2011. This study focused on CSR index based on KLD rating and CSR guideline in the years 2008 and 2009. Based on three dimensions of CSR disclosure, including environment, community and employees, the results concluded that the industrial products and resources industry have a low level of CSR activities. CSR scores were found to be positively and significantly related to ROA. CSR index was not found to be significantly related to ROE and Tobin's Q. The author suggests that the result from this study could be different if other CSR scoring methods were adopted, or other industries and other periods were used for study.

Suttipun and Stanton (2012c) examined the degree of environmental disclosure of 75 companies listed on SET in 2007. They show that about 62 firms (82.67%)

disclosed environmental information in their annual reports, with an average of 334 words in each report. The most disclosed theme for the resources industry was environmental information, while the agricultural and food industries reported their environmental information the least. Most CSR disclosure appeared to be in the corporate governance section, followed by the CEO's section, environmental effect and CSR section respectively. A positive relationship was found between the level of environmental disclosures and firm size. They suggest that future research could determine the disclosure made on other media such as websites, sustainability reports, CSR reports and also that bigger sample and more years for analysis could be used. Similarly, Suttipun (2012) analysed the annual reports obtained from the fifty largest firms listed on SET in the year 2010. Their reports focused on economic perspectives rather than on social and environmental views. Companies listed in the industrial sector disclosed Triple Bottom Line (TBL) more than other sectors, while the lowest amount of TBL disclosure was reported by companies in the financial sector. TBL practices also differ among different industry groups. The results show that firms' age, industry and liquidity was significantly associated with financial information as well as firm's size, profitability, firm's risk and TBL report score. The author suggests that future research should be conducted into the level of TBL reporting and practices with other variables. It should cover both large and small firms. Suttipun and Stanton (2012a) investigated the extent of environmental disclosure in Thai firms in the year 2012. The results from a questionnaire provided reasons as to why firms disclosed environmental activities. For example, they disclosed CSR information to meet customer expectations, boosting customer loyalty, gain competitive advantage and value information for investors, while the reason for not reporting was found to be the absence of any regulations for reporting environmental activities in Thailand. Another study from Suttipun and Stanton (2012b), who examined the environmental disclosures made on the websites of public companies listed on SET. The results found that Thai listed firms tend to report environmental information on the website in about 88 percent of cases. The results from the study show that industry types, type of audit firm and ownership status have a direct relationship with the level of the disclosure. Sukcharoensin (2012) examined the factors that determine CSR practices of Thai listed companies. The sample in this study covered largest fifty companies listed on SET. The CSR

disclosure index was adopted from Stock Exchange Commission of Thailand (SEC), which comprised seven dimensions, namely: corporate governance, labour practices, human rights, fair operating practices, environment, community involvement and consumer issues. The results show that there is a positive association between corporate governance rating, ownership structure, and CSR disclosure. No relationships were found between CSR disclosure and financial performance measures of ROA and ROE. Firm leverage and firm size were found to have a negative impact on CSR disclosure. This suggests that CSR disclosure was influenced by corporate governance.

Rajanakorn (2012) investigated the awareness and meaning of CSR disclosure of listed firms in Thailand. The results revealed that Thai cultural values, Buddhist religious belief and business strategy impacted the perception of CSR. Eua-anant *et al.*, (2011), studied the relationship between positive impacts of CSR with external support, CSR knowledge and the extent of CSR practices of Small and Medium Enterprises (SMEs) in the north-eastern region of Thailand. They categorised positive impacts of CSR into two types: internal issues and external issues. The internal issues cover creating a good corporate image, increasing employees' morale and productivity, stimulating and spreading innovation, and helping businesses to survive in a crisis. External issues included increasing market share and customer accessibility, getting loans from financial institutes easily, and trading with foreign countries easily. The results from 262 respondents show that the extent of CSR disclosure is positively associated with internal issues. There is no evidence to support a relationship between external issues and CSR knowledge of managers of Thai SME's in North-eastern Thailand. The findings revealed that Thai SME's were focused on CSR practices for their internal operation. Ratanajongkol *et al.*, (2006), investigated the level and nature of corporate social reporting of the forty largest market capital companies from SET for the years 1997, 1999 and 2001. They claimed that there is a widespread and growing trend of CSR disclosure in different sectors. They also suggest that further research should be conducted over a longer time period, to examine more in-depth trends of CSR disclosure and to understand the motivation of firms in reporting CSR.

Kuasirikun (2005) evaluated the perception and attitude of Thai accounting professionals on social and environmental accounting. The data of this study

included 86 professionals and 18 interviewees. The results of this study show that Thai accounting professionals, such as accountants, auditors, lecturers, and others have a positive attitude towards social and environmental disclosure. The author suggests that future research should evaluate various dimensions of CSR reporting practices. However, these results were based on a small sample and used simple model. The study would have been more interesting if the authors had considered larger numbers in samples, used various industries and a comprehensive model.

This current study focusses on CSR practices of Thai companies listed on SET from year 2009 to 2011 for several reasons. *First*, most of the previous studies focus on the extent of CSR disclosure in developed countries. Few studies focus on developing and/or emerging countries such as Thailand. This is because Thai companies invest in CSR activities differently from western countries. The results of Thai studies might different from those found in developed countries. This study argues that there may be a link between CSR disclosure and financial performance in the Thai context. The relationship between CSR disclosure and financial performance of Thai companies is driven by the fact that Thai companies have different culture, economics and religious attitudes from developed countries.

*Second*, some of the Thai studies were conducted in the early 2000s using data when CSR disclosure was not a common practice in Thailand (Kuasirikun and Sherer, 2004; Ratanajongkol *et al.*, 2006). CSR in Thailand has increased after the 2000s period. The results may not be directly comparable to the period of this study. The relationship between CSR disclosure and financial performance can differ because in the early 2000s firms focused on economic issues rather than CSR engagement. *Third*, there are limited Thai studies on the post global financial crisis period (i.e., year 2008 and onwards) (Eua-anant *et al.*, 2011; Suttipun and Stanton, 2012c; Janamrung and Issarawornrawanich, 2013; Wuncharoen, 2013). CSR disclosure in Thailand has increased after the global financial crisis. Exploring the post-global financial crisis period can contribute to explain the inconsistency of empirical results before and during global financial crisis. Thus, this study is needed to examine the relationship between CSR disclosure and financial performance in the period after the global financial crisis

*Fourth*, some studies were also conducted focusing on specific industries in Thailand. For example, Ratanajongkol *et al.* (2006) examined CSR disclosure of

fifty Thai listed firms between 1997 and 2001. Janamrung and Issarawornrawanich (2013) investigated the relationship between CSR and financial performance of firms in the industrial products and resources industries. Wuncharoen (2013) only focuses on the hotel industry. Comprehensive studies on the relationship between CSR disclosure and financial performance in Thailand are left unexplored. The results from single industries and using a small data set may not be consistent and reliable. Accordingly, this study uses a wider sample of firms and industries, which cover 323 listed companies in 8 industries during 3 year period from 2009 to 2011.

*Finally*, previous studies have adopted different CSR indices to measure the level of CSR disclosure. The results may be different from previous studies due to a lack of consistent and reliable methods to measure CSR disclosure (Waddock and Graves, 1997). This is because unique CSR measures will be evaluated differently than when using CSR checklist. This study developed a CSR checklist with 45 disclosure items from Hackston and Milne (1996), Haniffa and Cooke (2002, 2005), Hossain *et al*, (2006), Islam (2009), Peters and Mullen (2009), Azim (2010) and Saleh *et al*, (2010) to measure the extent of CSR disclosure from firms' annual reports through content analysis. This study argues that disclosure items in CSR checklist should be covered with relation to all CSR activities of Thai listed firms.

This study is expected to enhance the understanding of the relationship between CSR disclosure and financial performance by considering a comprehensive model of relations between CSR disclosure, financial performance and control variables. As a matter of fact, recent Thai research finds evidence for such a mixed relationship between CSR disclosure and financial performance. The reason may be that the difference of previous studies may not yet be understood well enough to be embodied in Thai literature. Despite the importance of using a reliable measure of CSR disclosure, including all the appropriate control variables, this study will enhance and better understanding in explaining the relationship between CSR disclosure and financial performance in Thai context.

This study will focus on the extent of CSR disclosure in Thai companies and how these are related to their financial performance during the period 2009 to 2011 using Thai data. This study used cross-sectional, pooled OLS and panel data (fixed or random effects) regression on three different sample groups: all companies; manufacturing and non-manufacturing industry (financial and non-financial

industry). This study considers three different sample groups because the association between CSR disclosure and financial performance may vary across industries. Different industries are exposed to different laws and regulations, based on expectations of stakeholder groups. This might affect firms' policies to conduct CSR activities. Thus, this study proposes to examine the relationship between CSR disclosure and financial performance within a single sample group (All sample, manufacturing and financial industry) to avoid inconsistent conclusions of the results.

By considering firms from manufacturing and non-manufacturing industry, this study argues that firms in the manufacturing industry can cause more environmental problems than non-manufacturing firms. Manufacturing firms need to be engaging in more social responsibility in order to enhance reputation, and improve their relations with stakeholders. Further, the financial industry appears to have no direct need to disclose due to pollution and environmental issues, however, financial firms may nevertheless have to report their social activities to fulfil their transparency and responsibility to the community.

This study contributes to the literature by providing a better understanding for the status of CSR disclosure and its relationship to financial performance after the global crisis in Thailand. The results will provide a recent perspective on CSR disclosure between 2009 and 2011. Use of improved models will enhance the accuracy of relations between CSR disclosure and financial performance measures.

## **2.5 CSR Disclosure and Financial Performance**

Previous studies in examining the relation between CSR disclosure and financial performance used CSR as a dependent variable and financial performance parameters as an independent variable (Preston and O'Bannon, 1997; McWilliams and Siegel, 2000; Nelling and Webb, 2009; Choi *et al.*, 2010). Some other studies used CSR as an independent variable and financial performance measures as a dependent variable (Aras *et al.*, 2010). The results of all these studies are mixed. Some studies found a positive correlation between CSR disclosure and financial performance (Waddock and Graves, 1997; Orlitzky *et al.*, 2003), some found no correlation (McWilliams and Siegel, 2000; Eljido-Ten, 2007), and others found a negative correlation (Jones *et al.*, 2007; Crisóstomo *et al.*, 2011), respectively. The



literature on the relation between CSR disclosure and financial performance is reviewed in the next section.

### **2.5.1 CSR Disclosure and Financial Performance in Developed Countries**

Preliminary work on the association between CSR disclosure and financial performance was undertaken by Cochran and Wood (1984). This study aimed to investigate the association between CSR disclosure and firm financial performance based on the Moskowitz (1972) model. The data was gathered from Computat tape matched with S&P industry code in the US in two periods (1970-1974, 1975-1979). Content analysis was utilised to code CSR data, which was grouped as Best, Honourable mention and Worst performance. The three accounting measures included the operating earnings to assets ratio, operation earnings to sales ratio and excess market valuation. The results found that operating earnings to sale ratio had a significant positive relationship with CSR rating for both the periods, while operating earnings to assets ratio had a slight correlation with CSR disclosure. There is a significant relationship between asset age and Moskowitz's CSR categories when all variables were included in the model. Waddock and Graves (1997) examined the relationship between corporate social performance and financial performance of firms listed on S&P 500 in US. They focused on the signs of relationship and direction of causation. The corporate social performance (CSP) index data was gathered from KLD index based on 8 CSPs, including community engagements, products, employee relations, treatment of women and minorities, environment, nuclear power, military contracts and involvement in South Africa. Size, debt level and industry were used as control variables. The findings reveal that there is a positive relation between ROA, ROE and Return on Sales on one hand and CSR performance on the other hand. Availability of slack resources and good management were also found to be also positively associated with CSP.

Preston and O'Bannon (1997) analysed a relationship between CSR disclosure and financial performance of 67 US firms listed in Fortune magazine. This study developed the relationship into three casual sequences: social to financial performance, financial to social performance and in both directions. The data was retrieved from *Fortune* magazine and COMPUSTAT. They analysed data by using a contemporaneous, financial lead and finance lag model. The main findings were that

CSR disclosure was positively associated with ROA, ROE and ROI. “Available funding” was the best-described variable for the relationship between social disclosure and financial performance. Griffin and Mahon (1997) investigated the correlation between corporate social performance (CSP) and corporate financial performance (CFP) of eight chemical firms in the US. The data was gathered from two sources, KLD index and Fortune reputation index (Perceptual based), and TRI database and corporate philanthropy (performance based). The five financial indicators were ROA, ROE, total assets, ROS and asset age, which were used as proxy for financial performance. The study found a positive correlation between CSP and those five financial measures. The companies listed on KLD and Fortune index had a positive relation between CSR and financial performance. However, the companies listed on the TRI indexes were not found to have significant relations between CSR and financial performance.

Cochran and Wood (1984) used one corporate social performance (CSP) measurement from Moskowitz (1972), Waddock and Graves (1997) utilised only one from KLD, Preston and O’Bannon (1997) utilised one CSP from *Fortune* magazine, while Griffin and Mahon (1997) used four measurement from KLD, Fortune reputation index, TRI database and corporate philanthropy. The results from three studies show that companies listed on KLD and Fortune index had a positive relation between CSP and financial performance. Waddock and Graves (1997) tested their model using 500 companies, Preston and O’Bannon (1997) investigated 67 firms from different industries and Griffin and Mahon (1997) focused on single industries, chemical industry. Preston and O’Bannon (1997) and Waddock and Graves (1997) highlighted that there was a significant relationship between CSR and financial performance.

McWilliams and Siegel (2000) examined the association between CSR and financial performance by assessing the level of investment in CSR and profitability, especially the correlation between CSR and R&D. The sample in this study covered 524 firms in US from KLD index and Compustat between the year 1991 and 1996. The results showed a strong positive correlation between R&D, CSP and financial performance. That is, the relationship between CSR and ROA was positively correlated when R&D expenses and industry were not included in the regression

model. However, when R&D expenses and industry were included in the equation, the relationship between CSR and ROA was found to be neutral.

Richardson and Welker (2001) analysed the link between social disclosure and financial performance of firms in Canada in the year 1990, 1991 and 1992. Their findings show that the amount and quality of financial disclosure was negatively and significantly associated with cost of equity. The results revealed a positive and significant relationship between CSR disclosure and cost of equity capital.

Orlitzky *et al*, (2003) provided a study on the relationship between corporate social performance (CSP) and financial performance (CFP). A meta-analysis of 52 studies was employed by using a vote-counting method of aggregation or narrative review. The results of meta-analysis show that there is a positive association between CSP and accounting-based and marketing-based performance measures in both directions across industries. Accounting-based measures were found to be highly associated with CSP than market-based performance. CSR was found to be highly correlated with return on assets (ROA) and return on equity (ROE). CFP was highly related to the CSP reputation index than other CSP indicators. They provided a new method called “meta-analysis” to analyse the relationship between CSR and financial performance and highlighted that accounting bases measured show a better results than market based performance.

Tsoutsoura (2004) analysed the signs of the association between CSR disclosure and financial performance of firms listed on S&P 500 in US between the years 1996 and 2000. CSR index was measured from KLD rating and Domini 400 Social index. The ROA, ROE and ROS were proxies for financial performance, which were retrieved from COMPUSTAT database. This study controlled for size, leverage, R&D cost and industry type. The findings show that there is a positive relationship between CSR disclosure and financial performance indicators of ROA and ROS. The results were stronger when CSR was defined by using KLD rating as compared to results by obtained using Domini index. The results indicate that socially responsible firms have a better financial performance than other firms.

Murray *et al*, (2006), concluded that there were no statistically significant relations between social and environmental disclosure and stock return over a ten-year period (1988-1997). They performed a regression analysis of the 100 largest UK listed firms from Time 1000. This study divided CSR disclosure into three

groups: total disclosure, total voluntary disclosure and total environmental disclosure. By controlling firm size and industry type, the study revealed that the level of disclosure and the correlation between stocks return and total social and environmental, voluntary social and environmental disclosure was mixed over time. Share returns were influenced by a firm's size than by other disclosure variables. The authors concluded that firms with lower share returns appeared to report CSR at a lower level.

Fiori *et al.*, (2007) studied the relationship between the degree of corporate social responsibility and firm stock price using a sample of twenty-five listed firms in Italy from the years 2004 to 2006. By considering the employment, environment and community components of CSR, their results illustrated that the relationship between CSR and stock price was neutral. CSR disclosure was a new practice in Italy. As a result, it is not easy to measure the quality of CSR disclosure, and the level of CSR disclosure was very low. This study pointed out that no relationship was found between CSR disclosure and stock price. This might be because the sample size of twenty-five was not high enough to accurately measure the link between CSR and stock price.

Moneva and Rivera-Lirio (2007) examined the relationship between CSR and financial performance combining the "stakeholder/shareholder commitment" as a model of this relation. The mission statements and sustainability reports of fifty-two Spanish listed firms were utilised to analyse the model into stakeholder or shareholder orientation and adopted GRI guidelines. The results indicate that CSR disclosure of stakeholder oriented companies was about 74%, while CSR disclosure of the shareholder-oriented companies was about 15%. The results suggest that the quality of the sustainability report and the degree of CSR disclosure of stakeholder oriented companies was a better than that of the shareholder oriented companies.

Lyon (2007) explored the association between CSR disclosure and financial performance using 125 companies listed on New Zealand stock exchange. The sample data were from forty-four firms in the production sector and seventy-six firms in the service sector. Content analysis was used to gather CSR data from 2004 annual reports. Financial performance was measured by ROA and ROE, which were collected from 2005 annual reports. The results from the service industry show that there is no relationship between CSR and financial performance, while CSR

disclosure impacted financial performance measures of ROE for firms in production industry.

Mahoney *et al*, (2008), analysed the relationship between corporate social performance (CSP) and financial performance of firms using restated earnings. The sample of companies under study is made up of forty-four restating firms and forty-four non-restating firms, which was obtained from GAO-03-395R Financial Statement Restatement Databases for 1996 to 2002. Financial performance was return on assets. This study was controlled for firm size, leverage, and industry type. CSP was measured by total CSP product and CSP people. CSP weaknesses are calculated by combining the weakness ratings of seven dimensions, while CSP strengths are defined by summing the strength rating from seven dimensions. The findings show that there is an increase in CSP strengths, CSP weaknesses, CSP people strengths, and CSP people weaknesses after restatement, though weaknesses rose more than strengths. This study found that restating firms were found to have an increase in CSP strengths, CSP weaknesses, CSP product strengths, CSP people strengths during the sample period. There is a positive relationship between CSR strengths and ROA of restating firms.

Scholtens (2008) analysed the association between social performance and financial performance. The sample covered 289 US firms from KLD database and financial data was gathered from the years 1991 to 2004. The CSR disclosure comprised community involvement, employee relations, diversity, environment and product. By employing two different test techniques, namely Granger causation and lagged OLS, the results show that there is a positive and significant association between strengths and concerns of social responsibility and financial performance, in the areas of both risk and stock return. Each dimension of CSR disclosure had a different impact on financial return and risk. It appears that the direction of the relationship runs from financial to social performance.

Mahoney *et al*, (2008) introduced GAO-03-395R Financial Statement Restatement Databases to create CSP and their sample was from restating firms. Scholtens (2008) retrieved CSR data from KLD database and analysed data using Granger causation and lagged OLS. The results of both these studies indicate that CSP has a significant impact on financial performance. However, the implication of

this methodology is yet to be examined in developing countries particularly in Thailand.

Moneva and Ortas (2008) provided evidence on the relationship between sustainability and financial performance of 142 firms in European union for 2004-2005. Social and environmental disclosure scores data was from SRI group for 2003-2005. They obtained their financial data from stock exchange websites. Based on a sample of 142 firms from 2003 to 2005, the results found no correlation between share return and sustainability data. The results also show that there is no difference between the results of DJSI and non-DJSI firms.

Peters and Mullen (2009) proposed that there is a long term effect of CSR disclosure on firm financial performance. The sample data covered 81 firms on the Fortune 500 index in the US for the year 1996. Five dimensions of CSR were retrieved from KLD database. This study evaluated both cross-sectional and cumulative effects of CSR disclosure. The results indicate that CSR disclosure had a positive effect on ROA over the period. This study suggests that firms would have better financial performance by engaging in CSR for both short-term and long-term period and acknowledged that ROA was significant to CSR disclosure measured using KLD index.

Nelling and Webb (2009) employed four regression models to investigate the causal relations between social responsibility and financial performance. This study measured CSR disclosure using KLD index in the years 1993 to 2000. Return on assets and stock returns were used to measure financial performance. Based on standard OLS regression analysis, this study found a positive and significant relationship between the level of CSR reporting and past financial performance. The linkage between CSR and financial performance was found to be weak when the Granger causality model was used. In contrast, when a fixed effect model was applied in the study, an association between CSR disclosure and stock return was not found. A weak relation was found when the Tobit model was used. The authors further examined the connection between stakeholder specific dimensions of CSR and financial performance. The results indicate that the greater employee relation scores were influenced by higher stock returns, while there is no causal relation between stock return and the community, environment or diversity dimensions of CSR disclosure. This study used two statistical methods (Granger causality and panel

fixed effect models) to examine the link between CSR and financial performance. They concluded that the relationship between CSR disclosure and financial performance is quite weak when using the Granger causality model. However there is no significant relationship when panel fixed effect model was applied.

Garcia-Castro *et al*, (2010) argued that the association between social performance and financial performance cannot be ascertained easily. They argued that the mixed results from previous studies were not related to the measurement instruments or the samples used. There are more fundamental problems associated with the endogeneity of social strategic planning. Their social data was gathered from KLD index. The panel data from 658 firms from 1991 to 2005 was used in the study. The results found a positive or negative relationship between social performance and financial performance. This relationship turned into a non-significant relation when endogeneity was added into the model. There is a neutral link between social performance on one hand and ROA, ROE, and Tobin's Q on other hand using fixed-effect models. MVA was found to be negatively associated with social performance. This suggests that unobserved variables were found to be correlated with both social performance and financial performance, which intervene in the CSR and financial performance relationship.

Byus *et al*, (2010), examined the correlation between corporate social reporting disclosure and financial performance for a sample of 120 Dow Jones Sustainability Index (DJSI) firms and 120 non-DJSI firms from the years 1999 to 2007. This study used five regression models and four financial measures (ROA, gross profit margin, profit margin and market to book value). Their findings indicate that DJSI firms had a significant positive correlation with financial performance. The findings suggest that there is a need to measure CSR using various methods, longer periods and across different industries. The research found ROA and profit margins to be significantly related to CSR in DJSI firms, ROA and profitability being the key drivers in this relationship.

Another recent study from Moneva and Ortas (2010), introduced a new method of a partial least squares model (PLS) to examine the association between corporate environmental performance and financial performance. Financial performance measures such as ROE, ROE, profit margin, and operating profits were included in this study. The sample included 230 firms from 18 European countries

for the year 2004. The financial data was gathered from 2005 to 2007. Their findings revealed that there is a positive and significant association between corporate social performance (CSP), corporate environmental disclosure (CED) and corporate financial performance (CFP).

Schreck (2011) examined the bi-directional causality between CSR and financial performance. The corporate social performance (CSP) was constructed from Oekom's research database which comprised five dimensions of CSR such as employee, society and community, corporate governance, product and customer responsibility and environmental management. Financial performance indicators were ROE and Tobin's Q. This study controlled for firm size, leverage and market risk. The results show that corporate governance and environmental management have a positive impact on Tobin's Q, while product and customer responsibility disclosure has a negative effect on Tobin's Q. There is a positive and significant relationship between environmental management and ROE, but the link between product and customer responsibility disclosure and ROE was found to be negatively related to CSR. The results from Granger causality tests revealed that there is no causality going from CSP and financial performance. This study suggests that the stakeholder-related issues of CSR have an impact on financial performance. The study highlighted that CSR disclosure could be significantly related to Tobin's Q and concluded that firm size and leverage are the key drivers.

Jo and Harjoto (2011) examined the effects of external and internal corporate governance on the choice of CSR activities and firm value. The CSR data was gathered from KLD Stats database from the years 1993 to 2004 on a sample of 12,527 firm-years. The results show that CSR index was found to be positively related to the external and internal corporate governance (CG) and monitoring mechanisms, including board independence, analyst following, board leadership, institutional ownership, and antitakeover provisions. After controlling for endogeneity, the findings revealed that CSR disclosure has a positive impact on firm value as measured by industry-adjusted Tobin's Q. There is a positive and strong relationship between CSR disclosure and firm value. However, the board independence, board leadership, institutional ownership and blockholders' ownership had a relatively small effect on improving firm value. CSR activities were found be related to internal social improvement within the firm, such as employees' diversity,



firm relationship with its employees, and product quality. This study focused on internal and external corporate governance, CSR disclosure and firm value by controlling for endogeneity in the model. Their results confirmed that CSR activities were significantly related to internal social improvement, which enhanced firm value.

Bnoui (2011) investigated the connection between CSR disclosure and financial performance of eighty profitable SME' firms in France. The CSR questionnaire covered three dimensions of CSR: environmental, social and societal responsibility dimensions. The profit ratio was defined as profit divided by share of turnover. This study controlled for firm size, age and internationalisation. The results show that social and environmental dimensions were positively related to financial performance. This finding suggests that more profitability leads to social engagement.

Reverte (2012) investigated the link between CSR reporting and cost of capital for Spanish listed firms from the years 2003 to 2008. The CSR rating data was obtained from the Observatory on Corporate Social Responsibility (OCSR). This study revealed that CSR disclosure was negatively and significantly related to cost of capital. This study also provided the evidence that CSR reporting quality has a negative effect on cost of equity capital especially for firms in environmentally sensitive sectors. This study suggests that firms doing CSR can improve firm values. It implied that "CSR reporting is a part of a firm's communication tools in order to decrease information asymmetries between managers and investors".

Ghelli (2013) examined the extent and direction of the relationship between CSR disclosure and financial performance. The data covered 322 firms from the Fortune 500, financial performance from ORBIT database and CSR data was gathered from KLD database for year 2010. The results confirmed that CSR has a positive and significant relationship to ROA, ROS and Tobin's Q in both directions. However, ROE was found to be not significantly related to CSR disclosure.

The studies described above were performed in US, UK, Canada, Australia and New Zealand. Empirical studies of the link between CSR disclosure and company performance outside of developed countries are few. Most of these studies used KLD index to measure CSR (Tsoutsoura, 2004; Scholtens, 2008; Nelling and Webb, 2009; Peters and Mullen, 2009; Jo and Harjoto, 2011; Ghelli, 2013). Some

studies developed CSR disclosure from other sources such as Vigeo CSR scores (Van de Velde *et al.*, 2005), GRI index (Jones *et al.*, 2007), DJSI (Byus *et al.*, 2010), Domini 400 social index (McWilliams and Siegel, 2000) and Oekom's research database (Schreck, 2011). A number of studies used accounting based measures such as ROA, ROE, NPM, EPS, ROI, P/E ratio, ROS and market based indicators such as Tobin's Q, stock price, stock return, MVA to proxy financial performance to analyse the relationship between CSR disclosure and financial performance. They used an ordinary least square, Granger causation (Scholtens, 2008; Nelling and Webb, 2009; Schreck, 2011), panel data model (McWilliams and Siegel, 2000; Nelling and Webb, 2009), a partial least squares (Moneva and Ortas, 2008) and two stages least square models to perform statistical analysis (Al-Tuwaijri *et al.*, 2004; Garcia-Castro *et al.*, 2010; Jo and Harjoto, 2011). However, the results from the above studies are mixed. Most of the studies considered firm characteristics such as firm size, leverage, and type of industry, age of firm, R&D intensity and corporate governance as control variables.

### **2.5.2 CSR Disclosure and Financial Performance in Developing Countries**

The next section describes the empirical studies on CSR disclosure and financial performance in developing countries.

Hossain *et al.* (2006), explored the extent and nature of CSR disclosure of companies in Bangladesh. The sample was gathered from annual reports of 107 non-financial companies listed on Dhaka Stock Exchange during 2002-2003. The disclosure index was developed with sixty disclosure items. This study controlled for firm size, profitability, multinational status of company, audit firm, and industry type. The findings found that Bangladesh companies disclosed CSR in about 8.33% of cases, which is voluntary in nature and largely, qualitative. The results of regression analysis show that CSR index was found to be positively and significantly related to net profit margin, industry type and presence of public debenture.

Mittal *et al.* (2008), employed content analysis to examine the association between economic value added and CSR practices of firms operating in India. This study conducted a content analysis of 50 corporate annual reports over a five-year period in order to identify the levels CSR disclosure. The results revealed a negative relationship between CSR and economic value added (EVA) in three out of five

years. For other two years; the relationship was positive and not significant. In addition, the association between CSR and market value added (MVA) was positive but very weak.

Aras *et al*, (2010), examined the association between CSR and financial performance of forty firms listed on the Istanbul Stock Exchange (ISE) between the years 2005 and 2007. This study defined CSR disclosure as a dependent variable. Profitability measures of ROA, ROS and ROE were an independent variable and the model was controlled for size, R&D intensity and risk. Content analysis was used to capture a number of sentences related to CSR activities from annual reports. The findings revealed a positive relationship between company size and CSR. However, there is no significant association between prior CSR index and current year profitability. This study failed to capture any significant relationship between CSR and profitability measures of ROA, ROS and ROE. This is because CSR might not be sufficiently associated with economic performance in some emerging countries yet.

Choi *et al*, (2010), constructed a stakeholder-weighted CSR index and equal-weighted (EW) CSR index from seven categories of Korea Economic Justice Institute (KEJI) index scores to investigate the link between CSR disclosure and firm financial performance as expressed by ROA, ROE, and Tobin's Q. They retrieved financial data from TS-2000 database from the year 2002 to 2008. Utilising a four-factor model (Carhart's, 1997); the results indicate that the relationship between stakeholder-weighted CSR index and three financial performance measures were be positive and significant. For equal-weighted CSR index, the result shows that EW-CSR disclosure was positively and significantly related to ROA. The findings revealed that the stakeholder-weighted CSR index had a positive impact on high financial performance of the firms. The researcher suggests that it is essential that firms should focus on other dimensions of CSR disclosure, which are essential to stakeholders of firms. This study showed the difference in results from using two different CSR measurements.

Khemir and Baccouche (2010) analysed the determinants of CSR disclosure of Tunisian listed firms during the years 2001 and 2004. This study also examined the relationship of CSR disclosure with financial performance. The sample consisted of twenty-three non-financial firms listed on the Tunisian Stock Exchange. Content

analysis was utilised to analyse the factors influencing CSR disclosure from annual reports. Five characteristics of firms were employed in this study namely, capital structure, debt level, economic performance (ROA and ROE), internationalisation degree and political visibility. The results show that product dimension was the most disclosed theme, followed by human resources, environment and community involvement. The trend of CSR disclosure was increasing over the period. From the regression analysis, the study reveals that there is a positive and significant relationship between CSR disclosure and degree of internationalisation activities, debt level and degree of political visibility. This study did not observe any relationship between CSR activities and economic performance measures of ROA and ROE. This study acknowledged the factors that impact the degree of CSR disclosure such as capital structure, debt level, internationalisation degree and political visibility. However, the sample size was not adequate because the sample in this study covered only twenty-three firms, which is relatively small.

Kwanbo (2011) investigated the association between CSR disclosure and earnings per share. Content analysis was used to collect CSR index. Financial data was used from annual report of 231 firms listed on the Nigerian stock exchange for the period 2005 to 2009. The study found that there is no impact of CSR disclosure on financial performance (EPS) of Nigerian companies. However, CSR disclosure was found to be significantly correlated to firm size as measured by number of employees and number of shareholders.

Oeyono *et al*, (2011), explored the level of CSR disclosure and its relation to the profitability of top 50 firms in Indonesia. CSR index included six indicators from GRI 2007 guidelines, namely, economic, environmental, social, human rights, society and product responsibility indicators. The results revealed that most of firms adopted CSR practices for their operations. The relationship between CSR disclosure and earnings per share (EPS), earnings before interest tax and depreciation (EBITDA) were found to be positive but weak.

Saleh *et al*, (2011) investigated the pattern of CSR disclosure and financial performance of the top 200 listed firms in Malaysia from 1999 to 2006 by employing content analysis. The type of disclosure can be divided into four dimensions, namely; community involvement, environmental, employee relations and product dimensions. The findings revealed that CSR (community involvement and employee relation) and

financial performance measures of ROA, stock market return and Tobin's Q were positively associated. This study acknowledged that ROA and TBQ are the factors that impact CSR disclosure.

Bayoud *et al*, (2012) investigated the association between CSR disclosure and financial performance of Libyan companies. This study focused on employee commitment and corporate reputation through stakeholder's pressures. Content analysis and questionnaires were employed to gathered CSR data from 110 annual reports of forty firms in 2007 and 2009. By controlling firm size, age of firm and industry type, the findings show that CSR disclosures were found to be positively and significantly related to financial performance measures of ROA, ROE and revenue and corporate reputation. However, the relationship between CSR disclosure and employee commitment was not found to be significant. It was found that environmental disclosure, community disclosure, employee disclosure and consumer disclosure have a positive impact on difference financial performance indicators. This study confirms that a combination of stakeholder theory with resource-based can explain relation of CSR with firm financial performance. This study focused on employee commitment rather than of disclosure of CSR in general.

Dkhili and Ansi (2012) investigated the association between CSR disclosure and financial performance for thirty companies listed on the Tunisian stock exchange between the years 2004 and 2007. Two financial performance measures were used in this study namely, ROE and ROA. This study considered risk, size and sector as a control variable. CSR disclosure was measured by five dimensions, namely: economic, legal, ethical, discretionary and environmental dimension. The results from the questionnaires show that environmental information was the most disclosed item, followed by discretion, ethical, economic and legal dimension, respectively. The result found that only the economic dimension of CSR has a negative effect on ROA. The discretionary dimension was found to be positively and significantly related to ROE. These results were based on data from 30 companies. Luethge and Helen (2012) examined the link between CSR disclosure and firm profitability of sixty-two Chinese firms listed on the Hong Kong Stock Exchange in 2008. The content analysis of annual reports was utilised to gather CSR data by using number of words. ROA, ROE and firm size were used as independent variable. This study controlled for industry type and state ownership. The findings showed that there is no

correlation between ROA, ROE and CSR disclosure. However, firm size had a positive relationship to CSR disclosure.

Tilakasiri (2012) investigated the relationship between CSR disclosure and financial performance in Sri Lanka. Content analysis was used to gather CSR data using Delphi method, which identified twenty-eight activities. The sample was collected from fifty companies listed on the Colombo Stock Exchange in Sri Lanka from the year 2004 to 2009. The results from the empirical study show that there is a positive relationship between CSR disclosure and financial performance. When compared across each dimension of CSR disclosure and financial performance, the findings revealed that community disclosure was found to be positively and significantly related to ROE and ROA, while health related activities disclosure had a negative impact on ROE and ROA.

Tyagi (2012) investigated the impact of CSR disclosure on financial performance of firms listed on the Bombay Stock Exchange (BSE) and S&P ESG 500 India index. The sample included 215 firms from the year 2005 to 2010. The questionnaire was used to gather CSR data. The results show that corporate social performance (ESG), environment and social performance (ES) had a significant relationship to ROA, ROE, and return on capital employed. The R&D intensity was found to be significantly related to CSR disclosure, ROA, ROE, and return on capital.

Li *et al*, (2013), examined the link between financial performance and quality and frequency of CSR disclosure of listed firms in China in the year 2008. The sample data was 1,574 non-financial listed firms from the China Stock Market and Accounting Research database. CSR data was gathered from the Blue book of corporate social responsibility reporting in 2009. Financial performance was defined using ROA. This study controlled for size, leverage, the percentage of stockholdings held by top management, the percentage of stockholdings held by the largest shareholder and firm age. The results showed that firms with better financial performance in term of ROA tend to report CSR, and the quality of CSR disclosure was good for such firms. The quality of CSR disclosure of state own enterprises were found to be weaker than for non-state own enterprises.

From the above studies there is an observation in that several techniques have been used to measure CSR which shows the diverse results (positive, negative or

neutral relationship with financial performance. These studies indicate that the methodology and sample size are the main factors which accounted for the different results. The association between corporate social responsibility and financial performance is diversified because there are other aspects influencing the research findings. These include firm size (Rashid and Lodh, 2008), country of origin (Michelon, 2011), type of industry, age of firm, listing status, board of composition, level of R&D (McWilliams and Siegel, 2000), capital structure, degree of development (Ribeiro and Aibar-Guzman, 2010) and debt level. According to Ullmann (1985), reasons for the inconsistencies in these results could be that researchers have included unsatisfactory sampling techniques (Choi *et al.*, 2010), applied unreliable social responsibility indexes and employed poor financial performances. To overcome the above reasons, this study will select a sample of all Thai public companies listed on Stock Exchange of Thailand (SET) in the years 2009-2011 in order to cover all sizes and sectors, develop CSR indexes from previous research and apply suitable accounting and market-based measures to examine the extent of CSR disclosure and its relationship with financial performances in Thailand only.

### **2.5.3 CSR Disclosure and Financial Performance for Manufacturing Industry**

The aim of this study is to focus on the relationship between CSR disclosure and financial performance of Thai firms both in the manufacturing and non-manufacturing industry (financial and services). There is a view that firms in the manufacturing industry can cause more environmental problems than non-manufacturing firms. Manufacturing firms need to be engaging in more social responsibility in order to enhance reputation and, improve relations with stakeholders. Previous studies suggest that high-profile companies tend to disclose more CSR activities. This section provides a literature review on the relationship between the plausible variables for manufacturing industry.

Ngwakwe (2009) used a field survey to examine the environmental responsibility and financial performance for sixty manufacturing firms listed on the Stock Exchange of Nigeria. The three particular indicators of environmental practices employee health and safety, community development, and waste management were adopted for CSR disclosure. By separating firms into two groups,

(environmentally responsible and irresponsible), the main findings concluded that there is a significant association between the sustainable practices of the responsible firms and financial performance measure of ROA. On the other hand, the results found a negative association between sustainable practices and the level of fines, penalties, obligations and compensations.

Kimbrow and Melendy (2010) argued that voluntary environmental disclosure (VED) had a positive effect on financial performance, especially capital and debt structure. Their samples were gathered from firms in the industrials sector listed in the Hong Kong Stock market. The study was controlled for size and industry. Content analysis was utilised to collect environmental data. The findings show that there is no difference in capital and debt structure between VED and Non-VED firms in Hong Kong. While VED firms had greater profitability in terms of ROE, asset turnover, net profit margin, ROA and efficiency than non-VED firms during the crisis period, the results confirm that VED firms have more profitability and more efficiency than non-disclosing firms.

Mishra and Suar (2010) performed a questionnaire survey of Indian manufacturing firms in search of a link between corporate social performance financial and non-financial performance (NFP). The results showed that CSR practices and financial performance of listed firms were outperforming those of non-listed firms. FP and NFP of the firms were related to the types of stock listing, firm size and ownership, while FP and NFP were not related to type of ownership and firm size. NFP was not related to stock-listing status. CSR disclosure was found to be positively associated with industry-adjusted ROA and NFP. This indicates that good CSR practices also improved NFP and FP of the firms.

Chen and Wang (2011) investigated the relationship between CSR disclosure and financial performance of firms in manufacturing industry. The questionnaire was employed to collect CSR information. By controlling capital and debt structure, the results show that CSR activities have a significant positive impact on Chinese firms' performance, especially ROA, return on sales, and sales growth rate. It was suggested that financial performance of current and the next period were improved by disclosing more CSR activities.

A study by Ehsan and Kaleem (2012) focused on the relationship between CSR and the financial performance of 100 manufacturing listed firms in Pakistan.



CSR data was constructed from two dimensions: donations and employee welfare funds. The main findings from panel data analysis indicate that there is a positive relationship between CSR disclosure and financial performance. ROA, ROE and EPS were associated with CSR disclosure but insignificantly, whereas a firm's growth was found to be negatively associated with CSR. The ROA, ROE and EPS were correlated with size of the firms. On the other hand, firm growth was not found to be associated with firm size. The relation between firm's leverage and all financial measures was negative and not significant.

Zhang (2013) studied the factors of CSR disclosure and investigated the relationship between financial performance and CSR disclosure of three manufacturing industries in China. The data was selected from 193 companies listed on the Shenzhen Stock Exchange of China. Content analysis based on G3 guidelines was used to gather data from three industries, namely: mining, electricity and chemical companies. The findings show that the extent of environmental disclosure for the three industries was relatively low. The energy and materials information was the most disclosed information for all the three sectors. Some control variables such as firm size, firm age, industrial association and profitability have a significant impact on the level of environmental disclosure for three industries. Moreover, the electricity supply sector was more likely to disclose social information than the mining and chemical industries, but reasonably small information. The labour practices and decent work, and human rights information were the most disclosed theme for three sectors. It was also found that profitability, firm size, leverage and management role was significantly associated with social disclosure.

The above studies were conducted using samples from developing countries and focused on environmental information rather than other CSR dimensions. Ngwakwe (2009) collected data using field survey, Chen and Wang (2011) and Mishra and Suar (2010) utilised questionnaire, while Kimbro and Melendy (2010) and Zhang (2013) used content analysis to gather environmental information. The result from these studies found that environment information was significantly related to financial performance. These researches highlighted that different study periods, methodologies and samples are the important factors to determine the degree of environmental disclosure and the significance of the model.

#### **2.5.4 CSR Disclosure and Financial Performance for Financial Industry**

The empirical studies on the relationship between CSR disclosure and financial performance for financial industry have been carried out in many contexts using different methods, sample sizes and type of financial intuitions. One of the purposes of this study is to investigate the link between CSR disclosure and financial performance of financial companies in the financial industry. This section presents a summary of previous empirical studies related to firms in the financial industry. Simpson and Kohers (2002) tested the association between corporate social and financial performance for banking companies in US between 1993 and 1994. The Community Reinvestment Act rating (CRA) was used as a measure of CSP, which covers four categories: (1) outstanding, (2) satisfactory, (3) needs to improve, and (4) substantial noncompliance. The data from “outstanding” and “needs to improve” groups were grouped together. The findings revealed a significant positive relationship between CSR rating variables and CFP. This result can be explained by the fact that banks with high social performance have better ROA than banks with low CSP ratings. The relationship between CSR rating and the loan loss of banks with high social performance were much weaker than for banks with lower social performance.

Soana (2011b) investigated the relationship between CSP and corporate governance with CFP in the banking sector in the year 2005. In this study, CSR was measured based on the ethical rating from Ethibel, AEI and AXIA. The findings illustrate that there is no significant association between global ethical ratings and return on average assets (ROAA), return on average equity (ROAE), cost to income ratio, market to book value, price to book value and P/E adjusted ratio. There is also no relationship between the ethical rating of Italian banks and their financial performance.

Wu and Shen (2013) examined the association between CSR and financial performance of 162 banking firms in 22 countries. The data was gathered from the Ethical Investment Research Service (EIRIS) databank and the Bankscope database, and covered the years 2003 to 2009. The results using Heckman two steps regression revealed that CSR disclosure was found to be positively related to return on assets, return on equity, non-interest income and net interest income. There is a negative relationship between CSR disclosure and non-performing loans. It was suggested that

further studies should focus on sub-components of CSR indices and analyse nonlinear relationship between CSR and financial performance.

These three studies demonstrated difference in defining CSR, Simpson and Kohers (2002) measured CSR using Community Reinvestment Act rating (CRA), Soana (2011b) used ethical rating from Ethibel, AEI and AXIA, while Wu and Shen (2013) used Ethical Investment Research Service (EIRIS) databank and Bankscope database. In spite of using different sources of measuring CSR, two studies arrived at the same results that CSR were found to be significantly related to ROA (Simpson and Kohers, 2002; Wu and Shen, 2013). These three studies have identified mixed relationship between CSR and financial performance for financial firms. Simpson and Kohers (2002) and Wu and Shen (2013) found a positive relationship between CSR and financial performance, while Soana (2011b) showed no relationship was found between CSR and financial performance.

#### **2.5.5 CSR disclosure and Financial Performance for Services Industry**

One purpose of this study is to investigate the association between CSR disclosure and financial performance of firms listed in the services industry. This section presents the summary of the empirical studies service industry. Moore (2001) examined the correlation between corporate social responsibility and financial performance of firms in the supermarket industry in the UK. Financial performance measures were growth in turnover, profitability, return on capital employed and EPS growth. The results show that social performance was found to be positively related to firm age. This study found a negative relationship between social performance and financial performance. There is a positive relationship between previous-year financial performance and subsequent social performance. A negative relationship was found between social performance and gearing. This study acknowledged firm age was significant to social performance. However, this study highlighted the difference in findings in the results of the relationship between contemporaneous social performance and subsequent social performance with financial performance; financial performance showed a positive relationship with subsequent social performance, but a negative relationship with contemporaneous social performance.

Inoue and Lee (2011) examined the relationship between specific dimensions of CSR and financial performance for tourism-related sectors such as the airline,

casino, hotel and restaurant industries. CSR dimensions in this study were employee relations, environmental issues, community relations, product quality and diversity issues. The CSR data and financial data were gathered from S&P 500 and Russell 3000 indexes from the year 1991 to 2007. The findings from the airline industry show that CSR activities have a negative effect on ROA while CSR disclosures of firms in hotel and restaurant industries were positively related to ROA and Tobin's Q. Regarding the diversity issue, Tobin's Q was found to be positively associated with CSR in the hotel industry, but there is no relation between CSR and Tobin's Q for the other three industries. The result also shows that Tobin's Q was positively impacted by employee relations only in the airline industry. In the product dimension, Tobin's Q was positively related with CSR information for the airline industry, and ROA was positively associated with CSR activities for the restaurant industry. ROA and Tobin's Q were also positively related to CSR disclosure within the hotel sector. On the other hand, there is no relationship between ROA and Tobin's Q on one hand and the environmental dimension on the other hand for all sectors. This study used data from four service sectors and identified five dimensions of CSR. It is noted that the results of financial performance as measured by ROA and Tobin's Q were different for each sub-sectors.

Lee *et al*, (2013) analysed the relationship between CSR and firm financial performance of the U.S. restaurant industry during recessionary periods. The sample was collected from KLD STATS in 1991 to 2009. In this study, CSR index was defined as operation-related (OR) CSR activities and non-operation-related (non-OR) CSR activities. The empirical results show that no relationship between Tobin's Q or firm's value performance and non-OR CSR and OR CSR was found to be significant. Moreover, when economic conditions were added into the model, the results revealed that non-OR CSR activities had an insignificant relationship with Tobin's Q during recession years. This study identified new two types of CSR activities in operation-related (OR) CSR activities and non-operation-related (non-OR) CSR. This index is developed based on the author's evaluation, which may not be very precise in indicating actual CSR activities of the firms.

## 2.6 Summary and Conclusions

This chapter has reviewed the literature regarding CSR disclosure and its relationship with financial performance. The legitimacy and stakeholder theories are the main theoretical perspectives that are mostly used to explain CSR disclosure. No single theory is, however, adequate to explain CSR engagement (Belkaoui, 1989; Gray *et al.*, 1995a). Stakeholder theory is used to describe the expectation of stakeholder groups on CSR activities and disclosure. Legitimacy theory involves the perception of organisation towards CSR activities and disclosure and how to manage social approaches in society in order to remain legitimate (Deegan *et al.*, 2002; O'Donovan, 2002). The main findings from the literature review on CSR disclosure in Thailand show that the trend of CSR disclosure is increasing (Kuasirikun and Sherer, 2004), with companies focused on economic perspectives rather than on social views (Suttipun, 2012) having a positive attitude CSR disclosure (Kuasirikun, 2005). The results from the Thai view also suggest that CSR disclosure is related to internal activities (Eua-anant *et al.*, 2011).

Based on the review of the literature on CSR disclosure, CSR disclosure has been shown to be growing. The pattern of CSR disclosure is also changing, such as in relation to location, amount, and form of the report. However, there are other factors which can also influence CSR disclosure for example, firm size, type of industry (Pahuja, 2009), age of firm (Menassa, 2010), country of origin, regional factor (Sastararuji and Wottrich, 2008), firm reputations (Burritt and Schaltegger, 2010), national culture (Ho, 2011), market complexity (Boesso and Kumar, 2007), and corporate governance (Haniffa and Cooke, 2002; Rouf, 2011). Recent evidence highlights that the quality of CSR disclosure is still uncertain and questionable (Islam and Deegan, 2008; Skouloudis *et al.*, 2009).

In terms of the relationship between CSR disclosure and financial performance, some of the studies examined conclude that CSR has been found to be positively and significantly related to financial performance (Waddock and Graves, 1997; Peters and Mullen, 2009; Byus *et al.*, 2010; Choi *et al.*, 2010; Moneva and Ortas, 2010; Bnoui, 2011; Chen and Wang, 2011; Saleh *et al.*, 2011; Ehsan and Kaleem, 2012). A number of previous studies report that there is no evidence to detect the relationship between CSR and financial performance (McWilliams and Siegel, 2000; Moneva and Ortas, 2008; Abdul Rahman *et al.*, 2009; Dragomir, 2010;

Soana, 2011a). As well their studies found a negative correlation between CSR and financial performance (Jones *et al.*, 2007; Crisóstomo *et al.*, 2011). Thai research found evidence for such a mixed relationship between CSR disclosure and financial performance. The difference between the findings of previous studies may be due to CSR disclosure not yet being well enough understood to be embodied in Thai literature.

Previous studies have used different measurements of CSR, differing study periods, and small sample size, resulting in consistency in their empirical findings. Therefore, an aim of this study is to enhance further understanding of the relationship between CSR disclosure and financial performance by considering a comprehensive model. Further, this study will focus on the extent of CSR disclosure in Thai companies and how these are related to their financial performance during the period 2009 to 2011 using Thai data.

In addition, the relationship between CSR disclosure and financial performance can differ in Thai companies because in the early 2000s Thai firms focused on economic issues rather than on CSR engagement. Moreover, this study will attempt to compare cross-sectional data, pooled OLS and panel data (fixed or random effects) in three different sample groups: all companies, manufacturing and non-manufacturing industry and financial and non-financial industry. This study will consider three different sample groups because the association between CSR disclosure and financial performance may vary across industries. Different industries are exposed to different laws and regulations and expectations of stakeholder groups. This might affect firms' policies to conduct CSR activities. Nevertheless, this study aims to contribute to the literature by providing a better understanding for the status of CSR disclosure and its relationship to financial performance after the global crisis in Thailand. This is because CSR disclosure in Thailand has increased after the global financial crisis. Exploring the post global financial crisis period can contribute to explain the inconsistency of empirical results before and during the global financial crisis. In so doing, a variant of methodology will be used. This chapter is devoted towards this end.

## **CHAPTER 3**

### **METHODOLOGY AND DATA**

#### **3.1 Introduction**

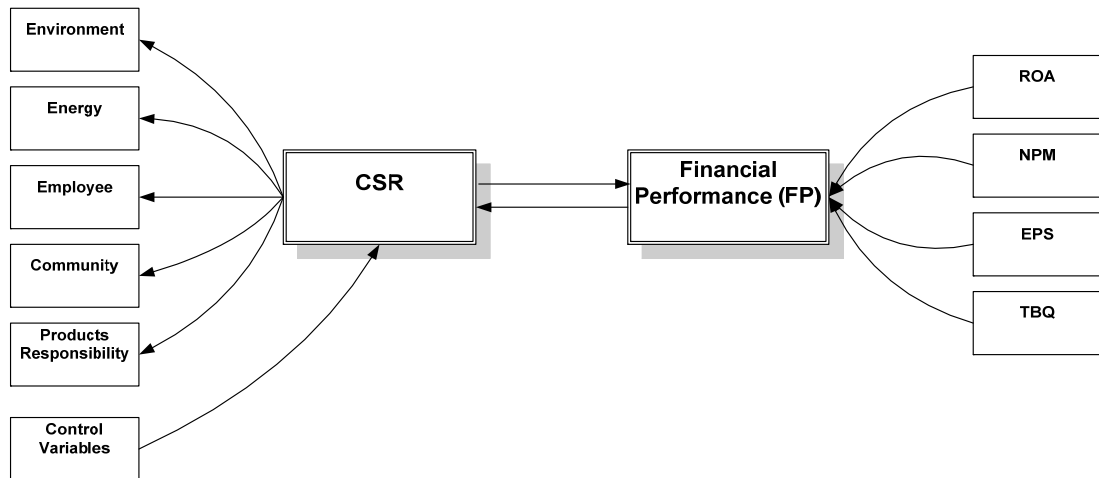
As has been stated earlier, this study aims to examine the relationship between corporate social responsibility (CSR) disclosure and financial performance in the case of Thai listed companies between the years 2009 and 2011. Based on this primary quest, in Chapter 2, literature was reviewed on the theoretical background, and the status of CSR disclosure around the world including Thailand, and the relationship between CSR disclosure and financial performance.

This chapter focuses on data collection and methodology. In section 3.2, the research framework is presented. The data selection and sample design are presented in section 3.3. In section 3.4, the measurement of corporate social responsibility disclosure index (CSRI) to be used in this study is discussed. The issues relating to firms' financial performance measures and the measurement of control variables are presented in section 3.5 and 3.6. Section 3.7 provides the development and operationalisation of hypotheses. In section 3.8, the regression models, the specification test and the robustness test to be used are discussed. Finally, in section 3.9 a summary and conclusions concerning data and methodology are presented. A

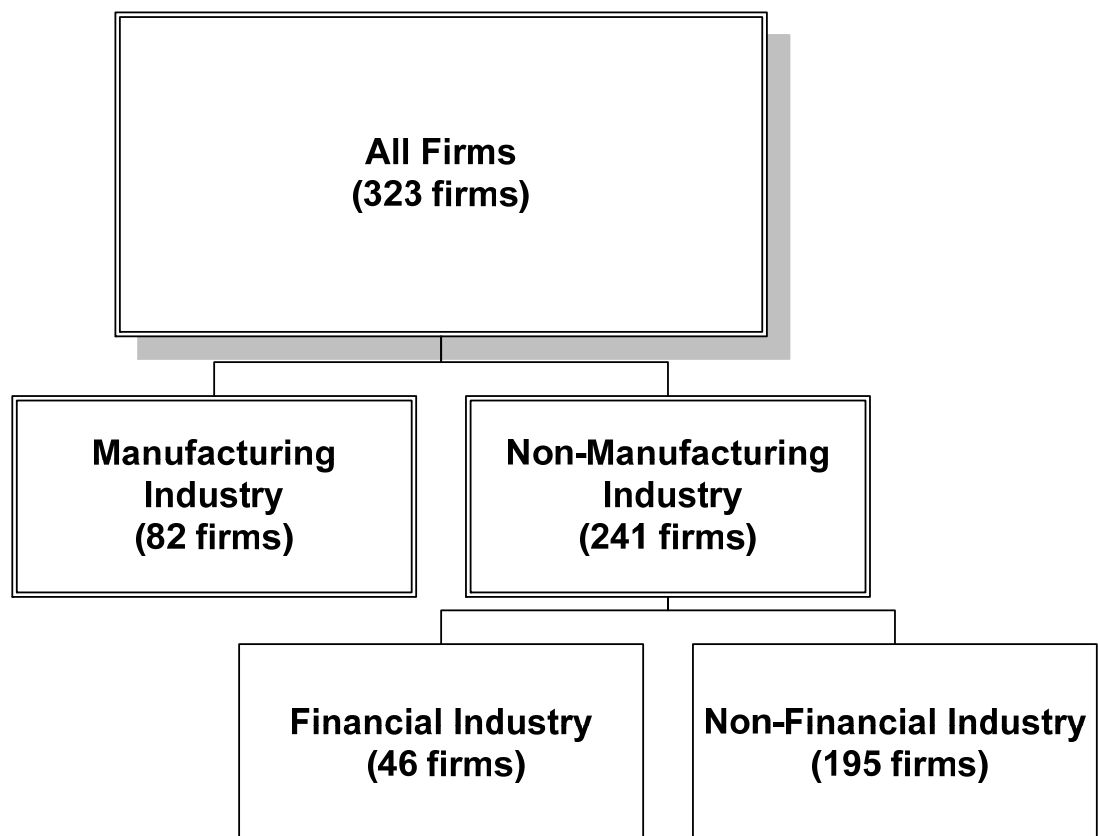
#### **3.2 Research Framework**

The literature on the relationship between CSR disclosure and financial performance (FP) has been examined in Chapter 2. Five dimensions of CSR disclosure, i.e. environment, energy, employee, community and products responsibility are considered. The aspects of financial performance to be measured are categorised in four indicators: return on assets (ROA), net profit margin (NPM), earnings per share (EPS) and Tobin's Q (TBQ). The research framework of this study in measuring the relationship between CSR disclosure and financial performance is illustrated in Figure 1. Figure 2 further illustrates the level of analysis to be carried out by aggregating data by industry such as: all firms, manufacturing and non-manufacturing industries, financial and non-financial industries.

**Figure 1: Research Framework for this Study**



**Figure 2: The Level of Analysis**





### 3.3 Sample Design and Data Selection

The sample in this study is drawn from a set of companies listed on the Stock Exchange of Thailand (SET). The balanced data for the three year period from 2009 to 2011 are used. The selection of the sample is restricted to those firms' whose annual reports are available on the SET website. Some of the annual reports have been gathered together from other sources, such as the Securities and Exchange Commission of Thailand (SEC), the SETSMART database and its firms' websites. The sample data covered the three-year period of the study, from 2009–2011. This particular period was chosen because Thai studies on CSR disclosure and financial performance using the post-global-financial crisis after 2008 are limited. A few studies have investigated the relationship between CSR disclosure and financial performance after the global recession (Abdul Rahman *et al.*, 2009; Suttipun and Stanton, 2012c; Janamrung and Issarawornrawanich, 2013; Wuncharoen, 2013). The results from those studies are not clear. The data set comprised 470 firms, covering 1,421 firm years initially. The final sample includes 323 firms, comprising 969 observations from different industries in the sample after the elimination firms with missing annual reports. Firms that are delisted during the sample period end, had a name change or undertook restructuring, as well property funds, are not included in the sample. A breakdown of firms included in this study is shown in Table 3.1. The firms listed on the SET are categorised into eight industries with twenty-seven subsectors (SET, 2011) listed in line with the Stock Exchange of Thailand classification. The distribution of sampled firms is based on their industry classification, such as (1) Agro and Food, (2) Consumer Products, (3) Financials, (4) Industrials, (5) Property and Construction, (6) Resources, (7) Services, and (8) Technology as shown in Table 3.1.<sup>1</sup>

It should, however, be mentioned that sample size used in previous studies in the Thai context are either small or partial. For example, Khemir and Baccouche (2010) used twenty-three nonfinancial listed firms over 4 year periods. Suttipun (2012) obtained the fifty largest firms listed on SET in the year 2010 and Sukcharoensin (2012) used fifty large companies from SET. The reliability of the results might be affected by the small sample size in these studies (Cochran and

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<sup>1</sup> The eight categories of industry used in this study are as classified by the Stock Exchange of Thailand (SET)

Wood, 1984; Klassen and McLaughlin, 1996; Cheung *et al.*, 2010; Ferreira, 2010; Petchareon and Janthimapornkij, 2010; Farook *et al.*, 2011; Qian *et al.*, 2011). In order to increase the reliability of this study, the sample included about 68.2 percent (323 firms and 969 firm years) of listed companies on SET over the three-year period from 2009-2011.

The process of this study involved a preliminary analysis of recent annual reports of firms with highest and lowest market capital for each industry to explore the occurrence and frequency of CSR practices.

**Table 3.1 Sample Description by Industry & Sector Groups**

Industry	Frequency	Percent	Sector	Frequency	Percent
Agro & Food	31	9.60	Agribusiness	11	3.41
			Food and Beverage	20	6.19
Consumer Products	24	7.43	Fashion	12	3.62
			Home & Office Products	8	2.48
			Personal Products & Pharmaceuticals	4	1.24
Financials	46	14.24	Banking	10	3.10
			Finance and Securities	21	6.50
			Insurance	15	4.64
Industrials	49	15.17	Automotive	10	3.10
			Industrial Materials & Machinery	3	0.93
			Packaging	7	2.17
			Paper & Printing Materials	1	0.31
			Petrochemicals & Chemicals	8	2.48
			Steel	20	6.19
Property & Construction	67	20.74	Construction Materials	13	4.02
			Property Development	54	16.72
Resources	22	6.81	Energy & Utilities	21	6.50
			Mining	1	0.31
Services	55	17.03	Commerce	10	3.10
			Health Care Services	7	2.17
			Media & Publishing	20	6.19
			Professional Services	2	0.62
			Tourism & Leisure	5	1.55
			Transportation & Logistics	11	3.41
Technology	29	8.98	Electronic Components	8	2.48
			Information & Communication Technology	21	6.50
Total	323	100.00		323	100.00

Sources: Stock Exchange of Thailand (2011)

Those firms making CSR disclosures are thoroughly analysed and examined. All sections of the annual report are carefully analysed to record the incidence of CSR disclosures (emphasis added later in this chapter). The data collected is compiled manually. There are some companies in the sample that provided both Thai and English version of annual reports. Some firms publish only Thai or English annual reports, but for the completeness and accessibility of data, this study is focused only on the Thai annual reports, because it is compulsory for all firms listed on the SET to submit their annual report using the Thai version to SET and the Securities and Exchange Commission (SEC) every year. This study did not consider any separate stand-alone reports by Thai listed companies.

All financial information data including financial ratios, financial statements, company profiles and market data were gathered from the SETSMART database of the Stock Exchange of Thailand (SET) from 2009 up to 2011.

### **3.4 Measurement of Corporate Social Responsibility Disclosure Index (CSRI)**

In general, there are several approaches to measuring the dimensions of CSR disclosure. The first approach is the reputation indices such as the Council of Economic Priorities (CEP) reputation index, the Milton Moskowitz reputation index and the Fortune reputation index. This approach to CSR measurement has been employed by a number of previous studies, including those of Cochran and Wood (1984), Pava and Krausz (1996), Griffin and Mahon (1997), Preston and O'Bannon (1997), Waddock and Graves (1997), and Stanwick and Stanwick (1998).

The second approach to measuring CSR is the company rating approach, such as Kinder, Lydenberg, and Domini index (KLD), Dow Jones Sustainability Indexes (DJSI), Global Reporting Initiative Index (GRI), and Domini Social Index (DSI) 400. Several studies have used the company rating approaches, including those by Orlitzky and Benjamin (2001), Orlitzky *et al.*, (2003), Moneva and Ortas (2008), Scholtens (2008), Nelling and Webb (2009), Peters and Mullen (2009), Byus *et al.*, (2010), Garcia-Castro *et al.*, (2010), Karagiorgos (2010), Oeyono *et al.*, (2011), and Inoue and Lee (2011).

The third approach to evaluating CSR is a survey methodology. In this approach, some workers performed a field study, using a questionnaire and other

survey techniques to gather CSR index (Aupperle *et al.*, 1985; Ngwakwe, 2009; Mishra and Suar, 2010; Tilakasiri, 2012). This approach suffers from the disadvantage that it is costly and time-consuming. The last approach to CSR measurement is content analysis of secondary data. Many researchers applied this approach to analyse the extent of CSR activities in firm publications, particularly in their annual reports. Content analysis has largely been used by Moore (2001), Van de Velde *et al.* (2005), Murray *et al.* (2006), Fiori *et al.* (2007), Jones *et al.* (2007), Mittal *et al.* (2008), Abdul Rahman *et al.* (2009), Kimbro and Melendy (2010), Bnoui (2011), Crisóstomo *et al.* (2011) and Ehsan and Kaleem (2012).

For each of these approaches to CSR measurement, there are advantages and disadvantages of measurement. Firstly, there are a number of weaknesses in using the reputation index method. For example, measurement of corporate social performance (CSP) using Kinder Lydenberg and Domini (KLD) rating is questioned by Mahoney and Thorn (2006). Cochran and Wood (1984) suggests that rankings are very subjective and the results may be varied, depending on the observers. This might lead to the inconsistency of the results. Another weakness of this method is that the reputation index method to date covers only a moderately small numbers of data. Hence the index may not be reliable because only a small number of firms were used to create each index. Further, Chatterji *et al.* (2009) argued that the validity of KLD's measurement of management systems is limited, and individual environmental sub-scores should not sum as dichotomous variables. KLD ratings could be developed when some significant weighting is added in the historical environmental performance. McGuire *et al.* (1988) and Griffin and Mahon (1997) also argued that the evaluators of the Fortune rating may be biased because CSR dimensions was not clearly defined. There is a lack of financial indicators of CSR as compared with other evaluations. This might affect the findings of the study.

Unerman (2000) has identified an important problems of using content analysis to measure CSR disclosure. This method only focuses on the numbers and words, disregarding graphics, various font sizes and photos of CSR activities disclosure. Milne and Adler (1999) note that the transparency of a reliability coding (classifying) technique is more important than measurement (counting) of CSR disclosures. No universal standards of content analysis can be implemented to assess the reliability of CSR disclosure. Guthrie and Abeysekera (2006), Guthrie *et al.* (2004), and Cochran and Wood (1984) have discussed the limitations of the content

analysis approach, suggesting that it focuses on the amount and number of CSR disclosures rather than qualitative attributes of CSR and it is also subjective. The content analysis fails to capture the quality of reporting in CSR. Wilmshurst (2000) pointed out that an interpretation using content analysis technique may be unreliable. The quality of CSR disclosure may not be assessed clearly by utilising only the number of words to evaluate the amount of CSR disclosure. This study has used content analysis to capture the extent of CSR disclosure of Thai listed firms as given in the following section.

### **3.4.1 Content Analysis**

Content analysis is a method of analysing the degree of CSR disclosure by a company. Content analysis of annual reports is a method of gathering data by codifying qualitative and quantitative information into various groups. It has been largely used in CSR literature to determine the characteristics and patterns of CSR disclosure (Gray *et al.*, 1995a; Krippendorff, 2004; Guthrie and Abeysekera, 2006; Guthrie and Farneti, 2008). There are several methods to code data quantitatively, such as counting the number of words (Zeghal and Ahmed, 1990; Deegan and Gordon, 1996; Wilmshurst and Frost, 2000; Haniffa and Cooke, 2002, 2005; Ratanajongkol *et al.*, 2006; Islam and Deegan, 2008; Rashid and Lodh, 2008; Islam and Deegan, 2010; Kimbro and Melendy, 2010), number of sentences (Hackston and Milne, 1996; Tsang, 1998; Milne and Adler, 1999; Deegan *et al.*, 2000; Ahmad and Sulaiman, 2004; Chatterjee and Mir, 2008; Murphy and Abeysekera, 2008; Aras *et al.*, 2010; Azim, 2010; Khemir and Baccouche, 2010; Saleh *et al.*, 2010; Vurro and Perrini, 2011), number of paragraphs and the proportions of a page (Gray *et al.*, 1995a; Adams *et al.*, 1998; Belal, 2000; Unerman, 2000; Tilt, 2001).

However, previous studies have identified that the reliability of content analysis appears to be inadequate (Milne and Adler, 1999) and the reliability and validity of content analysis need to be considered (Unerman, 2000). It is argued that the measurement techniques need to be discussed. The unit of analysis of CSR has been discussed in the previous research (Tilt, 1994; Gray *et al.*, 1995a). For example, one criticism of using proportions of pages is that there is a difference in font size, margin width, number and size of photos and graphics in annual reports. Also, companies' annual reports vary widely in quality and format (Hackston and Milne,

1996). Unerman (2000) argues that the problem of assessment using sentence measurement might be smaller than evaluating by number of words and proportions of pages. The validity of utilising the number of words to measure CSR disclosure is doubtful, because without examining sentences, word counts do not express the meaning of the context (Tilt, 1994; Milne and Adler, 1999). Because of these limitations of using page and page count, this study employed a content analysis using a CSR checklist to construct a CSR index, because this method can be used to examine the various aspects of CSR practices in Thailand. This method represents an alternative to capture the extent of CSR practices.

The CSR index for this study has been gathered in various stages. The first stage in content analysis is to construct a CSR checklist. This step involved the selection of a CSR disclosure dimension theme. A schema for categorization is determined based on earlier studies by Gray *et al*, (1995a), Hackston and Milne (1996), Kuasirikun and Sherer (2004), Hossain *et al*, (2006), Aras *et al*, (2010) and Islam and Deegan (2010). Material from these studies is adapted to sort information into three groups: location, theme and form of CSR reporting. The chairperson's report section, operation review section, corporate governance section, CSR section and other sections of annual report are all examined. The theme of disclosure is based on environment, energy, employee information, community involvement, and product responsibility. The form of disclosure comprises narrative and/or photographs, and narrative with monetary data.

The second stage of the study involved constructing a CSR disclosure checklist<sup>2</sup>. Such a CSR checklist is designed to obtain a full picture of CSR disclosure dimensions within the following categories: environmental information, energy, employee information, community involvement, and product aspects developed by Hackston and Milne (1996), Haniffa and Cooke (2002, 2005), Hossain *et al*, (2006), Islam (2009), Peters and Mullen (2009), Azim (2010) and Saleh *et al*, (2010). This CSR checklist was pre-tested using the annual reports of sixty firms across eight industries. After pre-testing the CSR checklist, a total of forty-five CSR items remained in the checklist with eleven environmental information items, six energy information items, sixteen employee information items, seven community

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<sup>2</sup> A table is provided in Appendix A about the CSR checklist for the contents analysis. The CSR checklist is translated from the Thai language.

involvement items, and five product responsibility items. These categories of CSR disclosure were selected because they were considered to be essential for comprehensive social responsibility disclosure. Even though it has been reported that CSR disclosures related to energy information are generally at very low levels, it is essential to include such disclosures when constructing a CSR index for Thailand. This is because during the pre-test data stage, a number of Thai companies provided energy information in their annual reports. The criterion for selecting pre-test data was gathered from the annual reports of firms with highest and lowest market capitalisation values in each sector in 2009. The pre-test data is selected on the basis that the biggest market capitalisation firms might disclose CSR more than the lowest market capitalisation firms in different industries, and the disclosure items might cover CSR practices of small firms as well. In analysing the degree of CSR disclosure by Thai listed companies, annual reports (Thai version) represent the key primary data. Final CSR checklist items are utilised to analyse the degree of CSR disclosure in a firm's annual report (Thai version). In order to increase the validity and scope of CSR disclosure items and dimensions, annual reports are firstly analysed by reading all sections. A search tool is then applied to check validity and completeness of those CSR disclosure items by using some keywords e.g., employee benefits, environment, water discharge, donation, health and safety, energy saving etc.

The next stage is calculating the CSR index. Several techniques have been employed to develop CSR index in previous studies. In this study, the unweighted disclosure index approach (Haniffa and Cooke, 2002, 2005; Saleh *et al.*, 2010; Rouf, 2011) is employed to measure the degree of CSR disclosure as a dichotomous variable. If a company disclosed CSR items in its annual report it will be scored "1", while companies that did not disclose an item will be scored "0" (Gujarati, 2009). Total scores values for CSR disclosure are aggregated from all sub-scores of CSR, including eleven environmental dimensions, six energy dimensions, sixteen employee dimensions, seven community involvement dimensions, and five product responsibility dimensions. The disclosure model scoring is additive, and unweight indexes are calculated as follows to sum the final CSR index (CSRI).

$$CSRI_j = \frac{\sum_{i=1}^n x_{ij}}{n_j}$$

Where,

$CSRI_j$  = Corporate social responsibility index of  $j^{th}$  firm,

$n_j$  = Total number of CSR items for  $j^{th}$  firm,  $n = 45$ ,

$x_{ij}$  = 1 if  $i^{th}$  item is disclosed,  
0 if  $i^{th}$  item is not disclosed

So that  $0 \leq CSRI_j \leq 1$

### 3.5 Measurement of a Firm's Financial Performance

Previous studies have broadly utilised both (1) accounting-based measures (e.g., return on assets (ROA), net profit margin (NPM)) and (2) market-based measures (such as Tobin' Q) (Cochran and Wood, 1984; Griffin and Mahon, 1997) as a tool for measuring the financial performance of a firm. A good deal of financial literature, such as that of McGuire *et al*, (1988) claims that accounting-based measures are more effective in predicting CSR than market performance measures. On the other hand, Karagiorgos (2010) notes that market-based measures show a positive and significant association with CSR. However, Eljido-Ten (2004) argues that there is no significant link between the degree of CSR disclosure and both market-based and accounting-based measures. In addition, Griffin and Mahon (1997) observe that various financial performance measures used in previous studies were not verified for assessed validity and reliability. They suggest that new studies should employ a few vital financial performances indicators in order to increase the internal validity and reliability of the measurement. Saleh *et al*, (2011), also found that the links between a variety of financial performance measures and CSR were unpredictable. Further, Scholtens (2008) has pointed out that both accounting-based and market-based measures may be open to prejudice in determining financial performance in various areas. That is, accounting-based measures focus on historical performance of firms, which have different accounting standards and styles of management. Market-based measures focus on accounting policy and management, but are related to the assessment of shareholders and their expectations concerning financial performance. In contrast, Muth and Donaldson (1998) suggested that several profitability measures have been adopted in previous studies because using only financial measure involves some constraints. Jensen (2001) argues that a single and insufficient financial measure, especially profitability measurement, has failed to



determine performance of firms. Reverte (2009) notes that both accounting-based and market-based measures were adopted to evaluate firms' financial performance from the shareholders' perspective, but other stakeholder groups were not taken into account. Hoskisson *et al.*, (1993), suggest that future studies should employ both accounting-based and market-based performance measures in order to exactly demonstrate the linkage between performance and diversification.

Following Hoskisson *et al.*, (1993) and Reverte (2009), this study adopts three accounting-based measures and one market-based measure to investigate the relationship with the degree of CSR disclosure. These four ratios are Return on Assets (ROA), Net Profit Margin (NPM), Earning per Share (EPS) and Tobin's Q (Waddock and Graves, 1997; McWilliams and Siegel, 2000; Hossain *et al.*, 2006; Peters and Mullen, 2009; Choi *et al.*, 2010; Khemir and Baccouche, 2010). These four aspect of financial performances are chosen because these are the most practical measures to examine the relationship between CSR disclosure and financial performance in the previous studies. These indicators cover the issue of profitability, financial structure, liquidity and shareholder ratios, which will be used in the current study to explain a firm's financial performance. These four measures will be described in the following sections.

### **3.5.1 Return on Assets (ROA)**

Return on Assets (ROA) is a fundamental profitability measurement that is used to measure the efficiency of firms' assets or to evaluate firms' ability to generate a profit in relation to firms' assets. Aupperle *et al.*, (1985) argue that this profitability measure (ROA) has been widely used and it appears to generate more effective results than other instruments. Various studies have employed ROA as a financial performance measurement in order to discover the link between ROA and CSR disclosure. (Aupperle *et al.*, 1985; Stanwick and Stanwick, 1998; McWilliams and Siegel, 2000; Peters and Mullen, 2009; Salam, 2009; Crisóstomo *et al.*, 2011; Soana, 2011b; Ehsan and Kaleem, 2012). The relationship between CSR and ROA has been found to be positive by McGuire *et al.*, (1988), Pava and Krausz (1996), Griffin and Mahon (1997), Preston and O'Bannon (1997), Waddock and Graves (1997), Simpson and Kohers (2002), Van de Velde *et al.*, (2005), Mahoney *et al.*, (2008), Peters and Mullen (2009), Moneva and Ortas (2010), and Oeyono *et al.*,

(2011). However, Aupperle *et al.*, (1985), McWilliams and Siegel (2000), Abdul Rahman *et al.*, (2009), and Dragomir (2010) found no relationship between CSR and ROA.

There are several explanations why the link between CSR and financial performance is stable. Aras *et al.*, (2010), found that there is no linkage between CSR and financial performance (ROA). They suggest that firms' financial performance and economic performance may not be strongly associated with CSR, especially in emerging countries. Dragomir (2010) notes that the relationship between CSR and financial performance for one year may be very weak, compared with longer time periods, such as five or ten year periods. It is therefore important that relations between ROA and CSR be studied in Thai context as this relationship is not very well-studied in the context of Thai firms.

In this study, therefore, ROA will be considered as a profitability measurement. ROA can be calculated as Earnings (loss) before Interest and Tax (EBIT) scaled by an average total assets (for industrial and services industries) and Earnings (loss) before tax (EBT) scaled by an average total assets (for other industries) (SET, 2012).

### **3.5.2 Net Profit Margin (NPM)**

Net profit margin (NPM) is another important financial indicator that is used to describe firm profitability. Overall efficiency of a business can be measured by NPM. There are many studies which have examined the association between NPM and the extent of CSR disclosure (Griffin and Mahon, 1997; Hossain *et al.*, 2006; Aras *et al.*, 2010; Byus *et al.*, 2010; Kimbro and Melendy, 2010; Moneva and Ortas, 2010). Hossain *et al.*, (2006) and Pahuja (2009) have documented that NPM's of industrialised firms have a significant positive relationship with the degree of CSR disclosure, particularly in developing countries. Kimbro and Melendy (2010) revealed that the financial performance (NPM) of firms which voluntarily provided environmental disclosures (VED) were larger than firms that did not disclose environmental information in their annual reports. Furthermore, Griffin and Mahon (1997) argue that NPM has a positive relationship with CSR by KLD index or Fortune survey. On the other hand, Aras *et al.*, (2010) have pointed out that a connection between NPM and CSR has not been found. As in the case of Thailand

the relation between CSR and NPM has not yet been studied in previous research, it is therefore a quest to study the relation between CSR and NPM using Thai context. NPM can be defined as the ratio between net profits to total revenues.

### **3.5.3 Earnings per Share (EPS)**

Earnings per share (EPS) represent the firm's earnings distributed on each outstanding share of common stock. Earnings per share are a measure to evaluate the profitability of the company. Several studies have employed an EPS to investigate the relationship with CSR disclosure and other variables (Pava and Krausz, 1996; Moore, 2001; Dragomir, 2010; Oeyono *et al.*, 2011; Ehsan and Kaleem, 2012). Kwanbo (2011) suggests that the relationship between social disclosure and earnings per share of public firms in Nigeria is not significant. That is, CSR disclosure is not an important issue for companies to maximize their profits. On the other hand, Ehsan and Kaleem (2012) have provided evidence that the correlation between CSR and EPS (includes ROA and ROE) is positive and significant. The study of Oeyono *et al.*, (2011) suggests that there is a positive correlation between EPS and CSR but the relationship is very weak, i.e. companies that conducted CSR in their business will obtain the higher EPS (also EBITDA). In view of the discrepancy in previous studies, this study measures the relation between CSR and EPS of Thai firms. EPS can be defined as Earnings after tax and dividend scaled by total number of outstanding shares at the end of each year of study.

### **3.5.4 Tobin's Q (TBQ)**

The last measure of performance in this study is the market-based approach, Tobin's Q (TBQ), which is used to proxy for market value of firms' assets. If the value of TBQ is between '0' and '1', it indicates that the reproduction cost of firm's assets is higher than the price of equity. In contrast, if the TBQ value is greater than '1' it implies that the value of stock is greater than the replacement cost of firm's assets. Hoskisson *et al.*, (1993), provide the reason for choosing Tobin's Q, in that the relationship between accounting and market-based performance is varied and there is an indirect association between accounting and market-based performance. However, Dybvig and Warachka (2011) argue that Tobin's Q might increase or decrease with

financial performance which is subject to level decisions and cost control. That is, a lower Tobin's Q is related with better financial performance, but a better financial performance is not represented by a high Tobin's Q. The empirical results on the association between CSR and Tobin's Q seem to be uncertain. Some studies have shown a positive and significant relationship between CSR and Tobin's Q (e.g. Fombrun and Shanley, 1990; Brown and Perry, 1994; Dowell *et al.*, 2000; King and Lenox, 2001; Cheung *et al.*, 2010; Saleh *et al.*, 2011). Konar and Cohen (2001) suggest that the association between Tobin's Q and R&D expenditure, market share, advertising expenditures and firm growth rates has been found to be positive and significant, while the linkage with tangible assets of the firm have been shown to be negatively impacted with Tobin's Q. On the contrary, Garcia-Castro *et al.* (2010) provided further evidence to the effect that the negative relationship between Tobin's Q and CSR, based on the fixed-effect model exists. The findings of Inoue and Lee (2011) suggest that the relationship between CSR and Tobin's Q in four industries (Airline, Casino, Hotel and Restaurant) is still mixed. For example, Tobin's Q has been found to have positive associations with employee and product dimensions for airline industry, with the community, diversity and product dimension for the hotel industry and with community dimension for the restaurant industry. Similarly, Schreck (2011) suggests that Tobin's Q has been shown to have a negative association with product and customer responsibility of the CSR dimension.

In the view of differences in previous studies, it is useful to investigate the relation between Tobin's Q and CSR for Thai firms. Tobin's Q is defined for the purpose of this study as the ratio between the total market value of a firm<sup>3</sup> and the total asset value of the firm (Cheung *et al.*, 2010; Dragomir, 2010; Saleh *et al.*, 2011; Zhang and Gu, 2012; Ghelli, 2013; Li *et al.*, 2013).

### **3.6 Measurement of Control Variables**

It has been suggested in several studies (Ullmann, 1985; Griffin and Mahon, 1997; Waddock and Graves, 1997; McWilliams and Siegel, 2000; Clarkson *et al.*, 2011) that the association between firm's financial performance and corporate social responsibility disclosure is influenced by some factors such as firm size, industry

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<sup>3</sup> Market value of the firm is considered as the total market capitalisation calculated based on the year end close price of the selected company's share price.

type and age of firm. Previous studies have shown a relationship between firm size, industry type and age of firm with CSR disclosure. (Waddock and Graves, 1997; Murray *et al.*, 2006; Jones *et al.*, 2007; Prado-Lorenzo *et al.*, 2008; Peters and Mullen, 2009; Kimbro and Melendy, 2010; Bnoui, 2011; Crisóstomo *et al.*, 2011; Inoue and Lee, 2011; Michelin, 2011). Recently, Boesso and Kumar (2007) have suggested that CSR disclosure is related with size of the firm. This is because a large company is expected by the stakeholders' groups to perform more social activities than small firms do. Dowell *et al.* (2000), argue that firm size appears to relate with environmental standard. Large firms are highly concerned about their social image because the products of some large firms may create a bad image in the eyes of community if they emit polluting gases, etc., which may be harmful to the community. Jones *et al.* (2007), suggest that industry group and other control variables (e.g. firm size, stock return) are not the main variables in the link between CSR and financial performance. Chen and Wang (2011) argue that the nature of enterprise and industry have no impact on the variables affected the regression models.

This study introduces those variables as control variables, which may have an influence on the relationship between CSR and firm's financial performance. This study therefore will use: (1) firm size, (2) industry type, (3) age of firm, (4) leverage of firm and (5) a percentage of independent directors on board as control variables. These variables are discussed next.

### 3.6.1 Firm Size (SIZE)

Firm size is one of the most essential firm attributes that might influence firm activities. In previous studies, **Firm size (SIZE)** has been found to have significant relation with CSR disclosure and financial performance (Ullmann, 1985; Patten, 1991; Gray, 1995; Meek *et al.*, 1995; Deegan and Rankin, 1996; Hackston and Milne, 1996; Cormier and Magnan, 2003; Al-Tuwaijri *et al.*, 2004; Freedman, 2005; Jennifer Ho and Taylor, 2007; Brammer and Pavelin, 2008; Abdul Rahman *et al.*, 2009; da Silva Monteiro and Aibar-Guzmán, 2010; Sutantoputra *et al.*, 2012). Waddock and Graves (1997) and Nelling and Webb (2009) suggest that larger firms may have greater resources than smaller firms to undertake more social and environmental activities. Further, Cormier and Gordon (2001) and Orlitzky (2001)

note that the positive relationship between firms' size and CSR activities have been found because larger firms have greater funds, power and ability to perform CSR than smaller firms. Simultaneously, financial performance is found to be positively related with firm's size because larger firm size might have advantages in the production line and they could manage their resources better than small firms. Liston-Heyes and Ceton, (2009) suggest that an effective corporate strategy appears to be influenced by firm size, because activities of large firms are observed by public and nearby communities. Firm reputation is a concern for large firm. Brammer and Pavelin (2006) argue that a higher quality of CSR disclosure has been considered by large firms when they generate a CSR report in various mediums. However, Stanwick and Stanwick (1998) suggest that there is a limitation on the extent to which firm size may influence CSR. Other factors may affect the link between CSR and financial performance in addition to firm size. Their findings did not support the findings of previous studies that larger firms appear to disclose more CSR information in order to achieve better financial performance. Furthermore, Van der Laan *et al*, (2008) argue that the relation between CSR and firm size may be biased because the rating of particular firms might be higher than other firms when firms present additional CSR information. CSR disclosure has a positive relation to firm size, if those firms reveal positive together with negative CSR information. The larger firms are likely to disclose CSR more than smaller firms. Moore (2001) has pointed out that a significant positive relationship between CSR and firm size was found. Their reputation of large firms may suffer due to a high expectation of stakeholders from large firms on CSR activities and therefore large firms will perform appropriately on CSR disclosure.

In contrast, Chen and Wang (2011) argue that the association between CSR and firm size in the term of total sales and total assets have not been found in their models. Similarly, Roberts (1992) Mishra and Suar (2010) also note that financial performance is not influenced by firm size. Since firm size can influence the relation between CSR disclosure and financial performance, firm size was used as a control variable in current study. Firm size can be measured by several attributes. For example, the number of employees, total revenues, sales volumes, or total asset values etc. In this study, to be consistent with Clarkson *et al* (2008; 2011) the logarithm of total assets (LogTA) is used for firm size.

### 3.6.2 Industry Type (INDUS)

In prior studies, **Industry type** has been found to be an important variable in explaining diversity in the degree of CSR disclosure (for example, Cochran and Wood, 1984; Patten, 1991; Cooke, 1992; Wallace and Naser, 1995; Ali Fekrat, 1996; Deegan and Gordon, 1996; Waddock and Graves, 1997; Brammer and Pavelin, 2006; Mittal *et al.*, 2008; Kimbro and Melendy, 2010). As suggested by Dierkes and Preston (1977) and Deegan and Gordon (1996), some industries may have a strong effect on the relationship between CSR disclosure and financial performance. For example the mining, oil and gas industries are more likely to disclose information about the social and environmental impact than other industries. It is possible that firms in different industries will report CSR at various levels depending on their industry background. Hackston and Milne (1996) mention that the level of CSR disclosure is significantly related to industry type. That is, the high-profile industrial companies in New Zealand tend to report higher CSR than low-profile industrial companies. Cooke (1992) notes that Japanese manufacturing firms are likely to report more voluntary CSR activities than non-manufacturing firms. Watson *et al.*, (2002) suggest that not only firms in non-manufacturing industries, but also firms in the media and utilities industry (manufacturing sector) are likely to report more disclosure as compared to companies in other industries. This finding emphasizes that the impact of industry should be controlled to validate for better results. Further, Wallace and Naser (1995) explain that the reason for the difference of CSR disclosure in some industries was that specific firms have to avoid being penalised from not disclosing some relevant issues of their industry. Their report may show some particular issues which other firms were not required to disclose. Haniffa and Cooke (2005) argue that CSR disclosure of labour intensive industries (manufacturing industry) are likely to disclose more information than other companies and more environmental information is disclosed by chemical industries to reflect the sensitive nature of their activities.

Furthermore, Cowen *et al.*, (1987) argue that the community involvement and energy dimensions of CSR disclosure are likely to be influenced by industry type (and firm size) while products and human resources dimensions have no relation with industry type. On the contrary, Owusu-Ansah (1998) suggests that the relationship between the pattern of CSR disclosure and industry characteristics has

not been found, and give several reasons why disclosure practices of firms is diversified that are dissimilar in the nature of work involved, type of product line or diversity of product and regulation of industries. Roberts (1992) differentiates between high and low profile industry by using some industry characteristics such as regulatory risk, consumer visibility and concentration of competition for this classification. It is likely that high profile industries may disclose CSR more than low profile industry. Hossain *et al*, (2006), provide further evidence in that CSR disclosures were correlated with the nature of firms. Their results suggest that firms in manufacturing industries appear to report more CSR information. In the case of Thailand, Suttipun and Stanton (2012c) investigated the determinants of environmental disclosure in annual reports. Their results cannot identify the relationship between environmental disclosure and type of industry.

This study, therefore, included **industry type** (INDUS) as a control variable, as adopted from Patten (1991), Roberts (1992), Hackston and Milne (1996), Hossain *et al*, (2006) and Bayoud *et al*, (2012). The industry variable in this study is defined as manufacturing (Resources, Industrial, Transportation and Logistics industry) and non-manufacturing industries (Financials, Property & construction, Technology, Services, Agro & Food, and Consumer products industry). If a company belongs to manufacturing industries, the variable is set to “1” and a company does not belong to manufacturing industries, the variable is set to “0”.

### 3.6.3 Age of Firm (AGE)

**Age of a company** is one of the factors that may affect the amount of corporate social responsibility disclosure. The relation between CSR and financial performance could be influenced by firm age (Schreck, 2011). Firm age has been employed in prior studies to investigate the relationship between CSR disclosure and financial performance (see, for example, Roberts, 1992; Moore, 2001; Elijido-Ten, 2007; Rashid and Lodh, 2008; Rettab *et al*, 2009; Bnoui, 2011; Shubiri *et al*, 2012). Pelozo (2006) suggests that younger firms do not have much focus on CSR activities. Rather, their focus is to maintain financial performance. After doing well in financial performance, firms may invest in protecting their reputation by doing more in CSR activities. Age of firm appears to be a characteristic of firms in reporting social disclosures. Haniffa and Cooke (2002) provide further evidence, in



that more CSR information is disclosed by newly listed firms because more CSR data may decrease uncertainty and enhance investors confidence. They also reveal that there is a positive relationship between CSR disclosure and age of the company. In addition, Owusu-Ansah (1998) argues that there is a positive and significant relationship between mandatory disclosures and company age of listed firms in Zimbabwe. This positive association can be explained by the learning curve principle that newly listed firms have to spend a longer time to trade or to remain a public firm. When companies become public companies, the degree of CSR disclosure may increase over time. Roberts (1992) mentions that the positive relationship between firm age and CSR disclosure has been found. Stakeholder expectations regarding sponsorship and involvement could make change in corporate strategy and considered to be very costly. For example, Roberts (1992) argued that “Sponsorship withdrawal could signal to stakeholders that the corporation expects financial or managerial disturbances” (p.605).

On the other hand, Hossain and Reaz (2007) argue that age of firm (and other variable such as board composition, multiple exchange listing and complexity of business) were not found to be significant enough to explain the degree of voluntary disclosure of Indian banking firms. This result indicates that the degree of CSR disclosure is not influenced by the number of years for which firms were established. In case of Thailand, Suttipun (2012) studies the relationship between financial performance and environmental information disclosure score. Age of firm is found to be a significant factor affecting CSR in their study. Shubiri *et al*, (2012) investigate the determinants of financial and non-financial factors of CSR in Jordan. Their results show that firm age was found to have a significant effect on CSR disclosure. However, Ehsan and Kaleem (2012) argue that age of firm in case of one hundred non-financial firms in Pakistan was not found to be considerably related to CSR disclosure. Menassa (2010) and Sukcharoensin (2012) find that there is no relationship between CSR disclosure and firm age.

In view of the fact that firm age can affect the relationship between CSR disclosure and financial performance, this study has included age of firms as a control variable (Yamneesri, 2003; Rashid and Lodh, 2008; Rashid *et al*, 2010). Age of firm (**AGE**) is measured by number of years since the firm was listed on the Stock Exchange of Thailand (SET).

### **3.6.4 Debt/Equity Ratio (LEV)**

Debt/Equity ratio (LEV) is an instrument for measuring the financial leverage of a firm. According to Brammer and Pavelin (2006), the pressure from creditor stakeholders might decrease when firms have a low level of leverage. The funds of firms with low levels of leverage could be raised easily, and they can use their funds to support CSR activities and disclosures. In contrast, firms with higher debt/equity ratios can have unstable incomes due to the extra interest expense. Jensen and Meckling (1976) claim that firms with higher debt to equity may encounter higher bankruptcy risk and these firms tried to expand the disclosure of CSR activities in order to decrease agency costs. Some studies have been carried out to evaluate the relation between CSR and the proportion of debt to shareholders equity, but the results are mixed (McGuire *et al.*, 1988; Belkaoui, 1989; Aerts *et al.*, 2006; Dragomir, 2010). Belkaoui (1989) notes that a negative and significant relationship between leverage and social disclosure was found because the managers of the high leverage firms are likely to report profits by using accounting practice that postpone earnings from the current period to a future period. As suggested by Nelling and Webb (2009), the negative and significant linkage between CSR and leverage reveal that a low level of CSR disclosure was reported by firms with higher debt to equity levels. The negative relationship was consistent with the findings of Ho (2011) and Clacher and Hagendorff (2012) who suggest that firms with higher debt to equity ratio could not spend a lot of budget on CSR activities, while Clarkson *et al.* (2008) argue that there is a need to report a high level of CSR. Echave and Bhati (2010) reveal that there is a neutral association between economic indicators, especially firm leverage (also profitability, export sales and firm size) and the level of CSR disclosure. Also Roberts (1992) and Eljido-Ten (2004) have repeated similar results.

Debt to equity ratio is included as a control variable in the current study. Debt/equity ratio is a measure of firm's financial strength, which is calculated as total interest bearing debts divided by total shareholders' equity.

### **3.6.5 Independent Director (IDIRECTOR)**

Most of the study on the relationship between corporate governance and financial performance focuses on the effect of corporate governance on CSR. An

independent director is a part of corporate governance. Therefore this study aims to investigate the effect of the quality of corporate governance on CSR. Luan and Tang (2007) suggest that independent director inclusion in the board of Taiwanese firms had a positive and significant effects on firm's performance. In view of the relationship between CSR disclosure and corporate governance, Cheng *et al*, (2006) note that a higher number of independent directors were found to be positively and significantly associated with CSR. Arshad *et al*, (2010) and Khan *et al*, (2013) find that independent directors affect the level of voluntary disclosures. Wang *et al*, (2012) argue that the high ratio of independent director tend to encourage managers to report more voluntary information. However, Yasser and Mamun (2012) argue that there is no significant relationship between outside independent directors and financial performance measured using Tobin Q, ROA and EVA. Zhang (2013) also points out that the independent director ratio was not found to be significant in relation to CSR disclosure. The independent director in this study is measured as the percentage of independent directors on the board of company in relation to total number directors.

The summary of description of variables and the method of measurement used in this study is illustrated in Table 3.2

**Table 3.2 The Summary of Description and Measurement of Variables**

Variables	Description
<b>Corporate Social Responsibility Disclosure Variable</b>	
CSRI <sub>jt</sub>	= A variable of corporate social responsibility disclosure index of <i>j</i> firm in period <i>t</i> . It is defined as number of CSR items which firm disclosed divided by total CSR disclosure items (45 items).
<b>Financial Performance Measures Variable</b>	
ROA <sub>jt</sub>	= A variable of return on assets of firm <i>j</i> in period <i>t</i> . It is defined an average total assets (for industrial and services industries) and Earnings (loss) before tax (EBT) scaled by average total assets (for other industries).
NPM <sub>jt</sub>	= A variable of net profit margin of firm <i>j</i> in period <i>t</i> . It is defined as earnings before interest and tax (EBIT) divided by total revenues.
EPS <sub>jt</sub>	= A variable of earning per share of firm <i>j</i> in period <i>t</i> . It is defined as earnings after tax and dividend scaled by total number of outstanding shares.
TBQ <sub>jt</sub>	= A variable of market value of firms' assets of firm <i>j</i> in period <i>t</i> . It is defined as total market value of firm divided by the total asset value.
<b>Control Variables</b>	
SIZE <sub>jt</sub>	= A variable of firm size of firm <i>j</i> in period <i>t</i> . It is defined as the logarithm of total assets.
INDUS <sub>jt</sub>	= A variable of industry of firm <i>j</i> in period <i>t</i> . It is set to be one for the firms that belong to manufacturing industries, and zero for those firms that do not belong to manufacturing industries.
AGE <sub>jt</sub>	= A variable of firm age of firm <i>j</i> in period <i>t</i> . It is defined as number of years since firms was listed on Stock Exchange of Thailand.
LEV <sub>jt</sub>	= A variable of debt to equity ratio of firm <i>j</i> in period <i>t</i> . It is defined as total interest bearing debts divided by total shareholders' equity.
IDIRECTOR <sub>jt</sub>	= A variable of the independent director ratio of firm <i>j</i> in period <i>t</i> . It is defined as the number of independent director divided by total number of directors on the board of firm.
ε <sub>jt</sub>	= A random error of firm <i>j</i> in period <i>t</i> .

### 3.7 Methodology

To date the employed methods that have been developed and introduced to examine the relationship between CSR disclosure and financial performance include especially OLS regression. It can be argued that OLS regression in most prior studies fails to determine the suitability of the model in dealing with the dataset. This study focuses on four groups of regression models to analyse the relationship between CSR disclosure and financial performance in the Thai context. These are a cross-sectional model, the pooled ordinary least squares model and panel data (random effects and fixed effects model). A panel data model is data set in which the behaviour of entities or individual or units is observed across time (Baum, 2006). Gujarati (2009) lists some advantages of panel data that it can detect and measure effects that just cannot

be observed in pure cross-section OLS. Panel data provides data that are more informative, have more variability, have more degrees of freedom, are more efficient and have less collinearity among variables as compared to cross-section.

### **3.7.1 Regression Models for Analysis**

This study attempts to compare three different regression models in terms of the relationship between CSR disclosure and financial performance. In all, four regression models are used in this study. They are as follows:

- (1) A cross-sectional regression model used to determine the relationship between explanatory and explained variables at one point in time. This model will be used to analyse CSR-FP link with each yearly period i.e. for 2009, 2010 and 2011 respectively.
- (2) As well, a pooled ordinary least squares model (Pooled OLS) or constant coefficients model. The pooled OLS model considers constant coefficients with the usual assumption for cross-section data (Cameron and Trivedi, 2008) and controls for year. This method assumes that regressors are not correlated with the error or the intercept and slope are equal for all data.
- (3) In addition, the random effects model (RE) is used. This model assumes that the unobservable individual effects are random variables and uncorrelated with the independent or predictor variables in the model. Furthermore, the fixed effects model (FE) is used. This model is to explore the association between predictor and outcome variables within an entity (company). This model assumes that unobservable individual effects are potentially correlated or impacted with the observed (outcome) regressors. The effect of time-invariant characteristics will be removed by using the fixed effects model. The fixed effect models assumes that those time-invariant characteristics are unique to the individual and should not be correlated with other individuals characteristics (Torres-Reyna, 2013).

To better understand the relationship between CSR disclosure and financial performance in the Thai context, this study adopted the above regression models to investigate the relationship between CSR disclosure and financial performance, as well as other firm characteristics, such as firm size, type of industry, firm leverage,

age of firm and the percentage of independent directors. The dependent variable in this study is financial performance, including accounting-based measures and market-based measures, such as return on assets, net profit margin, earnings per share, and Tobin's Q. The independent variables are CSR disclosure index and the control variables. Similarly, this study also examines the relationship between CSR disclosure and financial performance by defining CSR as a dependent variable and financial performance as an independent variable.

### **3.7.2 Specification Tests**

The following tests have been adopted to determine the appropriate model among pooled OLS, random effects and fixed effects models.

#### ***3.7.2.1 Examining Random Effects; the Breusch and Pagan Lagrange Multiplier Test, Pooled OLS or Random Effects***

The Breusch-Pagan LM test is used to specify the appropriate model between pooled OLS and random effects. The null hypothesis is that the variance across entities was zero or no random effects exist in the model ( $H_0: \sigma_{it}^2 = 0$ ) (Gujarati, 2009). That is, no significant difference across entities or no panel effect. A chi-square distribution value with 1 degree of freedom will be determined, if the null hypothesis is rejected, then random effects is appropriate over the pooled OLS model. If null hypothesis is accepted, the pooled OLS model is more suitable than other models.

#### ***3.7.2.2 The Hausman Test: Random Effects or Fixed Effects***

The Hausman test is used to determine whether fixed effects or random effects are appropriate. The null hypothesis is that the individual effects are not correlated with other regressors in the model. If the test showed an insignificant p-value, the null hypothesis is accepted. The random effects produce unbiased estimators, indicating that random effects are appropriate. If the tests indicated a significant p-value, the null hypothesis is rejected, then the fixed effects model is considered to be more suitable.

### 3.7.3 Robustness Test

The existing literature suggests that there is a need for a robustness test. The robustness of the relationship between CSR disclosure and financial performance is examined using two stage least square. Baum (2006) argue that an endogeneity may be the potential problem in the study. That is, explanatory variables or endogenous regressors are correlated with the regression error term. OLS regression can produce biased and inconsistent parameter estimates and hypotheses tests can be seriously misleading. In order to control any remaining endogeneity problems in the relationship between CSR disclosure and financial performance, as suggested by Al-Tuwaijri *et al*, (2004) and by Garcia-Castro *et al*, (2010), two stage least squares (2SLS or TSLS) is applied in this study to investigate the relationship between CSR disclosure and financial performance. The principle of instrumental variables (IV) is that IV is able to determine a set of CSR variables that influence financial performance (FP). IV is correlated with the regressors (x) but those variables are not a direct cause of the financial performance (FP) and uncorrelated with the error term. Baum (2006) suggests that the advantage of the instrumental variables is that the estimated coefficients appear to be consistent.

This study estimates the following regression model of CSR of a firm  $i$  in time  $t$ :

$$CSRI_{it} = \beta + \beta_1 Z_{it} + \varepsilon_{it}$$

Where  $Z_{it}$  is a firm characteristic that influences  $CSRI_{it}$  but is not correlated with financial performance ( $FP_{it}$ ) and  $\varepsilon_{it}$  is an error term.  $Z_{it}$  is called an instrumental variable in that is used to estimate the indirect relationship of CSR with firm financial performance.

Garcia-Castro *et al*, (2010) and Baum (2006) suggest that it may be difficult to find genuinely exogenous variables that are strongly correlated with the potentially endogenous regressors which can produce valid instruments. They employed some instruments that are industries, executive compensation, ownership strength, transparency and firm's visibility. The test of instrument validity revealed that the instruments are valid. However, some variables, e.g. firm size, age of firm and leverage in this study that have an effect on endogenous variables, also have a direct effect on financial performance. These cannot be used as instrumental variables in this study. In so doing, this study attempts to use one year lagged CSRI variable

( $CSRI_{it-1}$ ) as an instrumental variable. A lagged independent variable may also indirectly provide some test for causality.

### **3.8 Development of Hypotheses**

The hypotheses of this study are based on the premise that CSR activities directly impact financial performance in Thailand. Extant empirical studies have shown the relationship between CSR disclosure and financial performance across continents, countries, companies, industries and time as well as other firm characteristics, such as firm size, age of firm, etc. Previous studies have examined the relation between CSR disclosure and financial performance on CSR as a dependent variable to examine financial performance having a direct impact with CSR (Preston and O'Bannon, 1997; McWilliams and Siegel, 2000; Nelling and Webb, 2009; Choi *et al.*, 2010). In contrast, there are other studies using CSR as an independent variable to verify a positive influence of financial performance (Aras *et al.*, 2010). As well, some of these studies have a positive correlation between CSR and financial performance (Waddock and Graves, 1997), no correlation (McWilliams and Siegel, 2000; Eljido-Ten, 2007), and a negative correlation (Jones *et al.*, 2007; Crisóstomo *et al.*, 2011), respectively. Accordingly, this study expects to corroborate the relationship between the extent of CSR disclosure and firms' financial performance in Thailand.

#### **3.8.1 Hypotheses**

There are two perspectives on the relationship between CSR and CFP. First, CSR can be regarded as a distinctive resource or means - or a way management can run the organization to generate higher revenues or reduce costs, both of which improve financial performance. Second, a positive CSR-CFP relationship suggests that CSR engagement creates the appearance of doing "good", even if there is no substantive benefit in the CSR engagement itself (reputational value and repeat customers). Recently, two theoretical frameworks have been proposed. The first one advocates a positive relationship between CSR and performance whilst the second proposes a negative relationship. The instrumental stakeholder theory predicts that high CSR engagement leads to better CFP. However, the slack resources theory



suggests that the reverse is true. It is prior superior CFP that leads to higher subsequent CSR engagement (Waddock and Graves, 1997). From the stakeholder theory, legitimacy theory, review of the literature and research questions, three main hypotheses have been developed to explain CSR disclosure and financial performance in Thailand.

The first hypothesis defines CSR disclosure as independent variable. The first alternative hypotheses are as follows:

- $H_1^A$             There is a positive and significant relationship between CSR disclosure and Return on Assets (ROA).
- $H_1^B$             There is a positive and significant relationship between CSR disclosure and Net profit margin (NPM).
- $H_1^C$             There is a positive and significant relationship between CSR disclosure and Earnings per share (EPS).
- $H_1^D$             There is a positive and significant relationship between CSR disclosure and Tobin's Q (TBQ).

The second alternative hypothesis measures CSR disclosure as dependent variable. The sub categories for hypotheses are as follows:

- $H_2^A$             There is a positive impact of Return on Assets (ROA) on CSR disclosure.
- $H_2^B$             There is a positive impact of Net profit margin (NPM) on CSR disclosure.
- $H_2^C$             There is a positive impact of Earnings per share (EPS) on CSR disclosure.
- $H_2^D$             There is a positive impact of Tobin's Q (TBQ) on CSR disclosure.

The third hypothesis is based on the relationship between each dimension of CSR disclosure and financial performance, which defines each dimension of CSR disclosure as independent variable. The alternative sub categories of hypotheses are as follows.

- $H_3^A$             There is a positive and significant relationship between each dimension of CSR disclosure and Return on Assets (ROA).

$H_3^B$	There is a positive and significant relationship between each dimension of CSR disclosure and Net profit margin (NPM).
$H_3^C$	There is a positive and significant relationship between each dimension of CSR disclosure and Earnings per share (EPS).
$H_3^D$	There is a positive and significant relationship between each dimension of CSR disclosure and Tobin's Q (TBQ).

### 3.8.2 The Model and Hypotheses Testing

To test the hypotheses regarding the relationship between CSR disclosure and financial performance in Thai listed firms, this study has used differing regression models. As has been elaborated earlier, this study defines regression models based on the following: (i) financial performance measures as dependent variable, (ii) financial performance measures as independent variable, (iii) each dimension of CSR disclosure as independent variable, and (iv), a panel data estimation. This study uses the following equation models to generate empirical estimates for each group in the sample.

(i) The first model is adopted from McWilliams and Siegel (2000), Lioui and Sharma (2012), and Lee *et al*, (2013) by analysing cross-sectional data. At the initial phase, the financial performance defines as dependent variables shown as follows:

**CSR disclosure and Return on Assets (ROA) testing: ( $H_1^A$ )**

$$Y_{(ROA)} = \beta_{0ROA} + \beta_{1ROA}CSRI_{jt} + \beta_{2ROA}SIZE_{jt} + \beta_{3ROA}AGE_{jt} + \beta_{4ROA}INDUS_{jt} + \beta_{5ROA}LEV_{jt} + \beta_{6ROA>IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Net Profit Margin (NPM) testing: ( $H_1^B$ )**

$$Y_{(NPM)} = \beta_{0NPM} + \beta_{1NPM}CSRI_{jt} + \beta_{2NPM}SIZE_{jt} + \beta_{3NPM}AGE_{jt} + \beta_{4NPM}INDUS_{jt} + \beta_{5NPM}LEV_{jt} + \beta_{6NPM>IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Earnings per Share (EPS) testing: ( $H_1^C$ )**

$$Y_{(EPS)} = \beta_{0EPS} + \beta_{1EPS}CSRI_{jt} + \beta_{2EPS}SIZE_{jt} + \beta_{3EPS}AGE_{jt} + \beta_{4EPS}INDUS_{jt} + \beta_{5EPS}LEV_{jt} + \beta_{6EPS>IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Tobin's Q (TBQ) testing: ( $H_1^D$ )**

$$Y_{(TBQ)} = \beta_{0TBQ} + \beta_{1TBQ}CSRI_{jt} + \beta_{2TBQ}SIZE_{jt} + \beta_{3TBQ}AGE_{jt} + \beta_{4TBQ}INDUS_{jt} + \beta_{5TBQ}LEV_{jt} + \beta_{6TBQ>IDIRECTOR_{jt} + \varepsilon_{jt}$$

(ii) In the second model, this study will estimate the following model of CSR disclosure: financial performance defines as independent variable.

**CSR disclosure and Return on Assets (ROA) testing: ( $H_2^A$ )**

$$Y_{(CSRI)} = \beta_{0CSRI} + \beta_{1CSRI}ROA_{jt} + \beta_{2CSRI}SIZE_{jt} + \beta_{3CSRI}AGE_{jt} + \beta_{4CSRI}INDUS_{jt} \\ + \beta_{5CSRI}LEV_{jt} + \beta_{6CSRI}IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Net Profit Margin (NPM) testing: ( $H_2^B$ )**

$$Y_{(CSRI)} = \beta_{0CSRI} + \beta_{1CSRI}NPM_{jt} + \beta_{2CSRI}SIZE_{jt} + \beta_{3CSRI}AGE_{jt} + \beta_{4CSRI}INDUS_{jt} \\ + \beta_{5CSRI}LEV_{jt} + \beta_{6CSRI}IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Earnings per Share (EPS) testing: ( $H_2^C$ )**

$$Y_{(CSRI)} = \beta_{0CSRI} + \beta_{1CSRI}EPS_{jt} + \beta_{2CSRI}SIZE_{jt} + \beta_{3CSRI}AGE_{jt} + \beta_{4CSRI}INDUS_{jt} \\ + \beta_{5CSRI}LEV_{jt} + \beta_{6CSRI}IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Tobin's Q (TBQ) testing: ( $H_2^D$ )**

$$Y_{(CSRI)} = \beta_{0CSRI} + \beta_{1CSRI}TBQ_{jt} + \beta_{2CSRI}SIZE_{jt} + \beta_{3CSRI}AGE_{jt} + \beta_{4CSRI}INDUS_{jt} \\ + \beta_{5CSRI}LEV_{jt} + \beta_{6CSRI}IDIRECTOR_{jt} + \varepsilon_{jt}$$

(iii) The third model in this study is modified from the first equation by dividing CSR disclosure into environment, energy, employee, community and products dimensions. To determine the extent of CSR dimensions that are related to financial performance measures, the regression estimation models to be tested can be expressed as follows:

**CSR disclosure and Return on Assets (ROA) testing: ( $H_3^A$ )**

$$Y_{(ROA)} = \beta_{0ROA} + \beta_{1ROA}ENV_{jt} + \beta_{2ROA}ENER_{jt} + \beta_{3ROA}EMPLOY_{jt} + \beta_{4ROA}COMMU_{jt} \\ + \beta_{5ROA}PROD_{jt} + \beta_{6ROA}SIZE_{jt} + \beta_{7ROA}AGE_{jt} + \beta_{8ROA}INDUS_{jt} \\ + \beta_{9ROA}LEV_{jt} + \beta_{10ROA}IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Net Profit Margin (NPM) testing: ( $H_3^B$ )**

$$Y_{(NPM)} = \beta_{0NPM} + \beta_{1NPM}ENV_{jt} + \beta_{2NPM}ENER_{jt} + \beta_{3NPM}EMPLOY_{jt} \\ + \beta_{4NPM}COMMU_{jt} + \beta_{5NPM}PROD_{jt} + \beta_{6NPM}SIZE_{jt} + \beta_{7NPM}AGE_{jt} \\ + \beta_{8NPM}INDUS_{jt} + \beta_{9NPM}LEV_{jt} + \beta_{10NPM}IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Earnings per Share (EPS) testing: ( $H_3^C$ )**

$$Y_{(EPS)} = \beta_{0EPS} + \beta_{1EPS}ENV_{jt} + \beta_{2EPS}ENER_{jt} + \beta_{3EPS}EMPLOY_{jt} + \beta_{4EPS}COMMU_{jt} \\ + \beta_{5EPS}PROD_{jt} + \beta_{6EPS}SIZE_{jt} + \beta_{7EPS}AGE_{jt} + \beta_{8EPS}INDUS_{jt} \\ + \beta_{9EPS}LEV_{jt} + \beta_{10EPS}IDIRECTOR_{jt} + \varepsilon_{jt}$$

**CSR disclosure and Tobin's Q (TBQ) testing: ( $H_3^D$ )**

$$Y_{(TBQ)} = \beta_{0TBQ} + \beta_{1TBQ}ENV_{jt} + \beta_{2TBQ}ENER_{jt} + \beta_{3TBQ}EMPLOY_{jt} + \beta_{4TBQ}COMMU_{jt} \\ + \beta_{5TBQ}PROD_{jt} + \beta_{6TBQ}SIZE_{jt} + \beta_{7TBQ}AGE_{jt} + \beta_{8TBQ}INDUS_{jt} \\ + \beta_{9TBQ}LEV_{jt} + \beta_{10TBQ}IDIRECTOR_{jt} + \varepsilon_{jt}$$

(iv) In addition, this study further performs a panel data regression to test the relationship between CSR disclosure and financial performance (FP). As suggested by Al-Tuwaijri *et al*, (2004) and Garcia-Castro *et al*, (2010), the lagged FP will be used as one of the explanatory variable. The baseline model of panel data estimation (with lagged FP as one of the explanatory variable,  $FP_{it-1}$ ) is as follows.

**CSR disclosure and Return on Assets (ROA) testing: ( $H_1^A$ )**

$$Y_{(ROA)} = \beta_{0ROA} + \beta_{1ROA}CSRI_{it} + \beta_{2ROA}SIZE_{it} + \beta_{3ROA}AGE_{it} + \beta_{4ROA}INDUS_{it} \\ + \beta_{5ROA}LEV_{it} + \beta_{6ROA}IDIRECTOR_{it} + \beta_{7ROA}ROA_{it-1} + \varepsilon_{it}$$

**CSR disclosure and Net Profit Margin (NPM) testing: ( $H_1^B$ )**

$$Y_{(NPM)} = \beta_{0NPM} + \beta_{1NPM}CSRI_{it} + \beta_{2NPM}SIZE_{it} + \beta_{3NPM}AGE_{it} + \beta_{4NPM}INDUS_{it} \\ + \beta_{5NPM}LEV_{it} + \beta_{6NPM}IDIRECTOR_{it} + \beta_{7NPM}NPM_{it-1} + \varepsilon_{it}$$

**CSR disclosure and Earnings per Share (EPS) testing: ( $H_1^C$ )**

$$Y_{(EPS)} = \beta_{0EPS} + \beta_{1EPS}CSRI_{it} + \beta_{2EPS}SIZE_{it} + \beta_{3EPS}AGE_{it} + \beta_{4EPS}INDUS_{it} \\ + \beta_{5EPS}LEV_{it} + \beta_{6EPS}IDIRECTOR_{it} + \beta_{7EPS}EPS_{it-1} + \varepsilon_{it}$$

**CSR disclosure and Tobin's Q (TBQ) testing: ( $H_1^D$ )**

$$Y_{(TBQ)} = \beta_{0TBQ} + \beta_{1TBQ}CSRI_{it} + \beta_{2TBQ}SIZE_{it} + \beta_{3TBQ}AGE_{it} + \beta_{4TBQ}INDUS_{it} \\ + \beta_{5TBQ}LEV_{it} + \beta_{6TBQ}IDIRECTOR_{it} + \beta_{7TBQ}TBQ_{it-1} + \varepsilon_{it}$$

### 3.9 Summary and Conclusions

The presentation of this chapter is elaborated in five sections. Section 3.2 presents the research framework for this study, which considers five dimension of CSR disclosure and four financial performance measures. Section 3.3 presents an explanation of sample design and data selection for the study. The data for the three-year period from 2009 to 2011 is used. Section 3.4 deals with the measurement of

corporate social responsibility disclosure index (CSRI), including a discussion on content analysis using annual reports. Section 3.5 presents the measurement of financial performance, including three accounting-based measures and one market-based measures. The discussion on control variables is presented in Section 3.6. These control variables are firm size, industry type, firm age, leverage of firm and a percentage of independent directors. Section 3.7 presents the methodology of this study, include regression models, the specification test and the robustness test. The development of hypotheses and models for the analysis are shown in Section 3.8. Finally, Section 3.9 presents a summary of, and conclusions to, of this chapter.

There are several approaches to measure CSR, such as reputation index (CEP index, Fortune index) (Preston and O'Bannon, 1997; Waddock and Graves, 1997), company rating approach (KLD rating, DJSI, GRI) (Byus *et al.*, 2010; Inoue and Lee, 2011; Oeyono *et al.*, 2011); a survey method (a questionnaire) (Mishra and Suar, 2010; Tilakasiri, 2012) and a content analysis method (Kimbrow and Melendy, 2010; Bnoui, 2011; Ehsan and Kaleem, 2012).

In this study, 323 companies listed on the Stock Exchange of Thailand in different industries are chosen. Annual reports obtained in the period between 2009 and 2011 are used as the main source of data. A content analysis is used as a tool for analysing the level of CSR disclosure using CSR checklist to construct CSR index. This method has been used in CSR literature to determine the characteristics and patterns of CSR disclosure. A content analysis is one of the appropriate research methods to examine CSR disclosure (Hackston and Milne, 1996; Guthrie and Abeysekera, 2006). A number of academics have argued that there are several methods to code data quantitatively, such as counting the number of pages, number of sentences, number of paragraphs and the proportion of a page. Content analysis is applied through three stages. The first stage involves the selection of a CSR disclosure theme. The second stage includes constructing a CSR disclosure checklist by classifying CSR disclosure into five dimensions. The third stage is calculating CSR index.

This study adopts three accounting-based measures and one market-based measure that are usually used in empirical studies to investigate the relationship with the degree of CSR disclosure. These four ratios are Return on Assets (ROA), Net Profit Margin (NPM), Earnings per Share (EPS) and Tobin's Q (Van der Laan *et al.*, 2008; Ehsan and Kaleem, 2012; Tyagi, 2012; Lee *et al.*, 2013). This study also

introduces some variables, which are found to considerably influence the relationship between CSR and financial performance as a control variable, such as firm size, industry type, age of firm, leverage of firm and percentage of independent directors on board (Byus *et al.*, 2010; Inoue and Lee, 2011; Islam *et al.*, 2012; Pyo and Lee, 2013).

As well, a few studies have investigated the relationship between CSR disclosure and financial performance using the Thai context (Connelly and Limpaphayom, 2004; Ratanajongkol *et al.*, 2006; Abdul Rahman *et al.*, 2009; Suttipun, 2012; Janamrung and Issarawornrawanich, 2013; Wuncharoen, 2013). Some of these studies have focused on specific industries and involved the use of small sample sizes. However, the focus of this study is to investigate the relationship between CSR disclosure and financial performance in Thailand. In so doing, this study will attempt to use extended dimensions of CSR, larger sample size, a longer and more recent period of study and a wider coverage of industries.

The results of the empirical study of the association between CSR disclosure and financial performance will be explained in the following chapters.

## **CHAPTER 4**

### **THE NATURE AND EXTENT OF CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE IN THAILAND**

#### **4.1 Introduction**

The purpose of this chapter is to address the nature and descriptive statistics of the extent of corporate social responsibility (CSR) disclosures of firms listed on the Stock Exchange of Thailand (SET) for the selected period of this study, ie, from 2009 to 2011. As stated in Chapter 3, content analysis is used to collect the data from firms' annual reports. In so doing, the process is carried out by transforming qualitative data into quantitative data using a CSR checklist. The CSR checklist classify of forty-five CSR disclosing items are classified in terms of five categories. These are "environment", "energy", "employee", "community" and "products" dimensions. The nature and descriptive statistics regarding the extent of CSR disclosure and the explanation of theories relating to CSR disclosure are presented in this chapter as well.

The structure of this chapter is as follows: The first section presents the extent of CSR disclosure of firms listed on the Stock Exchange of Thailand. The second section provides the trend of CSR disclosure according to industry type. The third section elaborates the financial ratios of listed firms in Thailand. A summary and conclusion on the extent of CSR disclosure and financial ratios of Thai listed firms is drawn in the final section.

#### **4.2 Corporate Social Responsibility Disclosure in Thailand**

This section presents CSR disclosure analysis using the research methodology outlined in Chapter 3. The data reports in this chapter are gathered together using content analysis of Thai company annual reports listed on the Stock Exchange of Thailand (SET) from 2009 to 2011. As the quantitative aspect of CSR disclosure are analysed, descriptive statistics are first used to measure the nature and extent of companies' CSR disclosure using the CSR checklist for all companies in the sample.

The results in this section are divided into two parts. First, the results of corporate social responsibility (CSR) disclosures are classified by theme of disclosure. Second, CSR disclosure information is presented according to industry type. The CSR disclosure theme is classified into five main dimensions as follows: (1) environment, (2) energy, (3) employee or human resources, (4) community, and (5) products or services.

#### 4.2.1 Number of Companies Disclosing CSR

The CSR checklist is examined through company annual reports to capture CSR disclosure of 323 companies listed on SET. The descriptive statistics of the number of companies disclosing CSR are produced in Table 4.1. It shows a comparison for all companies in terms of the number and percentages of disclosing companies.

**Table 4.1 The Number of Companies Disclosing CSR from 2009 to 2011**

Theme	Number of company disclosing CSR					
	2009		2010		2011	
	No.	%	No.	%	No.	%
Environment	192	59.44	182	56.35	180	55.73
Energy	83	25.70	85	26.32	89	27.55
Employee/HR	184	56.97	185	57.28	187	57.89
Community/Social	191	59.13	201	62.23	212	65.63
Product Responsibility	112	34.67	114	35.29	108	33.44
<b>Total number of companies</b>	192	59.44	201	62.23	212	65.63

Table 4.1 shows the number of firms reporting CSR during each of the selected period, i.e., 2009, 2010, 2011. The total number of firm year in this study is 969 over the three-year period (323 firms each year). From Table 4.1, it is evident that there is a slight increase in the number of firms disclosing their CSR information starting from 192 firms out of 323 (59.44% of firms in the sample) in 2009 to 201 firms (62.23% of firms in the sample) in 2010, with an increase to 212 firms (65.63% of firms in the sample) in 2011. This indicates that the number of firms disclosing CSR information have been increasing in Thailand. The most commonly disclosed theme is the “community or social involvement”. The results reveal the number of



firms disclosing “community” involvement, rising from 191 firms (59.13% of firms in the sample) in 2009 to 201 firms (62.23% of firms in the sample) in 2010, and to 212 firms (65.63% of firms in the sample) in 2011. “Employee or human resources” is found to be the second most disclosed theme. It rose from 184 firms (56.97% of firms in the sample) in 2009 to 185 firms (57.28% of firms in the sample) in 2010, and then reached 187 firms (57.89% of firms in the sample) in 2011. Disclosure on the “environment” dimension theme is the third commonly disclosed theme, with a decline over the three year period, decreasing from 192 firms (59.44% of firms in the sample) in 2009 to 180 firms (55.73% of firms in the sample) in 2011. The fourth most commonly disclosed dimension is “products/services responsibility”. This theme increased slightly from 112 firms (34.67% of firms in the sample) in 2009 to 114 firms (35.29% of firms in the sample) in 2010, dropping to 108 firms (33.44% of firms in the sample) in 2011. The disclosure on the “energy” dimension rose from 83 firms (25.70% of firms in the sample) in 2009 to 85 firms (26.32% of firms in the sample) in 2010, increasing to 89 firms (27.55% of firms in the sample) in 2011.

#### 4.2.2 Disclosure of CSR Themes

The CSR practices of the sample companies that disclosed CSR information in Table 4.1 is analysed by items disclosed for each dimensions. Table 4.2 provides the number of CSR items disclosed according to each disclosure category during the selected period from 2009 to 2011.

**Table 4.2 The Number of CSR Items Disclosed According to CSR Dimensions from 2009 to 2011**

CSR Theme	Total number of disclosed items	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Environment	3,553	751	21.14	722	20.32	715	20.12
Energy	1,938	170	8.77	161	8.31	156	8.05
Employee	5,168	1,097	21.23	1,074	20.78	1,016	19.66
Community	2,261	692	30.61	845	37.37	903	39.94
Product	1,615	208	12.88	178	11.02	146	9.04
Total	14,535	2,918		2,980		2,936	
Average number of CSR items		584	18.92	596	19.56	587	19.36

Table 4.2 presents the number of CSR items disclosed during the three-year periods from 2009 to 2011 by Thai firms. It is apparent that on average, there is a small fluctuation in the number of CSR items disclosed starting from 584 items (18.92% of total number of disclosed items) in 2009 to 596 items (19.56% of total number of disclosed items) in 2010, with a decrease to 587 items (19.36% of total number of disclosed items) in 2011. The most CSR disclosed item is the “community or social involvement” category. The results indicate that the number of disclosed item in the community dimension, rose from 692 items (30.61% of total number of disclosed items in this category) in 2009 to 845 items (37.37% of total number of disclosed items in this category) in 2010 and 903 items (39.94% of total number of disclosed items in this category) in 2011. There is a slight decline in disclosure of product responsibility from year 2010 to 2011. All other CSR disclosure themes have shown a reduction from 2009 to 2011.

The second most reported CSR disclosed item is the “employee engagement” category. It reduced from 1,097 items (21.23% of total number of disclosed items in this category) in 2009 to 1,074 items (20.78% of total number of disclosed items in this category) in 2010, then to 1,016 items (19.66% of total number of disclosed items in this category) in 2011. The “environment” disclosure is the third most reported CSR item. The disclosure of this item has declined over the three-year period. It decreased from 751 items (21.14% of total number of disclosed items in this category) in 2009 to 722 items (20.32% of total number of disclosed items in this category) in 2010 and 715 items (20.12% of total number of disclosed items in this category) in 2011. The next most disclosed CSR disclosed item is the “product responsibility” category. It decreased from 208 items (12.88% of total number of disclosed items in this category) in 2009, to 178 items (11.02% of total number of disclosed items in this category) in 2010 and to 146 items (9.04% of total number of disclosed items in this category) in 2011. The least disclosed CSR item is the “energy” related policy, which decreased over the period from 179 items (8.77% of total number of disclosed items in this category) in 2009, to 156 items (8.05% of total number of disclosed items in this category) in 2011.

#### ***4.2.2.1 Disclosure of Sub Themes under Each Dimension of CSR***

This study has analysed each dimension of CSR for a total of forty-five disclosure items that had been collected from company annual reports. The CSR

activities in this study are categorised into five dimensions. These are environment, energy, employee, community and products. Table 4.3 shows the number of firms which disclosed CSR information in each theme.

**Table 4.3 The Number of Companies Disclosing CSR by CSR Sub-Themes from 2009 to 2011**

Categories/Items	Number of company disclosing CSR					
	2009		2010		2011	
	No.	%	No.	%	No.	%
<b>Environment</b>						
Environmental policies or company concern for the environment	192	59.44	182	56.35	180	55.73
Prevention or repair of damage to the environment resulting from processing or natural resources, e.g. Land reclamation or reforestation, Environmental protection program	96	29.72	100	30.96	95	29.41
Support for public/private action designed to protect the environment	83	25.70	95	29.41	70	21.67
Award for environmental protection	80	24.77	64	19.81	81	25.08
Statements indicating that the company's operations are non-polluting or that there are in compliance with pollution laws and regulations	79	24.46	69	21.36	86	26.63
Pollution control in the conduct of business operation/Statements indicating that pollution from operations has been or will be reduced	65	20.12	70	21.67	65	20.12
Conservation of natural resources e.g. using recycling material, recycling glass, metals, oil, water, paper etc.	54	16.72	51	15.79	46	14.24
Disclosing water discharge information	37	11.46	30	9.29	42	13.00
Disclosing air emission information	27	8.36	24	7.43	19	5.88
Designing facilities that are harmonious with the environment	21	6.50	16	4.95	10	3.10
Disclosing solid waste disposal information	17	5.26	21	6.50	21	6.50
<b>Energy</b>						
Disclosing company's energy policies	83	25.46	85	26.32	89	27.55
Conservation of energy in the conduct of business operations	50	15.34	54	16.72	53	16.41
Utilising waste materials for energy production	16	4.91	11	3.41	6	1.86
Award for energy conservation program	9	2.76	5	1.55	1	0.31
Disclosing energy savings resulting from product recycling	7	2.15	4	1.24	6	1.86
Research directed at improving energy efficiency of products	5	1.53	2	0.62	1	0.31
<b>Employee/HR</b>						
Employees training/Giving financial assistance to employees in educational institutions or continuing education courses	184	56.97	185	57.28	187	57.89
Providing staff accommodation/staff home ownership schemes, food, fuel, other benefits	164	50.77	152	47.06	144	44.58
Complying with health and safety standards and regulations	139	43.03	145	44.89	144	44.58
Providing number of employees in the company/branch/subsidiary	128	39.63	130	40.25	107	33.13
Providing low cost health care to employees	103	31.89	108	33.44	116	35.91
Information on education/training of employees on health and safety	81	25.08	71	21.98	63	19.5
Providing recreational activities/facilities	71	21.98	64	19.81	78	24.15
Disclosing policy for company's remuneration package/schemes	63	19.5	95	29.41	84	26.01
Information of employees share purchase schemes	48	14.86	39	12.07	24	7.43

**Table 4.3 (continued) The Number of Companies Disclosing CSR by CSR Sub-Themes from 2009 to 2011**

Categories/Items	Number of company disclosing CSR					
	2009		2010		2011	
	No.	%	No.	%	No.	%
<b>Employee/HR</b>						
Receiving a safety award	42	13	36	11.15	37	11.46
Providing information on the stability of the workers' job and company's future	31	9.6	18	5.57	13	4.02
Information on accident statistics	17	5.26	13	4.02	6	1.86
Information about support for day-care, maternity and paternity leave, holidays and vacations	10	3.1	4	1.24	7	2.17
Information on recruitment/employment of minorities/women/special interest groups	6	1.86	10	3.1	5	1.55
Providing information on qualifications and experience of employees recruited	5	1.55	3	0.93	1	0.31
Reporting on company's relationship with trade unions/workers	5	1.55	1	0.31	0	0
<b>Community/Social</b>						
Donations of cash, products, or employee services to support community activities, events, arts, sports etc.	191	59.13	201	62.23	212	65.63
Supporting the development of community programs, events/activities, excursion	153	47.37	165	51.08	167	51.7
Funding scholarship programs or activities	111	34.37	126	39.01	125	38.7
Sponsoring public health projects and distributing health-related information to public	100	30.96	92	28.48	95	29.41
Sponsoring education conference, seminar, workshop or art exhibits	67	20.74	87	26.93	83	25.7
Aiding disaster victims (donation cash, product etc.)	48	14.86	151	46.75	199	61.61
Summer or part-time employment of students	22	6.81	23	7.12	22	6.81
<b>Product Responsibility</b>						
Information on the quality of the firm's products as reflected in prizes/awards received	112	34.67	114	35.29	108	33.44
Disclosing that products meet applicable safety standards	76	23.53	38	11.76	15	4.64
Providing information on the safety of the firm's product	11	3.41	6	1.86	3	0.93
Product research and development by the company to improve its products in terms of quality and safety	7	2.17	4	1.24	1	0.31
Information on developments related to the company's products, including its packaging	2	0.62	16	4.95	19	5.88

Table 4.3 shows the number of Thai companies disclosing CSR items for each theme in their annual reports. In the environment category, “environmental policies or concern for the environment” is the most disclosed item, but with a decreasing trend, 192 companies disclosed this item (59.44% of firms in the sample) in 2009 as compared to 182 companies (56.35% of firms in the sample) in 2010 and 180 firms (55.73% of firms in the sample) in 2011. The least disclosed item is “disclosing solid waste disposal information”.

In the energy category, the most disclosed item is “Disclosing company's energy policies”. There is a slight increase in disclosure of energy policy from 83

firms (25.46% of firms in the sample) in 2009 to 85 firms (26.32% of firms in the sample) in 2010 and 89 firms (27.55% of firms in the sample) in 2011. The least disclosed item in this category is “research directed at improving energy efficiency of products”.

In the employee/HR category, the most disclosed item is “employees training/giving financial assistance to employees in educational institutions or continuing education courses” which rose from 184 firms (56.97% of firms in the sample) in 2009 to 185 firms (57.28% of firms in the sample) in 2010 and 187 firms (57.89% of firms in the sample) in 2011. At the end of the three-year period, more than 30% of firms in the sample disclosed employee related CSR information, such as “provide staff accommodation or other benefits”, “complying with health and safety standards”, “reporting number of employees” and “providing low cost health care to employees”, respectively. The least disclosed item is “reporting on company’s relationship with trade unions/workers”.

From the disclosure data in the community dimension, the most disclosed item is “donation of cash, products, and services to support society activities” which increased from 191 firms (59.13% of firms in the sample) in 2009 to 201 firms (62.23% of firms in the sample) in 2010 and 212 firms (65.63% of firms in the sample) in 2011. The “summer or part-time employment of students” disclosure item appears to be the least disclosed item in this category.

In the product responsibility category, “information on the quality of a firm’s products as reflected in prizes or awards received” is the most reported item. It slightly increased from 112 firms (34.67% of firms in the sample) in 2009 to 114 firms (35.29% of firms in the sample) in 2010 and dropped to 108 firms (33.44% of firms in the sample) in 2011. However, the least disclosed item is “Product research and development by the company to improve its products in terms of quality and safety”.

#### **4.2.3 Form of CSR Disclosure**

The descriptive statistics show the number and percentage of reporting forms of CSR disclosure. There are two form of reporting CSR, including: (1) narrative and/or photographs and (2) narrative with monetary term. Table 4.4 presents the results of reporting forms of CSR disclosure during 2009 to 2011.

**Table 4.4 The Form of CSR Disclosure in Thai Corporate Annual Reports from 2009 to 2011**

Form of reporting	Number of companies disclosing CSR					
	2009		2010		2011	
	Amount	%	Amount	%	Amount	%
Narrative and/or Photographs	273	84.52	245	75.85	225	69.66
Narrative with Monetary Term	50	15.48	78	24.15	98	30.34
Total	323		323		323	

Table 4.4 shows the form of CSR reporting. The most common form of reporting is narrative form and/or photographs. 273 firms disclosed CSR in narrative form and /or photographs (84.52% of firms in the sample) in 2009 as compared to 245 firms (75.85% of firms in the sample) in 2010 and 225 firms (69.66% of firms in the sample) in 2011. The second form of disclosure is narrative with monetary disclosure form, which rose from 50 firms (15.48% of firms in the sample) in 2009 to 78 firms (24.15% of firms in the sample) in 2010 and then to 98 firms (30.34% of firms in the sample) in 2011. This indicates that more firms are using narrative with monetary form for disclosing CSR information as compared to narrative and/or photographs.

#### **4.2.4 Location of CSR Disclosure in Annual Report**

The CSR checklist of forty-five CSR disclosure items is classified in terms of five categories. The CSR checklist is identified from five locations of CSR disclosure: chairperson's report, operational review, corporate governance, CSR section and other section. Table 4.5 presents the location of CSR reporting in annual report of firms in the sample.

Table 4.5 illustrates that the location of CSR disclosure in annual reports varied across the three-year period. The results show that 184 firms have reported CSR disclosure in 'CSR section' in year 2009. The number of firms disclosing in this category increased from 184 firms (56.86% of firms in the sample) in 2009 to 232 firms (71.93% of firms in the sample) in 2010 and 250 firms (77.50% of firms in the sample) in 2011. Disclosure in the 'corporate governance' (CG) section is reported by 156 firms (48.35% of firms in the sample) in 2009. This dropped to 145 firms

(44.79% of firms in the sample) in 2010, and then rose to 156 firms (48.35% of firms in the sample) again in 2011. There is a slight decline in the number of firms reporting CSR in ‘other section’ of their annual reports (e.g. in a separate report, CSR report or sustainability report), from 137 firms (42.41% of firms in the sample) in 2009 to 134 firms (41.38% of firms in the sample) in 2010 and decline to 109 firms (33.59% of firms in the sample) in 2011. The numbers of firms disclosing CSR in the ‘chairperson’s report’ and the ‘operational review’ sections are the lowest. It declined from about 9.44 percent of firms in 2009 to around 2.73 percent of firms in 2011, showing a decreasing trend. These results show that Thai companies are increasingly using the CSR section of annual reports to disclose CSR activities.

**Table 4.5 The Location of CSR Disclosure in Thai Corporate Annual Reports from 2009 to 2011**

Location of reporting	Number of companies disclosing CSR					
	2009		2010		2011	
	Firms	(%)	Firms	(%)	Firms	(%)
CSR section	184	56.86	232	71.93	250	77.50
Corporate governance	156	48.35	145	44.79	156	48.35
Other sections	137	42.41	134	41.38	109	33.59
Operational review	31	9.44	12	3.72	11	3.30
Chairperson’s report	21	6.35	19	5.73	9	2.73

### 4.3 Disclosure of CSR Themes by Industry Type

This section presents the determinants of corporate social responsibility disclosure by industry type<sup>4</sup>. The data is gathered from eight different industries from companies listed on the Stock Exchange of Thailand (SET). These eight industries are agro-business and food, consumer products, financials, industrials, property and construction, resources, services and technology industries. The number and percentage of companies in different industries which disclosed CSR information in annual reports during the year 2009 to 2011 are presented in Table 4.6.

<sup>4</sup> The eight categories of industry used in this study was classified by the Stock Exchange of Thailand (SET)

Table 4.6 provides the number and percentage of firms disclosing CSR by industry type. The overall trend in the number of firms reporting CSR shows that there is a slight increase over the three years period, which rose from 192 firms (59.44% of firm in this sector) in 2009 to 201 firms (62.23% of firm in this sector) in 2010 and to 212 firms (65.63% of firm in this sector).

**Table 4.6 The Number of Companies Disclosing CSR in Thai Annual Reports from 2009 to 2011 by Industry Type**

Industry	Number of companies	Number of companies disclosing CSR					
		2009		2010		2011	
		No.	%	No.	%	No.	%
Agro & Food	31	23	74.19	19	61.29	22	70.97
Consumer Products	24	15	62.50	16	66.67	19	79.17
Financials	46	24	52.17	31	67.39	29	63.04
Industrials	49	26	53.06	24	48.98	29	59.18
Property & Construction	67	31	46.27	33	49.25	42	62.69
Resources	22	19	86.36	18	81.82	14	63.64
Services	55	33	60.00	38	69.09	37	67.27
Technology	29	21	72.41	22	75.86	20	68.97
Total	323	192		201		212	
Average number of companies disclosing CSR			59.44		62.23		65.63

In 2009, the resources industry disclosed most CSR information. About with 86.36% of firm in this sector disclosed this CSR information, followed by agro & food industry at 74.19% of firm in this sector, technology industry at 72.41% of firm in this sector in 2011. Firms in the property & construction sector constituted the least proportion of firms to disclose CSR information at 46.27% of firm in this sector.

For the year 2010, resources industry disclosed most about 81.82% of firm in this sector, followed by the technology industry at 75.86% of firm in this sector, and services industry at 69.09% of firm in this sector). The industrials firms disclosed least CSR activities in this year at 48.98% of firm in this sector.

In 2011, the consumer products industry was the most sector disclosing most CSR information at 79.17% of firm in this sector, then agro & food sector at 70.97% of firm in this sector. The industrials sector was the least disclosing sector, with 59.18% of firms in this sector.



### 4.3.1 CSR Disclosure by Agro-business and Food Industry

Agro and food industry, include thirty-one companies belong to this industry.

The results of firms in this industry which disclosed CSR items are presented in Table 4.7.

**Table 4.7 The Number of CSR Disclosed Items for Agro & Food Industry**

Theme	Total disclosed items (N=31)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Community	217	58	26.73	72	33.18	104	47.93
Environment	341	78	22.87	78	22.87	83	24.34
Product	155	23	14.84	36	23.23	17	10.97
Employee	496	68	13.71	73	14.72	81	16.33
Energy	186	19	10.22	20	10.75	14	7.53
Total	1,395	246		279		299	
Average number of CSR items		49	17.63	56	20.00	60	21.43

Table 4.7 presents the number of CSR items disclosed by firms in the agro-business and food industry. The average number of CSR disclosures showed a slight increase from 18 to 21 percent of total CSR disclosed items over the three-year period. The most frequent theme provided by this industry was “community”, which increased from 58 items (26.73% of total disclosed items in the industry) in 2009 to 72 items (33.18% of total disclosed items in the industry) in 2010 and 104 items (47.93% of total disclosed items in the industry) in 2011. “Environment” disclosure was the second most disclosed theme in this sector, rising from 78 items (22.87% of total disclosed items in the industry) in 2009 to 83 items (24.34% of total disclosed items in the industry) in 2011. Disclosure on the “employee” theme in this industry increased over the period from 68 items (13.71% of total disclosed items in the industry) in 2009 to 81 items (16.33% of total disclosed items in the industry) in 2011. The disclosure on “energy” and “product” themes fluctuated from about 10 percent in 2009, to 23 percent in 2010, and then to 7 percent in 2011.

### 4.3.2 CSR Disclosure by Consumer Products Industry

This section reports the amount of CSR disclosure items by firms in the consumer products industry. There are twenty-four companies which belong to this industry over three sub-industries which are fashion, home and office products, and personal products and pharmaceuticals. The amount of CSR disclosure for this industry is displayed in Table 4.8.

**Table 4.8 The Number of CSR Disclosed Items for Consumer Products Industry**

Theme	Total disclosed items (N=24)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Community	168	53	31.55	76	45.24	84	50.00
Employee	384	89	23.18	96	25	87	22.66
Environment	264	54	20.45	63	23.86	78	29.55
Product	120	15	12.50	16	13.33	16	13.33
Energy	144	14	9.72	17	11.81	23	15.97
Total	1,080	225		268		288	
Average number of CSR items		45	20.83	54	24.81	58	26.67

Table 4.8 shows that the mean of CSR disclosed items in the consumer products industry increased from about 21% in 2009 to 27 % (of total disclosed items in this industry) in 2011. It is apparent from this table that “community” was the most disclosed theme in this industry, rising from 53 items (31.55% of total disclosed items in the industry) in 2009 to 76 items (45.24% of total disclosed items in the industry) in 2010 and 84 items (50% of total disclosed items in the industry) in 2011. The second most disclosed theme was “environment” which reported 54 items (20.45% of total disclosed items in the industry) in 2009, 63 items (23.86% of total disclosed items in the industry) in 2010, and dropped to 78 items (29.55% of total disclosed items in the industry) in 2011. In addition, the disclosures under the “environment” and “energy” themes increased during the period, rising from about 20.45% in 2009 to 29.55% in 2011 (environment) and from 9.72% in 2009 to 15.97% in 2011 (energy).

### 4.3.3 CSR Disclosure by Financials Industry

This section shows the amount of CSR disclosure made by the financials industry. There are forty-six firms in three sub sectors included in this industry which are banking, finance and securities, and insurance sector. The results of the number of CSR disclosures for each theme in this industry are shown in Table 4.9.

**Table 4.9 The Number of CSR Disclosed Items for Financials Industry**

Theme	Total disclosed items (N=46)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Community	322	109	33.85	140	43.48	128	39.75
Employee	736	127	17.26	142	19.29	120	16.30
Environment	506	70	13.83	71	14.03	60	11.86
Energy	276	32	11.59	24	8.70	24	8.70
Product	230	11	4.78	12	5.22	11	4.78
Total	2,070	349		389		343	
Average number of CSR items		70	16.86	78	18.79	69	16.57

Table 4.9 shows the number of CSR disclosed items reported by the financial sector. There is a fluctuating trend of average CSR items disclosed in this industry, rising from 70 items (16.86% of total disclosed items in the industry) in 2009 to 78 items (18.79% of total disclosed items in the industry) in 2010, then decreasing to 69 items (16.57% of total disclosed items in the industry) in 2011. Once again, “community” was the most reported theme, increasing from 109 items (33.85% of total disclosed items in the industry) in 2009 to 140 items (43.48% of total disclosed items in the industry) in 2010, then decreasing to 128 items (39.75% of total disclosed items in the industry) in 2011. The “employee” was the second most disclosed theme, starting from 127 items (17.26% of total disclosed items in the industry) in 2009, to 142 items (19.29% of total disclosed items in the industry) in 2010, then dropping to 120 items (16.30% of total disclosed items in the industry) in 2011. The “environment” and “energy” themes were the next most disclosed themes, increasing from about 12-14% in 2009 to 9-14% in 2010 then, dropping to 9-12% of total disclosed items in 2011. The product dimension was the least disclosed theme for this industry, which accounted for about 5% through the period.

#### 4.3.4 CSR Disclosure by Industrials firms

This section shows CSR disclosure items reported by industrial sector. There are forty-nine companies from six different subsectors belong to the industrials sector. Table 4.10 presents the amount of firms reporting CSR in this industry.

**Table 4.10 The Number of CSR Disclosed Items for Industrials Sector**

Theme	Total disclosed items (N=49)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Environment	539	114	21.15	114	21.15	120	22.26
Product	245	48	19.59	36	14.69	31	12.65
Employee	784	148	18.88	152	19.39	150	19.13
Community	343	58	16.91	100	29.15	114	33.24
Energy	294	19	6.46	21	7.14	24	8.16
Total	2,205	387		423		439	
Average number of CSR items		77	17.55	85	19.18	88	19.91

Table 4.10 provides the number of CSR items disclosed/reported by the industrial firms. On average, the amount of CSR disclosure in this industry showed a steady increase, from 77 items (17.55% of total disclosed items in the industry) in 2009 to 85 items (19.18% of total disclosed items in the industry) in 2010, then increasing to 88 items (19.91% of total disclosed items in the industry) in 2011. The highest disclosed theme was “community” involvement, at 16.91% of total disclosed items in the industry in 2009, increased to 33.24% of total disclosed items in the industry in 2011. The “environment” was the second most disclosed theme, rising from 114 items (21.15% of total disclosed items in the industry) in 2009 to 120 items (22.26% of total disclosed items in the industry) in 2011. The next highest disclosure themes were “employee” related, increasing from 18.88% in 2009 to 19.13% in 2011, and “product” related disclosures, which dropped from about 19.59% in 2009 to 12.65% of total disclosed items in this industry. However, the “energy” theme was the least disclosed theme by this industry group, which increased over the period, rising from 6.46% in 2009 to 8.16% in 2011.

### 4.3.5 CSR Disclosure by Property and Construction Industry

This section presents CSR disclosure items of property and construction industry, which included sixty-seven companies in two different subsectors. The results of CSR disclosure items are presented in Table 4.11.

**Table 4.11 The Number of CSR Disclosed Items for Property and Construction Industry**

Theme	Total disclosed items (N= 67)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Community	469	107	22.81	115	24.52	143	30.49
Employee	1,072	221	20.62	206	19.22	209	19.50
Environment	737	129	17.50	124	16.82	129	17.50
Product	335	37	11.04	33	9.85	21	6.27
Energy	402	23	5.72	24	5.97	23	5.72
Total	3,015	517		502		525	
Average number of CSR items		103	17.15	100	16.65	105	17.41

Table 4.11 shows the number of CSR items disclosed by the property and construction industry. The average number of CSR items disclosed by this industry varied over the period, with 103 items (17.15% of total disclosed items in the industry) in 2009, dropping to 100 items (16.65% of total disclosed items in the industry) in 2010, then rising to 105 items (17.41% of total disclosed items in the industry) in 2011. The “community” related theme was the most disclosed theme, and the only theme whose disclosure consistently increased, rising from 107 items (22.81% of total disclosed items in the industry) in 2009 to 115 items (24.52% of total disclosed items in the industry) in 2010, then up to 143 items (30.49% of total disclosed items in the industry) in 2011. The second most disclosed theme was the “employee” theme, which dropped from about 20.62% of total disclosed items in 2009 to 19.50% of total disclosed items in the industry in 2011. The “environment” related theme fell from about 17.50% of total disclosed items in 2009 to 16.82% of total disclosed items in 2010 and then remained steady at 17.50% in 2011. The “energy” and “product” were the least disclosed themes by this industry.

#### 4.3.6 CSR Disclosure by Resources Industry

This section presents the amount of CSR disclosure items reported by the resources industry. There are twenty-one companies belonging to this group, and which includes the energy and utilities, and mining sectors. The results of the number of CSR disclosure items in the resources industry are depicted in Table 4.12.

**Table 4.12 The Number of CSR Disclosed Items for Resources Industry**

Theme	Total disclosed items (N=22)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Community	154	76	49.35	81	52.6	77	50.00
Environment	242	108	44.63	97	40.08	85	35.12
Employee	352	105	29.83	106	30.11	89	25.28
Product	110	21	19.09	10	9.09	12	10.91
Energy	132	18	13.64	20	15.15	13	9.85
Total	990	328		314		276	990
Average number of CSR items		66	33.13	63	31.72	55	27.88

Table 4.12 illustrates the number of CSR items disclosed by the firms in the resources industry. There is a steady decrease in the average number of CSR items disclosed by this industry, falling from 66 items (33.13% of total disclosed items in the industry) in 2009 to 63 items (31.72% of total disclosed items in the industry) in 2010, and down to 55 items (27.88% of total disclosed items in the industry) in 2011. The most reported theme was the “community” related information, which accounted for 49.35% in 2009 rose to 52.60%, then dropped to 50.00% of total disclosed items in 2011. The “environment” and “employee” related disclosures were the next most reported themes in this industry. They fell from 44.63% in 2009 to 35.12% of total disclosed items in 2011 (for environment) and decreased from 29.83% in 2009 to 25.25% of total disclosed items in 2011 (for employee). The least reported CSR themes were “energy” and “product” dimension, respectively.

### 4.3.7 CSR Disclosure by Services Industry

This section shows the results of CSR disclosure items of firms in the services industry. A total of fifty-five companies belong to this industry in five different subsectors. The results of CSR disclosure items for services industry are presented in Table 4.13.

**Table 4.13 The Number of CSR Disclosed Items for Services Industry**

Theme	Total disclosed items (N=55)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Community	385	147	38.18	163	42.34	163	42.34
Employee	880	227	25.80	190	21.59	177	20.11
Environment	605	119	19.67	109	18.02	94	15.54
Product	275	38	13.82	21	7.64	24	8.73
Energy	330	28	8.48	18	5.45	22	6.67
Total	2,475	559		501		480	
Average number of CSR items		112	22.59	100	20.24	96	19.39

Table 4.13 shows the results of the number of CSR disclosure themes for the services industry. There is a slight decrease in the number of CSR items disclosed by this industry, which reduced from 112 items (22.59% of total disclosed items in the industry) to 96 items (19.39% of total disclosed items in the industry) in 2011. From the Table 4.13, it is observed that “community” was the most disclosed theme, rising from 147 items (38.18% of total disclosed items in the industry) in 2009 to 163 items (42.34% of total disclosed items in the industry) in 2010, then remaining steady at 163 items in 2011. The “employee” dimension was the next most disclosed theme. It dropped from 227 items (25.80% of total disclosed items in the industry) in 2009 to 190 items (21.59% of total disclosed items in the industry) in 2010, then decreased to 177 items (20.11% of total disclosed items in the industry) in 2011. “Energy” was the least disclosed theme in this industry at about 5% to 9% over the period.

### 4.3.8 CSR Disclosure by Technology Industry

This section presents CSR items disclosed by firms in the technology industry. This industry has twenty-nine companies in two subsectors. Table 4.14 shows the results for the number of CSR disclosed items in the technology industry. From the data in Table 4.14, it is observed that there is a slight decrease in the number of CSR disclosures by this industry. They disclosed from about 23.52% of total disclosed items in the industry in 2009 and 2010, then falling to 57 items (21.92% of total disclosed items in the industry) in 2011. The most disclosed theme was “community”, which reported 84 items (41.38% of total disclosed items in the industry) in 2009, dropped to 90 items (44.33% of total disclosed items in the industry) in 2011. The next most disclosed theme was the “employee” information, which fell from 24.14% in 2009 to 22.20% in 2011 and then “environment” information, which dropped from 24.76% in 2009 to about 20.69% in 2011 “Energy” was the least disclosed theme in this industry, which reported 9.77% in 2009 decreasing to 7.47% in 2011.

**Table 4.14 The Number of CSR Disclosed Items for Technology Industry**

Theme	Total disclosed items (N=29)	Number of CSR disclosed items					
		2009		2010		2011	
		Amount	%	Amount	%	Amount	%
Community	203	84	41.38	98	48.28	90	44.33
Environment	319	79	24.76	66	20.69	66	20.69
Employee	464	112	24.14	109	23.49	103	22.20
Product	145	15	10.34	14	9.66	14	9.66
Energy	174	17	9.77	17	9.77	13	7.47
Total	1,305	307		304		286	
Average number of CSR items		61	23.52	61	23.52	57	21.92

## 4.4 The Financial Ratios of Thai Listed Firms

This section presents the financial performance of Thai listed firms between 2009 and 2011. The financial performance presented here consists of accounting-based measures and market-based measure. The accounting-based measures are return on assets (ROA), net profit margin (NPM) and earnings per share (EPS). The market-based measure is Tobin’s Q (TBQ). The results for the analysis are presented



in Table 4.15 for all sample data. Table 4.16 shows the financial performance of Thai listed firms by industry type for each year and Table 4.17 presents an average of financial performance by industry type.

#### 4.4.1 Financial Performance of Thai Listed Companies

In this section, some statistical analysis was employed to determine the performance of Thai listed companies. Table 4.15 presents the financial performance of Thai listed from companies from for the period 2009 to 2011.

**Table 4.15 The Financial Performance of Thai Listed Firms between 2009 and 2011**

Financial Performance	2009	2010	2011	AVERAGE
Return on Assets (%)	7.17	9.41	8.07	8.22
Net profit Margin (%)	3.11	8.27	5.44	5.61
Earnings per share (Baht)	2.47	3.06	2.23	2.59
Tobin's Q (times)	0.43	0.72	0.78	0.64
Leverage (times)	1.63	2.05	2.09	1.92

From Table 4.15, it is found that the ROA was 7.17% in 2009, increased to 9.41% in 2010 and dropped to 8.07% in 2011. The NPM was 3.11% in 2009, jumped to 8.27% in 2010, and decreased to 5.44% in 2009. There is a fluctuation in the EPS figures. It was at 2.47 baht per share in 2009 then rose to 3.06 baht in 2010, and then went down to 2.23 baht per share in 2011. The TBQ increased over the whole period, starting from 0.43% in 2009 and reaching the top at 0.78% in 2011. The leverage (total debt to equity) ratio was stable at 1.63 times in 2009, and increased to 2.09 times in 2011.

#### 4.4.2 Financial Performance of Thai Listed Companies by Industry Type

This section provides financial ratios of companies in eight different industries for each year from 2009 to 2011. The financial performance of Thai listed firms by type of industry from 2009 to 2011 is shown in Table 4.16. The results illustrated that the return on assets of firms in agro & food and resources industries,

on average, was higher than for firms in other industries. The net profit margins of firms in agro & food, consumer product, financials, resources, and technology industry were not significantly different, while the NPM of firms in the remaining industries had a negative value in 2009.

**Table 4.16 The Financial Performance of Thai Listed Firms by Type of Industry between 2009 and 2011**

Financial Performance	Return on Assets (%)	Net profit Margin (%)	Earnings per share (Baht)	Tobin's Q (times)	Leverage (times)
<b>2009</b>					
Agro & Food	14.25	8.70	7.44	0.18	0.89
Consumer Products	8.28	7.55	3.47	0.21	0.41
Financials	3.20	9.05	2.60	0.31	3.86
Industrials	5.71	- 0.94	1.59	0.23	0.77
Property & Construction	6.11	- 1.84	1.05	0.63	1.97
Resources	11.45	9.39	5.63	0.77	1.10
Services	6.11	- 0.97	1.19	0.55	1.22
Technology	8.64	5.30	0.91	0.45	1.78
<b>2010</b>					
Agro & Food	12.69	7.47	6.77	0.58	0.95
Consumer Products	11.98	11.16	4.23	0.27	0.44
Financials	4.56	15.84	3.57	0.25	4.09
Industrials	10.70	5.66	2.15	0.77	0.81
Property & Construction	8.30	7.17	1.52	1.09	3.96
Resources	11.38	12.66	7.72	1.45	1.27
Services	9.29	4.08	1.81	0.43	0.96
Technology	10.58	6.31	1.24	1.06	1.63
<b>2011</b>					
Agro & Food	15.46	8.31	4.00	0.56	0.87
Consumer Products	7.97	5.95	2.68	0.49	0.56
Financials	3.13	8.72	2.42	0.20	5.65
Industrials	8.46	5.07	1.56	1.05	0.96
Property & Construction	7.03	4.25	1.10	0.88	2.48
Resources	11.32	11.32	7.21	1.00	1.50
Services	8.65	2.17	1.53	0.74	1.37
Technology	6.28	1.88	0.96	1.41	1.88

The earnings per share and Tobin's Q of firms in each industry were not found to be significantly different across industries. The leverage of the firms in the financial industry was higher than firms in other industries over the period.

Table 4.17 shows that, on average for the period 2009 to 2011, the returns on assets and earnings per share of firms in agro & food and resources industries were higher than firms in other industries, with the financial industry showing the lowest ROA. Moreover, firms in the financial industry seemed to have the highest net profit margin, followed by firms in the resources industry, but firms in the services industry had the lowest NPM. The Tobin's Q of firms in the resources and technology industries were higher than in other industries. For leverage, the financials and property & construction industries had a higher leverage than firms in other industries.

**Table 4.17 An Average of Financial Performance of Thai Listed Firms by Type of Industry between 2009 and 2011**

Financial Performance	Return on Assets (%)	Net profit Margin (%)	Earnings per share (Baht)	Tobin's Q (times)	Leverage (times)
Agro & Food	14.14	8.16	6.07	0.44	0.90
Resources	11.38	11.12	6.85	1.07	1.29
Consumer Products	9.41	8.22	3.46	0.32	0.47
Technology	8.50	4.50	1.04	0.97	1.76
Industrials	8.29	3.26	1.77	0.68	0.85
Services	8.01	1.76	1.51	0.57	1.19
Property & Construction	7.15	3.19	1.22	0.87	2.80
Financials	3.63	11.20	2.86	0.25	4.53
Total	8.22	5.61	2.59	0.65	1.92

## 4.5 The Nature and Extent of CSR Disclosure in Thailand

The analyses from previous sections present the extent of corporate social responsibility (CSR) disclosure in terms of theme and/or items location of report and form of disclosure across eight industries in Thailand. This section will further elaborate the nature and extent of CSR disclosure into two parts. Section 4.5.1 presents the overall nature and the extent of CSR disclosure in Thailand and Section 4.5.2 elaborates on the extent of CSR disclosure by industry type.

#### 4.5.1 The Extent of CSR Disclosure in Thailand

This study has used a CSR checklist to examine the nature and extent of CSR disclosures in Thailand during the selected period 2009 to 2011. The extent of CSR disclosures are summarised into five perspectives of CSR disclosure, namely: environment, energy, employee relation, community involvement and product responsibility.

The main findings can be summarised in the fact that there is a slight increase in the number of firms disclosing their CSR information over the three-year study period. The most disclosed theme in annual reports on CSR disclosure is “community” involvement information, whilst “employee” information is the second most disclosed theme in the Thai reports studied. “Environment” information is the third most disclosed theme. The “product responsibility” and “energy” dimensions are the most disclosed theme. These findings indicate that the main stakeholder group gained benefits when organisations maintain the expectation of all stakeholders. These findings lend to support to stakeholder theory in that CSR information disclosed is considered by particularly stakeholder groups (Tilt, 1994; Deegan and Rankin, 1997). Not only the demand by stakeholders group, the volume of CSR disclosure is related to the expectations of stakeholders (Deegan, 2000). Therefore, this would appear to indicate that stakeholder theory could be used to explain the extent of CSR disclosure in the Thai context as well.

The findings of the descriptive analyses of current chapter are consistent with those of Gao *et al*, (2005), Sobhani *et al*, (2009), Azim (2010), Hamid and Atan (2011) and Kabir and Akinnusi (2012), who found “community” involvement and “human resources” were the most commonly disclosed themes of CSR disclosure. In addition, in Western countries, especially in the study by USA Holder-Webb *et al*, (2009) found that the most frequently disclosed CSR information was in the areas of “community” participation, health and safety matters, diversity and human resources.

There are several possible explanations for the descriptive findings of this study. *Firstly*, the Thai government has set up the Corporate Social Responsibility Institute (CSRI) in 2007 with the aim of supporting and encouraging companies in the SET to disclose CSR by providing seminars and training for listed firms and helping them to understand disclosure guidelines. The government has provisions for CSR awards to motivate firms to develop guidelines of CSR disclosure for each

industry group. Consequently, such supports from the Thai government might be a factor which could persuade Thai firms to disclose more CSR activities from year 2009 to 2011.

*Secondly*, Thailand experienced major floods in 2010, especially in the industrial areas near Bangkok, which had a direct effect on Thai economy. The GDP of Thailand decreased from 7.8% in 2010 to 0.1% in 2011 (Worldbank, 2014). It is possible that companies spent a large portion of their budget in restoring their business. At the same time, Thai companies provided financial and other supports to help nearby communities, including donating cash to support public activities, donating products to help communities and sponsoring public health projects to communities, as well as offering employee assistances and running some projects to restore environment around the business location (Azim, 2010). As the community activities of Thai firms increased during 2010 to 2011, the disclosures of community activities of Thai firms are also increased. Moreover, the impact of flooding might have caused the firms to participate more in community activities. During the time of crisis Thai listed firms became more responsive to community needs.

*Thirdly*, Thai culture is based on religious beliefs. Buddhism is observed by 94.6% of Thai citizen (NSO, 2012). Following from Buddhist beliefs, most Thai people believe that doing good things, donating of cash or products, and doing all charitable activities would lead to Nirvana. These beliefs influence the management of organisations. It can be seen from Table 4.3 that the top most disclosed items in “community” dimension are: (1) Donations of cash, products, or employee services to support community activities, events, arts, sports etc., (2) Supporting the development of community programs, events/activities, excursion and (3) Funding scholarship programs or activities. Thus, it is possible that CSR practices of Thai listed firms especially in “community” perspective are influenced by the widespread belief in Buddhism in Thai culture.

*Fourthly*, Thai people traditionally show love and respect to the Thai monarchy, especially, King Bhumibol Adulyadej. The monarchy is the highest institution in Thailand. The king is the head of state. The King is the object of loyalty and the anchor of the soul of Thai people. The King is highly respected, loved and emulated by the entire country of Thailand as well as the leaders in the public practice. As well, in Thailand His Majesty the King has initiated many charitable projects and activities using royal funds to help poor, disabled, sick, and elderly

people and contributed assistance from flood relief to help them. He is considered truly a leader in social work. He has introduced a number of projects for the benefits of the people of Thailand. The activities initiated by the King have been supported by the Thai firms and Thai people. They also continually donate cash, products and services to numerous charitable foundations in order to demonstrate their loyalty to the King's institutions. It is plausible that the royalty of monarchy is a consideration for Thai firms to do community work and report their CSR activities.

*Finally*, tax incentives and benefits may be another reason for Thai firms to engage in CSR. Under the Revenue Code, the Thai government is authorised to grant some tax benefits for all Thai companies. For example, companies can deduct expenses for twice the amount times of the actually paid for, supporting education, constructing and maintenance of playground parks, employee training and education, supporting sports training or activities, provision of books or media, research and development and donation for public charities. These tax benefits would encourage firms to disclose CSR information, especially in "community" and "employee" dimensions.

The findings from the current descriptive chapter differ slightly from earlier studies in on Thailand (Kuasirikun and Sherer, 2004; Ratanajongkol *et al.*, 2006) and other countries (Zeghal and Ahmed, 1990), which found that "employee or human resources" information was the most reported CSR in annual reports, followed by "environment" and "community" information. The difference between studies can be explained by the time period of study, as Thai firms are inclined to do more community work now. As well, Tsang (1998), Islam and Deegan (2008) and Murphy and Abeysekera (2008) provide evidence that the most commonly reported information was related to "human resources" and "community" involvement.

A further explanation of these differences is that at the period before and after the Asian financial crisis in 1997, most of the firms in Thailand have engaged in CSR activities by focusing on laws and regulations related to their environmental and employee activities. Towards this end, Thai government has issued laws and regulations such as the Labour Protection Act B.E. 1998, the Factory Act B.E. 1992, Public Health Act B.E. 1992, the Hazardous Substance Act B.E. 1992, the Environmental Quality Standard, Enhancement, and Conservation of National Environmental Quality Act B.E. 1992, etc. Consequently, companies in Thailand must comply with these regulations and laws and have started reporting sound labour

policies, practices and decent work occupational safety, health and environment or environmental protection and pollution control in the workplace in their annual reports. The CSR activities, particularly “employee” and “environment” aspects relating to these laws and regulations are disclosed in order to meet requirements from government or to avoid fees and penalty. It is apparent and consistent with legitimacy theory that firms are liable to disclose CSR information to legitimize their operations (Deegan and Gordon, 1996; Deegan *et al.*, 2000). It should however be mentioned that in the period before the financial crisis, Thai firms tended to report “employee relation” and “environment” related-activities rather than other themes.

With regard to reporting the location and methods of CSR disclosure, the current finding shows that CSR is more often covered in narrative and photographs in annual reports, rather than in narrative form with monetary terms. This lends support to the previous findings of Kuasirikun and Sherer (2004), who found that Thai firms reported their social involvement in narrative form. However, compared with this study the proportion of firms in their study in relation to the reporting of CSR aspects with narrative and photographs was lower. But the proportion of firms disclosing CSR with narrative and monetary units was higher than in Kuasirikun and Sherer (2004) study as compared to this current study. This study also revealed an increasing number of firms reporting CSR with narrative and monetary units, which is consistent with prior literature (Kabir and Akinnusi, 2012). It is possible that Thai companies want to promote their CSR activities by reporting the budget spending on CSR.

Moreover, the findings of the current study show that the most significant location of CSR disclosure is found mostly in the CSR section of annual report, corporate governance and other sections, in that order. It is found that the number of firms disclosing CSR in the CSR section of annual reports increased during the 2009-2011 period and reported mostly in the CSR section. These findings contradict some previous results as have been reported in the literature (Kuasirikun and Sherer, 2004; Azim, 2010; Hamid and Atan, 2011). This may be explained by the fact that the format of annual reports can vary considerably. In the period before this study, some Thai companies did not have CSR section in annual report. They reported CSR activities in other sections such as the corporate governance section or the chairperson’s report section or in separate reports or in other media.

#### **4.5.2 The Extent of CSR Disclosure in Thailand by Industry Type**

This section presents the nature of CSR disclosure by industry type in Thailand. The findings indicate that the most commonly disclosed CSR themes for all industries were “community” involvement. These results differ to some extent from those of Zeghal and Ahmed (1990), Hackston and Milne (1996), Kuasirikun and Sherer (2004), Ratanajongkol *et al.* (2006), Murphy and Abeysekera (2008), Islam and Deegan (2008) and Echave and Bhati (2010). It can nevertheless be argued that the theme of CSR reporting of all industries have focused on community themes rather than on environment and human resources or employee ones. This suggests that CSR information, especially “community”-related activities have become one of the key concerns for all industries in Thailand. A reasonable explanation for disclosing the “community” involvement dimension in preference to other dimensions may be for the reasons described in section 4.5.1. The community dimension is mostly encouraged from some factors such as: government, flood relief, religious belief, royalty of the monarchy and tax benefits. Furthermore, the findings clearly show that the “energy” information was disclosed relatively rarely across industries. This result provides support for and is consistent with previous literature (Belal, 2001; Tilakasiri, 2012; Zhang, 2013), and indicates that “energy” information was reported very little in each industry.

By looking at the trend of CSR disclosure by each industry, the findings indicate that the trend of CSR disclosure varies across the industries. For example the trend of disclosed themes in “consumer product”, “agribusiness & food”, “industrials” and “property & construction” was increasing over the three year period, while, the trend of CSR disclosure in “resources”, “technology”, “services” and “financials” industry decreased throughout the period. A possible explanation for the differences may be that CSR does not tend to be a systematic activity, and it is not really clear how to disclose CSR activity for each industry in annual reports (Gray *et al.*, 1995a). Another possible rationalisation for this is that the trends in CSR change overtime or the motivations for reporting CSR vary, and other factors appear to influence the level of CSR disclosure. For example, size of the firm, industry type (Gray *et al.*, 1995a; Boesso and Kumar, 2007), country (Adams *et al.*, 1998), negative media attention (Deegan and Gordon, 1996), proven environmental prosecutions (Deegan and Rankin, 1996), changing community concerns, the



occurrence of a major social or environmental incident (Deegan *et al.*, 2000), tax aggressiveness (Lanis and Richardson, 2013), the level of a company's profile (Cuganesan *et al.*, 2007), and multidimensional levels of CSR disclosure. Further, it is possible that the global recession (2008) might have affected the management of some industry groups in Thailand especially, in "financials", "resources", "services" and "technology" industry. As a result, the trends of CSR disclosure of those industries appear to have declined over the period. The major flood in 2010 may be another reason for some industries reporting CSR activities differently from others. The results shows that the trend of CSR disclosure of "agribusiness & food", "consumer products" and "industrials" industries were increased. This is because some firms located in the industrial estates were flooded, for example, Saharatanakorn industrial estate, Factor land industrial estate, Rojana industrial estate, Hi-tech industrial estate, Bang Pa-In industrial estate and Navanakorn industrial estate. Therefore, they spent a lot of money supporting communities and employees on flood relief. These factors can be explained and supported by the stakeholder theory in that CSR disclosure of each industry in this study is vary. That is, different expectations from communities, employee's shareholders, government and other stakeholders may influence the CSR activities. The different industry groups also affect the CSR reporting. "Moreover, although there are social and environmental pressure groups in Thailand, these groups are neither adequately proactive nor demanding in terms of corporate social and environmental information (p.651)". As well, Deegan (2000), argues that the volume of CSR disclosure is related to expectations of stakeholders: if there is a high expectation but the level of disclosure is small, firms then have to respond to address the anticipation from the groups. Kabir and Akinnusi (2012) provide documentary evidence to support why firms report CSR in their annual report. They argue that it is to fulfil the requirements of the main shareholders, to demonstrate the important of CSR information to stakeholders and to encourage employee working with CSR engagement. With this viewpoint, it can be explained that companies report CSR activities to sustain legitimacy or to meet stakeholders expectations and to manage their stakeholders (Deegan and Blomquist, 2006; Khan *et al.*, 2010).

## 4.6 Summary and Conclusions

This chapter elaborates the nature and extent of corporate social responsibility disclosure (CSR) of Thai listed firms from 2009 to 2011. Content analysis was used to investigate the five themes of CSR disclosure for all firms in the sample. This chapter has also examined the extent of CSR disclosure for each industry. The results are as follows.

*Firstly*, this study finds that the trend of CSR disclosure increased throughout the period, and “community” or social involvement was the most commonly disclosed theme for all firms and all industries, followed by “employee or human resources”, “environment”, “product or services responsibility” themes, respectively. “Energy” information seems to be the least disclosed theme in Thai annual reports.

*Secondly*, by looking within sub-dimensions of CSR themes, “environmental policies or concern for the environment” was the most disclosed item in the environment theme. It is apparent that firms are most likely to disclose “energy policy and conservation of energy in the operations” items in their annual reports. The “training or providing financial aids to support employees’ education” was the most common disclosed item in the employee theme. The most disclosed items in the community theme were the “donation of cash, products, and services to support society activities” and “supporting the development of community”. In addition, “information on the quality of firm’s products as reflected in prizes or awards received” was the most commonly reported item in the product or services responsibility category.

*Thirdly*, by comparing CSR disclosure of each industry, the analysis shows that the trend of CSR disclosure in “agribusiness & food”, “consumer products”, “industrials” and “property & construction” sectors increased over the period, whereas there is a slight reduction in the trend of CSR disclosure in the “financials”, “resources”, “services” and “technology” industries. It is probable that CSR does not tend to be a systematic activity, and it is not really clear how to disclose CSR activity for each industry in annual reports (Gray *et al.*, 1995a). It may become clear later when the relationships between CSR disclosure and financial performance are analysed. Further, it is possible that the global recession (2008) and the major flood in 2010 might have affected the management of some industry groups.

Furthermore, the most common CSR disclosure theme was “community” involvement, followed by the “environment” and “employee” categories. It is surprising that “energy” was the least disclosed theme in their annual reports. It can be reasonably assumed that encouragement from government, flood relief, religious belief, influence of the monarchy and tax benefits may influence CSR reporting. With this viewpoint, it can be explained that companies report CSR activities to sustain legitimacy or to meet stakeholder expectations and to manage their stakeholders (Deegan and Blomquist, 2006; Khan *et al.*, 2010)

*Finally*, the results from financial performance studies show that, on average, there is no statistically significant difference in the average return on assets (ROA), earnings per share (EPS), Tobin’s Q (TBQ), leverages (LEV) and net profit margin (NPM). Moreover, the return on assets and earnings per share of firms in agro & food and resources industries were higher than those for firms in other industries. The Tobin’s Q of firms in the resources and technology industries performed higher than firms in other industries. The firms in the financial industry had the highest net profit margin, followed by firms in the resources industry, but firms in the services industry had the lowest NPM. The financials industry firms had a higher leverage than firms in other industries. Because the comparison of CSR disclosure of each industry demonstrates that CSR does not tend to be a systematic activity and how companies disclosed CSR activities for each industry, it is worthwhile to investigate the relationship between CSR disclosure and financial performance in order to understand more clearly the reasons as to why the companies disclose on CSR themes in annual reports. This is attempted in later chapters.

## **CHAPTER 5**

### **THE RELATIONSHIP BETWEEN CSR DISCLOSURE AND FINANCIAL PERFORMANCE FOR ALL INDUSTRIES IN THAILAND**

#### **5.1 Introduction**

As has been described in earlier chapters, the purpose of this study is to investigate the relationship between corporate social responsibility (CSR) disclosure and financial performance of firms listed on the Stock Exchange of Thailand (SET) from 2009 to 2011 inclusive. The relationship between CSR disclosure and financial performance for all firms is divided into eight industries. Chapter 3 elaborates on the definition of variables, development of hypotheses, data sources and research instruments to be tested. Content analysis is used to gather CSR disclosure data from company annual reports, and quantitative data is collected from the SETSMART database and company websites. A multiple regression and instrumental variable estimation are used to examine the relationship between CSR disclosure and four financial performances parameters. This chapter is focused on the association between CSR disclosure and financial performance, the impacts of financial performance on CSR disclosure, and the impacts of each dimension of CSR disclosure on financial performance. A panel regression model and instrumental variable (IV) estimation are adopted to examine the relationship between CSR and financial performance.

This chapter is organised as follows. The *first section* provides descriptive statistics of the dependent and independent variables. The *second section presents* multivariate analyses on the level of CSR disclosures on four financial performance measures. The *third section* provides the results of the link between financial performance and CSR disclosure. The relationship between each dimension of CSR and financial performance is presented in the *fourth section*. The *fifth section* provides the results of panel regression and instrumental variable estimation. The discussion of the findings is presented in the *sixth section*. The *final section* gives the summary and conclusion relating to multivariate regression analyses.

## 5.2 Descriptive Statistics for All Firms

In this section, descriptive statistics are given to determine the distribution, central tendency and the dispersion of the variables for all firms in the selected sample. The definition of variables is provided in Chapter 3 under the data and methodology section. The findings of univariate analysis of CSR disclosure and firm financial performance are discussed here. These analyses are performed by comparing the CSR disclosure index and four respective financial performances measures, which include return on assets (ROA), net profit margin (NPM), earnings per share (EPS) and Tobin's Q (TBQ). The descriptive statistics reported in this study included the mean, median, minimum, maximum, and standard deviation.

**Table 5.1 Descriptive Statistics for all Industries in the Years 2009 to 2011**

Variables	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Log Assets	Age (Years)	Lev (Times)	Inter direct
2009									
Mean	7.17	3.11	2.47	0.43	0.21	22.46	14.74	1.63	0.37
Median	6.21	5.70	0.49	0.16	0.20	22.10	16.00	0.86	0.36
S.D.	9.20	26.38	6.68	0.76	0.14	1.66	8.57	2.70	0.09
Min	- 27.60	- 219.19	- 5.71	0	0	19.56	1.00	0	0.15
Max	44.54	50.07	72.81	7.91	0.63	28.20	35.00	28.36	0.75
2010									
Mean	9.41	8.27	3.06	0.72	0.22	22.56	15.74	2.05	0.39
Median	8.51	7.82	0.67	0.34	0.22	22.21	17.00	0.92	0.36
S.D.	9.56	14.56	8.21	1.14	0.14	1.69	8.57	9.58	0.09
Min	- 36.04	- 81.00	- 3.30	0	0	19.50	2.00	0	0.17
Max	53.03	57.21	91.00	11.28	0.61	28.30	36.00	168.84	0.75
2011									
Mean	8.07	5.44	2.23	0.78	0.22	22.66	16.74	2.09	0.40
Median	7.34	6.12	0.48	0.27	0.22	22.25	18.00	1.00	0.38
S.D.	10.98	17.71	6.57	1.67	0.14	1.73	8.57	3.64	0.09
Min	- 62.91	- 178.10	- 6.34	0	0	19.24	3.00	0	0.23
Max	57.29	63.14	73.82	15.00	0.61	28.38	37.00	31.47	0.80
Total									
Mean	8.22	5.61	2.59	0.64	0.22	22.56	15.74	1.92	0.38
Median	7.49	6.45	0.55	0.24	0.20	22.19	17.00	0.92	0.36
S.D.	9.98	20.27	7.19	1.25	0.14	1.69	8.60	6.12	0.09
Min	- 62.91	- 219.19	- 6.34	0	0	19.24	1.00	0	0.15
Max	57.29	63.14	91.00	15.00	0.63	28.38	37.00	168.84	0.80

Table 5.1 presents the descriptive statistics of variables from year 2009 to 2011. The deviations between maximum and minimum for some variables were high. For instance, on average, return on assets is spreading from - 62.91% to 57.29% in year 2011, net profit margin from - 219.19% to 63.14 % for the whole period, and earnings per share from minus 6.34 Baht to 91 Baht on average. There are some variables still with negative figures, namely return on assets, net profit margin and earnings per share. The positive averages are leverage (168.84 times) and net profit margin (63.14%). The average for ROA and ROS are relatively lower compared with Ghelli (2013). The highest standard deviation for financial performance variables was the net profit margin (20.27%), suggesting that the difference among the firms was higher in this financial performance indicator.

The mean and median of CSRI were 0.22 and 0.20, respectively, suggesting that firms in Thailand were less likely to disclose CSR activities. This is because there are forty-five disclosed items and less than 25% were being reported by Thai companies. The average age of the firms listed on SET was 15.75 years and standard deviation was 8.6, which indicates that firms may engage in CSR activities within fifteen years of their business establishment. Further, the mean of the percentage of independent directors to total directors on the board was 38% (standard deviation = 36%), indicating that a majority of directors are independent directors. The debt to equity ratio was 1.92 times, suggesting that total liabilities form a significant percentage of the capital structure.

**Table 5.2 Descriptive Statistics for each Industry for the Years 2009 to 2011**

Variable	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Log Assets	Age (Years)	Lev (Times)	Inter direct
<b>Agro &amp; Food Industry</b>									
Mean	14.14	8.16	6.07	0.44	0.21	22.24	19.26	0.90	0.35
Median	13.12	6.95	1.40	0.11	0.20	21.83	20.00	0.53	0.33
S.D.	9.37	5.98	12.53	0.82	0.13	1.26	6.69	1.09	0.07
Min	- 0.30	- 0.44	- 0.62	0	0	20.41	2.00	0.07	0.17
Max	57.29	25.84	76.53	5.69	0.61	25.80	37.00	5.59	0.50

**Table 5.2 (continued) Descriptive Statistics for each Industry for the Years 2009 to 2011**

Variable	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Log Assets	Age (Years)	Lev (Times)	Inter direct
Consumer Products Industry									
Mean	9.41	8.22	3.46	0.32	0.25	21.73	21.96	0.47	0.36
Median	8.48	6.99	1.18	0.03	0.26	21.82	22.50	0.37	0.35
S.D.	7.91	8.90	7.04	0.92	0.14	1.02	8.84	0.44	0.07
Min	- 5.69	- 8.16	- 5.67	0.00	0	20.12	2.00	0.04	0.20
Max	49.98	57.21	36.85	7.20	0.54	23.85	37.00	2.46	0.56
Financial Industry									
Mean	3.63	11.20	2.86	0.25	0.19	23.39	18.26	4.53	0.38
Median	2.84	12.81	1.10	0.07	0.18	22.71	19.00	2.03	0.36
S.D.	4.77	17.43	6.26	0.51	0.12	2.35	10.40	4.96	0.09
Min	- 13.50	- 116.43	- 6.34	0	0	20.08	1.00	0.02	0.15
Max	16.71	55.65	37.58	3.39	0.48	28.38	37.00	24.65	0.75
Industrial Industry									
Mean	8.29	3.26	1.77	0.68	0.20	22.09	13.20	0.85	0.38
Median	8.29	5.11	0.42	0.20	0.17	21.90	9.00	0.60	0.36
S.D.	9.75	16.59	3.52	1.83	0.16	1.28	8.92	0.79	0.09
Min	- 27.60	- 153.87	- 2.52	0	0	19.54	1.00	0.03	0.19
Max	37.63	30.05	19.80	15.00	0.63	26.64	37.00	4.15	0.73
Property & Construction Industry									
Mean	7.15	3.19	1.22	0.87	0.18	22.58	14.45	2.80	0.40
Median	5.97	6.44	0.25	0.52	0.15	22.40	16.00	1.25	0.38
S.D.	9.29	27.22	3.71	1.07	0.14	1.29	6.98	12.29	0.09
Min	- 19.84	- 219.19	- 2.04	0.00	0	20.27	1.00	0.02	0.23
Max	46.15	45.26	31.15	8.38	0.59	26.65	37.00	168.84	0.67
Resources Industry									
Mean	11.38	11.12	6.85	1.07	0.32	23.85	11.91	1.29	0.42
Median	11.32	7.35	1.06	0.58	0.35	23.78	10.50	1.09	0.39
S.D.	8.54	15.99	16.26	1.74	0.15	1.90	6.54	1.01	0.12
Min	- 10.48	- 48.53	- 0.46	0.00	0.04	19.74	2.00	0.06	0.23
Max	41.72	50.07	91.00	11.28	0.63	27.97	25.00	7.07	0.80

**Table 5.2 (continued) Descriptive Statistics for each Industry for the Years 2009 to 2011**

Variable	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Log Assets	Age (Years)	Lev (Times)	Inter direct
Services Industry									
Mean	8.01	1.76	1.51	0.57	0.22	22.26	16.35	1.19	0.38
Median	8.41	5.46	0.70	0.20	0.22	21.74	17.00	0.77	0.36
S.D.	12.57	26.82	2.93	1.03	0.13	1.70	8.08	1.74	0.09
Min	- 62.91	- 179.06	- 5.71	0	0	19.24	2.00	0	0.18
Max	54.11	47.38	14.95	7.91	0.52	26.41	37.00	15.98	0.80
Technology Industry									
Mean	8.50	4.50	1.04	0.97	0.24	22.59	11.83	1.76	0.40
Median	8.65	2.62	0.36	0.52	0.24	22.21	10.00	1.55	0.38
S.D.	11.70	11.91	1.92	1.59	0.14	1.51	6.65	1.62	0.08
Min	- 45.63	- 30.26	- 3.71	0.00	0	20.11	1.00	0.19	0.22
Max	41.68	63.14	7.48	10.31	0.48	25.74	24.00	10.62	0.60

From Table 5.2, it is observed that resources industry and agro & food industry had the highest mean of EPS (6.85 Baht and 6.07 Baht, respectively), while the technology industry had the lowest average for EPS; returns from investment are higher for resources and agro & food industries as compared to other industries. The average and standard deviation for TBQ for all industries was not very different. It ranged from 0.25 for financial industry to 1.07 for resources sector. The average corporate social responsibility index of resources industry was 32%, which was higher than the industry average (22%) and other industries. This suggests that firms in the resources industry appear to disclose more CSR activities than other industries. Firms in the property & construction sector had the lowest average level of CSR disclosure (18%). It can be seen that the CSR disclosure index and percentage of independent directors in the resources industry had higher averages than other industries. The firm size (logarithm of total assets) did not vary much among the industries and ranged from 21.73 to 23.85. An average firm age for sample industries varied from 11.83 years for firms in the technology sector to 21.96 years for companies in the consumer products sector. The highest mean for debt to equity ratio was in the financial industry, meaning that it is common for the banking sector to have higher leverage than in other industry sectors. The net profit margin and size of



assets seemed to be high in the financial industry as well. The number of independent directors on board of resources, technology and property & construction sectors was relatively high (42%, 40% and 40%, respectively), suggesting that firms in these industries are more concerned about transparency and accountability, resulting in a high proportion of independent directors. The independent directors may help in improving firm financial performance. The standard deviation of ROA for services and technology industry sectors were 12.57% and 11.70% and the standard deviation of NPM for the property & construction and services industries were 27.22% and 26.82% respectively. The standard deviation of EPS was high in the resources and agro & food industry sector, which accounted for 16.26 Baht and 12.53 Baht, respectively.

### **5.3 The Empirical Results for the Association between CSR Disclosure and Financial Performance**

This section presents the results for the relationship between CSR and financial performance from 2009 to 2011. There were 323 firms in each year from 2009 to 2011. Multivariate analysis is employed to examine the relationship between CSR and four financial performance measures. This regression method compares cross-sectional data, panel data and instrumental variable (IV) estimation. The model used in the analysis is given in Chapter 3, which proxies financial performance as the dependent variable.

This section is divided into six parts. *Firstly*, testing for multicollinearity is discussed. *Secondly*, testing for homoscedasticity is shown. *Thirdly*, the correlation between return on assets (ROA) and CSR disclosure is analysed. *Fourthly*, the relationship between net profit margin (NPM) and CSR disclosure is presented. *Fifthly*, the impact of earnings per share (EPS) on CSR disclosure is investigated. *Finally*, there is an investigation on correlation between Tobin's Q and CSR disclosure.

#### **5.3.1 Testing for Multicollinearity**

There are several assumptions underlying multiple regression analysis that

have to be satisfied for the regression model to be valid. The multicollinearity is tested to identify that the independent variables are not highly correlated and no multicollinearity amongst independent variables exists (CSR index, firm size, age of firm and independent director). To control this problem, the Pearson correlation and the variance inflation factor (VIF) and tolerance were analysed. Gujarati (2009) suggests that if the correlation coefficient exceed 0.8 or 0.9, it would be considered a serious problem. The correlation coefficients and the significance levels of dependent and independent variables for 2009, 2010, 2011 and panel data (2009-2011) are illustrated in **Appendix B-1.1 to B-1.4**.

Appendix B-1.1 shows the correlation matrix between ROA and independent variables for the years 2009-2011. The Pearson correlations between each pair of variables shows that the highest correlation coefficients between CSRI and SIZE variable were 0.4498, which suggests that multicollinearity is unlikely to be a problem. Appendix B-1.2 reports the correlation matrix between NPM and independent variables. The correlation between NPM and SIZE was highest at 0.2031, which is lower than 0.8. This finding indicates that collinearity should not be considered a serious problem. Appendix B-1.3 presents the Pearson correlation results between EPS and independent variables, which shows that the correlation between EPS and AGE was highest at 0.2231. This result indicates low levels of collinearity between variables, which suggests an absence of multicollinearity. For appendix B-1.4, collinearity analytics suggest that no variables have a correlation greater than -0.2. The highest correlation was between AGE and SIZE at 0.1893, indicating that multicollinearity is not a concern.

**Table 5.3 Testing for Multicollinearity by Using the Variance Inflation Factor (VIF)**

Variable	VIF
CSRI	1.30
SIZE (Log Assets)	1.31
LEV	1.03
AGE	1.10
IDIRECTOR	1.03

Further, the independent variables were not highly correlated with each other. Some of the variables are significantly correlated to other variables, but the coefficients are very low, indicating that multicollinearity does not exist.

For example, the correlation between CSRI and SIZE was 0.4498, and EPS and SIZE was 0.2192. This study also tested the variance inflation factor (VIF) and tolerance. As a rule of thumb, multicollinearity is considered as a serious problem when the VIF values for independent variables are higher than 10 or tolerance is not far from 0.10 (Gujarati, 2009). Table 5.3 shows the variance inflation factor and tolerance of independent variables. The results show that the VIF ranged from 1.03 to 1.31 and tolerance were higher than 0.79. The VIF and tolerance value confirm that there is no multicollinearity between variables.

### **5.3.2 Testing for Homoscedasticity**

Another regression assumption which has to be tested is homoscedasticity, which is a condition in which the dependent variable has an equal variance level of the residual of regression for each of the values of the independent variables or the variance of the error term is constant. When the variances of residuals differ for different values of the independent variables, heteroscedasticity is present. This can lead to invalid regression findings and the results may not be reliable. This study employed the Breusch-Pagan / Cook-Weisberg test and White's General test for detecting heteroscedasticity. In addition, robust standard error is another method to test homoscedasticity. (Gujarati, 2009) argued that the problem of OLS estimation errors are not independent and identically distributed. When heteroscedasticity is present, standard errors may be biased. The coefficients from the estimation will not change when robust standard errors are employed. The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity shows that some heteroscedasticity was present<sup>5</sup>, indicating that heteroscedasticity was probably a problem. To fulfil the regression assumption, this study also controlled for heteroscedasticity to provide a better fit for the model by using robust standard errors in all models. Using robust standard errors, the estimates of the coefficients are exactly the same as in ordinary least square, but the standard errors and t-tests take into account issues concerning heterogeneity and lack of normality. Thus, the robust standard errors are appropriate under homoscedasticity.

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<sup>5</sup> The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity is presented in APPENDIX C-1

### **5.3.3 The Relationship between CSR Disclosure and Return on Assets (ROA as the Dependent Variable)**

This section presents a comparison of results obtained from the relationship between CSR disclosure as independent variable and return on assets (ROA) as dependent variable for each year and using pooled OLS data regression and panel data regression. The significance levels for the association refer to the difference in variance of mean value of financial performance, which was tested by t-test. The findings of the analyses are shown in Table 5.4.

#### ***5.3.3.1 Examining Random Effects: the Lagrange Multiplier Test (Pooled OLS or Random effects)***

Table 5.4 shows the results of the Breusch-Pagan Lagrange multiplier (LM) test. It shows the variance across entities were not equal to zero ( $\chi^2 = 340.29$ , probability = 0.0000), indicating that null hypothesis was rejected. That is, the random effects model is appropriate over the pooled OLS model.

#### ***5.3.3.2 The Hausman Test: Fixed effects model or Random effects model***

The result of the Hausman specification test shows that the individual effects were correlated with other regressors ( $\chi^2 = 39.63$ , probability = 0.0000), the null hypothesis was rejected and the fixed effects model is more appropriate than the random effects model.

#### ***5.3.3.3 Regression Results: ROA as a Dependent Variable***

From the results in 5.3.3.1 and 5.3.3.2, it can be summarised that the fixed effects model is the appropriate model. It is apparent from Table 5.4 that all models were statistically significant at 1% level ( $p = 0.00$ ). The coefficient for CSRI was positive and significantly associated with return on assets (ROA) at the 1% level in 2009, 2010 and pooled OLS, at the 10% level in 2011 and the fixed effects model.

### **5.3.4 The Relationship between CSR Disclosure and Net Profit Margin (NPM as the Dependent Variable)**

Table 5.5 presents the findings of the multiple regressions of the relationship between CSR disclosure as independent variable and net profit margin (NPM) as the

dependent variable in the years 2009 to 2011. Regression analysis of the relationship presented the following results.

**Table 5.4 Regression Analysis: Return on Assets as the Dependent Variable**

Independent Variables	Dependent Variable				
	Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (FE)
CSRI	13.06*** (3.271)	12.38*** (3.275)	8.043* (1.876)	13.49*** (5.767)	5.393* (1.662)
SIZE (Log Assets)	0.601 (1.476)	-0.381 (-1.125)	0.626 (1.182)	-0.0890 (-0.372)	3.264 (1.546)
LEVERAGE	-1.143*** (-4.668)	-0.187*** (-4.380)	-0.942*** (-2.860)	-0.308** (-2.134)	-0.0768 (-1.095)
AGE	-0.0188 (-0.367)	-0.0227 (-0.382)	0.00595 (0.0944)	-0.0129 (-0.381)	0.125 (0.325)
IDIRECTOR	0.00105 (0.000211)	-12.71** (-2.215)	-17.43** (-2.252)	-8.836** (-2.368)	1.692 (0.423)
Constant	-6.357 (-0.742)	20.82*** (2.812)	0.995 (0.0954)	11.58** (2.322)	-69.05 (-1.614)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.154	0.069	0.119	0.071	0.026
F-Statistic	9.00	7.13	6.02	17.02	3.08
P-Value	0.0000	0.0000	0.0039	0.0000	0.0099
Hausman test					
chi ( $\chi^2$ )					39.63
Prob					0.0000
Breusch-Pagan LM test					
chi ( $\chi^2$ )				340.29	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### **5.3.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)**

Table 5.5 shows the results from Breusch-Pagan Lagrange multiplier test. It can be seen that that the variance across entities was not zero (chi ( $\chi^2$ ) = 135.65 and

probability = 0.0000), indicating that the null hypothesis was rejected. That is, the random effects model is favoured over the pooled OLS model.

**Table 5.5 Regression Analysis: Net Profit Margin as the Dependent Variable**

Independent Variables	Dependent Variable				
	Net Profit Margin (NPM)			Pooled OLS	Panel (RE)
	2009	2010	2011		
CSRI	16.67* (1.690)	5.893 (0.996)	7.216 (0.917)	15.36*** (3.179)	13.20** (2.313)
SIZE (Log Assets)	4.331*** (4.711)	1.783*** (4.003)	2.768*** (3.928)	2.125*** (5.330)	2.258*** (4.145)
LEVERAGE	-2.838*** (-5.136)	-0.194*** (-4.066)	-1.253*** (-3.093)	-0.437* (-1.701)	-0.355*** (-3.512)
AGE	-0.0394 (-0.307)	0.0670 (0.798)	0.131 (1.368)	0.0472 (0.807)	0.0692 (0.685)
IDIRECTOR	6.777 (0.339)	-11.31 (-1.008)	-23.28 (-1.265)	-7.802 (-0.767)	-0.883 (-0.112)
Constant	-92.70*** (-4.409)	-29.05*** (-3.154)	-49.12*** (-3.670)	-41.82*** (-4.935)	-47.54*** (-3.994)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.132	0.078	0.126	0.072	0.105
F-Statistic	9.00	7.13	6.02	17.02	47.24
P-Value	0.0000	0.0000	0.0039	0.0000	0.0000
Hausman test					
chi ( $\chi^2$ )					11.71
Prob					0.0390
Breusch-Pagan LM test					
chi ( $\chi^2$ )				135.65	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### 5.3.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model

The results of the Hausman specification test from Table 5.5 confirm that individual effects were correlated with the other regressors in the model (chi ( $\chi^2$ ) = 11.17, probability = 0.0390), indicating that there is an association between the

individual effects and the regressors. So the null hypothesis was rejected, and the fixed effects model is more suitable than the random effects model.

#### ***5.3.4.3 Regression Results: NPM as a Dependent Variable***

It is apparent from Table 5.5 that all models were found to be statistically significant at the 1% level ( $p = 0.00$ ). The results from the tests in 5.3.4.1 and 5.3.4.2 show that the random effects model is a proper model. The finding shows that the coefficients of CSR index were found to be positively and significantly related to NPM at the 1% level for pooled OLS, at 5% level for random effects, and at 10% level in 2009. However, this analysis did not reveal any significant associations between CSR and NPM in 2010 and 2011.

#### **5.3.5 The Relationship between CSR Disclosure and Earnings per Share (EPS as the Dependent Variable)**

Table 5.6 presents the findings of the multiple regressions of the correlation between CSR disclosure as independent variable and earnings per share (EPS) as the dependent variable in the years 2009 to 2011 inclusive. Regression analysis of the direct relationship demonstrates in the following results.

##### ***5.3.5.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results from Table 5.6 shows that the Breusch-Pagan Lagrange multiplier test was not equal to zero ( $\chi^2 = 594.64$ , probability = 0.0000), suggesting that the alternative hypothesis was accepted. That is, the random effects model is favoured over pooled OLS.

##### ***5.3.5.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

Table 5.6 shows the result of the Hausman specification test. It shows that individual effects were correlated with the other regressors in the model ( $\chi^2$ )

= 9.98, probability = 0.0757), which indicates that the null hypothesis was rejected. The fixed effects model is applicable rather than the random effects model.

**Table 5.6 Regression Analysis: Earnings per Share as the Dependent Variable**

Independent Variables	Dependent Variable				
	Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)
CSRI	-2.748 (-0.860)	1.286 (0.549)	-1.723 (-0.723)	-0.369 (-0.244)	-0.0918 (-0.0815)
SIZE (Log Assets)	0.882*** (2.848)	0.841** (2.319)	1.001*** (2.897)	0.794*** (4.187)	0.663** (2.111)
LEVERAGE	-0.340** (-2.000)	-0.0235 (-1.103)	-0.215** (-2.240)	-0.0612 (-1.250)	-0.0210 (-1.084)
AGE	0.186*** (3.288)	0.202*** (3.222)	0.132*** (3.561)	0.169*** (5.517)	0.139*** (3.762)
IDIRECTOR	0.724 (0.141)	2.510 (0.453)	3.129 (0.741)	1.470 (0.498)	-1.362 (-0.554)
Constant	-19.30*** (-2.871)	-20.57** (-2.111)	-23.32*** (-2.654)	-18.57*** (-3.860)	-14.19* (-1.920)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.100	0.095	0.106	0.089	0.046
F-Statistic	3.84	2.69	4.95	8.77	21.96
P-Value	0.0010	0.0146	0.0001	0.0000	0.0012
Hausman test					
chi ( $\chi^2$ )					9.98
Prob					0.0757
Breusch-Pagan LM test					
chi ( $\chi^2$ )				594.64	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

### 5.3.5.3 Regression Results: EPS as a Dependent Variable

The results from regression analysis are presented in Table 5.6. Overall the models were statistically significant at 1% level ( $p = 0.0000$ ), except in 2010, when the model was statistically significant at 5% level. It was found that the coefficients of CSR index were negative and insignificantly associated with earnings per share



(EPS) for all models, indicating that there is no relationship between CSR disclosure and financial performance as defined by EPS.

### **5.3.6 The Relationship between CSR Disclosure and Tobin's' Q (TBQ as the Dependent Variable)**

This section presents the relationship between CSR disclosure and financial performance using the Tobin's Q (TBQ) as the dependent variable for year 2009 to 2011, pooled OLS and panel data. The results from the analyses are presented in the following subsections.

#### ***5.3.6.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results from Table 5.7 show that the Breusch-Pagan Lagrange multiplier test was not equal to zero ( $\chi^2 = 66.89$ , probability = 0.0000), which leads to rejection of the null hypothesis. That is, the random effects model is suitable over pooled OLS.

#### ***5.3.6.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The result of the Hausman specification test shows  $\chi^2 = 33.95$ , probability = 0.0000, which implies that the individual effects were correlated with other regressors in the model. The null hypothesis was rejected. This result indicates that random effects were biased, so that the fixed effects model is applicable over the random effects model.

#### ***5.3.6.3 Regression Results: TBQ as a Dependent Variable***

The results from 5.3.6.1 and 5.3.6.2 confirm that the fixed effects model is more applicable. Table 5.7 shows that the models were found to be statistically significant at 1% level ( $p = 0.0000$ ) in 2009, 2010 and for the fixed effects model, at 5% level ( $p = 0.0212$ ) level for pooled OLS and at 10% level in 2011 ( $p = 0.0511$ ). These results suggest that there are no significant relationships between CSR disclosure and Tobin's Q in all models.

**Table 5.7 Regression Analysis: Tobin's Q as the Dependent Variable**

Independent Variables	Dependent Variable Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (FE)
CSRI	0.416 (1.589)	-0.331 (-0.689)	-0.143 (-0.155)	-0.0286 (-0.0829)	-0.213 (-0.434)
SIZE (Log Assets)	-0.0289 (-0.725)	-0.0176 (-0.453)	-0.209*** (-3.733)	-0.0809*** (-3.230)	-0.438 (-1.503)
LEVERAGE	-0.0171* (-1.871)	0.00615*** (4.032)	0.0503** (2.162)	0.00975** (2.271)	-0.00775*** (-2.849)
AGE	-0.0116*** (-2.791)	-0.00754 (-1.036)	-0.000463 (-0.0330)	-0.00490 (-0.901)	0.235*** (3.939)
IDIRECTOR	0.831 (1.273)	0.146 (0.226)	0.959 (1.110)	0.816** (2.008)	-1.204 (-1.216)
Constant	0.910 (1.240)	1.179 (1.539)	4.980*** (-3.969)	2.176*** (4.258)	7.347 (1.245)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.042	0.019	0.051	0.021	0.039
F-Statistic	4.31	4.65	3.43	5.00	5.79
P-Value	0.0003	0.0002	0.0511	0.0212	0.0000
Hausman test					
chi ( $\chi^2$ )					33.95
Prob					0.0000
Breusch-Pagan LM test					
chi ( $\chi^2$ )				66.89	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

## 5.4 The Empirical Results of the Association between Financial Performance and CSR Disclosure

This section examines the association between financial performance (FP) and CSR disclosure by using financial performance as the independent variable. One motivation for this analysis is to determine whether FP has a direct relationship with CSR disclosure or CSR disclosure has a direct relationship with FP. To achieve this purpose, this section examines the association between return on assets (ROA), net

profit margin (NPM), earnings per share (EPS) and Tobin's Q (TBQ) and CSR disclosure. The results from the Pearson correlation analysis for multicollinearity are given in Appendix B-2. No strong correlations were detected in this analysis.

This section is organised in sequential order to demonstrate these features. *Firstly*, a direct relationship of return on assets on CSR disclosure is shown. *Secondly*, the impact of net profit margin on CSR index is examined. *Thirdly*, the impact of the relationship between earnings per share and CSR disclosure is presented. *Finally*, there is a direct relationship of Tobin's Q on CSR disclosure. The findings from the analysis are given as follows:

#### **5.4.1 The Impact of Return on Assets on CSR Disclosure (ROA as the Independent Variable)**

The results for the relationship between CSR disclosure and financial performance are presented in the following subsections. In this section, financial performance is proxied by ROA as the independent variable.

##### ***5.4.1.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

From Table 5.8, the result of the Breusch-Pagan Lagrange multiplier test show  $\chi^2 = 430.11$ , probability = 0.0000, which indicate that the variance across entities was not zero. The null hypothesis was rejected. That is, the random effects model is more appropriate than pooled OLS.

##### ***5.4.1.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test show in Table 5.8. This confirms that the null hypothesis was rejected ( $\chi^2 = 19.60$ , probability = 0.0015), indicating that the individual effects are correlated with other regressors. Thus, the fixed effects model is more applicable than the random effects model.

##### ***5.4.1.3 Regression Results: ROA as an Independent Variable***

The results from 5.4.1.1 and 5.4.1.2 confirm that the random effects model is more applicable because the fixed effects model was not statistically significant. The results of the correlation between CSR disclosure and return of assets (ROA) are presented in Table 5.8. Further statistical tests revealed that all regression models

were statistically significant at 1% level ( $p = 0.0000$ ). It can be concluded from section 5.4.1.1 and 5.4.1.2 that the random effects model is more appropriate. The regression results show that the coefficients of return on assets (ROA) was positive and significantly related to CSRI at 1% level in 2009, 2010, using pooled OLS and the random effects, and at 10% level in 2011.

**Table 5.8 Regression Analysis: Return on Assets as the Independent Variable**

Independent Variables	Dependent Variable				
	Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)
Return on Assets (ROA)	0.00255*** (3.483)	0.00219*** (3.205)	0.00113* (1.729)	0.00219*** (5.475)	0.00121*** (3.357)
SIZE (Log Assets)	0.0459*** (9.713)	0.0340*** (8.821)	0.0318*** (7.237)	0.0344*** (13.45)	0.0316*** (8.690)
LEVERAGE	-0.00769** (-2.302)	0.00107** (2.395)	-0.00532** (-2.038)	-5.17e-05 (-0.0404)	0.000318 (0.467)
AGE	0.00103 (1.292)	0.00236*** (2.784)	0.00277*** (3.307)	0.00197*** (4.091)	0.00179** (2.531)
IDIRECTOR	0.0641 (0.858)	0.117 (1.603)	0.0795 (1.085)	0.0815* (1.935)	0.0462 (1.210)
Constant	-0.871*** (-8.831)	-0.663*** (-7.825)	-0.588*** (-6.289)	-0.649*** (-11.94)	-0.564*** (-7.239)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.330	0.252	0.231	0.252	0.298
F-Statistic	29.98	22.88	20.32	25.18	146.97
P-Value	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test					
chi ( $\chi^2$ )					19.60
Prob					0.0015
Breusch-Pagan LM test					
chi ( $\chi^2$ )				430.11	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

### 5.4.2 The Impact of Net Profit Margin on CSR Disclosure (NPM as the Independent Variable)

The relationship between CSR disclosure and financial performance is illustrated in this section. The financial performance is defined by the net profit margin as an independent variable. The findings obtained from the regression analyses are given in Table 5.9.

**Table 5.9 Regression Analysis: Net Profit Margin as the Independent Variable**

Independent Variables	Dependent Variable				
	Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (FE)
Net Profit Margin (NPM)	0.000398* (1.963)	0.000464 (1.017)	0.000394 (1.066)	0.000618*** (3.765)	0.000206** (2.001)
SIZE (Log Assets)	0.0470*** (9.457)	0.0332*** (8.003)	0.0316*** (6.858)	0.0336*** (12.20)	-0.00461 (-0.426)
LEVERAGE	-0.00977*** (-2.663)	0.000769 (1.486)	-0.00593** (-2.254)	-0.000471 (-0.324)	0.000610** (1.989)
AGE	0.00103 (1.272)	0.00234*** (2.756)	0.00274*** (3.278)	0.00196*** (4.042)	0.000606 (0.171)
IDIRECTOR	0.0632 (0.834)	0.0970 (1.342)	0.0694 (0.952)	0.0683 (1.628)	0.0528 (1.164)
Constant	-0.875*** (-8.319)	-0.620*** (-6.879)	-0.572*** (-5.781)	-0.611*** (-10.38)	0.287 (1.271)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.311	0.234	0.226	0.236	0.006
F-Statistic	27.37	18.98	18.31	55.88	1.98
P-Value	0.0000	0.0000	0.0039	0.0000	0.0820
Hausman test					
chi ( $\chi^2$ )					16.48
Prob					0.0056
Breusch-Pagan LM test					
chi ( $\chi^2$ )				440.93	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### ***5.4.2.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

Table 5.9 the Breusch-Pagan Lagrange multiplier test shows that the variance across entities was not equal to zero. The null hypothesis was rejected ( $\chi^2 = 440.93$ , probability = 0.0000), which suggests that the random effects model is the preferred model.

#### ***5.4.2.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

Table 5.9 shows the result of the Hausman specification test. It reveals that the individual effects were correlated with other regressors in the model. The alternative hypothesis were accepted ( $\chi^2 = 16.48$ , probability = 0.0056), suggesting that the fixed effects model is more suitable than the random effects model.

#### ***5.4.2.3 Regression Results: NPM as an Independent Variable***

From the data in section 5.4.2.1 and 5.4.2.3, it can be concluded that the fixed effects model is more suitable for this analysis. From Table 5.9, all models were found to be statistically significant at 1% level ( $p = 0.0000$ ), however the fixed effects model was significant at 10% level. There is a positive relationship between net profit margin (NPM) and CSR reporting at 1% level for pooled OLS, at 5% level for the fixed effects model and at 10% level in 2009. The coefficients of NPM were found to be positive but not significant related to CSRI in 2010 and 2011.

### **5.4.3 The Impact of Earnings per Share on CSR Disclosure (EPS as the Independent Variable)**

This section presents the relationship between CSR disclosure and financial performance, where the financial performance is defined by the earnings per share as an independent variable. The findings obtained from the regressions and specification test are illustrated in Table 5.10.

#### ***5.4.3.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier test in Table 5.10 show

that the chi-square value ( $\chi^2$ ) was 448.43, probability = 0.0000. The variance was not constant, leading to rejection of the null hypothesis. This result suggests the random effects model is preferable over pooled OLS.

**Table 5.10 Regression Analysis: Earnings per Share (EPS) as the Independent Variable**

Independent Variables	Dependent Variable				
	Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)
Earnings Per Share (EPS)	-0.000990 (-1.078)	0.000326 (0.539)	-0.000671 (-0.802)	-0.000121 (-0.248)	-4.17e-05 (-0.0911)
SIZE (Log Assets)	0.0498*** (10.26)	0.0338*** (8.381)	0.0334*** (7.256)	0.0353*** (12.78)	0.0321*** (8.586)
LEVERAGE	-0.0113*** (-3.089)	0.000688 (1.305)	-0.00658** (-2.487)	-0.000756 (-0.470)	0.000172 (0.223)
AGE	0.00120 (1.439)	0.00231*** (2.652)	0.00288*** (3.400)	0.00203*** (4.078)	0.00183** (2.524)
IDIRECTOR	0.0668 (0.887)	0.0912 (1.283)	0.0624 (0.860)	0.0642 (1.531)	0.0451 (1.178)
Constant	-0.935*** (-9.064)	-0.628*** (-6.990)	-0.608*** (-5.984)	-0.645*** (-10.80)	-0.565*** (-7.004)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.308	0.232	0.224	0.229	0.273
F-Statistic	24.69	18.98	17.53	49.75	124.23
P-Value	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test					
chi ( $\chi^2$ )					12.94
Prob					0.0239
Breusch-Pagan LM test					
chi ( $\chi^2$ )				448.43	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### 5.4.3.2 The Hausman Test: Fixed Effects Model or Random Effects Model

The result of the Hausman specification test shows in Table 5.10 shows that independent variables were significantly different from zero (chi ( $\chi^2$ ) = 12.94,

probability = 0.0239), which leads to rejection of the null hypothesis. This result suggests that the fixed effects model is found to be more suitable than the random effects model.

#### ***5.4.3.3 Regression Results: EPS as an Independent Variable***

From section 5.4.3.1 and 5.4.3.2, it can be concluded that the random effects model is the most suitable model as there is no statistically significant relation for the fixed effects model. Table 5.10 shows that all models were found to be statistically significant at 1% level ( $p = 0.0000$ ). There is no statistically significant correlation between EPS and CSR disclosure in all models, indicating that EPS had no impact on CSR activities.

#### **5.4.4 The Impact of Tobin's Q on CSR Disclosure (TBQ as an Independent Variable)**

The results of the relationship between CSR disclosure and Tobin's Q are given in Table 5.11, with TBQ used as the independent variable.

##### ***5.4.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

Table 5.11 shows that the Breusch-Pagan Lagrange multiplier test was significantly different from zero ( $\chi^2 = 448.58$ , probability = 0.0000), leading to rejection of the null hypothesis. The results indicate that the random effects model is more suitable.

##### ***5.4.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The result of the Hausman specification test from Table 5.11 shows that the individual effects were correlated with the regressors ( $\chi^2 = 12.81$ , probability = 0.0252), which lead to rejection of the null hypothesis. The result suggests that the fixed effects model is more appropriate than the random effects model.

##### ***5.4.4.3 Regression Results: TBQ as an Independent Variable***

From section 5.4.4.1 and 5.4.4.2, it can be summarised that the random effects model is more suitable than fixed effect model because the fixed effects model is not statistically significant. All models were statistically significant at 1%



level ( $p = 0.0000$ ). The coefficient of the TBQ variable provides evidence of a positive significant relationship to the CSRI at 10% level in 2009. However, it was negative and not significantly correlated with CSRI in 2010, 2011 and for pooled OLS model.

**Table 5.11 Regression Analysis: Tobin's Q as the Independent Variable**

Independent Variables	Dependent Variable				
	Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)
Tobin's Q (TBQ)	0.0109* (1.775)	-0.00402 (-0.745)	-0.000813 (-0.161)	-0.000287 (-0.0838)	-0.00104 (-0.509)
SIZE (Log Assets)	0.0491*** (10.50)	0.0340*** (8.585)	0.0326*** (7.468)	0.0352*** (13.10)	0.0320*** (8.666)
LEVERAGE	-0.0107*** (-3.050)	0.000705 (1.314)	-0.00640** (-2.471)	-0.000746 (-0.466)	0.000170 (0.220)
AGE	0.00114 (1.415)	0.00234*** (2.779)	0.00280*** (3.354)	0.00200*** (4.136)	0.00183** (2.573)
IDIRECTOR	0.0570 (0.753)	0.0925 (1.301)	0.0612 (0.842)	0.0643 (1.533)	0.0453 (1.181)
Constant	-0.924*** (-9.287)	-0.629*** (-7.083)	-0.589*** (-6.158)	-0.643*** (-11.06)	-0.562*** (-7.059)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.310	0.233	0.224	0.229	0.273
F-Statistic	24.70	18.60	16.94	48.53	121.46
P-Value	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test					
chi ( $\chi^2$ )					12.81
Prob					0.0252
Breusch-Pagan LM test					
chi ( $\chi^2$ )				448.58	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

## 5.5 The Relationship between each Dimension of CSR Disclosure and Financial Performance

This section discusses and presents the results of the statistical analysis of the relationship between four financial performance indicators and each dimension of CSR disclosure, where each dimension of CSR is the independent variable. Multivariate regression was conducted to investigate these relationships by comparing cross-sectional data and panel data. The model in this chapter is based on the data and methodology chapter, which uses CSRI as independent variable.

This section is organised as follows. *Firstly*, descriptive statistics and regression assumption results are shown. *Secondly*, the relationship between each dimension of CSR and return on assets (ROA) is presented. *Thirdly*, the impact of each dimension of CSR on net profit margin (NPM) is analysed. *Fourthly*, the comparison between each dimension of CSR and earnings per share (EPS) is investigated. *Finally*, the relationship between and each dimension of CSR and Tobin's Q (TBQ) is presented. The results of the analysis are as follows:

### 5.5.1 Descriptive Statistics for All Dimensions and Industry Specific

The analysis is conducted by comparing five dimensions of CSR disclosure, namely: environment, energy, employee, community and products disclosures. The variables of return on assets (ROA), net profit margin (NPM), earnings per share (EPS), Tobin's Q (TBQ), firm size (SIZE), leverage (LEV), age of firms (AGE), type of industry (INDUSTRY) and the percentage of independent director (IDIRECTOR) have already been described in the previous chapter. The descriptive statistics reported in this study included the mean, median, minimum, maximum, and standard deviation. The results obtained from the descriptive statistics are shown in Table 5.12 from 2009 to 2011.

Table 5.12 shows that the average of CSR disclosure was higher in the community involvement dimension, which accounted for 36% (standard deviation, 29%) which was relatively higher than the study of Bayoud *et al*, (2012). The trend of the communities dimension increased over the period from an average 31% in 2009 to 36% in 2011. These results suggest that Thai firms tend to engage in community activities more than others. Both environment and employee dimensions have a mean of 21%, a standard deviation of 21% and 16%, respectively. The energy

dimension was the least disclosed of CSR activities with a mean of 8% and standard deviation of 15%, indicating that companies in Thailand are less likely to report energy information in their annual report. The mean of environment, employee, products and energy disclosure was high in 2009. After that it decreased through to 2011.

**Table 5.12 Descriptive Statistics of CSR Disclosure for All Dimensions in the Years 2009 to 2011 Inclusive**

Variable	Environment (%)	Energy (%)	Employee (%)	Community (%)	Product (%)	CSRI (%)
<b>2009</b>						
Mean	0.21	0.09	0.21	0.31	0.13	0.21
Median	0.18	0	0.19	0.29	0	0.20
S.D.	0.21	0.16	0.16	0.27	0.17	0.14
Min	0	0	0	0	0	0
Max	0.91	0.67	0.63	0.86	0.60	0.63
<b>2010</b>						
Mean	0.20	0.08	0.21	0.37	0.11	0.22
Median	0.18	0	0.19	0.43	0	0.22
S.D.	0.21	0.15	0.16	0.31	0.16	0.14
Min	0	0	0	0	0	0
Max	1.00	0.67	0.63	1.00	0.60	0.61
<b>2011</b>						
Mean	0.20	0.08	0.20	0.40	0.09	0.22
Median	0.18	0	0.19	0.43	0	0.22
S.D.	0.21	0.14	0.15	0.30	0.13	0.14
Min	0	0	0	0	0	0
Max	0.91	0.67	0.56	1.00	0.60	0.61
<b>Total</b>						
Mean	0.21	0.08	0.21	0.36	0.11	0.22
Median	0.18	0	0.19	0.43	0	0.20
S.D.	0.21	0.15	0.16	0.29	0.15	0.14
Min	0	0	0	0	0	0
Max	1.00	0.67	0.63	1.00	0.60	0.63

Thailand had a big flood in Bangkok in 2010, which resulted in more community activities by companies in 2010 to 2011 and increased community reporting in 2011. The listed companies spent their budgets to help surrounding

communities and people more than they did in previous years. The deviations of each dimension were 15% (for products and energy dimensions), 16% (for employee dimension), 21% (for environment dimension) and 29% (for community dimension). These findings suggest that the deviation of each CSR dimension for other disclosures was not different except for the community dimension.

**Table 5.13 Descriptive Statistics of CSR Disclosure for each Industry in the Years 2009 to 2011 Inclusive**

Variable	Environment (%)	Energy (%)	Employee (%)	Community (%)	Product (%)	CSRI (%)
<b>Agro &amp; Food Industry</b>						
Mean	0.23	0.09	0.15	0.36	0.16	0.21
Median	0.18	0	0.13	0.43	0.20	0.20
S.D.	0.19	0.18	0.15	0.27	0.18	0.13
Min	0	0	0	0	0	0
Max	0.73	0.67	0.56	1.00	0.60	0.61
<b>Consumer Products Industry</b>						
Mean	0.25	0.13	0.24	0.42	0.13	0.25
Median	0.27	0	0.25	0.43	0	0.26
S.D.	0.18	0.18	0.17	0.32	0.16	0.14
Min	0	0	0	0	0	0
Max	0.73	0.67	0.63	1.00	0.60	0.54
<b>Financials Industry</b>						
Mean	0.13	0.10	0.18	0.39	0.05	0.19
Median	0.09	0	0.19	0.43	0	0.18
S.D.	0.15	0.13	0.14	0.31	0.09	0.12
Min	0	0	0	0	0	0
Max	0.64	0.50	0.44	0.86	0.40	0.48
<b>Industrials Industry</b>						
Mean	0.22	0.07	0.19	0.26	0.16	0.20
Median	0.09	0	0.19	0.14	0.20	0.17
S.D.	0.25	0.14	0.16	0.29	0.17	0.16
Min	0	0	0	0	0	0
Max	1.00	0.67	0.56	0.86	0.60	0.63
<b>Property &amp; Construction Industry</b>						
Mean	0.17	0.06	0.20	0.26	0.09	0.18
Median	0.09	0	0.19	0.14	0	0.15
S.D.	0.2	0.13	0.16	0.27	0.14	0.14
Min	0	0	0	0	0	0
Max	0.82	0.67	0.63	0.86	0.60	0.59

**Table 5.13 (Continued) Descriptive Statistics of CSR Disclosure for each Industry in the Years 2009 to 2011 Inclusive**

Variable	Environment (%)	Energy (%)	Employee (%)	Community (%)	Product (%)	CSRI (%)
<b>Resources Industry</b>						
Mean	0.40	0.13	0.28	0.51	0.13	0.32
Median	0.41	0	0.31	0.57	0	0.35
S.D.	0.24	0.17	0.15	0.29	0.17	0.15
Min	0	0	0	0	0	0.04
Max	0.91	0.50	0.56	0.86	0.60	0.63
<b>Services Industry</b>						
Mean	0.18	0.07	0.23	0.41	0.10	0.22
Median	0.18	0	0.25	0.43	0	0.22
S.D.	0.18	0.13	0.16	0.28	0.16	0.13
Min	0	0	0	0	0	0
Max	0.73	0.50	0.63	1.00	0.60	0.52
<b>Technology Industry</b>						
Mean	0.22	0.09	0.23	0.45	0.10	0.24
Median	0.18	0	0.25	0.43	0	0.24
S.D.	0.19	0.15	0.18	0.26	0.13	0.14
Min	0	0	0	0	0	0
Max	0.73	0.50	0.63	0.86	0.40	0.48

Table 5.13 presents the descriptive statistics of each dimension of CSR disclosure based on eight industry classifications. On average, there is little difference between industries. The percentages of each dimension of CSR from the resources industry appear to be higher than for other industries. The resources sector had the most disclosed community involvement activities (51%), followed by the technology industry (45%) and the consumer products sector (42%), while industrial or manufacturing sector reported least on community engagement (26%) in annual reports. This shows that the resources industry discloses more community information than the technology industry and other industries. It can be seen that the resources sector disclosed most environment information about (mean, 40%), followed by consumer products (mean, 25%) and the agro & food industry (mean, 23%), respectively. It is likely that land and natural resources had been destroyed by companies in the resources sector. So there is a need for restoration and conservation of environment. Therefore, these firms appear to report more environmental

information. The mean of employee dimensions were 28% in the resources sector, 24% in the consumer products industry, the least in the agro & food sector (15%). It is possible that the employees working in the agro & food industry are contract workers, unskilled workers and unskilled foreign workers. So companies might not be paying other compensations and benefits to these employees. However, agro & food and industrial sectors disclosed products information (mean, 16%), followed by consumer products sector (mean, 13%). These results may be explained by the fact that firms in these industries produced variety goods e.g. consumer products, industrial goods, cosmetics and medical supplies. It is essential that companies have to disclose the product related information to their stakeholders. Further, the mean of energy disclosure was high in the consumer products and resources industries at (13%), indicating that firms in the resources sector are leading energy companies. These industries might be implementing energy saving policies in their business. The property and construction industry disclosed less energy information at an average 6%. The deviations for each dimension of CSR disclosure from the property & construction and financial industries were lower than those other industries. The standard deviation for each dimension of CSR did not show any significant differences among different industry.

### **5.5.2 Testing for Multicollinearity**

The multicollinearity was tested to detect if independent variables are not extremely correlated and no multicollinearity amongst independent variables exists. To control for this problem, the Pearson correlation and the variance inflation factor (VIF) and tolerance were investigated. Multicollinearity is tested to detect the correlation between each dimension of CSR (environment, energy, employee, and community and product dimension) and the control variables. The results of the correlation and the significant levels of CSR dimension and control variables are presented in **Appendix B-2.1 to B-2.4**.

Appendix B-2.1 shows the correlation coefficient among financial performance and independent variables. It can be seen that some correlations were statistically significant at 1% level, such as those between environment and energy dimension (0.5168), environment and employee dimension (0.4887), environment

and community dimension (0.5624), environment and SIZE (0.4223), community and SIZE (0.4646), and employee and community dimension (0.4321). The correlation between ROA and each dimension of CSR disclosure was lower than 0.2. These results suggest that multicollinearity in the model was not an issue. Appendix B-2.2 reports the matrix of correlation among the NPM and each dimension of CSR disclosure (independent variables). The correlation coefficients were not higher than 0.5. For example, the correlation between NPM and community (0.2030), NPM and SIZE (0.2031), and NPM and environment (0.1481) are small. The results indicate that there is a small correlation among those variables, and multicollinearity is not a problem for the estimation of this study.

Appendix B-2.3 shows the correlation matrix for EPS and CSR variables. The correlation coefficients between EPS and the other independent variables were relatively low, such as the correlation coefficient between EPS and AGE (0.2231), EPS and SIZE (0.2192), EPS and environment dimension (0.1645) and EPS and community dimension (0.0971). All of the above correlations were statistically significant at 1% level. These indicate multicollinearity was not a problem for this model. Appendix B-2.4 shows the bivariate correlation coefficient of the TBQ and each dimension of CSR variables. The correlation coefficients between TBQ and community, between TBQ and SIZE and between TBQ and AGE were -0.0739, -0.1007 and -0.0671, respectively. This indicates that all correlation efficient were slightly negative and relatively low. It can be suggested that there is no serious multicollinearity between each variable in this model

**Table 5.14 Testing for Multicollinearity by Using Variance Inflation Factor (VIF)**

<b>Variable</b>	<b>VIF</b>
<b>Environment</b>	2.20
<b>Energy</b>	1.45
<b>Employee</b>	1.46
<b>Community</b>	1.73
<b>Product</b>	1.14
<b>SIZE</b>	1.40
<b>LEVERAGE</b>	1.05
<b>AGE</b>	1.13
<b>IDIRECTOR</b>	1.03

As shown in Table 5.14, the variance inflation factor (VIF) and tolerance were tested to confirm that multicollinearity does not exist in the model. As the rule of thumb (Gujarati, 2009), the results show that VIF were lower than 2.5 or tolerance was higher than 0.50, which means multicollinearity is not a serious problem for this model.

### **5.5.3 Testing for Homoscedasticity**

As discussed in section 5.3.2, this study employed the Breusch-Pagan / Cook-Weisberg test and White's General test for detecting heteroscedasticity. The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity showed some heteroscedasticity is present<sup>6</sup>, indicating that heteroscedasticity was probably a problem. This study therefore, controlled for heteroscedasticity to provide a better fit for the model using robust standard errors in all models. The next section presents the results from the relationship between each dimension of CSR disclosure and financial performance.

### **5.5.4 The Relationship between each Dimension of CSR Disclosure and Return on Assets (ROA)**

This section presents the relationship between each dimension of CSR disclosure and the ROA by comparing for every year, pooled data and panel data regression. The main empirical results are reported in Table 5.15.

#### ***5.5.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The findings of the Breusch-Pagan Lagrange multiplier test from Table 5.15 show that the variance across industries was not zero ( $\chi^2 = 341.64$ , probability = 0.0000). This finding leads to rejection of the null hypothesis, indicating that the random effects model is appropriate.

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<sup>6</sup> The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity is presented in APPENDIX C-1



**Table 5.15 Multiple Regression Analysis between each Dimension of CSR Disclosure and Return on Assets**

Independent Variables	Dependent Variable				
	Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (FE)
Environment	5.402 (1.474)	3.303 (0.816)	-2.919 (-0.726)	2.856 (1.247)	2.187 (1.044)
Energy	-0.0552 (-0.0182)	-0.318 (-0.0795)	0.762 (0.191)	0.199 (0.0943)	0.357 (0.191)
Employee	-0.0161 (-0.00424)	2.154 (0.599)	4.106 (0.915)	2.339 (1.017)	-2.417 (-0.986)
Community	3.282 (1.447)	4.750** (2.031)	4.884** (2.145)	5.142*** (3.807)	2.845* (1.914)
Product	4.223 (1.366)	-2.292 (-0.668)	-3.007 (-0.699)	-0.559 (-0.277)	0.00576 (0.00341)
SIZE (Log Assets)	0.506 (1.163)	-0.507 (-1.391)	0.573 (1.001)	-0.203 (-0.801)	3.186 (1.512)
LEVERAGE	-1.128*** (-4.511)	-0.183*** (-4.170)	-0.950*** (-2.777)	-0.304** (-2.087)	-0.0752 (-1.061)
AGE	-0.0238 (-0.464)	-0.0175 (-0.288)	0.0193 (0.288)	-0.0134 (-0.387)	-0.00194 (-0.00480)
IDIRECTOR	0.294 (0.0578)	-12.77** (-2.180)	-15.117** (-2.068)	-8.622** (-2.292)	1.832 (0.452)
Constant	-4.103 (-0.446)	23.64*** (2.981)	1.117 (0.0985)	14.05*** (2.635)	-65.20 (-1.527)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.160	0.077	0.127	0.076	0.031
F-Statistic	4.95	3.43	2.35	5.70	2.33
P-Value	0.0000	0.0003	0.0111	0.0000	0.0148
Hausman test					
chi ( $\chi^2$ )					37.05
Prob					0.0000
Breusch-Pagan LM test					
chi ( $\chi^2$ )				341.64	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### ***5.5.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test indicate that the regressors and individuals effects were correlated in the model ( $\chi^2 = 37.05$ , probability = 0.0000). This finding leads to acceptance of an alternative hypothesis, suggesting that the fixed effect (FE) model was appropriate.

#### ***5.5.4.3 Regression Results: ROA as a Dependent Variable***

It can be concluded from section 5.5.4.1 and 5.5.4.2 that the fixed effects model is more appropriate than the random effects model. It can be seen from the data in Table 5.15 that all models were statistically significant at 1% level ( $p = 0.0000$ ). Interestingly, the regression results show that only the coefficient of community dimension has a positive and significant relationship with ROA at 1% level for pooled OLS, at 5% level in 2010 and 2011, and at 10% level in panel data (FE). The environment variable has a positive and not significant relationship with ROA in 2009, 2010, pooled OLS and fixed effect model, while there is a negative and not significant correlation with ROA in 2011. In addition, the coefficients of energy dimension were found to be negative and not significantly related to ROA in 2009 and 2010. However, it was positive and not significantly related to ROA in 2011, pooled OLS and the fixed effects model. Further, the relationship between employee dimension and ROA were found to be positive and not significantly related to ROA in 2010, 2011 and pooled OLS. It was negative and not significant associated with ROA in 2009 and the fixed effects model. As well, the product variable has a negative and no significant relationship with ROA in 2010, 2011 and for pooled OLS but it was positive and not significantly related to ROA in 2009 and the fixed effects model. These results indicate that there is a positive significant relationship between communities' related activities and profitability.

#### **5.5.5 The Relationship between each Dimension of CSR Disclosure and Net Profit Margin (NPM)**

The relationship between each dimension of CSR and net profit margin (NPM) as a dependent variable is presented in Table 5.16. The specification test is presented in the following subsections.

**Table 5.16 Multiple Regression Analysis between each Dimension of CSR Disclosure and Net Profit Margin**

Independent Variables	Dependent Variable				
	Net Profit Margin (NPM)				
	2009	2010	2011	Pooled OLS	Panel (RE)
Environment	1.051 (0.171)	0.645 (0.170)	-5.1212 (-1.403)	1.174 (0.424)	1.974 (0.757)
Energy	10.16 (1.540)	1.243 (0.302)	-2.243 (-0.396)	3.200 (1.035)	1.478 (0.712)
Employee	-11.08 (-1.472)	-2.110 (-0.397)	7.523 (1.071)	-0.569 (-0.149)	1.817 (0.464)
Community	10.90** (2.178)	5.697** (1.997)	5.1807** (2.255)	8.520*** (4.226)	5.758*** (2.979)
Product	8.267 (1.096)	-8.744** (-2.279)	-5.1170 (-1.121)	-2.550 (-0.763)	-2.173 (-0.804)
SIZE (Log Assets)	4.092*** (4.391)	1.615*** (3.491)	2.722*** (3.633)	1.931*** (4.690)	2.134*** (3.341)
LEVERAGE	-2.922*** (-5.292)	-0.190*** (-3.801)	-1.275*** (-3.121)	-0.437* (-1.673)	-0.355 (-1.425)
AGE	-0.0783 (-0.586)	0.0801 (0.941)	0.164 (1.550)	0.0401 (0.657)	0.0633 (0.773)
IDIRECTOR	7.630 (0.380)	-11.42 (-1.015)	-21.39 (-1.143)	-7.347 (-0.718)	-1.242 (-0.109)
Constant	-85.199*** (-4.141)	-25.24*** (-2.696)	-50.08*** (-3.569)	-37.54*** (-4.390)	-44.50*** (-3.075)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.143	0.093	0.135	0.077	0.113
F-Statistic	5.04	4.72	2.44	7.14	38.93
P-Value	0.0000	0.0003	0.0082	0.0000	0.0000
Hausman test					
chi ( $\chi^2$ )					14.73
Prob					0.0986
Breusch-Pagan LM test					
chi ( $\chi^2$ )				131.45	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### ***5.5.5.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier test from Table 5.16 show that the F-test was significant ( $\chi^2 = 131.45$ , probability = 0.0000), indicating that the variance across entities was not equal to zero. This result leads to the rejection of the null hypothesis, the random effects is more appropriate than the pooled OLS model.

#### ***5.5.5.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

As shown in Table 5.16, the findings show that individual effects were correlated with other variables in the model ( $\chi^2 = 14.73$ , probability 0.0983), which leads to acceptance of the alternative hypothesis. This result indicates that the fixed effects model is appropriate.

#### ***5.5.5.3 Regression Results: NPM as a Dependent Variable***

It can be summarised that the random effects model is more applicable than the fixed effects model because the random effects model is statistically significant at 1% level and the fixed effects model is not significant. It is apparent from Table 5.16 that all regression models were significant at 1% level ( $p = 0.00$ ). The results indicate that there is a positive and significant relationship between community disclosure and NPM at 1% level for pooled OLS and the random effects models and at 5% level in 2009-2011. The coefficient of product responsibility was found to be negatively and significantly related with the NPM at 5% level in 2010. The environment dimension was found to be positive and not significantly associated with NPM. The energy variable had a positive and not significant relationship with NPM in 2009, 2010, pooled OLS and the fixed effects model. Moreover, the relationship between employee and NPM was not found to be statistically significant.

### **5.5.6 The Relationship between each Dimension of CSR Disclosure and Earnings per Share (EPS)**

This section presents the regression results from the relationship between each dimension of CSR disclosure and earnings per share (EPS), which defines EPS as the dependent variable. The results are presented in the following subsection.

**Table 5.17 Multiple Regression Analysis between each Dimension of CSR and Earnings per Share**

Independent Variables	Dependent Variable Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)
Environment	4.299 (1.167)	4.563 (0.911)	2.676 (0.771)	4.302* (1.775)	1.943 (1.602)
Energy	-6.303* (-1.864)	-1.556 (-0.359)	-0.338 (-0.0917)	-3.293 (-1.473)	-1.003 (-0.874)
Employee	1.408 (0.479)	-4.770 (-1.196)	-2.520 (-0.713)	-1.721 (-0.846)	-2.555* (-1.859)
Community	-2.639 (-1.277)	-0.305 (-0.157)	-1.626 (-0.981)	-1.426 (-1.273)	-0.809 (-1.145)
Product	-2.620 (-1.081)	4.695 (0.870)	0.0962 (0.0278)	0.825 (0.339)	3.342*** (3.223)
SIZE (Log Assets)	0.850*** (2.868)	0.780*** (2.668)	1.002*** (3.253)	0.769*** (4.578)	0.667*** (3.139)
LEVERAGE	-0.274* (-1.879)	-0.0151 (-0.667)	-0.203** (-2.271)	-0.0496 (-1.099)	-0.0170 (-0.730)
AGE	0.199*** (3.405)	0.184*** (3.271)	0.124*** (3.619)	0.167*** (5.533)	0.141*** (3.403)
IDIRECTOR	0.514 (0.1000)	2.781 (0.551)	2.795 (0.605)	1.443 (0.493)	-0.719 (-0.345)
Constant	-18.83*** (-3.037)	-18.87** (-2.485)	-22.77*** (-2.896)	-17.80*** (-4.298)	-14.41*** (-3.088)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.122	0.115	0.113	0.098	0.024
F-Statistic	2.85	2.47	3.58	5.197	45.61
P-Value	0.0021	0.0074	0.0002	0.0000	0.0000
Hausman test					
chi ( $\chi^2$ )					12.26
Prob					0.1993
Breusch-Pagan LM test					
chi ( $\chi^2$ )				592.50	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### ***5.5.6.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results from Table 5.17 illustrates that the Breusch-Pagan Lagrange multiplier test show the variance across entities was not constant ( $\chi^2 = 592.50$ , probability = 0.0000). This result leads to rejection of the null hypothesis, suggesting that the variance across entities was not zero. The random effects model is more applicable than pooled OLS in this case.

#### ***5.5.6.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The Hausman test was used to determine the most suitable model between the random effects and the fixed effects models. The fixed effects model might be reliable, if the individual effects were correlated with other regressors. Table 5.17 shows that the regressors were not correlated with other regressors in the model ( $\chi^2 = 12.26$ , probability = 0.1993), which indicates that there is no correlation between regressors and individual effects. That is, the random effects model is more appropriate than the fixed effects model.

#### ***5.5.6.3 Regression Results: EPS as a Dependent Variable***

From section 5.5.6.1 and 5.5.6.2, it can be concluded that the random effects model is more significant than the fixed effects model. Table 5.17 shows that, the relationship between CSR dimensions and the EPS was statistically significant at 1% level ( $p = 0.0000$ ) in all models. Interestingly, the coefficient of the environment related activities were positive and significantly related to EPS at 10% level for pooled OLS. However, there is no relationship between the environment dimension and EPS in 2009-2011 and the random effects model. The energy dimension had a negative and significant correlation with EPS in 2009, but it was not significant in 2010-2011, pooled OLS and the random effects model. Employee variables were found to be negatively and significantly associated with EPS in the random effects model. In addition, no relationship was found between community perspective and EPS. Further, the coefficient of products variable was found to be positively and significantly related to EPS for the random effects model.

### **5.5.7 The Relationship between each Dimension of CSR Disclosure and Tobin's Q (TBQ)**

This section shows the results of the relationship between CSR disclosure and Tobin's Q (TBQ). The results from Table 5.18 are presented as follows.

#### ***5.5.7.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

Table 5.18 shows the Breusch-Pagan Lagrange multiplier test. It shows that the null hypothesis was rejected ( $\chi^2 = 65.53$ , probability = 0.0000), suggesting that the variance across industries was not equal to zero. This result leads to rejection of null hypothesis, indicating that the random effects model is preferred over pooled OLS.

#### ***5.5.7.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

Table 5.18 shows the Hausman specification test. It shows the regressors were correlated with other regressors in the model ( $\chi^2 = 35.19$ , probability = 0.0000), which indicates that there is a correlation between regressors and individual effects. That is, the fixed effects model is more appropriate than the random effects model.

#### ***5.5.7.3 Regression Results: TBQ as a Dependent Variable***

It can be summarised from section 5.5.7.1 and 5.5.7.2 that the fixed effects model is more suitable. It can be seen from the data in Table 5.18 that all models were found to be statistically significant at 1% level ( $p = 0.00$ ). The coefficient of the community dimension was negative and significantly correlated with Tobin's Q at 10% level in 2010 and the panel data (FE) model. The employee dimension was found to be positively and significantly related with TBQ at 10% in 2009 and panel data (FE) model. The coefficient of the product responsibility dimension had a negative and significant relationship with TBQ at 5% level in 2009 and pooled OLS models. Moreover, there is a negative and significant correlation between the energy dimension and TBQ at 10% level in 2011 model. In addition, no relationship was found between the environment dimension and TBQ.

**Table 5.18 Multiple Regression Analysis between each Dimension of CSR Disclosure and Tobin's Q**

Independent Variables	Dependent Variable Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (FE)
Environment	0.380 (1.120)	-0.0168 (-0.0381)	0.821 (1.598)	0.303 (1.214)	0.0732 (0.216)
Energy	-0.0519 (-0.166)	0.301 (0.653)	-0.984* (-1.830)	-0.243 (-0.982)	0.0489 (0.170)
Employee	0.576* (1.850)	0.501 (0.856)	0.118 (0.209)	0.376 (1.305)	0.636* (1.853)
Community	-0.216 (-1.205)	-0.479* (-1.925)	-0.294 (-0.881)	-0.218 (-1.428)	-0.436* (-1.697)
Product	-0.524** (-2.110)	-0.443 (-1.343)	-0.171 (-0.271)	-0.535** (-2.504)	-0.226 (-0.819)
SIZE (Log Assets)	-0.0257 (-0.587)	-0.00164 (-0.0374)	-0.216*** (-3.658)	-0.0781*** (-2.869)	-0.421 (-1.463)
LEVERAGE	-0.0127 (-1.275)	0.00543*** (2.670)	0.0536** (2.359)	0.0104** (2.305)	-0.00803*** (-2.863)
AGE	-0.0110*** (-2.613)	-0.00645 (-0.883)	2.19e-05 (0.00155)	-0.00391 (-0.718)	0.254*** (3.789)
IDIRECTOR	0.794 (1.228)	0.0344 (0.0529)	0.922 (1.108)	0.742* (1.845)	-1.208 (-1.196)
Constant	0.857 (1.068)	0.881 (1.006)	5.128*** (3.890)	2.139*** (3.830)	6.656 (1.144)
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Observations	323	323	323	969	969
R-Squared	0.063	0.035	0.059	0.028	0.046
F-Statistic	2.88	4.48	2.57	4.66	3.39
P-Value	0.0019	0.0000	0.0052	0.0000	0.0005
Hausman test chi ( $\chi^2$ )					35.19
Prob					0.0000
Breusch-Pagan LM test chi ( $\chi^2$ )				65.53	
Prob				0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.



## **5.6 Robustness Testing**

This section discusses a number of additional tests to assess the robustness of the main results of the relationship between CSR disclosure and financial performance. As discussed in chapter 3, this study employed instrumental variable (IV) estimation to examine the relationship between CSR disclosure and financial performance by using a CSRI of the year before as an instrument variable, and adds four previous year financial performances as further independent variables. The results from IV estimation are as follows:

### **5.6.1 The Relationship between One-Year Lagged Financial Performance and CSR Disclosure (First-Stage-OLS Estimation)**

This section investigates the relationship between previous year financial performance and CSR disclosure. Table 5.19 shows the results from the first stage regression, where CSR disclosure is the dependent variable. The coefficient estimates on the lagged CSR disclosure was shown to significantly affect the levels of CSR. One year lagged CSRI variable has a negative and significant impact on CSRI at 1% level for all models. The results show that there is a positive and significant relationship between previous year financial performance and current CSR disclosure. That is, the coefficients on the lagged one-year ROA (0.001, p-value < 0.10), NPM (0.0004 p-value < 0.05) and TBQ (0.0124 p-value < 0.01) were positive and statistically significantly related to CSR disclosure. However, the coefficients of one year lagged EPS (-0.001, p-value > 0.10), were not found to be statistically significantly correlated with CSR disclosure. These estimates on CSR and financial performance were consistent with previous studies, when using the OLS regression estimation method. The results confirm that financial performance is a vital factor in influencing the extent of CSR disclosure. For example, the coefficient on TBQ indicates that a 1% increase in TBQ was associated with a 0.01% increase in CSR disclosure.

**Table 5.19 First-Stage Regression of CSR Disclosure (OLS Estimation)**

Independent Variables	Dependent Variables							
	CSRI (ROA)		CSRI (NPM)		CSRI (EPS)		CSRI (TBQ)	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
CSRI (lagged 1 year)		-0.301*** (-3.99)		-0.290*** (-3.77)		-0.292*** (-4.56)		-0.288*** (-3.78)
SIZE (Log Assets)		-0.007 (-0.41)		-0.006 (-0.37)		-0.0118 (-0.54)		-0.0167 (-1.07)
LEVERAGE		0.0003* (1.76)		0.0003 (1.20)		0.0003 (-0.37)		0.0003 (2.25)
AGE		-0.005 (-0.77)		-0.0041 (-0.67)		-0.0005 (-0.09)		-0.0042 (-0.69)
IDIRECTOR		0.075 (0.980)		0.0751 (1.17)		0.0766 (-0.99)		0.0626 (0.96)
ROA (lagged 1 year)		0.001* (1.85)						
NPM (lagged 1 year)				0.0004** (2.16)				
EPS (lagged 1 year)						-0.0012 (-0.56)		
TBQ (lagged 1 year)								0.0124*** (3.26)
R-Squared		22.26		7.90		7.03		8.88
F-Statistic		5.124***		5.10***		4.20***		11.46***

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

### 5.6.2 The Relationship between CSR Disclosure and Financial Performance (Second Stage Regression)

The results from second stage regression between CSR disclosure and financial performance are presented in the next subsections.

### 5.6.2.1 Testing for Underidentification and Weak Instruments

Additional tests were employed in this study to evaluate the power of identification in instrumental variables estimation. There are two instruments for measuring the power of identification, which are the Kleibergen-Paap Langrange-Multiplier (LM) test (Kleibergen and Paap, 2006) and the Stock-Yogo weak ID instruments test (Stock and Yogo, 2005). The Kleibergen-Paap Langrange-Multiplier (LM) test is used for assessing the strength of identification by determining if the correlation between the instruments and endogenous variables are statistically different from zero. The hypothesis is that the matrix is rank deficient and the equation is under-identified. Table 5.20 reveals the Kleibergen-Paap (Anderson, 1951; Kleibergen and Paap, 2006) LM test for underidentification. The values of Kleibergen-Paap LM test (F-value) were 13.53 for ROA, 12.28 for NPM, 12.67 for EPS and 12.32 for TBQ, respectively. All of them were significant at 1% level. This results lead to the rejection of the null hypothesis, implying that the matrix has full rank and the equation is identified.

The Kleibergen-Paap (Cragg-Donald) Wald F-statistic (Cragg and Donald, 1993; Kleibergen and Paap, 2006) and Stock-Yogo weak instruments test (Stock and Yogo, 2005) were used to test for weak identification of instrument variable. The hypothesis is that the equation is weakly identified. The results from Kleibergen-Paap Cragg-Donald Wald F-statistic show that the null hypothesis was rejected (ROA, 15.96; NPM, 14.22; EPS, 14.62; TBQ, 14.27). As the rule of thumb from Staiger *et al*, (1997), indicates that the F-statistic should be at least 10, it is not considered to be a problem. It implies that there is an absence of a weak instruments problem in the models.

Furthermore, Table 5.20 reports the Anderson-Rubin Wald test (Anderson and Rubin, 1949) for the significance of the endogenous regressors in the structural equation being estimated. The null hypothesis is that the coefficients of the endogenous regressors in the structural equation are jointly equal to zero ( $H_0: \beta_1 = 0$ ). The values of the Anderson-Rubin robust statistic tests from Table 5.20 were accepted (ROA, 0.15; NPM, 0.94; EPS, 1.19; TBQ, 0.79). That is, the coefficients of the endogenous regressors in the models were jointly equal to zero and the instrument is valid.

To sum up, the results from Kleibergen-Paap LM test, Kleibergen-Paap F-statistics and Anderson-Rubin Wald test for the four models presented in Table 5.20 lead to the conclusion that the  $CSRI_{t-1}$  (instrumental variable) in the models are identified and valid.

#### **5.6.2.2 The Findings from Instrument Variable Estimation (2SLS)**

Table 5.20 reports the results of the instrumental variable estimation (Two stage least square (2SLS) with GMM estimation). This estimation was controlled for heteroscedasticity by using robust and fixed effects estimation. The four models were estimated, where CSR has been instrumented by using the one-year lagged CSRI (or Z or IV). The findings show that the relationship between CSR were not found to be significantly related to ROA (1.88), NPM (0.93), EPS (0.954), TBQ (-0.0316) for balanced panel the fixed effects model and ROA (-6.613), NPM (-21.24), EPS (26.80), TBQ (2.503) for 2SLS models.

### **5.7 Analysis and Discussion**

This section elaborates the analyses of the relationship between CSR disclosure and financial performance for all industries. Multivariate regression has been employed in the previous subsections. This study formulated 12 alternative hypotheses, which predicted a positive relationship between CSR disclosure and financial performance. The hypothesis is developed in the methodology chapter (Chapter 3). The first four hypotheses were examined to detect a direct relationship between CSR disclosure on financial performance (FP) using CSR as independent variable (Table 5.4 – 5.7), and the second four hypotheses were developed to investigate a direct impact of financial performance on CSR disclosure which defines CSR as dependent variable (Table 5.8 - 5.11). The last four hypotheses were tested to observe the relationship between each dimension of CSR disclosure and financial performance using financial performance as dependent variables (Table 5.15 – 5.18). A number of studies have detected a relationship between CSR disclosure and FP. In order to improve statistical methodology and to produce more reliable results, this section used pooled OLS and panel data regression to explain the existence and direction of the relationship between CSR and FP; Also, to discuss the robustness of results and reliability. The summary of the findings is shown in the following tables.

**Table 5.20 Instrumental Variable (IV) Estimation (2-Step GMM Estimation)**

Independent Variables	Instrumental variable estimation (Two stage least square)							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
CSRI	1.880 (0.419)	-6.613 (-0.354)	0.930 (0.121)	-21.24 (-0.953)	0.954 (0.350)	26.80 (1.073)	-0.0316 (-0.0360)	2.503 (0.866)
SIZE (Log Assets)	5.2155*** (3.748)	6.655** (2.045)	3.387 (1.101)	3.168 (0.912)	-0.673 (-0.617)	-0.256 (-0.276)	-0.761** (-2.179)	-0.707 (-1.501)
LEVERAGE	-0.185*** (-3.362)	-0.180*** (-3.191)	-0.231** (-2.474)	-0.218*** (-2.630)	-0.0145 (-0.433)	-0.0295* (-1.905)	-0.0150 (-1.408)	-0.0166*** (-3.065)
AGE	-1.294** (-2.564)	-1.340* (-1.858)	-3.745*** (-4.448)	-3.867*** (-3.889)	-0.494* (-1.675)	-0.452* (-1.794)	0.284*** (3.013)	0.299*** (2.762)
IDIRECTOR	0.605 (0.0954)	1.234 (0.211)	15.27 (1.413)	16.92 (1.516)	1.956 (0.506)	-0.0209 (-0.005)	-0.563 (-0.457)	-0.718 (-0.710)
ROA (lagged 1 year)	-0.316*** (-4.967)	-0.306** (-2.288)						
NPM (lagged 1 year)			0.0830** (2.410)	0.0936 (0.726)				
EPS (lagged 1 year)					-0.482*** (-5.496)	-0.445*** (-4.063)		
TBQ (lagged 1 year)							-0.502*** (-5.1929)	-0.535*** (-4.993)
Constant	-120.6*** (-3.139)		-15.09 (-0.230)		25.127 (1.125)		13.89* (1.846)	

**Table 5.20 (Continued) Instrumental Variable (IV) Estimation (2-Step GMM Estimation)**

Independent Variables	Instrumental variable estimation (Two stage least square)							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
Kleibergen-Paap LM test		13.53***		12.28***		12.67***		12.32***
Anderson-Rubin Wald test		0.15		0.94		1.19		0.79
Shea partial R-Squared		5.196		5.116		5.116		5.112
Kleibergen-Paap (Cragg-Donald) F-statistic		15.96		14.22		14.62		14.27
Stock-Yogo Critical Values								
10% maximal IV size		16.38		16.38		16.38		16.38
15% maximal IV size		8.96		8.96		8.96		8.96
20% maximal IV size		6.66		6.66		6.66		6.66
25% maximal IV size		5.53		5.53		5.53		5.53
Durbin Wu-Hausman test								
Hausman test								
chi ( $\chi^2$ )	479.95***		154.27***		267.09***		392.83***	
R-Squared	16.03	15.10	8.40	6.03	11.40	-13.80	14.60	12.40
F-Statistic	10.09	3.99	4.87	4.55	5.218	4.88	9.06	8.74
P-Value	0.0006	0.0007	0.0001	0.0002	0.0000	0.0001	0.0000	0.0000

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

### 5.7.1 The Relationship between CSR Disclosure and Financial Performance

The results from the alternative hypotheses are summarized in the following section. Table 5.21 presents the summary of hypotheses tested for equations 1 to 8, using financial performance measures.

**Table 5.21 Summary of the Hypotheses Tested for Hypothesis 1 and 2**

Hypothesis	Relationship between two variables	Expected relationship	Results		Outcome
H1A	CSR on ROA	Positive	Positive	$P < 0.01$	Accepted
H1B	CSR on NPM	Positive	Positive	$P < 0.01$	Accepted
H1C	CSR on EPS	Positive	Negative	$P > 0.10$	Rejected
H1D	CSR on TBQ	Positive	Negative	$P > 0.10$	Rejected
H2A	ROA on CSR	Positive	Positive	$P < 0.01$	Accepted
H2B	NPM on CSR	Positive	Positive	$P < 0.01$	Accepted
H2C	EPS on CSR	Positive	Negative	$P > 0.10$	Rejected
H2D	TBQ on CSR	Positive	Negative	$P > 0.10$	Rejected

#### 5.7.1.1 CSR and Return on Assets (ROA)

The results show that ROA was significantly related to the extent of CSR disclosure. Based on the results presented in Table 5.4 and Table 5.8, this study leads to the acceptance of the hypotheses H1A and H2A, and suggests that an addition of 1% of CSR disclosure index (CSRI) resulted in an increase of 13.49% for the pooled OLS model in return on assets (ROA) and increase of 5.393% for the fixed effects model. This suggests that CSR disclosure influences the profitability of Thai listed firms. Numerous studies have shown positive results for the relationship between CSR and financial performance. The current study revealed a positive relationship between CSR disclosure and ROA. This study provided findings that support the results of much of the previous work in this area in other countries, e.g. Preston and O'Bannon (1997), Waddock and Graves (1997), Peters and Mullen (2009) and Saleh *et al*, (2011), who suggest that CSR disclosure level has a direct impact on ROA or vice versa. However, in the case of Thailand, the result of this study differs from the earlier findings of Sukcharoensin (2012) who gathered data from 50 large listed firms on the Stock Exchange of Thailand and adopted CSR guidelines from Stock Exchange Commission of Thailand (SEC). Their findings show that CSR disclosure was not

related to ROA. It is very likely that their sample size was relatively small and did not only focus on the relationship between CSR disclosure and financial performance, but also emphasised the corporate governance factor. This may have brought about changes in a positive relationship between CSR disclosure and ROA.

#### **5.7.1.2 CSR and Net Profit Margin (NPM)**

This current study found a positive impact of CSR disclosure on net profit margin (NPM), which is consistent with the hypotheses H1B and H2B. Certain studies have identified that there is a relationship between CSR activities and firm NPM. This current finding suggests that CSR activities lead to better financial performance and financial performance lead to better CSR. This finding is consistent with those of Waddock and Graves (1997) and Tsoutsoura (2004). However, this finding is in contradiction with those of Aras *et al.*, (2010), who argued that there is no relationship between CSR and NPM. They suggest that it is possible that CSR disclosure may not be strongly related with financial performance in emerging countries as CSR engagement is relatively new and not widely used in emerging countries.

#### **5.7.1.3 CSR and Earnings per Share (EPS)**

This study also found a negative and insignificant relationship between CSR disclosure and EPS, which leads to rejection of the hypothesis H1C and H2C. Previous studies have found that a positive and significant relationship between CSR activities and EPS. This result implies that CSR disclosure was not significantly related to EPS. This finding corroborate with previous results in this area (Tyagi, 2012) and further suggests that better CSR disclosure did not affect earnings per share. It is possible that the time-period for which data were available was after a global recession, at which time the positive relationship between CSR disclosure and earnings per share may have been subjected to the economic conditions. These results differ to some extent from those of Reverte (2012), who found a significant negative correlation between CSR disclosure and cost of equity capital.

#### **5.7.1.4 CSR and Tobin's Q (TBQ)**

No significant relationship was found between CSR disclosure and Tobin's Q, with hypothesis H1D and H2D being rejected. This result is consistent with those of Sukcharoensin (2012), who found that there is no significant relationship between



CSR reporting and Tobin's Q. This implied that better CSR performance was not associated with high values for Tobin's Q. The current study does not support previous research in this area (Jo and Harjoto, 2011; Ghelli, 2013; Li *et al.*, 2013). They argued that CSR activities have a positive relationship with financial performance as measured by Tobin's Q. A possible reason for this is that the global economic crisis in 2008 may have affected firms' value in Thailand. Thai business might have suffered from global crisis, as evidenced by the Thai GDP which reduced from 7.8% in 2010 to 0.1% in 2011 (Worldbank, 2014). Another possible reason is that Thailand faced a serious flooding in the last quarter of 2010 as discussed in Chapter 4, resulting in decreased firm financial performance in years 2010 and 2011 which would have resulted in lower Tobin's Q or market value.

## **5.7.2 The Relationship between each Dimension of CSR Disclosure and Financial Performance**

The results of the relationship between each dimension of CSR disclosure and financial performance are presented in Table 5.22. The null hypothesis was developed in Chapter 3. The alternative hypotheses are summarised in the following subsections.

### ***5.7.2.1 The Relationship between Environmental Disclosure and Financial Performance***

As given in Table 5.22, this results of the study show that there is a positive and significant relationship between earnings per share (EPS) and environmental disclosure. This finding indicates that a large amount of environmental reporting has a direct impact on stock market performance. The finding of the current study does not support the previous research in this area of Van der Laan *et al.*, (2008), which found a negative relation between environmental disclosure and EPS. These results agree with those of Schreck (2011), who also found a positive relationship between EPS and environmental disclosure. A possible explanation is that there might have been a complex relationship between financial performance and environmental disclosure.

However, no relationships were found between environmental related activities and ROA, NPM and TBQ. The findings seem to be consistent with other research, which showed no relationship between environmental disclosure and financial performance (Tilakasiri, 2012). Further, this finding does not corroborate the

results of Hossain *et al*, (2006), who suggests that there is a positive and significant relationship between environmental disclosure levels and profitability. The definition of environmental disclosure country was different (Griffin and Mahon, 1997), which might have influenced the level of environmental disclosure and financial performance. Moreover, most environmental laws and regulations are mandatory requirements for all companies to report to the Thai government. Companies are not required to report their activities again in annual reports (Tilakasiri, 2012). If companies are not reporting all activities, this may reduce the disclosure level.

**Table 5.22 Summary of the Hypotheses Tested for Hypothesis 3**

Dimension of CSR	Expected relationship	Financial Performance	Results	Outcome	Hypothesis	
Environment	Positive	EPS	Positive	P < 0.10	Accepted	H3C
Energy	Positive	EPS	Negative	P < 0.10	Accepted	H3C
Employee	Positive	TBQ	Positive	P < 0.10	Accepted	H3D
Community	Positive	ROA	Positive	P < 0.01	Accepted	H3A
	Positive	NPM	Positive	P < 0.01	Accepted	H3B
	Positive	TBQ	Negative	P < 0.10	Accepted	H3D
Product	Positive	TBQ	Negative	P < 0.05	Accepted	H3D

#### **5.7.2.2 The Relationship between Energy Disclosure and Financial Performance**

Conservation of energy was an important aspect of CSR activities in previous studies (Hackston and Milne, 1996; Rouf, 2011; Kuo *et al*, 2012). Cortez and Cudia (2010) stated that firms gained benefits from conservation of energy e.g. cost saving, increasing of sales, and electronics products have high eco-rating. The results of previous studies show a mixed relationship between environmental disclosure and financial performance as they included the energy dimension in one aspect of environmental activities. Belal (2000) stated that there is a mandatory environmental disclosure requirement for firms in Bangladesh to report the expenditures on energy consumption. Most of the previous studies have focused on the relationship between CSR dimensions and return on equity (ROE) or return on investment (ROI). This study attempted to use EPS to identify the relationship with CSR disclosure. The current study found a negative and significant relationship between the energy dimension and earnings per share (EPS), indicating that disclosing of energy information might reduce stock market performance. Energy disclosures were not found to be significantly related to ROA, NPM and TBQ as well. This study has not

confirmed previous research on the relationship between environmental disclosure and profitability. Suttipun and Stanton (2012c) found that the amount of environmental disclosure had no significant association with profitability. The apparent lack of correlation can be justified by the percentage of energy disclosure of Thai listed firms which was quite low. The results reported in Chapter 4 indicate that energy disclosure was the least disclosed dimension in Thailand over the three years period.

#### ***5.7.2.3 The Relationship between Employee Disclosure and Financial Performance***

Previous studies have investigated the relationship between employee disclosure and Tobin's Q (Inoue and Lee, 2011; Bayoud *et al.*, 2012). The results of this study show there is a positive and significant relationship between employee disclosure and Tobin's Q. This is in good agreement with Inoue and Lee (2011), Saleh *et al.* (2011) and Jo and Harjoto (2011), who indicate that employee disclosure shows a positive effect on firm value or accounting-based performance and future profitability.

However, this study found that there are no significant relationships between employee and ROA, NPM and EPS. Bayoud *et al.* (2012) indicate that employee disclosure were found to be positively and significantly impacted by return on equity but there is no significant relationship between CSR disclosure and employee commitment. Further, Schreck (2011) provided evidence that there is no relationship between employee disclosure and TBQ and ROE. It can be explained by the fact that employee practices between developed and developing countries are not similar. This might lead to differences in human resources policies and practices, which may influence the extent of CSR disclosure. The current study concluded that employee disclosure has a positive relationship with Tobin's Q in Thai context.

#### ***5.7.2.4 The Relationship between Community Disclosure and Financial Performance***

The results of the relationship between social disclosure and financial performance show mixed results in previous studies. The current study shows a positive relationship between community dimension and financial performance measures of ROA and NPM. This is consistent with findings in other developing countries (Waddock and Graves, 1997; Nelling and Webb, 2009; Khemir and Baccouche, 2010; Tilakasiri, 2012). It can be explained by the fact that in Thailand,

the most disclose dimension is community-related activities. It found that a high level of community activities disclosures have a positive impact on financial performance as measured by ROA and NPM. Further, with TBQ as the dependent variable, the result was found to be negative and significantly related to community disclosure. As the data in this study was after global crisis, the global recession might influence when firms were experiencing reduced market-based performance.

However, there is no relationship between community disclosure and EPS. This finding is not consistent with previous findings conducted by Richardson and Welker (2001), Dkhili and Ansi (2012), who found a positive relationship between social disclosure and ROE. It is likely that the data is specific to period of economic recession. The result is subject to macro-economic conditions. Dkhili and Ansi (2012) further argue that the relationship between social disclosure and financial performance is difficult to identify or the relationship between two variables may be random. This factor indicates the difficulty of detecting the existence of the relationship between social disclosure and FP. Hence, no relationship was found.

#### ***5.7.2.5 The Relationship between Products Responsibility Disclosure and Financial Performance***

The present study was intended to establish the relationship between products disclosure and financial performance. Previous studies have not found a relationship between customer-related activities or products responsibility disclosure and financial performance (Tilakasiri, 2012). The results from this study show that there is a negative and significant relationship between products responsibility disclosure and Tobin's Q. The present findings seem to be consistent with other research which found that product and customer responsibility have a negative impact on TBQ (Schreck, 2011). However, the finding of the current study is distinguishable from Jo and Harjoto (2011), who found a positive relationship with firm value. Based on stakeholder theory, Jo and Harjoto (2011) argued that "top management uses CSR engagement to enhance their private benefits of social-citizen reputation that could hurt the market value of a firm. Whereas the conflict resolution explanation argues that using CSR activities to reduce potential conflicts between top management and various stakeholders could eventually improve firm value by mitigating agency conflicts (p. 374, )".

There are also no relationships between products disclosure and ROA, NPM and EPS. This is because in Thailand, products responsibility disclosure is not well-known, therefore the amount of products disclosure was the least disclosed dimension for Thai companies (Zhang, 2013). Another possible reason is that a small amount of products disclosure may not provide an association with financial performance.

### **5.7.3 The Robustness Test of the Relationship between CSR Disclosure and Financial Performance**

In line with one previous study (Garcia-Castro *et al.*, 2010), further tests were carried out controlling for the endogeneity problem. The results show that previous-year financial performance of ROA, NPM and TBQ were positive and significantly related to CSR disclosure. This result is similar to the findings of Garcia-Castro *et al.*, (2010), who found a positive impact of the previous year's ROA, NPM and TBQ on future values of CSR disclosure. These results confirm hypotheses H1A, H1B and H1D, which were accepted. It suggests that when firms have great profitability and high Tobin's Q value, they may engage more CSR activities for the next year. It also suggests that the study of the relationship between CSR and FP in the previous literature was biased (Abdul Rahman *et al.*, 2009; Suttipun and Stanton, 2012b; Wuncharoen, 2013), because they did not control for endogeneity issues. This study has eliminated the endogeneity problems by 2SLS. However, current year CSR disclosure was not significantly related with present year ROA, NPM, EPS and TBQ. These findings confirm a positive relationship between CSR and ROA, NPM and TBQ of firms in Thailand.

## **5.8 Summary and Conclusions**

This chapter has investigated the relationship between corporate social responsibility (CSR) and four measures of financial performance parameters such as ROA, NPM, EPS and Tobin's Q. The objective of this study is to examine the extent of CSR disclosure and its influence on financial performance. To analyse the relationship between CSR and financial performance, multiple regression was carried out based on a sample of 939 Thai listed companies for the three-year period between 2009 and 2011 inclusive. This study also investigated the relationship between CSR

and financial performance using cross-sectional and panel data model and compared this relationship in both directions. Furthermore, this chapter examined the relationship between the dimensions of CSR disclosure: namely environment, energy, employee, community, and products related disclosure, with financial performance measures. This study also examined the correlation between CSR disclosure and financial performance by adopting an instrumental variable estimation. This study provided contributions on the relationship between CSR and both accounting based and market-based performance.

The results can be summarised as follows. By measuring financial performance as the dependent variables, *firstly*, the empirical findings indicate that there is a strong positive relationship between CSR and financial performance, measured by return on assets (ROA). This result suggests that a high amount of CSR disclosure leads to better financial performance (ROA). The results also show that the relationship between CSR disclosure and performance of firms as measured by net profit margin (NPM) is positive and significant. These results suggest that the amount of CSR disclosure can enhance the profitability of firms. *Secondly*, the results show that the relationship between earnings per share (EPS) and CSR disclosure is negative and not significant. It appears that the EPS is not related to CSR disclosure. This analysis further found that a relationship between CSR and Tobin's Q during the studied period was negative and not significant. This would appear to indicate that the extent of CSR disclosure does not lead to better market performance. However, there is some conflict in the results concerning the sign of the coefficients or significance (positive or negative) and their impact on CSR disclosure. *Finally*, by defining CSR as the dependent variable, the empirical results confirm that a positive significant relationship existed between return on assets (ROA) and net profit margin (NPM) and CSR disclosure. However, an examination of the impact of earnings per share (EPS) and Tobin's Q (TBQ) on CSR shows that the EPS and TBQ does not have a significant effect on CSR disclosure.

In terms of the relationship between each theme of CSR disclosure and four financial performance parameters, the findings can be summarised based on the cross sectional data, pooled OLS, and the panel data models as follows. *Firstly*, the findings show that there is a strong positive relationship between community related CSR disclosure and return on assets. However, other CSR themes were not significantly related to ROA. LEVERAGE and IDIRECTOR variables were found to be negatively

and significantly correlated with ROA. Secondly, the results show that there is a significant positive relationship between the community dimension of CSR and the net profit margin (NPM), but the products categories was found to be negatively and significantly correlated with NPM. The rest of the disclosure themes of CSR (environment, energy and employee) were not significantly related to NPM.

Thirdly, this analysis found that there is a significant and positive relationship between disclosure in products categories and earnings per share (EPS) in panel models. There is a negative and significant relationship between the EPS and energy categories in 2009 and employee activities in panel data. The disclosure in environment categories was found to be positively and significantly correlated with EPS for pooled OLS model. Fourthly, the results indicate that there is a significant and negative relationship between product, community and energy themes with Tobin's Q (TBQ) but a positive and significant relationship with disclosure in employee relation. Finally, SIZE and AGE variables were found to be positively and significantly related to CSR disclosure. The SIZE, LEVERAGE and AGE variables have a significant relationship with financial performance as well.

Based on instrumental variable estimation, the results show that previous year return on assets, net profit margin and Tobin's Q were found to be positively and significantly related with CSR disclosure. However, the relationship between previous year earnings per share and CSR disclosure was negative and not significant. The next chapter presents the results of the relationship between CSR disclosure and financial performance for firms in the manufacturing and non-manufacturing industries.

## CHAPTER 6

# CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE AND FINANCIAL PERFORMANCE OF FIRMS IN MANUFACTURING AND NON-MANUFACTURING INDUSTRIES

### 6.1 Introduction

The relationship between CSR disclosure and financial performance for all firms for all industries in the years 2009 to 2011 was analysed in the previous chapter. The consolidated findings of relations between CSR disclosure and financial performance for different industry groups are discussed. It is argued that the high-profile industrial companies tend to report higher CSR than low-profile industrial companies (Cooke, 1992; Hackston and Milne, 1996). Their results suggest that firms in manufacturing industries appear to report more CSR information. Ratanajongkol et al (2006) claimed that an environmental theme of CSR disclosure was emphasised by the manufacturing sector, however as explained in chapter 4, the manufacturing industry focused on community-related activities rather than an environmental theme. This chapter attempts to explain the relationship between CSR disclosure and financial performance of firms listed in the manufacturing and non-manufacturing industries. There are eighty-two firms belong to the manufacturing industry which are firms in industrials sector, resources sector and transportation & logistics sector, 241 firms listed in the non-manufacturing industry in each year. As described in the data and methodology in Chapter 3, cross-section data, pooled OLS, panel data and instrumental variable estimation are utilised to examine the relationship between CSR disclosure and financial performance in each group.

The structure of this chapter is organised as follows. The *first section* provides the findings of descriptive statistics of dependent and independent variables and an analysis on the regression assumptions. The *second section* presents the regression analysis on CSR disclosures and four adopted financial performances (FP as dependent variable). The *third section* presents an impact of financial performance on CSR disclosure (CSR as dependent variable). The *fourth section* shows an association between each dimension of CSR disclosure and financial performance. The *fifth section* presents findings from instrumental variable (IV) estimation. A discussion of



the findings is presented in the *sixth section*. The *final section* is a summary and conclusion of the findings from the regression analyses.

## **6.2 Descriptive Statistics for Manufacturing and Non-manufacturing Firms**

In this section, the descriptive statistics are examined to determine the distribution and dispersion of variable such as CSR disclosure, financial performance and control variables for manufacturing and non-manufacturing industries. The results of univariate analysis of CSR disclosure and firm financial performance for both groups are given. These are presented by comparing CSR disclosure index and four respective financial performances measures, which cover return on assets (ROA), net profit margin (NPM), earnings per share (EPS) and Tobin's Q (TBQ). The descriptive statistics described in this study included the mean, median, minimum, maximum, and standard deviation.

Table 6.1 presents the distributions for the dependent and independent variables of firms in the manufacturing industry between 2009 and 2011. The mean of financial performance measures in 2010 were higher than other years. For instance, return on assets was 10.19%, net profit margin was 7.35%, and earnings per share were 3.65 Baht. These findings suggest that in the year 2010 firms in manufacturing sector had a better performance than other years. The deviations between maximum and minimum for ROA ranged from -27.60% to 41.72%, NPM started from -179.06% to 50.07% and EPS ranged from -5.71 Baht to 91 Baht. The standard deviation for net profit margin was highest (21.77%), while the standard deviation of other financial performance measures were not much different from mean, suggesting that most of the financial performance indicators were centrally distributed except for NPM. The mean, median and standard deviation of CSRI were 25%, 24%, and 16% respectively, suggesting that there is no difference between those for each year for firms in manufacturing sector. The average age of the firms listed on SET was 13.43 years and standard deviation was 8.25, which indicates that firms in this industry may get involved in CSR activities within thirteen years of their business establishment which was lower than this average for all firms (fifteen years). Further, the mean of the percentage of independent directors to total directors on the board was 40% (standard deviation = 10%), suggesting that manufacturing industry tend to have more outside

directors. On an average the debt to equity ratio was 1.07 times (SD, 1.07), indicating that the percentage of total liability is not much higher than shareholders equity.

**Table 6.1 Descriptive Statistics for Manufacturing Industry in the Years 2009 to 2011**

Variables	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Log Assets	Age (Years)	Lev (Times)	Inter direct
<b>2009</b>									
Mean	6.74	- 0.31	2.61	0.42	0.25	22.63	12.43	0.97	0.38
Median	7.32	4.51	0.56	0.18	0.21	22.18	12.50	0.77	0.36
S.D.	10.56	31.99	6.95	0.67	0.18	1.75	8.24	0.83	0.10
Min	- 27.60	- 179.06	- 5.71	0.00	0	19.72	1.00	0.03	0.18
Max	36.32	50.07	52.36	3.71	0.63	27.73	35.00	4.15	0.68
<b>2010</b>									
Mean	10.19	7.35	3.65	0.91	0.25	22.77	13.43	1.02	0.40
Median	8.72	6.39	0.76	0.44	0.26	22.33	13.50	0.76	0.38
S.D.	9.14	14.75	10.86	1.54	0.16	1.77	8.24	0.90	0.10
Min	- 19.49	- 63.62	- 2.27	0.00	0	19.54	2.00	0.10	0.23
Max	36.11	46.67	91.00	11.28	0.61	27.85	36.00	5.11	0.73
<b>2011</b>									
Mean	8.83	6.50	2.97	0.99	0.25	22.85	14.43	1.23	0.41
Median	8.60	5.28	0.40	0.25	0.26	22.40	14.50	0.84	0.38
S.D.	7.92	12.53	9.36	2.46	0.14	1.80	8.24	1.38	0.11
Min	- 5.13	- 60.64	- 4.67	0	0	19.56	3.00	0.07	0.27
Max	41.72	45.59	73.82	15.00	0.54	27.97	37.00	8.81	0.80
<b>Total</b>									
Mean	8.59	4.51	3.08	0.77	0.25	22.75	13.43	1.07	0.40
Median	8.28	5.69	0.54	0.25	0.24	22.28	13.50	0.79	0.38
S.D.	9.34	21.77	9.17	1.73	0.16	1.77	8.25	1.07	0.10
Min	- 27.60	- 179.06	- 5.71	0	0	19.54	1.00	0.03	0.18
Max	41.72	50.07	91.00	15.00	0.63	27.97	37.00	8.81	0.80

Table 6.2 shows the descriptive statistics of dependent and independent variables for non-manufacturing sector. The average of ROA, NPM and EPS for non-manufacturing sector in year 2010 were 9.14%, 8.58%, and 2.86 Baht and the standard deviation were 9.70%, 14.52%, and 7.14 Baht, respectively, which was higher than the industry average (8.09%, 5.98%, and 2.42 Baht) and other years. These findings

suggest that the profitability indicators in this industry were better in 2010 than the years 2009 and 2011. The average and standard deviation of TBQ for non-manufacturing sectors were increasing throughout the period, which ranged from 0.44% (SD, 0.79%) in 2009 to 0.71% (SD, 1.04%) in 2011. The average social disclosure index started from 20% in 2009 to 21% in 2011, indicating that the trend of CSR disclosure for non-manufacturing sector was growing. The mean of the percentage of independent directors was increased slightly from 37% in 2009 to 39% in 2011. This suggests that non-manufacturing firms appear to have more outside directors on the board.

**Table 6.2 Descriptive Statistics for Non-Manufacturing Industry in the Years 2009 to 2011**

Variables	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Size	Age (Years)	Lev (Times)	Idirector
<b>2009</b>									
Mean	7.31	4.28	2.42	0.44	0.20	22.41	15.52	1.86	0.37
Median	6.06	5.98	0.48	0.14	0.17	22.05	16.00	0.93	0.36
S.D.	8.71	24.14	6.60	0.79	0.13	1.62	8.56	3.06	0.09
Min	- 19.84	- 219.19	- 3.67	0	0	19.56	1.00	0	0.15
Max	44.54	39.21	72.81	7.91	0.59	28.20	35.00	28.36	0.75
<b>2010</b>									
Mean	9.14	8.58	2.86	0.66	0.21	22.48	16.52	2.40	0.38
Median	8.07	8.28	0.67	0.33	0.20	22.19	17.00	0.96	0.36
S.D.	9.70	14.52	7.10	0.96	0.13	1.66	8.56	11.07	0.08
Min	- 36.04	- 81.00	- 3.30	0	0	19.50	2.00	0	0.17
Max	53.03	57.21	76.53	8.38	0.59	28.30	36.00	168.84	0.75
<b>2011</b>									
Mean	7.82	5.08	1.98	0.71	0.21	22.59	17.52	2.39	0.39
Median	7.06	6.44	0.54	0.28	0.20	22.19	18.00	1.04	0.36
S.D.	11.85	19.17	5.30	1.30	0.14	1.70	8.56	4.09	0.08
Min	- 62.91	- 178.10	- 6.34	0	0	19.24	3.00	0	0.23
Max	57.29	63.14	37.66	10.31	0.61	28.38	37.00	31.47	0.75
<b>Total</b>									
Mean	8.09	5.98	2.42	0.60	0.20	22.49	16.52	2.21	0.38
Median	7.17	6.86	0.55	0.22	0.20	22.17	17.00	0.98	0.36
S.D.	10.19	19.73	6.38	1.04	0.13	1.66	8.58	7.03	0.08
Min	- 62.91	- 219.19	- 6.34	0	0	19.24	1.00	0	0.15
Max	57.29	63.14	76.53	10.31	0.61	28.38	37.00	168.84	0.75

The mean of ROA, EPS, TBQ, CSRI and the percentage of independent directors were 8.09%, 2.42 Baht, 0.60%, 20% and 38%, respectively. The average of firm size is 22.49, indicating that firms in non-manufacturing industries have lower assets than firms in the manufacturing industry (22.75). The mean and median of IDIRECTOR variables were 38% and 36% respectively, which suggests that firms in non-manufacturing industries are more likely to have independent directors, but the proportion of outside directors is smaller in the non-manufacturing sector than firms in the manufacturing sector (40%). The standard deviation for ROA, NPM, EPS, TBQ, CSRI, SIZE and IDIRECTOR were not much different from the manufacturing industry, which were 10.19%, 19.73%, 6.38 Baht, 1.04%, 13%, 8.58 years and 8%, respectively. This indicates that all variables are less dispersed and medially distributed.

### **6.3 The Empirical Results for the Association between CSR Disclosure and Financial Performance for Manufacturing and Non-Manufacturing Industries**

This section shows the regression results between CSR disclosure and four financial performances indicators for firms listed in manufacturing and non-manufacturing industries from 2009 to 2011. Multivariate regression was performed to investigate the relationship by comparing cross-sectional data, pooled OLS and panel data. The models in this chapter are based on the data and methodology of Chapter 3, using CSR as the independent variable.

This section is divided in to six subsections. *Firstly*, testing for multicollinearity is shown. *Secondly*, testing for homoscedasticity is presented. *Thirdly*, the correlation between return on assets (ROA) and CSR disclosure of firms in both industries is investigated. *Fourthly*, the relationship between net profit margin (NPM) and CSR disclosure is analysed. *Fifthly*, the impact of earnings per share (EPS) on CSR disclosure is presented. *Finally*, the relationship between Tobin's Q and CSR disclosure is investigated.

#### **6.3.1 Testing for Multicollinearity**

The multicollinearity test was conducted to detect the correlation among financial performance indicators, CSR disclosure and the control variables for

manufacturing and non-manufacturing industries. The multicollinearity is examined to discover that independent variables are not highly correlated and no multicollinearity amongst independent variables exists. The findings for the correlation of CSR disclosure, financial performance and control variables are reported in **Appendix B-3.1 to B-3.4.**

Appendix B-3.1 shows the correlation matrix between ROA and independent variables for the manufacturing and non-manufacturing sectors in the years 2009-2011. The Pearson correlations between each pair of variables show that the correlation coefficients between IDIRECTOR and SIZE variable was 0.2963, CSRI and SIZE was 0.2963, CSR and IDIRECTOR was 0.1863. There is also a negative correlation between ROA and LEV (-0.2461) and AGE and LEV (-0.2370). Those findings were statistically significant at 1% level. The coefficients of correlations of each pair were lower than 0.4. The correlation coefficients of variables in non-manufacturing industries were found to be lower than 0.4 as well. For example the correlation coefficients between SIZE and AGE were 0.3133, CSRI and AGE was 0.2634, SIZE and LEV was 0.2038. These results indicate that multicollinearity appears not to be a problem.

Appendix B-3.2 shows the correlation matrix between NPM and independent variables for manufacturing and non-manufacturing industries. The correlation between NPM and LEV was -0.3377 for the manufacturing sector. The correlation coefficient between NPM and CSRI was 0.2189, NPM and LEV was -0.1000. For the non-manufacturing sector, the correlation coefficient between NPM and CSRI was 0.2189, NPM and SIZE was 0.1210, which is statistically significantly at 1% level. These results show no correlation coefficients were higher than 0.4. This finding indicates that collinearity should not be considered a serious problem

Appendix B-3.3 presents the Pearson correlation results between NPM and independent variables for the manufacturing and non-manufacturing industries. For the manufacturing industry, the correlation between EPS and SIZE was highest at 0.4272 following by EPS and AGE (0.1887) and EPS and IDIRECTOR (0.1876). The correlation coefficients for non-manufacturing industries show that the coefficient between EPS and AGE was 0.2588, EPS and SIZE was 0.1271, which is statistically significant at 1% level. This result indicates low levels of collinearity between variables, which supports the lack of presence of multicollinearity for both industries.

Appendix B-3.4 shows the Pearson correlation results between TBQ and independent variables for manufacturing and non-manufacturing industries. The correlation coefficient between TBQ and CSRI was -0.1486 for the manufacturing industry. For, the non-manufacturing sector, there are a low correlation between TBQ and AGE at -0.1322. These results suggest that there are no variables with a correlation lower than -0.2, indicating that multicollinearity is not a concern.

**Table 6.3 Testing for Multicollinearity by Using Variance Inflation Factor (VIF) for Manufacturing and Non-Manufacturing Industries**

Manufacturing industry		Non-Manufacturing industry	
Variable	VIF	Variable	VIF
CSRI	1.25	CSRI	1.17
SIZE	1.23	SIZE	1.17
LEV	1.12	LEV	1.08
AGE	1.12	AGE	1.05
IDIRECTOR	1.08	IDIRECTOR	1.01

Table 6.3 presents the variance inflation factor and tolerance of independent variables for manufacturing and non-manufacturing industries. The variance inflation factor (VIF) and tolerance were also examined to confirm the absence of multicollinearity in the model. The results show that VIF were lower than 10 and tolerance was higher than 0.10 for both industries, confirming that multicollinearity does not exist (Gujarati, 2009).

To sum up, from correlation of matrix tables in appendix B-3.1-3.4 no strongly significant correlation was found between financial performance variables and control variables. Some variables were significantly related, but the correlation coefficients were very small. This shows that multicollinearity was not influencing the results of this study.

### 6.3.2 Testing for Homoscedasticity

This study tests for homoscedasticity, which a condition in which the dependent variable has an equal variance level of the residual of regression for each of the values of the independent variables or the variance of the error term is constant. This study used the Breusch-Pagan / Cook-Weisberg test and White's General test for

detecting heteroscedasticity. Further, robust standard error is another method to test for homoscedasticity. Gujarati (2009) argues that the problem of OLS estimation is that the estimation errors are not independence and identically distributed. When heteroscedasticity is present, standard errors may be biased. When robust standard error is employed in the analysis, it will adjust standard errors and the significant level of the estimation and the coefficients for each variable from the estimation will not change.

The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity show some heteroscedasticity is present<sup>7</sup>, indicating that heteroscedasticity may be a problem. To satisfy the regression assumption, this study utilises robust standard errors to control for heteroscedasticity in all models.

### **6.3.3 The Relationship between CSR Disclosure and Return On Assets (ROA as the Dependent Variable) for Manufacturing and Non-Manufacturing Industries**

This section presents the relationship between CSR disclosure and ROA for manufacturing and non-manufacturing industries. The results from the analyses are shown in the Table 6.4.

#### ***6.3.3.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of The Breusch-Pagan Lagrange multiplier test from Table 6.4 show that chi ( $\chi^2$ ) = 99.22, probability = 0.0000 (for manufacturing sector) and chi ( $\chi^2$ ) = 228.89, probability = 0.0000 (for non-manufacturing sector), indicating that the null hypothesis was rejected. That is, the random effects model is preferred over pooled OLS.

#### ***6.3.3.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The result of the Hausman specification test from Table 6.4 show that the regressors and individual effects were correlated in the model (chi ( $\chi^2$ ) = 14.88, probability = 0.0109 for manufacturing industry and chi ( $\chi^2$ ) = 36.03, probability = 0.0000 for non-manufacturing industry), which confirms the null hypothesis was

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<sup>7</sup> The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity is presented in APPENDIX C-2

**Table 6.4 Regression analysis: Return on Assets as the Dependent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Return on Assets (ROA)					Non-Manufacturing Industry Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (FE)	2009	2010	2011	Pooled OLS	Panel (RE)
CSRI	13.56 (1.361)	-5.272 (-0.578)	5.279 (0.640)	5.537 (1.095)	11.56*** (2.740)	14.63*** (3.810)	19.93*** (4.890)	10.28** (2.019)	17.88*** (6.867)	10.60*** (3.462)
SIZE (Log Assets)	-0.0793 (-0.0743)	0.356 (0.457)	-0.806 (-1.319)	-0.215 (-0.471)	3.549* (1.906)	0.882** (2.034)	-0.353 (-0.896)	1.145* (1.737)	0.0716 (0.259)	0.298 (0.796)
LEVERAGE	-3.124** (-2.160)	-3.098*** (-2.862)	-1.502*** (-3.192)	-2.093*** (-4.179)	-1.163 (-0.973)	-1.141*** (-4.365)	-0.188*** (-5.029)	-0.965*** (-2.717)	-0.299** (-2.192)	-0.145 (-1.632)
AGE	0.0327 (0.292)	0.0286 (0.275)	0.0223 (0.234)	0.0423 (0.724)	0.823 (1.492)	-0.0622 (-1.071)	-0.0820 (-1.124)	-0.0486 (-0.611)	-0.0661 (-1.601)	-0.0414 (-0.736)
IDIRECTOR	9.560 (0.977)	-8.271 (-1.007)	-0.585 (-0.0596)	1.627 (0.310)	1.186 (0.221)	-1.018 (-0.179)	-15.14** (-2.131)	-21.68** (-2.177)	-11.97*** (-2.588)	-4.652 (-1.042)
Constant	4.157 (0.193)	9.445 (0.555)	27.71* (1.935)	13.15 (1.354)	-85.28** (-2.134)	-11.93 (-1.297)	20.53** (2.391)	-8.523 (-0.642)	9.123 (1.559)	1.982 (0.250)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.109	0.108	0.112	0.069	0.107	0.201	0.111	0.147	0.100	0.143
F-Statistic	1.72	1.97	3.58	4.49	4.03	9.16	8.97	3.90	12.71	14.26
P-Value	0.1398	0.0934	0.0058	0.0006	0.0026	0.0000	0.0000	0.0020	0.0000	0.0141
Hausman test chi ( $\chi^2$ )					14.88					36.03
Prob					0.0109					0.0000
Breusch-Pagan LM test chi ( $\chi^2$ )				99.22					228.89	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.



rejected so that the fixed effects model is more suitable than the random effects model.

### **6.3.3.3 Regression Results: ROA as a Dependent Variable**

From the results in 6.3.3.1 and 6.3.3.2, it can be concluded that the fixed effects model is appropriate model for the manufacturing sector. The results from multiple regressions for the manufacturing industry in Table 6.4 indicate that models were statistically significant at 1% level ( $p = 0.00$ ) for 2011, pooled OLS, and the fixed effects model. The results show that the coefficient of CSRI has a positive and significant relationship with ROA (at 1% level) in the fixed effects model. The CSRI coefficients of other models were not found to be significantly related to ROA.

For non-manufacturing industry, the random effects model is more suitable because the fixed effects model is not statistically significant. All models were found to be statistically significant at 1% level ( $p = 0.00$ ). The coefficient of CSRI was positive and significantly related to ROA at 1% level in 2009-2010, pooled OLS and random effects model, and at 5% level in the 2011 model.

### **6.3.4 The Relationship between CSR Disclosure and Net Profit Margin (NPM as the Dependent Variable) for Manufacturing and Non-Manufacturing Industries**

The relationship between CSR disclosure and NPM for manufacturing and non-manufacturing industries is presented in Table 6.5. The results from the analyses are shown in the following sections.

#### **6.3.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)**

The results of the Lagrange multiplier test show that the null hypothesis was rejected ( $\chi^2 = 16.13$ , probability = 0.0000 for manufacturing industry and  $\chi^2 = 98.99$ , probability = 0.0000 for non-manufacturing industry). That is, the variance across entities was not equal to zero, indicating that the random effects model is more applicable than pooled OLS.

**Table 6.5 Regression Analysis: Net Profit Margin as the Dependent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Net Profit Margin (NPM)					Non-Manufacturing Industry Net Profit Margin (NPM)				
	2009	2010	2011	Pooled OLS	Panel (FE)	2009	2010	2011	Pooled OLS	Panel (RE)
CSRI	19.94 (0.967)	-5.146 (-0.427)	-0.594 (-0.0614)	6.711 (0.736)	14.57* (1.668)	20.94* (1.935)	12.26* (1.697)	14.58 (1.609)	21.84*** (3.955)	19.04*** (2.955)
SIZE (Log Assets)	2.427 (1.148)	2.214* (1.966)	0.706 (0.937)	1.677** (2.189)	39.00*** (3.108)	4.850*** (4.853)	2.170*** (4.347)	3.633*** (4.456)	2.552*** (5.933)	2.353*** (4.518)
LEVERAGE	-13.20** (-2.140)	-9.420*** (-3.389)	-5.548*** (-3.184)	-7.573*** (-4.827)	-4.637 (-0.987)	-2.666*** (-4.647)	-0.182*** (-5.076)	-1.162*** (-2.913)	-0.398* (-1.759)	-0.326 (-1.490)
AGE	-0.0740 (-0.261)	-0.0146 (-0.0838)	-0.0299 (-0.191)	0.00431 (0.0389)	-0.0976 (-0.0507)	-0.106 (-0.781)	-0.0424 (-0.479)	0.0159 (0.147)	-0.0479 (-0.769)	-0.0200 (-0.250)
IDIRECTOR	49.75 (1.167)	-13.77 (-1.123)	-8.458 (-0.597)	12.25 (0.772)	1.793 (0.177)	-3.714 (-0.176)	-11.20 (-0.739)	-24.37 (-0.912)	-14.40 (-1.165)	-8.403 (-0.604)
Constant	-65.35 (-1.472)	-26.53 (-1.182)	1.283 (0.0859)	-32.08** (-1.986)	-880.8*** (-3.230)	-100.6*** (-4.480)	-37.34*** (-3.450)	-67.96*** (-4.212)	-48.74*** (-5.351)	19.04*** (2.955)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.172	0.326	0.356	0.152	0.371	0.161	0.107	0.156	0.101	0.164
F-Statistic	1.55	3.22	2.32	5.20	3.01	7.77	1.70	5.12	10.64	29.07
P-Value	0.1837	0.0110	0.0511	0.0001	0.0152	0.0000	0.0000	0.0002	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					89.69					19.72
Prob					0.0000					0.0014
Breusch-Pagan LM test										
chi ( $\chi^2$ )				16.13					98.99	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### ***6.3.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test from Table 6.5 show that individual effects were correlated with other variables in the model ( $\chi^2 = 89.69$ , probability = 0.0000, for manufacturing industry and  $\chi^2 = 19.72$ , probability = 0.0000 for non-manufacturing industry), which leads to rejection of the null hypothesis. The findings indicate that the fixed effects model is more appropriate than the random effects model.

#### ***6.3.4.3 Regression Results: NPM as a Dependent Variable***

From section 6.3.4.1 and 6.3.4.2, it can be summarised that the fixed effects model is more suitable for the manufacturing industry and the random effects model is most suitable for non-manufacturing industry. It is apparent from Table 6.5 that the models were statistically significant at 1% level in 2010 and using pooled OLS, at 5% level in 2011 and using the fixed effects model. There is a positive and significant relationship between CSRI and net profit margin (NPM) at 10% level for the fixed effects model.

Table 6.5 also presents regression analysis from non-manufacturing industry, which indicates that all models were statistically significant at 1% level ( $p = 0.00$ ). The coefficients for CSR index were positive and significantly correlated with net profit margin (NPM) at 1% level for pooled OLS and the random effects model and at 10% level in 2009-2010.

### **6.3.5 The Relationship between CSR Disclosure and Earnings per Share for Manufacturing and Non-Manufacturing Industries**

This section presents the regression results from the relationship between CSR disclosure and earnings per share (EPS) as the dependent variable for manufacturing and non-manufacturing industries in years 2009 to 2011. The analyses of the relationship are presented in the following subsections.

#### ***6.3.5.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

**Table 6.6 Regression Analysis: Earnings per Share as the Dependent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Earnings Per Share (EPS)					Non-Manufacturing Industry Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
CSRI	-2.521 (-0.581)	-5.808 (-0.736)	-4.699 (-0.782)	-4.136 (-1.133)	2.865 1.12	-4.077 (-0.926)	1.642 (0.615)	-1.383 (-0.484)	-0.677 (-0.361)	-1.428 (-1.287)
SIZE (Log Assets)	1.436** (2.114)	2.265* (1.914)	1.835 (1.579)	1.856*** (3.015)	1.506*** (-3.29)	0.492* (1.891)	0.327 (1.256)	0.676*** (3.121)	0.397*** (2.862)	0.311 (1.467)
LEVERAGE	-1.276*** (-2.664)	0.854 (0.527)	-0.213 (-0.436)	-0.272 (-0.664)	0.033 (-0.09)	-0.225 (-1.520)	-0.0260* (-1.766)	-0.162** (-2.018)	-0.0478 (-1.480)	-0.0198 (-1.139)
AGE	0.228** (2.094)	0.394 (1.614)	0.266 (1.544)	0.277*** (2.861)	0.202** (-2.05)	0.204*** (2.647)	0.202*** (2.621)	0.117*** (3.192)	0.172*** (4.437)	0.155*** (3.212)
IDIRECTOR	13.50* (1.846)	16.23 (1.252)	9.138 (1.205)	11.34** (2.318)	-2.799 (-0.83)	-6.875 (-1.002)	-5.725 (-0.987)	-2.173 (-0.446)	-5.712 (-1.557)	-3.022 (-0.820)
Constant	-35.97** (-2.167)	-59.05* (-1.795)	-45.12 (-1.604)	-46.03*** (-2.982)	-33.54 (-1.46)	-8.017 (-1.493)	-5.907 (-0.927)	-13.83** (-2.296)	-6.943** (-1.988)	-5.646 (-1.084)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.222	0.197	0.167	0.177	0.029	0.101	0.090	0.091	0.083	0.101
F-Statistic	1.83	2.12	2.27	6.40	14.18	3.82	2.59	5.58	8.07	18.84
P-Value	0.1172	0.0726	0.0560	0.0000	0.0145	0.0024	0.0901	0.0001	0.0000	0.0021
Hausman test										
chi ( $\chi^2$ )					6.61					11.03
Prob					0.2514					0.0507
Breusch-Pagan LM test										
chi ( $\chi^2$ )				186.31					359.78	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

The results in Table 6.6 illustrates that the Breusch-Pagan Lagrange multiplier test was rejected ( $\chi^2 = 186.31$ , probability = 0.0000 for manufacturing industry and  $\chi^2 = 359.78$ , probability = 0.0000 for non-manufacturing industry), indicating that the variance across entities was not zero. That is, the random effects model is more appropriate.

#### **6.3.5.2 The Hausman Test: Fixed Effects Model or Random Effects Model**

The Hausman specification test reveals that individual effects were not correlated ( $\chi^2 = 6.61$ , probability = 0.2514 for manufacturing industry), so the null hypothesis was accepted. This indicates that the random effects model is appropriate for the manufacturing sector.

For the non-manufacturing sector, the Hausman specification test shows that individual effects were correlated with other variables in the model ( $\chi^2 = 11.03$ , probability = 0.0507), which leads to rejection of the null hypothesis and indicates that the fixed effects model is more appropriate than the random effects model.

#### **6.3.5.3 Regression Results: EPS as a Dependent Variable**

From section 6.3.5.1 and 6.3.5.2, it can be concluded that the random effects model is suitable for the manufacturing industry and the random effects is also appropriate for non-manufacturing industry because the fixed effects model is not statistically significant. Table 6.6 shows the regression results from manufacturing industry. The relationship between CSR and EPS was statistically significant at 1% level for pooled OLS and the random effects model and at 10% level in 2010-2011. The coefficients of CSRI were not significantly related to EPS in all models.

The results from multiple regressions for the non-manufacturing industry show the statistically significant relationships at 1% level in 2009, 2011, for pooled OLS and the random effects, and at 10% level in 2010. The coefficients of CSR index were negative and not significantly related to EPS at 5% level for the random effects model.

### **6.3.6 The Relationship between CSR Disclosure and Tobin's Q for Manufacturing and Non-Manufacturing Industries**

**Table 6.7 Regression Analysis: Tobin's Q as the Dependent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Tobin's Q (TBQ)					Non-Manufacturing Industry Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (FE)
CSRI	0.114 (0.281)	-1.351* (-1.681)	-3.435 (-1.291)	-1.221 (-1.525)	-1.201 (-1.484)	0.471 (1.410)	0.302 (0.568)	1.264* (1.957)	0.590** (1.991)	0.113 (0.201)
SIZE (Log Assets)	0.0462 (0.631)	-0.0943 (-0.787)	-0.194 (-1.631)	-0.0871 (-1.418)	-0.0750 (-0.990)	-0.0391 (-0.879)	0.0217 (0.835)	-0.172*** (-3.165)	-0.0542** (-2.388)	-0.646* (-1.791)
LEVERAGE	-0.0716 (-1.166)	-0.0775 (-0.607)	0.000270 (0.00317)	-0.0352 (-0.655)	-0.0784 (-1.107)	-0.0127 (-1.333)	0.00539*** (2.981)	0.0582** (2.498)	0.00979** (2.198)	-0.00630* (-1.653)
AGE	0.00198 (0.286)	0.00643 (0.324)	0.0343 (0.944)	0.0166 (1.177)	-0.0181 (0.998)	-0.0157*** (-3.092)	-0.0163*** (-2.996)	-0.0204* (-1.825)	-0.0154*** (-3.540)	0.221*** (3.323)
IDIRECTOR	0.293 (0.374)	1.869 (1.193)	1.172 (0.820)	1.344* (1.865)	1.221 (1.273)	1.018 (1.229)	-0.339 (-0.424)	1.750 (1.447)	0.909* (1.679)	-1.825 (-1.527)
Constant	-0.721 (-0.509)	2.643 (1.123)	5.281* (1.958)	2.340* (1.901)	0.0529 (0.0123)	1.113 (1.411)	0.496 (0.786)	3.869*** (3.168)	1.587*** (3.337)	12.17* (1.674)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.028	0.058	0.095	0.037	0.062	0.061	0.024	0.079	0.034	0.056
F-Statistic	0.94	0.71	0.70	0.98	71.39	4.33	5.03	3.85	6.01	3.47
P-Value	0.4574	0.6145	0.6234	0.4282	0.0799	0.0009	0.0002	0.0023	0.0000	0.0048
Hausman test										
chi ( $\chi^2$ )					9.84					42.68
Prob					0.0799					0.0000
Breusch-Pagan LM test										
chi ( $\chi^2$ )				13.11					51.88	
Prob				0.0001					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

This section illustrates the relationship between CSR disclosure and Tobin's Q (TBQ) using TBQ as dependent variable for the manufacturing and non-manufacturing industries for the year 2009 to 2011, using pooled OLS and panel data models. The results from the analyses are shown in the Table 6.7.

#### ***6.3.6.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier (LM) test from Table 6.7 show that the variance across entities was not equal to zero, leading to rejection of the null hypothesis ( $\chi^2 = 13.11$ , probability = 0.0001 for manufacturing industry and  $\chi^2 = 51.88$ , probability = 0.0000 for non-manufacturing industry). These results indicate that the random effects model is preferable to pooled OLS model for both industries.

#### ***6.3.6.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results from Table 6.7 shows that the Hausman specification test was significant ( $\chi^2 = 9.84$ , probability = 0.0799 for manufacturing industry), indicating that the random effects model is more suitable than pooled OLS model at 10% level. The results for non-manufacturing industry show  $\chi^2 = 42.68$ , probability = 0.0000 for the non-manufacturing industry, indicating that the individual effects were correlated with other regressors in the model. This finding indicates that the fixed effects model is suitable than the pooled OLS model.

#### ***6.3.6.3 Regression Results: TBQ as a Dependent Variable***

The results from sections 6.3.6.1 and 6.3.6.2 show that for the manufacturing industry, the random effects model is suitable and the fixed effects model is appropriate for the non-manufacturing industry. As can be seen from Table 6.7, the random effects model was found to be statistically significant at 1% level for the manufacturing industry. The finding shows that there is a negative and significant relationship between CSRI and Tobin's Q at 10% level in 2010.

For non-manufacturing industry, all models were found to be statistically significant at 1% level. It can be seen from Table 6.7 that the coefficients of CSRI were positive and significantly correlated with Tobin's Q at 5% level for pooled OLS and at 10% level in 2011 models.

## **6.4 The Empirical Results of the Association between Financial Performance and CSR Disclosure**

This section presents an analysis of the relationship between CSR disclosures and financial performance for firms listed in manufacturing and non-manufacturing industries, with CSR disclosure as the dependent variable. This section aims to examine the association between return on assets (ROA), net profit margin (NPM), earnings per share (EPS) and Tobin's Q (TBQ) and CSR disclosure.

The results from the Pearson correlation analysis for multicollinearity are given in Appendix B-3.1-3.4. No strong correlations were detected in this study, which indicates that the collinearity is not a problem. This section presents the analysis of results as follows:

### **6.4.1 The Impact of Return on Assets on CSR Disclosure (ROA as the Independent Variable) for Manufacturing and Non-Manufacturing Industries**

The findings for the relationship between CSR disclosure and return on assets (ROA) as independent variable for manufacturing and non-manufacturing industries are presented in Table 6.8. The results from the analyses are shown in the following subsections.

#### ***6.4.1.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier test show that the variance across entities was not constant. The finding leads to rejection of the null hypothesis ( $\chi^2 = 86.25$ , probability = 0.0000 for manufacturing industry and  $\chi^2 = 328.27$ , probability = 0.0000 for non-manufacturing industry), indicating that the random effects model is preferable for both manufacturing and non-manufacturing industries because the variance across entities was not zero.

#### ***6.4.1.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test from Table 6.8 show that the individual effects were correlated with other regressors in the model. The result leads to acceptance of alternative hypothesis ( $\chi^2 = 11.34$ , probability = 0.0450 for the



**Table 6.8 Regression Analysis: Return on Assets as the Independent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry					Non-Manufacturing Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Return on Assets (ROA)	0.00239 (1.530)	-0.00113 (-0.581)	0.00142 (0.692)	0.00114 (1.143)	0.00149 (1.423)	0.00295*** (3.684)	0.00327*** (4.415)	0.00125* (1.755)	0.00265*** (5.861)	0.00110*** (2.969)
SIZE (Log Assets)	0.0672*** (7.028)	0.0546*** (6.746)	0.0388*** (4.986)	0.0537*** (10.68)	0.0496*** (6.844)	0.0357*** (6.753)	0.0260*** (5.826)	0.0268*** (4.709)	0.0260*** (8.799)	0.0245*** (5.696)
LEVERAGE	0.00241 (0.0996)	-0.000698 (-0.0421)	0.00986 (0.947)	0.00407 (0.523)	-0.00458 (-0.649)	-0.00546* (-1.895)	0.00130*** (4.451)	-0.00533** (-2.006)	0.000274 (0.276)	0.000397 (0.684)
AGE	0.00152 (0.776)	0.00333* (1.803)	0.00261 (1.609)	0.00229** (2.247)	0.00139 (0.951)	0.00146* (1.683)	0.00271*** (2.783)	0.00344*** (3.332)	0.00252*** (4.504)	0.00240*** (2.945)
IDIRECTOR	-0.0794 (-0.475)	-0.0154 (-0.0986)	0.134 (0.933)	0.00662 (0.0752)	-0.00652 (-0.0876)	0.0559 (0.656)	0.138* (1.778)	0.0206 (0.223)	0.0651 (1.355)	0.0460 (1.060)
Constant	-1.278*** (-6.770)	-1.020*** (-6.777)	-0.759*** (-4.892)	-1.021*** (-10.53)	0.580** (2.024)	-0.655*** (-5.660)	-0.507*** (-5.042)	-0.466*** (-3.669)	-0.469*** (-7.161)	-0.413*** (-4.474)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.452	0.376	0.286	0.356	0.427	0.265	0.230	0.212	0.213	0.242
F-Statistic	16.86	16.26	9.44	37.08	65.98	20.79	18.49	15.60	43.87	85.51
P-Value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					11.34					18.60
Prob					0.0450					0.0023
Breusch-Pagan LM test										
chi ( $\chi^2$ )				86.25					328.27	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

manufacturing industry and  $\chi^2 = 18.60$ , probability = 0.0023 for non-manufacturing industry), suggesting that the fixed effects model is more appropriate than the random effects in this case.

#### ***6.4.1.3 Regression Results: ROA as an Independent Variable***

From the tests above, it can be summarised that the random effects model is appropriate for both industry. The results show that all models were found to be statistically significant at 1% level ( $p=0.0000$ ) for both manufacturing and non-manufacturing industries. The findings from the manufacturing industry reveal that there is no correlation between ROA and CSR disclosure using all models. The coefficients of ROA were positive and significantly related to CSRI at 1% level in 2009-2010, for pooled OLS and the random effects models, and at 10% level in 2011 for non-manufacturing industry.

#### **6.4.2 The Impact of Net Profit Margin on CSR (NPM as the Independent Variable) for Manufacturing and Non-Manufacturing Industries**

This section presents the regression results from the relationship between CSR disclosure and net profit margin (NPM) for manufacturing and non-manufacturing industries. Financial performance is proxied by NPM as an independent variable. The results are shown in Table 6.9.

##### ***6.4.2.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

As shown in Table 6.9, the results of the Breusch-Pagan Lagrange multiplier test show that the null hypothesis was rejected ( $\chi^2 = 84.30$ , probability = 0.0000 for manufacturing industry and  $\chi^2 = 346.03$ , probability = 0.0000 for non-manufacturing industry) because the variance across entities was not equal to zero. This indicates that the random effects model is more suitable than pooled OLS for both manufacturing and non-manufacturing industries.

##### ***6.4.2.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

From Table 6.9, the results of the Hausman specification test show that alternative hypothesis is accepted ( $\chi^2 = 10.43$ , probability = 0.0640 for manufacturing industry and  $\chi^2 = 10.20$ , probability = 0.0698 for non-

**Table 6.9 Regression Analysis: Net Profit Margin as the Independent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry					Non-Manufacturing Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Net Profit Margin (NPM)	0.000422 (0.980)	-0.000564 (-0.427)	-8.85e-05 (-0.0616)	0.000280 (0.779)	-8.01e-05 (-0.254)	0.000542*** (3.059)	0.000947* (1.887)	0.000687** (2.130)	0.000890*** (5.139)	0.000389*** (3.016)
SIZE (Log Assets)	0.0676*** (6.877)	0.0556*** (6.210)	0.0380*** (4.588)	0.0532*** (10.32)	0.0505*** (7.441)	0.0370*** (6.502)	0.0242*** (4.797)	0.0258*** (4.370)	0.0247*** (7.683)	0.0242*** (5.490)
LEVERAGE	0.000386 (0.0156)	-0.00249 (-0.118)	0.00730 (0.575)	0.00382 (0.472)	-0.00708 (-1.010)	-0.00768** (-2.317)	0.000896** (2.382)	-0.00576** (-2.192)	-0.000181 (-0.154)	0.000380 (0.648)
AGE	0.00167 (0.868)	0.00330* (1.768)	0.00266 (1.646)	0.00234** (2.323)	0.00164 (1.147)	0.00138 (1.540)	0.00262*** (2.687)	0.00338*** (3.291)	0.00245*** (4.366)	0.00235*** (2.854)
IDIRECTOR	-0.0789 (-0.464)	-0.0138 (-0.0876)	0.134 (0.909)	0.00508 (0.0575)	0.00167 (0.0220)	0.0566 (0.660)	0.105 (1.326)	0.0102 (0.112)	0.0471 (0.986)	0.0438 (1.029)
Constant	-1.272*** (-6.334)	-1.049*** (-6.589)	-0.725*** (-4.476)	-1.001*** (-9.982)	-0.916*** (-6.324)	-0.658*** (-5.297)	-0.429*** (-3.887)	-0.431*** (-3.243)	-0.414*** (-5.839)	-0.398*** (-4.196)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.439	0.374	0.281	0.354	0.426	0.241	0.186	0.209	0.190	0.222
F-Statistic	18.29	15.89	8.30	37.08	71.38	19.67	14.28	16.62	41.62	79.60
P-Value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					10.43					10.20
Prob					0.0640					0.0698
Breusch-Pagan LM test										
chi ( $\chi^2$ )				84.30					346.03	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

manufacturing industry). These results lead to rejection of null hypothesis and suggest that the fixed effects model is appropriate for both manufacturing and non-manufacturing industries.

#### **6.4.2.3 Regression Results: NPM as an Independent Variable**

It is observed from section 6.4.2.1 and 6.4.2.2 that the random effects model is more suitable than the fixed effects model as there is no statistically significant in the fixed effects model. The results for the correlation between CSR disclosure and NPM are presented in Table 6.9. Further statistical tests shows that the regression models were statistically significant at 1% level ( $p = 0.0000$  in all model for both manufacturing and non-manufacturing industries).

For the manufacturing sector, the results show no relationships between NPM and CSR disclosure for all models. The results from the non-manufacturing sector show that net profit margin was found to be positively and significantly related to CSR disclosure at 1% level in 2009, for pooled OLS and t random effects model, at 5% level in 2011, and at 10% level in 2010.

#### **6.4.3 The Impact of Earnings per Share on CSR Disclosure (EPS as the Independent Variable) for Manufacturing and Non-Manufacturing Industries**

This section presents the regression results for earnings per share (EPS) and CSR disclosure (EPS as the independent variable) for manufacturing and non-manufacturing industries. The findings obtained from regressions and specification test are presented in Table 6.10.

##### **6.4.3.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)**

The results of the Breusch-Pagan Lagrange multiplier in Table 6.10 indicate that the variance across industries was not constant. This leads to rejection of the null hypothesis ( $\chi^2 = 84.23$ , probability = 0.0000 for manufacturing industry and  $\chi^2 = 357.77$ , probability = 0.0000 for non-manufacturing industry). That is, the random effects model is more appropriate for manufacturing and non-manufacturing industries.

**Table 6.10 Regression Analysis: Earnings per Share as the Independent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry					Non-Manufacturing Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Earnings Per Share (EPS)	-0.00121 (-0.613)	-0.000982 (-1.051)	-0.000966 (-1.120)	-0.00100 (-1.454)	0.000187 (0.134)	-0.00133 (-1.397)	0.000526 (0.653)	-0.000799 (-0.526)	-0.000264 (-0.372)	-0.000556 (-1.216)
SIZE (Log Assets)	0.0707*** (6.659)	0.0565*** (6.442)	0.0396*** (4.502)	0.0554*** (10.21)	0.0498*** (6.389)	0.0405*** (7.405)	0.0263*** (5.614)	0.0291*** (5.003)	0.0276*** (8.643)	0.0251*** (5.679)
LEVERAGE	-0.00675 (-0.302)	0.00365 (0.249)	0.00755 (0.786)	0.00142 (0.189)	-0.00663 (-0.915)	-0.00948*** (-2.954)	0.000746* (1.872)	-0.00674** (-2.483)	-0.000559 (-0.404)	0.000270 (0.409)
AGE	0.00192 (0.915)	0.00369* (1.853)	0.00291* (1.713)	0.00262** (2.466)	0.00156 (1.032)	0.00160* (1.702)	0.00250** (2.425)	0.00352*** (3.323)	0.00250*** (4.238)	0.00246*** (2.906)
IDIRECTOR	-0.0419 (-0.248)	0.00989 (0.0641)	0.143 (0.961)	0.0198 (0.223)	-7.37e-05 (-0.000990)	0.0458 (0.539)	0.0980 (1.238)	-0.00832 (-0.0919)	0.0334 (0.695)	0.0415 (0.958)
Constant	-1.350*** (-6.013)	-1.089*** (-6.259)	-0.765*** (-4.190)	-1.054*** (-9.588)	-0.900*** (-5.336)	-0.728*** (-6.097)	-0.467*** (-4.397)	-0.493*** (-3.704)	-0.468*** (-6.608)	-0.416*** (-4.376)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.436	0.375	0.284	0.355	0.425	0.236	0.177	0.202	0.174	0.205
F-Statistic	17.95	18.64	10.83	40.26	70.78	16.42	12.47	12.97	31.89	67.12
P-Value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					10.76					6.70
Prob					0.0563					0.2440
Breusch-Pagan LM test										
chi ( $\chi^2$ )				84.23					357.77	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### ***6.4.3.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test show that individual effects were correlated with other regressors in the model ( $\chi^2 = 10.76$ , probability = 0.0563 for manufacturing industry). It indicates that the fixed effects model is appropriate. However, for non-manufacturing industry, the Hausman specification test reveals that individual effects were not found to be correlated with other variables in the model ( $\chi^2 = 6.70$ , probability = 0.2440). This indicates that random effect model is suitable for this case.

#### ***6.4.3.3 Regression Results: EPS as an Independent Variable***

The pooled OLS model is appropriate for both industries because the fixed effect model was not statistically significant. Table 6.10 shows the regression results from the manufacturing industry and non-manufacturing industries. The relationship between EPS and CSR was found to be statistically significant at 1% level for all models. The coefficients of EPS were not significantly related to CSRI using all models for both sectors.

### **6.4.4 The Impact of Tobin's Q on CSR Disclosure (TBQ as the Independent Variable) for Manufacturing and Non-Manufacturing Industries**

The relationship between Tobin's Q (TBQ) and CSR disclosure for manufacturing and non-manufacturing industries is shown in Table 6.11. TBQ was used as the independent variable.

#### ***6.4.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

From Table 6.11, it can be seen that the results the Breusch-Pagan Lagrange multiplier test was significantly different from zero ( $\chi^2 = 84.73$ , probability = 0.0000 for manufacturing industry and  $\chi^2 = 352.46$ , probability = 0.0000 for non-manufacturing industry), leading to rejection of the null hypothesis. These results suggest that the random effects model is suitable over the pooled OLS model for both industries.

**Table 6.11 Regression Analysis: Tobin's Q as the Independent Variable for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry					Non-Manufacturing Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Tobin's Q (TBQ)	0.00468 (0.273)	-0.00962 (-1.638)	-0.00918** (-2.374)	-0.00707** (-2.392)	-0.00461** (-2.494)	0.0103 (1.550)	0.00492 (0.547)	0.0118* (1.738)	0.00813* (1.866)	0.00217 (0.746)
SIZE (Log Assets)	0.0690*** (7.408)	0.0529*** (6.490)	0.0350*** (4.367)	0.0527*** (10.55)	0.0497*** (7.211)	0.0403*** (7.453)	0.0264*** (5.652)	0.0302*** (5.449)	0.0278*** (8.730)	0.0251*** (5.665)
LEVERAGE	-0.00489 (-0.222)	0.00204 (0.143)	0.00755 (0.783)	0.00143 (0.191)	-0.00729 (-0.989)	-0.00906*** (-2.896)	0.000705* (1.771)	-0.00721*** (-2.959)	-0.000623 (-0.450)	0.000283 (0.432)
AGE	0.00164 (0.857)	0.00334* (1.779)	0.00289* (1.792)	0.00245** (2.422)	0.00173 (1.211)	0.00149 (1.648)	0.00268*** (2.711)	0.00362*** (3.471)	0.00257*** (4.513)	0.00238*** (2.873)
IDIRECTOR	-0.0598 (-0.355)	0.0120 (0.0770)	0.141 (0.959)	0.0180 (0.203)	0.00507 (0.0675)	0.0445 (0.515)	0.0966 (1.224)	-0.0272 (-0.296)	0.0274 (0.569)	0.0437 (1.005)
Constant	-1.307*** (-6.978)	-0.998*** (-6.368)	-0.653*** (-4.067)	-0.987*** (-10.10)	-0.477*** (-6.723)	-0.729*** (-6.133)	-0.472*** (-4.432)	-0.521*** (-4.114)	-0.477*** (-6.723)	-0.419*** (-4.371)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.434	0.380	0.303	0.358	0.178	0.236	0.177	0.213	0.178	0.006
F-Statistic	14.59	18.31	10.56	39.13	500.44	16.37	12.46	15.17	32.77	60.92
P-Value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					8.31					8.92
Prob					0.1400					0.1122
Breusch-Pagan LM test										
chi ( $\chi^2$ )				84.73					352.46	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### **6.4.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model**

The results of the Hausman specification test from Table 6.11 show that the null hypothesis was accepted ( $\chi^2 = 8.31$ , probability = 0.1400 for manufacturing industry and  $\chi^2 = 8.92$ , probability = 0.1122 for non-manufacturing industry). These results indicate that the random effects model is more appropriate for both industries.

#### **6.4.4.3 Regression Results: TBQ as an Independent Variable**

From section 6.4.4.1 and 6.4.4.2, it can be concluded that the random effects model is suitable in this case. The regression models show statistical significance at 1% level ( $p = 0.0000$ ) for all models for both industries. The findings for regression analysis of the manufacturing industry show that the coefficient of the TBQ variable provides evidence of a negative and significant relationship with CSRI at 5% level in 2011, using the pooled OLS and the random effects models. For the non-manufacturing sector, the coefficients of TBQ were positive and significantly related to CSRI at 10% level in 2011 and using pooled OLS models.

### **6.5 The Relationship between each Dimension of CSR Disclosure and Financial Performance for Manufacturing and Non-Manufacturing Industries**

The purpose of this section is to examine the relationship between each dimension of CSR disclosure and financial performance. The five CSR disclosure dimensions are environment, energy, employee, community and products, which are defined as the independent variables. Multivariate regression was employed to investigate the link between each dimension of CSR disclosure and four financial performance measures for manufacturing and non-manufacturing industries.

The structure of this section is as follows. *Firstly*, descriptive statistics and regression assumption for both industries are presented. *Secondly*, the relationship between each dimension of CSR and return on assets (ROA) is shown. *Thirdly*, the impact of CSR dimensions on net profit margin (NPM) is presented. The relationship between each dimension of CSR and earnings per share (EPS) is analysed in the fourth section. *Finally*, the relationship between each dimension of CSR and Tobin's Q (TBQ) is presented.



### 6.5.1 Descriptive Statistics for All Dimensions for Manufacturing and Non-Manufacturing Industries

Descriptive statistics were examined to determine the distribution and dispersion of each dimension of CSR disclosure. The analyses were conducted by comparing each dimension of CSR disclosure, namely environment, energy, employee, community and products.

**Table 6.12 Descriptive Statistics of each Dimension of CSR Disclosure for Manufacturing Industry for the years 2009 to 2011**

Variables	CSR dimensions				
	Environment	Energy	Employee	Community	Product
<b>2009</b>					
Mean	29.38	9.76	24.01	29.62	19.76
Median	18.18	0.00	25.00	28.57	20.00
S.D.	27.49	16.13	17.28	29.76	19.50
Min	0.00	0.00	0.00	0.00	0.00
Max	90.91	50.00	56.25	85.71	60.00
<b>2010</b>					
Mean	27.61	8.54	23.70	37.98	13.17
Median	22.73	0.00	21.88	42.86	0.00
S.D.	25.61	14.64	16.16	31.12	16.69
Min	0.00	0.00	0.00	0.00	0.00
Max	100.00	50.00	62.50	85.71	60.00
<b>2011</b>					
Mean	26.83	8.74	22.10	40.24	12.93
Median	27.27	0.00	21.88	42.86	10.00
S.D.	23.16	15.10	14.90	30.29	15.19
Min	0.00	0.00	0.00	0.00	0.00
Max	90.91	66.67	56.25	85.71	60.00
<b>Total</b>					
Mean	27.94	9.01	23.27	35.95	15.28
Median	27.27	0.00	25.00	42.86	20.00
S.D.	25.40	15.25	16.10	30.62	17.44
Min	0.00	0.00	0.00	0.00	0.00
Max	100.00	66.67	62.50	85.71	60.00

Table 6.12 presents descriptive statistics of each dimension of CSR disclosure for the manufacturing industry. The environment-related dimension shows the highest score for CSR disclosure (100% of total disclosure items in this dimension)

followed by the community related activities dimension (85.71% of total disclosure items in this dimension) and the energy dimension (66.67% of total disclosure items in this dimension). This suggests that firms in the manufacturing industry are concerned about environment-related problems more than other CSR activities.

The lowest score for all dimensions was zero, which indicates that some firms in the manufacturing sector failed to disclose reporting of any of CSR dimension in their annual reports. The community dimension was found to be the most disclosed dimension followed by the environment and employee dimensions. The average disclosure score spread from 9.07% to 35.95%, with a standard deviation between 15.25% and 30.62%. The mean for the energy dimension shows the lowest disclosure at 9.01% of total disclosure items in this dimension, indicating that the energy-related disclosure of firms in the manufacturing industry is generally poor.

**Table 6.13 Descriptive Statistics of each Dimension of CSR Disclosure for Non-Manufacturing Industry for the years 2009 to 2011**

Variables	CSR dimensions				
	Environment	Energy	Employee	Community	Product
<b>2009</b>					
Mean	18.33	8.44	20.28	30.94	10.54
Median	18.18	0.00	18.75	28.57	0.00
S.D.	17.86	15.37	15.76	26.40	14.84
Min	0.00	0.00	0.00	0.00	0.00
Max	81.82	66.67	62.50	85.71	60.00
<b>2010</b>					
Mean	17.84	8.23	19.79	37.17	10.29
Median	18.18	0.00	18.75	42.86	0.00
S.D.	18.09	14.60	15.70	30.44	15.72
Min	0.00	0.00	0.00	0.00	0.00
Max	72.73	66.67	56.25	100.00	60.00
<b>2011</b>					
Mean	17.84	7.81	18.83	39.83	7.72
Median	9.09	0.00	18.75	42.86	0.00
S.D.	19.24	13.95	15.63	29.34	12.05
Min	0.00	0.00	0.00	0.00	0.00
Max	72.73	66.67	56.25	100.00	60.00
<b>Total</b>					
Mean	18.01	8.16	19.63	35.98	9.52
Median	18.18	0.00	18.75	28.57	0.00
S.D.	18.38	14.63	15.69	28.98	14.32
Min	0.00	0.00	0.00	0.00	0.00
Max	81.82	66.67	62.50	100.00	60.00

Table 6.13 provides descriptive statistics of each dimension of CSR disclosure for the non-manufacturing industry. The results show that the average score for each dimension of CSR disclosure varied from 8.16% to 35.98%, with a standard deviation of 14.32% to 29.98%. The community dimension was the most disclosed theme for this sector followed by the employee and environment dimensions. The least disclosed theme was the energy theme at 8.16%. The maximum score appears in the community involvement dimension (100%), suggesting that firms are more concerned about social involvement than about other dimensions. The average score of all CSR dimensions in the non-manufacturing sector was lower than the average score of firms in the manufacturing industry, suggesting that firms in the manufacturing industry appear to report CSR activities more than firms in non-manufacturing industry. Interestingly, firms in this industry are more likely to disclose community-related theme (35.98% and maximum 100%) over other dimensions. The minimum score for all CSR disclosure dimensions was also zero.

### **6.5.2 Test for Multicollinearity**

The multicollinearity test was utilised to find that independent variables are not correlated with other variables and no multicollinearity amongst independent variables exists. The Pearson correlation and the variance inflation factor (VIF) and tolerance were used to detect the multicollinearity problem. Multicollinearity was tested to detect the correlation between each dimension of CSR disclosure (environment, energy, employee, and community and product dimension) and control variables. The results of the Pearson correlation and the significant level of each dimension of CSR disclosure and control variables are presented in **Appendix B-4.1 to B-4.4**.

Appendix B-4.1 shows the correlation coefficient among financial performance and independent variables for the manufacturing and non-manufacturing sectors. For the manufacturing sector, it can be seen that some correlations were statistically significant at 1% level, such as those between environment and community theme (0.7155), environment and SIZE (0.6032), environment and employee theme (0.5893), environment and energy theme (0.5768), and community and SIZE (0.5516). The correlation between ROA and each

dimension of CSR disclosure was lower than 0.8. A severe multicollinearity may be present when correlation coefficients are greater than 80%. These results suggest that multicollinearity is not a serious problem for this model.

The results from Appendix B-4.1 for the non-manufacturing sector show that there are statistically significant correlations between some variables at 1% level e.g. environment and community theme (5.124), environment and energy (0.5038), environment and employee (0.4355), community and SIZE (4328), energy and employee (0.4085), and employee and community theme (0.4045). These results indicate that the correlation coefficients were not higher than 0.6; thus, it can be concluded that there is no multicollinearity problem in the model.

Appendix B-4.2 shows the matrix of correlation between NPM and each dimension of CSR disclosure (independent variables). The correlation coefficients for the manufacturing sector were not over 0.3 or lower than -0.4. For example, the value of correlation coefficient between NPM and LEVERAGE was -0.3377. The correlation coefficients for the non-manufacturing sector were found to be between 0.3 and -0.1. The maximum correlation coefficient was NPM and SIZE (0.2432) followed by NPM and community theme and SIZE (0.2342), and NPM and environment (0.1879). The results indicate that there is small correlation among those variables. Multicollinearity is not a problem in the study for both industries.

Appendix B-4.3 shows the correlation matrix for EPS and CSR dimensions for manufacturing and non-manufacturing sectors. For the manufacturing sector, the correlation coefficients between EPS and the other independent variables were relatively small. For example, the correlation coefficient between EPS and SIZE (0.3273), EPS and environment theme (0.2361), EPS and community dimension (0.1969) and EPS and products theme (-0.0366). For the non-manufacturing sector, the correlation coefficient between EPS and AGE was 0.2588, EPS and SIZE was 0.1632, EPS and products theme was 0.1257, and EPS and environment theme was 0.1086. All of the above correlations were statistically significant at 1% level. These indicate that multicollinearity is not a problem for this model for both industries.

Appendix B-4.4 shows the bivariate correlation coefficient of TBQ and each dimension of CSR variables for the manufacturing and non-manufacturing sectors. For the manufacturing industry, the correlation coefficient between TBQ and products, TBQ and SIZE, TBQ and employee, and TBQ and community theme were -0.1747, -0.1402, -0.1328 and -0.1275, respectively. For non-manufacturing sector,

the correlation coefficient between TBQ and AGE was -0.1322, TBQ and SIZE was -0.0877, and TBQ and employee theme was -0.0788. These findings indicate that all correlation coefficients were slightly negative and relatively low. There is no serious multicollinearity between variables in this model.

This section also tests for multicollinearity using the variance inflation factor (VIF) and tolerance. Gujarati (2009) suggests that, if the VIF is lower than 10 or tolerance is higher than 0.10, multicollinearity among variables is not a problem. As a rule of thumb, a serious multicollinearity is present when correlation coefficient is greater than 80%. The results from both industries in Table 6.14 show that VIF values were lower than 3.5 and tolerance values above 5.0, suggesting that there was no multicollinearity found to be a problem for this model.

This section therefore, can be summarised that there is no multicollinearity in the models.

**Table 6.14 Testing for Multicollinearity by Using Variance Inflation Factor (VIF) for Manufacturing and Non-Manufacturing Industries**

<b>Variables</b>	<b>Manufacturing Industry</b>	<b>Non-manufacturing Industry</b>
	<b>VIF</b>	<b>VIF</b>
<b>Environment</b>	3.36	1.85
<b>Energy</b>	2.24	1.62
<b>Employee</b>	1.91	1.45
<b>Community</b>	1.70	1.41
<b>Product</b>	1.52	1.36
<b>SIZE</b>	1.20	1.17
<b>LEVERAGE</b>	1.18	1.12
<b>AGE</b>	1.14	1.05
<b>IDIRECTOR</b>	1.11	1.01

### 6.5.3 Testing for Homoscedasticity

As discussed in section 6.3.2, this study employed the Breusch-Pagan / Cook-Weisberg test and White's General test for detecting heteroscedasticity. The results of the Breusch-Pagan / Cook-Weisberg test and White's General test show some heteroscedasticity is present<sup>8</sup>, indicating that heteroscedasticity might be a problem. This study therefore, controlled for heteroscedasticity for the model by using robust

<sup>8</sup> The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity is presented in APPENDIX C-2

standard errors in all models. The next section presents the results from the relationship between each dimension of CSR disclosure and financial performance for both industries.

#### **6.5.4 The Relationship between each Dimension of CSR Disclosure and Return On Assets for Manufacturing and Non-Manufacturing Industries**

This section presents the relationship between each dimension of CSR disclosure and ROA for the manufacturing and non-manufacturing industries. The results from this study are presented in the following subsections.

##### ***6.5.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results are illustrated in Table 6.15. By performing the Breusch-Pagan Lagrange multiplier test, the findings show that the variance for manufacturing industry industries were not zero ( $\chi^2 = 97.06$ , probability = 0.0000) and non-manufacturing industry ( $\chi^2 = 229.84$ , probability = 0.0000), leading to rejection of the null hypothesis. This finding suggests that random effects model was more suitable than pooled OLS model.

##### ***6.5.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The findings of the Hausman specification test from Table 6.15 show that the individual effects were correlated with other regressors in the model ( $\chi^2 = 15.97$ , probability = 0.0676 for manufacturing industry and  $\chi^2 = 35.03$ , probability = 0.0001 for non-manufacturing industry). The null hypothesis was rejected, suggesting that the fixed effects model is appropriate for both manufacturing and non-manufacturing industries.

##### ***6.5.4.3 Regression Results: ROA as a Dependent Variable***

It can be summarised that the random effects model is suitable for manufacturing sector, while the fixed effects model is appropriate for the non-manufacturing industry. The results from Table 6.15 for the manufacturing industry indicate that models were statistically significant at 1% level ( $p = 0.00$ ) for the pooled OLS and the random effects models, and at 5% level for 2011. However, there is no statistically significant relationship for the years 2009 and 2010. The

**Table 6.15 Multiple Regression Analysis between each Dimension of CSR Disclosure and Return on Assets for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Return on Assets (ROA)					Non-Manufacturing Industry Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (FE)
Environment	2.950 (0.348)	-3.501 (-0.427)	-9.351 (-1.374)	-5.614 (-1.288)	-3.331 (-0.985)	7.615* (1.833)	9.346* (1.951)	1.999 (0.398)	7.353*** (2.698)	2.268 (0.830)
Energy	3.277 (0.368)	4.680 (0.653)	5.538 (0.813)	6.364 (1.583)	5.772** (2.145)	-0.939 (-0.302)	-5.669 (-1.111)	-0.909 (-0.176)	-2.354 (-0.942)	-1.906 (-0.805)
Employee	-7.195 (-0.927)	-1.419 (-0.181)	14.34* (1.797)	4.403 (0.979)	3.474 (0.995)	1.090 (0.257)	6.112 (1.382)	1.042 (0.194)	2.831 (1.045)	-4.806 (-1.488)
Community	8.401 (1.354)	3.132 (0.600)	0.752 (0.218)	4.201 (1.516)	2.529 (1.216)	2.705 (1.151)	4.786* (1.805)	6.029** (2.121)	5.402*** (3.497)	3.504* (1.963)
Product	6.073 (1.174)	-11.70* (-1.775)	-2.599 (-0.445)	-3.455 (-1.075)	-0.404 (-0.165)	4.155 (1.089)	1.386 (0.359)	-5.278 (-0.866)	0.740 (0.299)	-1.300 (-0.588)
SIZE (Log Assets)	-0.350 (-0.293)	0.252 (0.321)	-0.293 (-0.492)	-0.109 (-0.228)	0.171 (0.247)	0.802* (1.794)	-0.525 (-1.240)	0.964 (1.372)	-0.0811 (-0.281)	2.847 (0.935)
LEVERAGE	-3.470** (-2.188)	-3.119*** (-2.808)	-1.617*** (-2.916)	-2.136*** (-4.026)	-1.517** (-1.986)	-1.110*** (-4.180)	-0.175*** (-4.812)	-0.941** (-2.550)	-0.286** (-2.125)	-0.0654 (-0.949)
AGE	0.0154 (0.139)	0.0507 (0.440)	0.0753 (0.702)	0.0535 (0.881)	0.134 (1.590)	-0.0677 (-1.173)	-0.0810 (-1.107)	-0.0475 (-0.556)	-0.0680 (-1.610)	-0.237 (-0.441)

**Table 6.15 (Continued) Multiple Regression Analysis between each Dimension of CSR Disclosure and Return on Assets for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Return on Assets (ROA)					Non-Manufacturing Industry Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (FE)
IDIRECTOR	11.91 (1.140)	-8.069 (-1.001)	-2.232 (-0.226)	1.739 (0.330)	4.426 (1.034)	-0.526 (-0.0907)	-15.53** (-2.092)	-19.92* (-1.938)	-11.59** (-2.462)	2.424 (0.435)
Constant	10.17 (0.415)	11.40 (0.662)	16.23 (1.187)	10.94 (1.077)	-88.81** (-2.263)	-10.17 (-1.069)	24.32*** (2.694)	-5.561 (-0.394)	12.37** (2.037)	-53.27 (-0.871)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.128	0.161	0.170	0.088	0.119	0.210	0.127	0.156	0.109	0.028
F-Statistic	1.37	1.40	2.07	2.57	122.40	5.19	5.65	2.68	8.37	1.72
P-Value	0.2176	0.2034	0.0436	0.0077	0.0000	0.0000	0.0000	0.0055	0.0000	0.0854
Hausman test chi ( $\chi^2$ )					15.97					35.03
Prob					0.0676					0.0001
Breusch-Pagan LM test chi ( $\chi^2$ )				97.06					229.84	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.



results show the coefficients of energy (at 5% level for the random effects) and employee dimensions (at 10% level in 2011) had a positive and significant impact on ROA. The environment and community theme were not found to be significantly related to ROA in all models. The findings for non-manufacturing industry reveal that the relationships were found to be statistically significant at 1% level ( $p = 0.00$ ), except for the fixed effects model. The coefficient for the environment dimension was positive and significantly related to ROA at 1% level for pooled OLS and at 10% level in 2009-2010. The community dimension variables had a positive and significant relationship with ROA at 1% level for pooled OLS, at 5% level in 2011, and at 10% level in 2010 and for the fixed effects model.

#### **6.5.5 The Relationship between each Dimension of CSR Disclosure and Net Profit Margin for Manufacturing and Non-Manufacturing Industries**

The relationship between each dimension of CSR disclosure and NPM for manufacturing and non-manufacturing industries is presented in Table 6.16. The results of this model are presented in the following subsections.

##### ***6.5.5.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Lagrange multiplier test from Table 6.16 show that the null hypothesis was rejected ( $\chi^2 = 15.31$ , probability = 0.0000 for the manufacturing industry and  $\chi^2 = 95.93$ , probability = 0.0000 for the non-manufacturing industry), indicating that the random effects model is more appropriate for both industries.

##### ***6.5.5.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The Hausman specification test shows that individual effects were correlated with other variables in the model ( $\chi^2 = 90.25$ , probability = 0.0000 for the manufacturing industry and  $\chi^2 = 22.49$ , probability = 0.0074 for non-manufacturing industry). These results lead to rejection of the null hypothesis, indicating the fixed effects model is applicable for both industries.

**Table 6.16 Multiple Regression Analysis between each Dimension of CSR Disclosure and Net Profit Margin for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Net Profit Margin (NPM)					Non-Manufacturing Industry Net Profit Margin (NPM)				
	2009	2010	2011	Pooled OLS	Panel (FE)	2009	2010	2011	Pooled OLS	Panel (RE)
Environment	0.728 (0.0326)	6.093 (0.668)	-6.455 (-0.745)	-3.630 (-0.538)	10.18 (1.474)	4.886 (0.825)	3.048 (0.633)	-1.643 (-0.318)	5.242* (1.694)	4.834 (1.566)
Energy	18.16 (0.805)	-8.884 (-0.841)	-9.084 (-0.978)	1.274 (0.190)	12.11* (1.857)	8.990 (1.529)	-0.120 (-0.0241)	0.337 (0.0527)	2.959 (0.953)	0.413 (0.164)
Employee	-20.44 (-0.728)	-5.780 (-0.550)	7.643 (0.713)	0.0372 (0.00385)	-1.337 (-0.184)	-11.17* (-1.765)	1.438 (0.225)	6.453 (0.732)	0.280 (0.0701)	3.721 (0.868)
Community	15.13 (1.047)	3.089 (0.585)	5.437 (1.187)	8.658** (2.183)	-4.896 (-0.865)	12.19** (2.386)	5.750* (1.748)	6.783* (1.936)	8.764*** (3.749)	6.290*** (2.803)
Product	13.21 (0.765)	-19.54** (-2.318)	-8.177 (-1.049)	-6.398 (-0.922)	5.077 (0.861)	7.774 (1.437)	-5.613 (-1.339)	-4.598 (-0.751)	-0.142 (-0.0489)	-0.385 (-0.158)
SIZE (Log Assets)	1.856 (0.709)	2.058* (1.874)	0.714 (0.898)	1.590* (1.853)	39.23*** (3.168)	4.540*** (4.721)	1.977*** (3.853)	3.535*** (4.123)	2.334*** (5.428)	2.212*** (4.150)
LEVERAGE	-13.93** (-2.141)	-9.725*** (-3.575)	-5.407*** (-3.203)	-7.622*** (-4.693)	-4.939 (-1.070)	-2.711*** (-4.729)	-0.176*** (-4.749)	-1.168*** (-2.858)	-0.392* (-1.722)	-0.322 (-1.459)
AGE	-0.131 (-0.409)	0.000693 (0.00406)	0.0518 (0.301)	0.00916 (0.0765)	0.530 (0.248)	-0.149 (-1.037)	-0.0295 (-0.321)	0.0335 (0.277)	-0.0575 (-0.872)	-0.0228 (-0.283)

**Table 6.16 (Continued) Regression Analysis between each Dimension of CSR Disclosure and Net Profit Margin for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Net Profit Margin (NPM)					Non-Manufacturing Industry Net Profit Margin (NPM)				
	2009	2010	2011	Pooled OLS	Panel (FE)	2009	2010	2011	Pooled OLS	Panel (RE)
IDIRECTOR	56.36 (1.212)	-16.64 (-1.344)	-5.427 (-0.390)	12.46 (0.774)	0.169 (0.0158)	-3.784 (-0.179)	-11.50 (-0.742)	-22.93 (-0.825)	-13.80 (-1.105)	-8.456 (-0.602)
Constant	-52.73 (-0.988)	-21.17 (-0.971)	-1.939 (-0.109)	-29.76 (-1.646)	-892.4*** (-3.307)	-92.69*** (-4.404)	-32.93*** (-3.089)	-66.89*** (-4.106)	-43.85*** (-5.000)	-43.33*** (-4.006)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.186	0.377	0.388	0.160	0.381	0.175	0.116	0.159	0.105	0.171
F-Statistic	1.28	2.68	1.41	3.44	1.79	4.79	5.56	2.87	6.63	32.47
P-Value	0.2651	0.0097	0.2021	0.0005	0.0818	0.0000	0.0000	0.0032	0.0000	0.0002
Hausman test										
chi ( $\chi^2$ )					90.25					22.49
Prob					0.0000					0.0074
Breusch-Pagan LM test										
chi ( $\chi^2$ )				15.31					95.93	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

### **6.5.5.3 Regression Results: NPM as a Dependent Variable**

From section 6.5.5.1 and 6.5.5.2, it can be concluded that the fixed effects model is more suitable for the manufacturing industry and the random effects model is more appropriate for the non-manufacturing sector. For the manufacturing industry, it is apparent from Table 6.16 that regressions were statistically significant at 1% level in 2010 and for pooled OLS, and at 10% level in the fixed effects model. The results illustrate that there is a positive and significant relationship between energy dimension and NPM at 10% level for the fixed effects model. The coefficients for community dimension show a positive and significant relationship with NPM at 5% level for pooled OLS model. The product dimension had a negative and significant association with NPM at 5% level in 2010 model. However, there is no relationship between employee theme and NPM.

Table 6.16 presents the regression analysis for non-manufacturing industry, indicating that models were statistically significant at 1% level ( $p = 0.00$ ). The coefficients for the environment dimension of CSR disclosure show a positive and significant relationship with net profit margin (NPM) at 10% level for pooled OLS. The community dimension variable was found to be positively and significantly related to NPM at 1% level for pooled OLS and random effects, at 5% level in 2009, and at 10% level in 2010-2011. On the other hand, a negative and significant relationship was found between the employee dimension and NPM at 10% level in 2009. There are no relationships between energy, products disclosure and NPM.

## **6.5.6 The Relationship between each Dimension of CSR Disclosure and Earnings per Share for Manufacturing and Non-Manufacturing Industries**

This section presents the regression results from the relationship between each dimension of CSR disclosure and earnings per share (EPS), which defines EPS as the dependent variable for the manufacturing and non-manufacturing industries.

### **6.5.6.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)**

Table 6.17 illustrates that the Breusch-Pagan Lagrange multiplier test shows the regressors were correlated with other regressors in the model ( $\chi^2 = 172.47$ , probability = 0.0000 for manufacturing industry and  $\chi^2 = 363.69$ ,

**Table 6.17 Multiple Regression Analysis between each Dimension of CSR Disclosure and Earnings per Share for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Earnings Per Share (EPS)					Non-Manufacturing Industry Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Environment	3.190 (0.295)	10.40 (0.785)	1.868 (0.220)	4.976 (0.803)	2.655 (1.445)	2.458 (1.087)	1.404 (0.546)	0.997 (0.466)	1.792 (1.184)	0.883 (1.021)
Energy	-11.51 (-0.917)	-2.914 (-0.184)	-14.81 (-1.205)	-9.455 (-1.227)	0.245 (0.177)	-4.831* (-1.941)	-2.349 (-0.883)	5.356* (1.827)	-1.452 (-0.904)	-1.292 (-1.239)
Employee	1.633 (0.466)	-12.47 (-0.819)	-3.385 (-0.258)	-4.346 (-0.622)	-3.025 (-0.639)	0.958 (0.269)	-0.794 (-0.312)	-2.940 (-1.221)	-0.539 (-0.326)	-2.123* (-1.755)
Community	0.719 (0.179)	-1.855 (-0.648)	3.253 (0.676)	0.533 (0.215)	0.493 (0.292)	-2.777 (-1.212)	-0.417 (-0.199)	-2.769 (-1.541)	-1.947 (-1.592)	-1.308 (-1.249)
Product	-3.074 (-0.745)	-9.309 (-1.012)	-3.642 (-0.544)	-4.431 (-1.432)	1.601* (1.662)	-1.714 (-0.690)	9.257 (1.552)	2.216 (0.879)	3.858 (1.319)	4.800* (1.739)
SIZE (Log Assets)	1.366** (2.178)	1.986** (2.053)	1.518* (1.726)	1.645*** (3.457)	1.497 (1.595)	0.516* (1.927)	0.350 (1.383)	0.773*** (3.203)	0.456*** (3.110)	0.342 (1.640)
LEVERAGE	-1.225** (-2.498)	0.849 (0.622)	-0.00865 (-0.0116)	-0.240 (-0.548)	0.0513 (0.135)	-0.186 (-1.413)	-0.0234 (-1.594)	-0.167** (-2.119)	-0.0450 (-1.443)	-0.0161 (-0.918)
AGE	0.243** (2.401)	0.355* (1.762)	0.308* (1.913)	0.271*** (3.375)	0.200** (2.115)	0.215*** (2.732)	0.184*** (2.747)	0.105*** (2.861)	0.168*** (4.420)	0.155*** (3.141)

**Table 6.17 (Continued) Multiple Regression Analysis between each Dimension of CSR Disclosure and Earnings per Share for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Earnings Per Share (EPS)					Non-Manufacturing Industry Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
IDIRECTOR	11.90* (1.784)	12.76 (1.277)	13.14 (1.266)	11.28** (2.303)	-3.117 (-1.338)	-6.588 (-0.969)	-4.583 (-0.824)	-3.169 (-0.659)	-5.340 (-1.450)	-2.031 (-0.610)
Constant	-34.47** (-2.388)	-50.00** (-2.011)	-40.83* (-1.907)	-41.23*** (-3.526)	-32.96 (-1.578)	-8.930* (-1.679)	-6.938 (-1.182)	-14.79** (-2.384)	-8.244** (-2.345)	-6.661 (-1.348)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.264	0.239	0.212	0.202	0.148	0.115	0.133	0.123	0.095	0.104
F-Statistic	2.37	1.39	1.38	4.09	16.17	2.30	2.31	3.33	5.38	22.20
P-Value	0.0209	0.2095	0.2124	0.0001	0.0635	0.0171	0.0167	0.0008	0.0000	0.0083
Hausman test										
chi ( $\chi^2$ )					22.86					11.49
Prob					0.0065					0.2437
Breusch-Pagan LM test										
chi ( $\chi^2$ )				172.47					363.69	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

probability = 0.0000 for non-manufacturing industry), leading to rejection of null hypothesis. Thus the random effects model is suitable for both industries.

#### ***6.5.6.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test show in Table 6.17. The null hypothesis was rejected ( $\chi^2 = 22.86$ , probability = 0.0065 for manufacturing industry). This indicates that the fixed effects model is appropriate for manufacturing industry. The results for the non-manufacturing industry shows that individual effects were not found to be correlated with other variables in the model ( $\chi^2 = 11.49$ , probability = 0.2437 for non-manufacturing industry). This indicates that the random effects model is more suitable for non-manufacturing industry.

#### ***6.5.6.3 Regression Results: EPS as a Dependent Variable***

From section 6.5.6.1 and 6.5.6.2, it can be concluded that the random effects model is more appropriate for both industries. Table 6.17 shows the regression results from the manufacturing industry. The relationships between each dimension of CSR disclosure and EPS were statistically significant at 1% level for pooled OLS, at 5% level in 2009 and at 10% level for the fixed effects models. It was found that product disclosure had a positive impact on EPS for the random effects model.

The results from the non-manufacturing industry show that the model is statistically significant at 1% level in 2011, for pooled OLS and random effects models, at 10% level in 2009-2010. The energy dimension was found to be negatively and significantly related to EPS at 10% level in 2009, and positive significantly related to EPS in 2011 model. The employee dimension variable has a negative significant association with EPS at 1% level for the random effects model. The product dimension was positive and significantly related to EPS at 10% level for the random effects model. The environment and community themes were not found to be significantly related to EPS.

#### **6.5.7 The Relationship between each Dimension of CSR Disclosure and Tobin's Q for Manufacturing and Non-Manufacturing Industries**

This section illustrates the relationship between each dimension of CSR disclosure and the Tobin's Q (TBQ) for manufacturing and non-manufacturing

**Table 6.18 Multiple Regression Analysis between each Dimension of CSR Disclosure and Tobin's Q for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Tobin's Q (TBQ)					Non-Manufacturing Industry Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (FE)	2009	2010	2011	Pooled OLS	Panel (FE)
Environment	0.655 (0.633)	1.718 (0.998)	1.054 (0.864)	1.035 (1.566)	1.266 (1.382)	0.228 (0.594)	-0.152 (-0.307)	0.892 (1.584)	0.255 (0.897)	-0.383 (-1.135)
Energy	0.162 (0.167)	-0.691 (-0.642)	-1.353 (-1.372)	-0.432 (-0.813)	0.635 (1.467)	-0.130 (-0.406)	0.404 (0.758)	-1.152* (-1.813)	-0.295 (-1.040)	-0.0146 (-0.0370)
Employee	0.231 (0.314)	-0.918 (-0.715)	-1.805 (-1.027)	-0.681 (-0.952)	-0.487 (-0.853)	0.713** (1.970)	1.104* (1.686)	0.718 (1.300)	0.758** (2.476)	1.010** (2.289)
Community	-0.534* (-1.980)	-0.974 (-1.127)	-0.820 (-1.141)	-0.588* (-1.889)	-1.591 (-1.534)	-0.157 (-0.738)	-0.543* (-1.907)	-0.0782 (-0.201)	-0.172 (-0.955)	-0.146 (-0.836)
Product	-0.607 (-1.274)	-1.922** (-2.231)	-1.906* (-1.684)	-1.535*** (-3.832)	-0.0837 (-0.183)	-0.410 (-1.331)	0.108 (0.315)	1.052 (1.315)	0.0628 (0.260)	-0.227 (-0.610)
SIZE (Log Assets)	0.0315 (0.320)	-0.129 (-0.923)	-0.270* (-1.786)	-0.129* (-1.704)	-0.129 (-0.541)	-0.0329 (-0.666)	0.0529* (1.789)	-0.167*** (-3.069)	-0.0448* (-1.853)	-0.623* (-1.733)
LEVERAGE	-0.0357 (-0.597)	-0.0900 (-0.677)	0.0291 (0.310)	-0.0171 (-0.333)	-0.491* (-1.881)	-0.0101 (-0.977)	0.00401* (1.692)	0.0581*** (2.631)	0.00997** (2.212)	-0.00661* (-1.702)
AGE	-0.000882 (-0.139)	0.00268 (0.151)	0.0276 (0.749)	0.0121 (0.921)	0.470** (2.187)	-0.0142*** (-2.742)	-0.0155*** (-2.692)	-0.0196* (-1.662)	-0.0141*** (-3.101)	0.231*** (3.308)



**Table 6.18 (Continued) Multiple Regression Analysis between each Dimension of CSR Disclosure and Tobin's Q for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Manufacturing Industry Tobin's Q (TBQ)					Non-Manufacturing Industry Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (FE)	2009	2010	2011	Pooled OLS	Panel (FE)
IDIRECTOR	0.251 (0.335)	1.355 (1.074)	1.639 (1.135)	1.323* (1.870)	-0.597 (-0.303)	1.006 (1.206)	-0.483 (-0.593)	1.746 (1.535)	0.860 (1.603)	-1.972 (-1.606)
Constant	-0.329 (-0.170)	3.797 (1.232)	6.853** (1.995)	3.383** (2.132)	-1.556 (-0.434)	0.961 (1.098)	-0.131 (-0.207)	3.754*** (3.068)	1.378*** (2.746)	11.50 (1.593)
Observations	82	82	82	246	246	241	241	241	723	723
R-Squared	0.076	0.106	0.111	0.063	0.091	0.077	0.062	0.100	0.042	0.065
F-Statistic	1.24	1.10	0.64	2.23	1.14	2.74	3.49	3.10	5.19	2.09
P-Value	0.2827	0.3767	0.7598	0.0211	0.3435	0.0047	0.0005	0.0015	0.0000	0.0313
Hausman test chi ( $\chi^2$ )					15.15					47.38
Prob					0.0869					0.0000
Breusch-Pagan LM test chi ( $\chi^2$ )				10.64					49.97	
Prob				0.0006					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

industries. The results from multiple regressions for both industries are presented in Table 6.18.

#### ***6.5.7.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of Breusch-Pagan Lagrange multiplier test from Table 6.18 shows that the null hypothesis was rejected ( $\chi^2 = 10.64$ , probability = 0.0006 for the manufacturing industry and  $\chi^2 = 49.97$ , probability = 0.0000 for non-manufacturing industry). This confirms that the random effects model is more appropriate than pooled OLS model for both industries.

#### ***6.5.7.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results show that individual effects were correlated with the other regressors in the model ( $\chi^2 = 15.15$ , probability = 0.0869 for manufacturing industry and  $\chi^2 = 47.38$ , probability = 0.0000 for non-manufacturing industry), leading to acceptance of alternative hypothesis. This indicates that the fixed effects model is appropriate for both industries.

#### ***6.5.7.3 Regression Results: TBQ as a Dependent Variable***

From section 6.5.7.1 and 6.5.7.2 it is concluded that the pooled OLS model is suitable for the manufacturing sector because the fixed effects model is not statistically significant and the fixed effects model is suitable for non-manufacturing industry.

From Table 6.18, it is observed that the pooled OLS model was found to be statistically significant at 5% level for the pooled OLS model for the manufacturing industry. The community theme was found to be negatively and significantly related to TBQ at 10% level for the pooled OLS model. The product dimension had a negative and significant relationship with TBQ at 1% level for pooled OLS. The environment, energy, and employee themes were not found to be significantly related to TBQ.

For non-manufacturing industry, the models were found to be statistically significant at 1 % level in 2009-2011, for pooled OLS and at 5% level for the fixed effects models. Based on the significant models for non-manufacturing industry, it can be seen from the data in Table 6.18 that the coefficient of energy dimension was negative and significantly related to Tobin's Q at 10% level in 2011. The employee

dimension variables were found to be positively and significantly correlated with TBQ at 5% level in 2009, for pooled OLS and the fixed effects model, and at 10% level in 2010. The community dimension had a negative and significant relationship with TBQ at 10% level in 2010.

## **6.6 Robustness Testing**

This section provides results from robustness tests to examine whether CSR disclosure levels were significantly different from the results in the previous section. The instrumental variable estimation was employed to examine the robustness of the relationship between CSR disclosure and financial performance as dependent variable for the manufacturing and non-manufacturing industries. As described in the methodology chapter, the analysis uses CSRI of the year before as an instrument variable, and adds four previous year financial performances as further independent variables. This study employs return on assets (ROA), net profit margin (NPM), earnings per share (EPS) and Tobin's Q to proxy for firm financial performance in separate regressions. There are 164 observations for manufacturing and 482 observations for non-manufacturing industry.

### **6.6.1 The Relationship between One-Year Lagged Financial Performance and CSR Disclosure (First-Stage-OLS Estimation)**

The relationships between previous year financial performance and CSR disclosure were examined in this section. The Pearson correlations reported in section 6.3 shows that the correlation between each pair of variables was quite low, which indicates that no multicollinearity was found in the models. Table 6.19 presents the results from the first stage regression for both industries, where CSR disclosure is the dependent variable.

#### ***6.6.1.1 First-Stage Regression (OLS Estimation) for Manufacturing Industry***

The results from Table 6.19 for the manufacturing industry show that the relationships were statistically significant at 1% level for ROA, NPM and TBQ models. The coefficient estimates on the lagged CSR disclosure did not show significant effects on the levels of CSR in all models. The one year lagged ROA (0.004, p-value < 0.05) was positive and significantly associated with CSR

disclosure. The coefficient one year lagged NPM (0.001, p-value < 0.01) and one year lagged TBQ (0.021, p-value < 0.01) were positive and significantly related to the amount of CSR disclosure. However, the coefficients of one year lagged EPS (-0.003, p-value > 0.10), were not found to be significantly related to CSR disclosure. These findings confirm that previous year financial performance of the manufacturing industry had a direct impact on CSR disclosure.

#### ***6.6.1.2 First-Stage Regression (OLS Estimation) for Non-Manufacturing Industry***

Table 6.19 shows the results of first stage regression for non-manufacturing industry. All relationships were statistically significant at 1% level. One year lagged CSRI was found to be negatively and significantly related to current year CSRI at 1% level in all models. One year lagged TBQ (0.0124, p-value < 0.01) was positive and significantly correlated with current year CSR disclosure. The coefficients for one year lagged ROA, NPM and EPS were found to be positive but were not significantly related to current year CSRI.

### **6.6.2 The Relationship between CSR Disclosure and Financial Performance (Second Stage Regression)**

The results from second stage regression between CSR disclosure and financial performance and specification tests for the manufacturing and non-manufacturing sectors are presented in the next subsections.

#### ***6.6.2.1 Testing for Underidentification and Weak Instruments for Manufacturing Industry***

The Kleibergen-Paap Langrange-Multiplier (LM) test (Kleibergen and Paap, 2006) and Stock-Yogo weak ID instruments test (Stock and Yogo, 2005) were employed to assess the power of identification in instrumental variables estimation.

Table 6.20 illustrates the results from the second stage estimation and balanced panel data model for the manufacturing industry. It shows the results of Kleibergen-Paap LM test (Anderson, 1951; Kleibergen and Paap, 2006) for under identification. The hypothesis is that the matrix is rank deficient and the equation is under identified. The values of Kleibergen-Paap LM test (ROA, 1.70; NPM, 1.04; EPS, 1.17; TBQ, 1.11) were not significant to reject the hypothesis. These values indicate that the equation was under-identified.

**Table 6.19 First-Stage Regression of CSR Disclosure (OLS Estimation) for Manufacturing and Non-Manufacturing Industries**

Independent Variables	Dependent Variables: Corporate Social Responsibility Disclosure Index: CSRI							
	Manufacturing Industry				Non-manufacturing Industry			
	Model: ROA	Model: NPM	Model: EPS	Model: TBQ	Model: ROA	Model: NPM	Model: EPS	Model: TBQ
CSRI (lagged 1 year)	-0.239 (-1.31)	-0.190 (-1.01)	-0.198 (-1.07)	-0.189 (-1.05)	-0.348*** (-4.76)	-0.344*** (-4.62)	-0.347*** (-4.7)	-0.288*** (-3.78)
SIZE (Log Assets)	-0.108*** (-2.56)	-0.092** (-2.17)	-0.080* (-1.91)	-0.130*** (-2.89)	0.002 (0.13)	0.004 (0.24)	0.0005 (0.03)	-0.0167 (-1.07)
LEVERAGE	0.0206* (1.73)	0.018 (-1.61)	0.011 (-1.02)	0.018** (2.00)	0.0012 (0.9)	0.0002 (0.71)	0.0002 (0.67)	0.0003 (2.25)
AGE	-0.0165 (-1.22)	-0.008 (-0.58)	0.0001 (-0.01)	-0.011 (-0.73)	-0.0023 (-0.33)	-0.0028 (-0.4)	-0.0015 (-0.22)	-0.0042 (-0.69)
IDIRECTOR	0.093 (0.76)	0.065 (-0.48)	0.1069 (-0.75)	0.149 (1.02)	0.0670 (0.94)	0.076 (1.00)	0.064 (0.86)	0.0626 (0.96)
ROA (lagged 1 year)	0.004** (2.42)				0.0007 (0.68)			
NPM (lagged 1 year)		0.001*** (-3.11)				0.0003 (1.07)		
EPS (lagged 1 year)			-0.003 (-0.81)				0.0016 (0.49)	
TBQ (lagged 1 year)				0.021*** (2.88)				0.0124*** (3.26)
R-Squared	0.113	0.082	0.060	0.108	0.095	0.097	0.094	0.105
F-Statistic	2.99***	3.10***	1.15	3.15***	5.12***	4.79***	4.67***	7.01***

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

**Table 6.20 Instrumental Variable Estimation (2-Step GMM Estimation) for Manufacturing Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
CSRI	10.27 (1.640)	49.92 (1.369)	2.167 (0.259)	44.55 (0.891)	5.671** (2.486)	11.95 (1.347)	-0.422 (-0.179)	8.588 (0.918)
SIZE (Log Assets)	-2.978 (-0.724)	0.753 (0.138)	-8.013 (-1.457)	-4.476 (-0.866)	-0.0799 (-0.0526)	0.364 (0.177)	-0.336 (-0.211)	0.762 (0.579)
LEVERAGE	-0.0108 (-0.00909)	-1.011 (-0.600)	1.799 (1.136)	0.850 (0.400)	-0.366 (-0.840)	-0.463 (-1.153)	-0.632 (-1.441)	-0.832 (-1.557)
AGE	-0.563 (-0.674)	0.116 (0.104)	-1.604 (-1.522)	-1.167 (-1.012)	-0.148 (-0.517)	-0.138 (-0.516)	0.458 (1.552)	0.573 (1.494)
IDIRECTOR	-5.221 (-0.602)	-8.315 (-1.046)	-6.471 (-0.550)	-8.640 (-0.969)	-0.369 (-0.114)	-0.960 (-0.269)	1.000 (0.304)	-0.244 (-0.0889)
ROA (lagged 1 year)	-0.127 (-1.257)	-0.275 (-1.259)						
NPM (lagged 1 year)			0.143*** (4.003)	0.108 (1.033)				
EPS (lag 1 year)					-0.391*** (-7.271)	-0.375*** (-4.562)		
TBQ (lag 1 year)							-0.474** (-2.384)	-0.665*** (-2.685)
Constant	85.93 (0.938)		211.6* (1.737)		7.571 (0.225)		2.968 (0.0835)	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

**Table 6.20 (Continued) Instrumental Variable Estimation (2-Step GMM Estimation) for Manufacturing Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
Kleibergen-Paap LM test		1.70		1.04		1.17		1.11
Anderson-Rubin Wald test		3.72*		1.80		1.21		1.91
Shea partial R-Squared		0.042		0.026		0.028		0.027
Kleibergen-Paap (Cragg-Donald) F-statistic		1.72		1.02		1.15		1.10
Stock-Yogo Critical Values								
10% maximal IV size		16.38		16.38		16.38		16.38
15% maximal IV size		8.96		8.96		8.96		8.96
20% maximal IV size		6.66		6.66		6.66		6.66
25% maximal IV size		5.53		5.53		5.53		5.53
Durbin Wu-Hausman test								
Hausman test								
chi ( $\chi^2$ )	113.16***		42.30***		3034.15***		74.22***	
Observations	164	164	164	164	164	164	164	164
R-Squared	0.108	-0.362	0.206	-0.062	0.486	0.435	0.116	-0.054
F-Statistic	2.99	1.05	3.29	2.14	12.00	7.79	1.66	8.74
P-Value	0.0113	0.3990	0.0062	0.0587	0.0000	0.0000	0.1423	0.0000

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

The Kleibergen-Paap (Cragg-Donald) Wald F-statistic (Cragg and Donald, 1993; Kleibergen and Paap, 2006) and Stock-Yogo weak ID instruments test (Stock and Yogo, 2005) to test for weak identification. The hypothesis is that the equation is weakly identified. Staiger *et al*, (1997) argue that if the F statistic was over 10, the equation is just identified. The result from Kleibergen-Paap (Cragg-Donald) Wald F-statistic shows that the null hypothesis was accepted (ROA, 1.72; NPM, 1.02; EPS, 1.15; TBQ, 1.10). It implies that the instrument is weak. Furthermore, Table 6.20 reports the Anderson-Rubin Wald test (Anderson and Rubin, 1949) results for the significance of the endogenous regressors in the structural equation. The null hypothesis was that the coefficients of the endogenous regressors in the structural equation are jointly equal to zero ( $H_0: \beta_1 = 0$ ).

The values of the Anderson-Rubin robust statistic tests from Table 6.20 were accepted (NPM, 1.80; EPS, 1.21; TBQ, 1.91). That is, the coefficients of the endogenous regressors of NPM, EPS and TBQ in the models were jointly equal to zero and the instrument is valid.

To sum up, the results from the Kleibergen-Paap LM test, Kleibergen-Paap Wald F-statistics and the Anderson-Rubin Wald test for four models presented in Table 6.20, lead to rejection of  $CSRI_{t-1}$  (instrumental variable). The  $CSRI_{t-1}$  in this section is not identified for ROA, but is valid for NPM, EPS and TBQ in the manufacturing industry.

#### ***6.6.2.2 The Findings from Instrument Variable Estimation (2SLS) for Manufacturing Industry***

Table 6.20 reports the results of instrumental variable estimation (2SLS GMM estimation). This estimation is controlled for heteroscedasticity using robust and fixed effects estimation. The four models were estimated, with CSR instrumented by using the one-year lagged CSRI (Z or IV). Overall, the relationships between CSR and financial performance were found to be insignificant in both the fixed effects (ROA, 10.27; NPM, 2.167; TBQ, -0.422) and the 2SLS model (ROA, 49.92; NPM, 44.55; TBQ, 8.588).

The coefficient of CSRI (5.671, p-value < 0.05) for the fixed effects model shows a positive and significant relationship to EPS at 5% level. The coefficients of CSR (instrumented) on TBQ were changed. That is, the coefficient of the TBQ ceased to negative (-0.422 in the fixed effects model to 8.588 in 2SLS).



**Table 6.21 Instrumental Variable Estimation (2-Step GMM Estimation) for Non-Manufacturing Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
CSRI	-3.786 (-0.659)	-18.48 (-0.844)	-1.254 (-0.123)	-39.19 (-1.472)	-0.909 (-0.244)	30.15 (1.002)	0.294 (0.356)	1.695 (0.512)
SIZE (Log Assets)	8.054*** (3.932)	7.942** (2.053)	4.902 (1.342)	4.726 (1.075)	-0.713 (-0.540)	-0.433 (-0.433)	-0.723** (-2.493)	-0.705 (-1.323)
LEVERAGE	-0.187*** (-3.211)	-0.178*** (-2.797)	-0.232** (-2.266)	-0.210** (-2.319)	-0.0131 (-0.348)	-0.0306* (-1.698)	-0.0147* (-1.778)	-0.0155*** (-2.603)
AGE	-1.549** (-2.551)	-1.600* (-1.768)	-4.504*** (-4.213)	-4.672*** (-3.438)	-0.560 (-1.455)	-0.473 (-1.493)	0.254*** (3.028)	0.260** (2.425)
IDIRECTOR	4.068 (0.500)	5.145 (0.694)	24.09* (1.662)	27.17* (1.930)	3.016 (0.569)	0.858 (0.139)	-1.206 (-1.028)	-1.272 (-1.301)
ROA (lagged 1 year)	-0.379*** (-4.846)	-0.372** (-2.400)						
NPM (lagged 1 year)			0.0583 (1.216)	0.0715 (0.354)				
EPS (lag 1 year)					-0.628*** (-3.925)	-0.661** (-2.059)		
TBQ (lag 1 year)							-0.527*** (-6.932)	-0.542*** (-3.959)
Constant	-143.9*** (-3.323)		-35.87 (-0.465)		28.74 (1.026)		13.38** (2.160)	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

**Table 6.21 (Continued) Instrumental Variable Estimation (2-Step GMM Estimation) for Non-Manufacturing Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
Kleibergen-Paap LM test		16.29***		15.73***		15.94***		15.77***
Anderson-Rubin Wald test		0.71		2.21		1.01		0.27
Shea partial R-Squared		0.087		0.086		0.087		0.086
Kleibergen-Paap (Cragg-Donald) F-statistic		22.67		21.32		22.14		21.20
Stock-Yogo Critical Values								
10% maximal IV size		16.38		16.38		16.38		16.38
15% maximal IV size		8.96		8.96		8.96		8.96
20% maximal IV size		6.66		6.66		6.66		6.66
25% maximal IV size		5.53		5.53		5.53		5.53
Durbin Wu-Hausman test								
Hausman test								
chi ( $\chi^2$ )	405.34***		124.77***		85.63***		383.67***	
Observations	482	482	482	482	482	482	482	482
R-Squared	0.204	0.182	0.094	0.040	0.087	-0.182	0.214	0.204
F-Statistic	10.02	4.24	4.04	3.85	3.72	3.12	10.65	6.42
P-Value	0.0000	0.0004	0.0007	0.0011	0.0015	0.0059	0.0000	0.0000

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

The previous year financial performance was significantly related at 1% level (NPM, 0.143; EPS, -0.391; TBQ, -0.474 for fixed effects and EPS, -0.375; TBQ, -0.655 for 2SLS model) to current year financial performance.

#### ***6.6.2.3 Testing for Underidentification and Weak Instruments for Non-Manufacturing Industry***

The results from the second stage instrumental variable estimation and balanced panel data model for non-manufacturing industry are presented in Table 6.21. The results of Kleibergen-Paap LM test were significant to reject the hypothesis (ROA, 16.29; NPM, 15.73; EPS, 15.94; TBQ, 15.77, all of them significant at 1% level), indicating that the matrix has full rank and the equation is identified.

The Kleibergen-Paap (Cragg-Donald) Wald F-statistic (Cragg and Donald, 1993; Kleibergen and Paap, 2006) and Stock-Yogo weak ID instruments test (Stock and Yogo, 2005) to test for weak instrument. The result from Kleibergen-Paap Cragg-Donald Wald F-statistic shows that the null hypothesis was rejected (ROA, 22.67; NPM, 21.32; EPS, 22.14; TBQ, 21.20). It implies that the instrument is not weak.

Table 6.21 shows the Anderson-Rubin Wald test (Anderson and Rubin, 1949) results for the significance of the endogenous regressors in the structural equation. The values of the Anderson-Rubin Wald robust statistic tests were accepted (ROA, 0.71; NPM, 2.21; EPS, 1.01; TBQ, 0.27). The coefficients of the endogenous regressors in the models were jointly equal to zero and the instrument is valid.

The results from Kleibergen-Paap LM test, Kleibergen-Paap F-statistics and the Anderson-Rubin Wald test for the four models presented in Table 6.21 lead to acceptance of  $CSRI_{t-1}$  (instrumental variable). The  $CSRI_{t-1}$  in this section is identified and the instrument is valid.

#### ***6.6.2.4 The Findings from Instrument Variable Estimation (2SLS) for Non-Manufacturing Industry***

The results of second stage regression with robust standard errors and control for heteroscedasticity show that the relationships between CSR and financial performance were found to be insignificant in both the fixed effects (ROA, -3.78; NPM, -1.254; EPS, -0.909; TBQ, 0.294) and the 2SLS models (ROA, -18.48; NPM, -39.19; EPS, 30.15; TBQ, 1.695). The coefficients of the relationship between CSR

(instrumented) and ROA, NPM, EPS and TBQ was changed. That is, the coefficient for EPS was negative (-0.909) using the fixed effects model and positive (30.15) using the 2SLS model.

## **6.7 Analysis and Discussion**

The aim of this chapter is to examine the relationship between CSR disclosure and financial performance (FP) of firms listed as manufacturing and non-manufacturing industries for the period 2009 to 2011. Twelve hypotheses were tested and results are given below. The first four alternative hypotheses were tested to detect the relationship between CSR disclosures on financial performance (FP) defining CSR as independent variable (Table 6.4 – 6.7). The second four hypotheses were examined to understand the impact of financial performance on CSR disclosure defining CSR as a dependent variable (Table 6.8 - 6.11). The last four hypotheses were investigated as to the relationship between each dimension of CSR disclosure and FP defining financial performance measures as dependent variables (Table 6.15 – 6.18). In order to enhance statistical reliability and consistency of results, this study used pooled OLS and panel data regression (random effects or fixed effects model) to explain the existence and direction of the relationship between CSR and FP for both manufacturing and non-manufacturing industries. The summaries of the results are as follows.

### **6.7.1 The Relationship between CSR Disclosure and Financial Performance**

This section elaborates the results from the relationship between CSR disclosure and financial performance for manufacturing and non-manufacturing industries, defining CSR as independent variable. The summary of the alternative hypotheses tested for equation 1 to 8 for manufacturing and non-manufacturing industries is shown in Table 6.22. The summaries of results of CSR on financial performance are presented in following subsections.

#### **6.7.1.1 CSR and Return on Assets (ROA)**

A strong relationship between CSR disclosure and financial performance has been reported in the literature (Ghelli, 2013; Janamrung and Issarawornrawanich, 2013). The results for the manufacturing industry show that CSR disclosure has a

positive and significant relationship with financial performance as defined by ROA. But when ROA is used as independent variable, it was not found to be significantly related to CSR disclosure. This results lead to acceptance of hypothesis H1A and rejection of H2A. This result suggests that firms listed in the manufacturing industry with greater CSR engagement tends to have more profitability (ROA). The finding of the current study are consistent with those of Ghelli (2013), Janamrung and Issarawornrawanich (2013) and Ehsan and Kaleem (2012) who suggest that CSR disclosures of firms in the manufacturing industry have a positive impact on ROA.

The results from non-manufacturing industry show that CSR disclosure has a positive impact on ROA and ROA had a significant relationship with CSR activities, which led to the acceptance of hypotheses H1A and H2A. These findings indicate that more CSR activities influence the profitability (ROA) of firms in non-manufacturing industry and vice versa. This supports previous findings in the literature (Waddock and Graves, 1997; Peters and Mullen, 2009; Chen and Wang, 2011; Wu and Shen, 2013). This current study confirms that CSR disclosure and financial performance for manufacturing and non-manufacturing firms in Thailand are positively related to each other.

#### **6.7.1.2 CSR and Net Profit Margin (NPM)**

The results for the manufacturing industry show that CSR disclosures have a positive impact on net profit margin (NPM), the results lead to acceptance of hypotheses H1B, suggesting that firms with more CSR activities will have superior net profit margin. This result is consistent with previous studies of Waddock and Graves (1997), Byus *et al*, (2010), Moneva and Ortas (2010), and Ghelli (2013). The results with NPM as independent variable (Table 6.22) show that the coefficients of NPM were positive but not significantly related to CSR disclosure, lead to the rejection of hypothesis H2B. This is in contrast with the findings of Hossain *et al*, (2006), Pahuja (2009), Mishra and Suar (2010), and Khan *et al*, (2013), who argued that more profitable manufacturing firms tend to provide a greater amount of environmental and social disclosure. The reason for this finding is still not clear, but it is possible that firms in the manufacturing industry provide CSR information to meet standards and requirements relating to legislation of environmental and employee rights only, which may increase their costs and impact their net profit.

For non-manufacturing industry, the results from this study show that CSR disclosures have a direct impact on NPM both sign and magnitude, which lead to the acceptance of hypotheses H1B and H2B. These findings indicate that better financial performance for the non-manufacturing sector leads to better CSR and vice versa. This leads to the conclusion that firms with higher profitability in the non-manufacturing industry tend to report more CSR information. This finding is consistent with previous studies on the relationship between CSR disclosure and profitability (Hossain *et al.*, 2006; Kimbro and Melendy, 2010).

#### **6.7.1.3 CSR and Earnings per Share (EPS)**

This study shows that there is no relationship between CSR disclosure and EPS for both manufacturing and non-manufacturing industries and vice versa (Table 6.22). The hypotheses H1C and H2C were rejected. The findings suggest that the level of CSR disclosure does not have an impact on EPS. These findings differ from those of Karagiorgos (2010), Kwanbo (2011), and Ehsan and Kaleem (2012). The difference in results can be explained by different periods and contexts of the samples in this current study and the previous studies. Furthermore, investors' awareness of the value of CSR in each period or in different countries had increased over the period, which may lead to difference in results (Reverte, 2012).

The results in Table 6.22 show that CSR disclosure does not have a significant impact on the earnings per share (EPS) for non-manufacturing industry. The results reject hypotheses H1C and H2C, suggesting that CSR policies are not an important variable in determining stock prices. This is in agreement with Tyagi (2012) and Pava and Krausz (1996) who found that no relationship between environmental and social performance and EPS exists. It can be suggested that CSR disclosure may not be a predictor for EPS. This finding is not in agreement with previous results reported by Kangarlouei *et al.*, (2013).

#### **6.7.1.4 CSR and Tobin's Q (TBQ)**

This study found a significant negative relationship between Tobin's Q (TBQ) and CSR disclosure for the manufacturing sector. The finding lead to acceptance of hypotheses H2D, suggesting that CSR disclosure was influenced by TBQ of firms. in the finding of the current study was consistent with the findings of Ehsan (2012), indicating that higher CSR disclosure may reduce the market performance of firms in the manufacturing industry. The finding of the relationship

between TBQ and CSR disclosure is in agreement with those of Choi (2010), who found that no correlation between TBQ and CSR disclosure exists (in equal-weight method).

For the non-manufacturing sector, the findings show that CSR disclosure has a positive and significant relationship with Tobin's Q in both directions, which leads to acceptance of the hypothesis H1D and H2D. CSR disclosure is related to market value of the firm in non-manufacturing industry. These findings agree with those of Jo and Harjoto (2011) and Li *et al.*, (2013), who argued that better-performing firm are likely to disclose more CSR engagement and to produce better quality CSR reports.

### **6.7.2 The Relationship between each Dimension of CSR Disclosure and Financial Performance**

The summary of the results of the relationship between each dimension of CSR disclosure and financial performance for manufacturing and non-manufacturing industries and the results of are presented in Table 6.23.

#### ***6.7.2.1 The Relationship between Environmental Disclosure and Financial Performance***

The empirical results of the manufacturing industry in Table 6.23 did not show any evidence of the relationship between environmental disclosure and financial performance. This is consistent with the results of Luethge and Helen (2012) and Abdul Rahman *et al.*, (2009), who indicate that no relationship exist between environmental disclosure and profitability as measured by ROA and ROE.

However, these findings differ from previous results reported in the literature (Teoh *et al.*, 1998; Lyon, 2007; Zhongfu *et al.*, 2011; Zhang, 2013). They suggest that a significant positive relationship exists between environmental disclosure and ROA, NPM, ROE and TBQ. This could be because this current study was conducted in the Thailand context, and as such the results might be different from those of other countries (Yeganeh *et al.*, 2014). Another reason for the difference can be attributed to the method of collecting and constructing CSR index or environmental index.

The environmental disclosure for non-manufacturing industry was found to have a positive and significant relationship with ROA and NPM. The present

findings are consistent with those of (Hossain *et al.*, 2006) who found a positive and significant relationship between environmental disclosure and profitability.

From Table 6.23, the results suggest that firms in non-manufacturing industry are concerned about the environmental activities, which will lead them to have better financial performance. However, the results of the current study differ from some earlier studies such as Tilakasiri (2012), who showed that no significant relationship exists between environmental performance and financial performance. These differences could be due to the differences of CSR definition, methodology, model specification and small sample size.

#### ***6.7.2.2 The Relationship between Energy Disclosure and Financial Performance***

Previous studies have shown that the energy disclosure was the most commonly reported disclosure for the electricity supply industry and the second most disclosed category for the mining and chemical industries in China (Zhang, 2013). Some studies have identified the relationship between environmental (including energy information) disclosure and financial performance for the manufacturing industry (Teoh *et al.*, 1998; Lyon, 2007; Zhongfu *et al.*, 2011; Suttipun and Stanton, 2012c; Zhang, 2013). In the Thai context, Suttipun and Stanton (2012c) found that there is no relationship between environmental disclosure and profitability. Janamrung and Issarawornrawanich (2013) showed a positive and significant relationship between CSR and ROA, return on equity and TBQ for the products and resources industries. As given in Table 6.23, the results of the current study show that firms with higher energy disclosure have higher ROA and NPM. These results are consistent with those of previous studies (Guthrie and Parker, 1989; Lyon, 2007; Zhang, 2013) and suggest that ROA and NPM are related to energy disclosure.

The results for non-manufacturing industry show that no relationship exists between energy disclosure and financial performance (Table 6.23). The results of the current study are consistent with those of Lyon (2007) and Suttipun (2012) who found environmental disclosure has no relationship with financial performance. This may be because firms in the non-manufacturing sector do not need to improve energy



**Table 6.22 Summary of the Hypotheses Tested for Hypothesis 1 and 2 for Manufacturing and Non-Manufacturing Industries**

Hypothesis	Relationship between two variables	Expected relationship	Manufacturing Industry			Non-manufacturing Industry		
			Results		Outcome	Results		Outcome
H1A	CSRI on ROA	Positive	Positive	$P < 0.01$	Accepted	Positive	$P < 0.01$	Accepted
H1B	CSRI on NPM	Positive	Positive	$P < 0.10$	Accepted	Positive	$P < 0.01$	Accepted
H1C	CSRI on EPS	Positive	Negative	$P > 0.10$	Rejected	Negative	$P > 0.10$	Rejected
H1D	CSRI on TBQ	Positive	Negative	$P > 0.10$	Rejected	Positive	$P < 0.05$	Accepted
H2A	ROA on CSRI	Positive	Positive	$P > 0.10$	Rejected	Positive	$P < 0.01$	Accepted
H2B	NPM on CSRI	Positive	Positive	$P > 0.10$	Rejected	Positive	$P < 0.01$	Accepted
H2C	EPS on CSRI	Positive	Negative	$P > 0.10$	Rejected	Negative	$P > 0.10$	Rejected
H2D	TBQ on CSRI	Positive	Negative	$P < 0.05$	Accepted	Positive	$P < 0.10$	Accepted

**Table 6.23 Summary of the Hypotheses Tested for Hypothesis 3**

Dimension of CSR	Expected relationship	Financial Performance	Manufacturing Industry			Hypothesis	Financial Performance	Non-manufacturing Industry			Hypothesis
			Results		Outcome			Results		Outcome	
Environment	Positive	-	-	-	-	-	ROA	Positive	P < 0.01	Accepted	H1A
	Positive	-	-	-	-	-	NPM	Positive	P < 0.10	Accepted	H1B
Energy	Positive	ROA	Positive	P < 0.05	Accepted	H1A	-	-	-	-	-
	Positive	NPM	Positive	P < 0.10	Accepted	H1B	-	-	-	-	-
Employee	Positive	-	-	-	-	-	EPS	Negative	P < 0.10	Accepted	H1C
	Positive	-	-	-	-	-	TBQ	Positive	P < 0.05	Accepted	H1D
Community	Positive	NPM	Positive	P < 0.05	Accepted	H1B	ROA	Positive	P < 0.01	Accepted	H1A
	Positive	TBQ	Negative	P < 0.10	Accepted	H1D	NPM	Positive	P < 0.01	Accepted	H1B
Product	Positive	EPS	Positive	P < 0.10	Accepted	H1C	EPS	Positive	P < 0.10	Accepted	H1C
	Positive	TBQ	Negative	P < 0.01	Accepted	H1D	-	-	-	-	-

efficiency or conserve energy in their business line. So they may not be concerned about energy disclosure. It can be seen from Table 6.13 that energy disclosure was the least disclosed category for non-manufacturing industry.

#### ***6.7.2.3 The Relationship between Employee Disclosure and Financial Performance***

The results of Table 6.23 show there is no significant association between employee information and financial performance for firms in the manufacturing sector. This findings corroborated the results of Bayoud (2012) and Tilakasiri (2012), who suggest that there is no relationship between employee-related CSR activities and ROE, return on sale (ROS) and ROA.

The results for non-manufacturing industry show that employee disclosure has a negative and significant impact on EPS, which indicate that as the level of human resources activities increase, earnings per share reduces. However, other studies show a positive relationship between employee disclosure and return on equity and corporate reputation. The results of the current study are different from previous results of Tilakasiri (2012). The difference in results could be explained by the different financial performance indicators used in this current study as compared with those by Tilakasiri (2012).

#### ***6.7.2.4 The Relationship between Community Disclosure and Financial Performance***

The community-related activities of CSR disclosure was the most disclosed theme for manufacturing industry. This means that firms in the manufacturing industry have a good relationship with the community since they engage in community activities such as donations, sponsoring public health, funding scholarship, or supporting the development of community events. Previous studies have examined the relationship between community disclosures and financial performance. The results from these studies were mixed. The current study shows a positive relationship between community disclosure and NPM (Table 6.23). The findings of the current study are consistent with those of Bayoud (2012) and Zhang (2013) who found there is a significant and positive relationship between the level of CSR disclosure and profitability as measured by NPM for the manufacturing

industry. Further, the results using TBQ as dependent variable for the relationship between TBQ and community disclosure show the results were negative and significant. The results of this current study agree with those of Zhang and Gu (2012) and suggest that better social performance will result in decreasing market value.

The results of non-manufacturing industry show a positive relation between social disclosure and financial performance as measured by ROA and NPM. This is in agreement with the findings of Orlitzky *et al*, (2003) and Tilakasiri (2012) who found similar results. The results of the current study are in disagreement with those of Hackston and Milne (1996), Sukcharoensin (2012) and Ghelli (2013), who argued that there is no evidence of relationship between community disclosure and financial performance. This is because the sampling and measurement for each study is different (Hackston and Milne, 1996).

#### ***6.7.2.5 The Relationship between Products Responsibility Disclosure and Financial Performance***

The relationship between products information disclosure and financial performance is described in this section. The results from Table 6.23 for the manufacturing industry show that there is a negative and significant relationship between products disclosure and Tobin's Q for manufacturing industry, indicating that more the company is involved with products disclosure, the lower TBQ they would have. This finding is consistent with the findings Schreck (2011), who found a negative and significant relationship between product and customer disclosure and TBQ.

The results for the non-manufacturing sector show a positive and significant relationship between products responsibility and TBQ and EPS (Table 6.23). These results are in agreement with those of Jo and Harjoto (2011) who found that products responsibility disclosure has a positive relationship with firm value. The current study confirms that the firms which participate in customer-related CSR activities may achieve a better market value (TBQ) and investor return.

### **6.7.3 The Robustness Test of the Relationship between CSR Disclosure and Financial Performance**

This study also applied the one year lagged CSRI as instrumental variable to measure the relationship between CSR disclosure and financial performance of both industries. The results from first-stage and second-stage regression are consistent with those of Garcia-Castro *et al*, (2010), indicating that previous year financial performance as measured by  $ROA_{t-1}$ ,  $NPM_{t-1}$ ,  $TBQ_{t-1}$  and EPS) were positively and significantly related to CSR disclosure for the manufacturing industry. These findings suggest that previous year financial performances were related to CSR disclosure and enhance the level of CSR disclosure. This finding validated the usefulness of instrumental variable analysis in dealing with the endogeneity problem. This current study found evidence that CSR disclosure was positively and significantly related to previous-year financial performance (TBQ) for non-manufacturing industry. Therefore, CSR disclosure is related to market-based performance (Tobin's Q) for both manufacturing and non-manufacturing industries.

## **6.8 Summary and Conclusions**

This chapter presents the relationship between CSR disclosure and four financial performance measures for the manufacturing and non-manufacturing industries. The relationship between CSR disclosure and financial performance was examined, with financial performance defining as dependent variable.

The empirical results for the manufacturing industry indicate that CSR disclosure is significantly related to financial performance as measured by return on assets (ROA) and net profit margin (NPM). CSR disclosure has a positive and significant relationship with financial performance (ROA, NPM, and TBQ) for non-manufacturing industry as well. These results confirm that CSR disclosure is related to financial performance for both the manufacturing and non-manufacturing industries.

The relationships of financial performance on CSR disclosures were also examined using financial performance as independent variable and CSR disclosure as dependent variable. The results indicate that for the manufacturing industry return on assets (ROA) and net profit margin (NPM) has a positive and insignificant relationship with CSR disclosure, while market-based financial performance using

TBQ for the manufacturing industry has shown a negative and significant relationship with CSR disclosure. The relationships between financial performance and CSR disclosure for non-manufacturing indicate that ROA, NPM and TBQ were all positively and significantly related to CSR disclosure. However, EPS for both manufacturing and non-manufacturing industries is not found to be related to CSR disclosure.

The relationship between each dimension of CSR disclosure and financial performances are also carried out, by dividing CSR disclosure into five dimensions namely: environment, energy, employee, community and products dimensions. The results of the manufacturing industry show that the energy dimension was found to be positively and significantly related to ROA and NPM, suggesting that better performing firms disclose more CSR in the energy dimension. The community and products disclosures had a negative effect on TBQ.

The findings from non-manufacturing industry show that the environment and community-related activities were found to be positively and significantly correlated with ROA and NPM. The product responsibility disclosure had a positive effect on the EPS and TBQ. In addition, there is a negative and significant between employee involvement and EPS. These results suggest that for firms in non-manufacturing industry, disclosure of CSR activities leads to improvement in financial performance. These findings suggest that if companies engage in more community-related activities or invest in product responsibility, their market value could increase.

As well, endogeneity issues were considered. The results from two stage least square (2SLS) for the manufacturing industry show that the previous year performance of ROA, NPM and TBQ were found to be positively and significantly related to current year CSR disclosure. These results indicate that not only current year financial performance, but previous year financial performance, has an effect to on CSR disclosure. Furthermore, using the fixed effects model, it was found that the CSR disclosure was found to be positively and significantly correlated with EPS as well. For non-manufacturing industry, one year lagged TBQ were found to be positively and significantly correlated to current year CSR disclosure. However, the other financial performances (ROA, NPM and EPS) in the current year or the year before using 2SLS regression were not found to be significantly related to CSR disclosure. These results suggest that firms in manufacturing might disclose more

CSR activities. The issue was reduced using two stages least square (2SLS) regression.

## **CHAPTER 7**

### **CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE AND FINANCIAL PERFORMANCE OF FIRMS IN FINANCIAL AND NON-FINANCIAL INDUSTRIES**

#### **7.1 Introduction**

The results of the relationship between corporate social responsibility (CSR) disclosure and financial performance of firms in financial and non-financial industries in Thailand from 2009 to 2011 are elaborated in this chapter. Although some researches have provided evidence of the relationship between CSR disclosure and financial performance for financial and non-financial sectors, there are few studies exist related to these two industries in Thailand. The cross sectional data, pooled OLS model, panel data model and instrumental variable estimation were used to test the hypotheses for the two industry groups which include 46 firms from financial industry and 195 firms from non-financial industry.

This chapter is organised as follows. The *first section* provides the findings of descriptive statistics of dependent and independent variables and the analysis of regression assumptions. The *second section* presents the multivariate analyses on CSR disclosures and four adopted financial performances (FP) (FP as dependent variable). *Third section* elaborates the impact of financial performance on CSR disclosure (CSR as dependent variable). The *fourth section* shows the relationship between each dimension of CSR disclosure and financial performance. *Fifth section* presents an instrumental variable (IV) estimation. The discussion of the findings is illustrated in the *Sixth section*. *Final section* is on a summary and conclusion of this chapter.

#### **7.2 Descriptive Statistics for Financial and Non-financial Firms**

In this section, the descriptive statistics is given as measured by mean, median, standard deviation, minimum and maximum. The variables are analysed to determine the distribution and dispersion of CSR disclosure, return on assets (ROA), net profit margin (NPM), earnings per share (EPS) and Tobin's Q (TBQ). Firm size, firm age, leverage and independent director ratios are used as control variables.



**Table 7.1 Descriptive Statistics for Financial Industry for the year 2009 to 2011**

Variable s	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Size	Age (Years)	Lev (Times)	Idirector
<b>2009</b>									
Mean	3.20	9.05	2.60	0.31	0.18	23.21	17.26	3.86	0.36
Median	2.62	12.36	1.08	0.04	0.17	22.62	19.00	1.61	0.33
S.D.	4.15	20.83	4.97	0.71	0.12	2.37	10.44	4.28	0.10
Min	- 11.80	- 116.43	- 3.67	-	-	20.08	1.00	0.08	0.15
Max	13.19	27.27	23.79	3.39	0.46	28.20	35.00	16.81	0.75
<b>2010</b>									
Mean	4.56	15.84	3.57	0.25	0.20	23.37	18.26	4.09	0.38
Median	3.35	15.67	1.39	0.09	0.21	22.75	20.00	1.70	0.36
S.D.	5.07	12.11	6.35	0.44	0.12	2.38	10.44	4.63	0.10
Min	- 13.50	- 23.27	- 3.30	0.00	-	20.51	2.00	0.02	0.23
Max	16.43	55.65	31.81	1.92	0.41	28.30	36.00	22.45	0.75
<b>2011</b>									
Mean	3.13	8.72	2.42	0.20	0.18	23.60	19.26	5.65	0.39
Median	2.45	12.53	0.34	0.09	0.17	22.80	21.00	3.48	0.37
S.D.	4.99	17.66	7.32	0.31	0.12	2.34	10.44	5.76	0.09
Min	- 7.82	- 60.22	- 6.34	0.00	-	20.53	3.00	0.12	0.25
Max	16.71	36.06	37.58	1.55	0.48	28.38	37.00	24.65	0.75
<b>Total</b>									
Mean	3.63	11.20	2.86	0.25	0.19	23.39	18.26	4.53	0.38
Median	2.84	12.81	1.10	0.07	0.18	22.71	19.00	2.03	0.36
S.D.	4.77	17.43	6.26	0.51	0.12	2.35	10.40	4.96	0.09
Min	- 13.50	- 116.43	- 6.34	-	-	20.08	1.00	0.02	0.15
Max	16.71	55.65	37.58	3.39	0.48	28.38	37.00	24.65	0.75

Table 7.1 shows the descriptive statistics for the dependent and independent variables for firms in financial industry between 2009 and 2011. As can be seen from the Table 7.1, a mean of ROA, NPM and EPS in year 2010 were higher than other years. These are 4.56%, 15.84%, and 3.57 Baht, respectively. These values are higher than three-year averages (ROA, 3.63%; NPM, 11.20% and EPS, 2.86 Baht). The results show a slight decrease for TBQ from 31% in 2009 to 20% in 2011. The statistics on CSR indices had a mean of 19%, a median of 18%, the minimum of CSRI was zero. The average CSR disclosure of companies in this group is relatively

low when it is compared to a previous study such as (Fernita *et al.*, 2014). The mean of firm age was 18.26 years and standard deviation was 10.19 years. The leverage variable shows that on average, debt to equity ratio was 4.53 times, suggesting that a significant portion of the capital structure of banking sector was long-term debt. The mean of the percentage of independent director to total directors on board of director was 38%, median was 36% and standard deviation 9%, which indicates that the independent directors are number about one third of the board.

**Table 7.2 Descriptive Statistics for Non-Financial Industry for the year 2009 to 2011**

Variables	Performance Measure				CSR Index	Control Variables			
	ROA (%)	NPM (%)	EPS (Baht)	TBQ (%)	CSRI	Size	Age (Years)	Lev (Times)	Idirector
<b>2009</b>									
Mean	8.28	3.15	2.38	0.47	0.21	22.22	15.11	1.39	0.37
Median	7.59	4.97	0.43	0.19	0.17	21.97	16.00	0.80	0.36
S.D.	9.22	24.77	6.94	0.80	0.13	1.33	8.02	2.48	0.08
Min	- 19.84	- 219.19	- 2.04	0.00	0	19.56	1.00	0	0.17
Max	44.54	39.21	72.81	7.91	0.59	26.48	35.00	28.36	0.60
<b>2010</b>									
Mean	10.22	6.87	2.69	0.76	0.21	22.27	16.11	2.00	0.38
Median	9.42	6.81	0.61	0.41	0.20	22.04	17.00	0.86	0.36
S.D.	10.22	14.54	7.27	1.02	0.14	1.36	8.02	12.07	0.08
Min	- 36.04	- 81.00	- 0.89	0	0	19.50	2.00	0	0.17
Max	53.03	57.21	76.53	8.38	0.59	26.61	36.00	168.84	0.67
<b>2011</b>									
Mean	8.92	4.22	1.87	0.83	0.21	22.35	17.11	1.62	0.39
Median	8.80	5.94	0.54	0.35	0.22	22.14	18.00	0.91	0.36
S.D.	12.71	19.45	4.72	1.41	0.14	1.41	8.02	3.15	0.07
Min	- 62.91	- 178.10	- 5.67	0	0	19.24	3.00	0	0.23
Max	57.29	63.14	37.66	10.31	0.61	26.65	37.00	31.47	0.67
<b>Total</b>									
Mean	9.14	4.75	2.31	0.68	0.21	22.28	16.11	1.67	0.38
Median	8.59	5.94	0.51	0.32	0.20	22.05	17.00	0.87	0.36
S.D.	10.83	20.05	6.41	1.12	0.14	1.37	8.05	7.34	0.08
Min	- 62.91	- 219.19	- 5.67	0	0	19.24	1.00	0	0.17
Max	57.29	63.14	76.53	10.31	0.61	26.65	37.00	168.84	0.67

Table 7.2 shows the descriptive statistics of financial performance variables, CSR disclosure and control variables of firm in non-financial industry. The statistics shows that an average of ROA, NPM, and TBQ in year 2010 were 10.22%, 6.87% and 76%, and standard deviation were 10.22%, 14.54% and 102%, respectively, which was higher than average (9.14%, 4.75% and 68%) for all three years. These findings suggest that that profitability indicator in this industry were higher in 2010. It is noticeable that mean of CSRI in 2009-2011 was 21%, and standard deviation was 14%. It appears that ROA and TBQ for non-financial industry has a better performance than those for financial industry. While the NPM, EPS and leverage of firms in non-financial sector was found to be smaller than firms in financial industry. The findings shows that an average age of firms in non-financial sector was 16.11 years with a median value of 17 years and standard deviation of 8.05 suggesting that listed firms in financial sector were older than firms in non-financial sector. An average of debt to equity ratio for firms in non-financial industry is lower than firms in financial industry with a mean value of 1.67 times and standard deviation of 7.34, indicating that firms in financial industry has greater assets and leverage than firms in non-financial industry. There is no difference in the ratio of independent directors on board of directors for both the industries with a mean value of 38%, a median value of 36% and standard deviation of 0.08 in non-financial industry and mean of 38%, median of 36% and standard deviation of 9% for financial industry.

### **7.3 The Empirical Results for the Association between CSR Disclosure and Financial Performance for Financial and Non-Financial Industries**

This section presents the regression results for the relationship between CSR disclosure and four financial performance measures from year 2009 to 2011 for firms in financial and non-financial sectors. The results from the analyses are shown as follows.

#### **7.3.1 Testing for Multicollinearity**

The multicollinearity test was used to detect correlation between dependent and independent variables for firms in financial and non-financial industries. The

correlation matrix for CSR disclosure, financial performance measures and control variables are given in **Appendix B-5.1 to B-5.4**.

Appendix B-5.1 shows correlation matrix between ROA and independent variables for financial and non-financial sectors from the year 2009 to 2011. For financial sector, some independent variables have correlated with dependent variables. There is a negative and significant relationship between ROA and LEV (-0.3388) and AGE (-1.771) variables at 1% level. CSR index had a significant and positive correlation with SIZE (0.4028), LEV (0.2719), AGE (0.2916) and IDIRECTOR (0.2896) variables at 1% level. There is a positive and significant correlation between SIZE and LEV (0.5178) and AGE (0.5242) at 1 % level. For non-financial sector, a positive and significant correlation has been found between ROA and CSRI (0.2179), CSRI and SIZE (0.2965), CSRI and AGE (0.2701), SIZE and AGE (0.2121) at 1% level. However, there is a negative correlation between ROA and IDIRECTOR (-0.1111), ROA and LEV (-0.1568) at 1% level.

Appendix B-5.2 shows a correlation matrix between NPM and independent variables for firms in financial and non-financial industries. For financial sector, it is found that NPM was significantly and positively associated with CSRI (0.2753) and SIZE (0.1838) at 1% level. The correlation coefficients for firms in non-financial industry show a positive association between NPM with CSRI (0.2210) and SIZE (0.1007). There is a negative and significant correlation between NPM with LEV (-0.1338) and IDIRECTOR (-0.1128) at 1% level.

Appendix B-5.3 presents the Pearson correlation results between NPM and independent variables for firms in financial and non-financial industries. The correlations between EPS and independent variables for financial sector were positive and significant. The EPS has a correlation with AGE (0.2442), SIZE (0.2318) and CSRI (0.1902) at 1% level. For non-financial sector, it was found that EPS had a positive correlation with AGE (0.2629) and SIZE (0.2094) at 1% level, but EPS had a negative association with IDIRECTOR (-0.1422) at 1% level.

Appendix B-5.4 shows the Pearson correlation results between TBQ and independent variables for firms in financial and non-financial industries. The correlation coefficient between TBQ and CSRI was negative and highest at value -0.2685 for financial industry. For, non-financial sector, there is a negative and low correlation between TBQ and AGE (-0.1253). A positive and low correlation between TBQ with LEV (0.0982) and AGE (0.0910) were found at 1% level.

**Table 7.3 Testing for Multicollinearity by Using Variance Inflation Factor (VIF) for Financial and Non-Financial Industries**

Financial industry		Non-Financial industry	
Variable	VIF	Variable	VIF
CSRI	1.81	CSRI	1.15
SIZE	1.42	SIZE	1.12
LEV	1.41	LEV	1.11
AGE	1.30	AGE	1.01
IDIRECTOR	1.13	IDIRECTOR	1.00

Table 7.3 shows the VIF and tolerance of independent variables. The values in the table show that the VIF were lower than 2.00 and tolerance are higher than 0.80, meaning that multicollinearity does not exist for both industries.

All correlation coefficients in the metrics were less than 0.55, which indicates that there is no multicollinearity in the regression model for both financial and non-financial industries.

### 7.3.2 Testing for Homoscedasticity

This study analyses for homoscedasticity, which is the variance around the regression line. This study utilised the Breusch-Pagan / Cook-Weisberg test and White's General test for discovering heteroscedasticity. Gujarati (2009) argued that the problem of OLS estimation errors is that the omitted variables of independent variable were correlated with both dependent and independent variables. When heteroscedasticity is present<sup>9</sup>, standard errors may be biased.

The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity showed some heteroscedasticity is present, indicating that heteroscedasticity might be a problem for the model. To overcome this problem, this study employed robust standard errors to control for heteroscedasticity in all models. Robust standard error is a technique to control for homoscedasticity. The coefficients from the estimation will not change when robust standard errors are employed.

<sup>9</sup> The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity is presented in APPENDIX C-3

### **7.3.3 The Relationship between CSR Disclosure and Return on Assets (ROA as the Dependent Variable) for Financial and Non-Financial Industries**

This section shows the regression results of the relationship between CSR disclosure and financial performance (FP) using FP as dependent variable for firms in the financial and non-financial sectors. The results are presented in Table 7.4.

#### ***7.3.3.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier test from Table 7.4 show that the variance across entities was not constant. The null hypothesis was rejected ( $\chi^2 = 49.47$ , probability = 0.0000 for financial industry and  $\chi^2 = 182.47$ , probability = 0.0000 for non-financial industry). The results indicate that the random effects model is more suitable than the pooled OLS model for both industries.

#### ***7.3.3.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test from Table 7.4 indicates that the regressors and individuals effects were correlated ( $\chi^2 = 10.26$ , probability = 0.0683 for financial industry and  $\chi^2 = 23.24$ , probability = 0.0003 for non-financial industry), which lead to acceptance of an alternative hypothesis. That is, the fixed effect model is more applicable for both the financial and non-financial industries.

#### ***7.3.3.3 Regression Results: ROA as a Dependent Variable***

It can be summarised from section 7.3.3.1 and 7.3.3.2 that the random effects model is applicable for both sectors as the fixed effects model for both sectors was not statistically significant. The results from Table 7.4 for the financial industry shows that models were statistically significant at 1% level ( $p = 0.00$ ) for 2011 and for pooled OLS, and at 10% level in 2010. The results show that the coefficient of CSRI had a positive and significant relationship with ROA at 1% level for the

**Table 7.4 Regression Analysis: Return on Assets as the Dependent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Return on Assets (ROA)					Non-Financial Industry Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
CSRI	7.147 (0.905)	15.60 (1.485)	8.305 (1.019)	9.807** (2.037)	2.516 (0.549)	14.43*** (3.312)	16.73*** (3.714)	7.779 (1.304)	14.60*** (4.916)	8.716** (2.457)
SIZE (Log Assets)	0.253 (0.406)	-0.0709 (-0.102)	0.181 (0.434)	0.155 (0.557)	0.0815 (0.234)	0.926* (1.864)	0.363 (0.622)	1.639** (2.373)	0.818** (2.386)	1.308** (2.560)
LEVERAGE	-0.371 (-1.506)	-0.391 (-1.393)	-0.431*** (-4.089)	-0.400*** (-4.571)	-0.247** (-2.138)	-1.222*** (-3.093)	-0.164*** (-7.875)	-0.959* (-1.675)	-0.238** (-2.359)	-0.115 (-1.613)
AGE	-0.0571 (-1.085)	-0.0926 (-1.360)	-0.0445 (-0.661)	-0.0649* (-1.881)	-0.0565 (-1.048)	-0.0518 (-0.696)	-0.0575 (-0.626)	-0.0432 (-0.392)	-0.0439 (-0.827)	-0.0121 (-0.178)
IDIRECTOR	-0.310 (-0.0555)	-3.194 (-0.559)	-3.536 (-0.549)	-1.017 (-0.347)	3.282 (1.230)	-0.0182 (-0.00244)	-16.87* (-1.904)	-25.05* (-1.952)	-13.03** (-2.217)	-5.258 (-0.981)
Constant	-1.439 (-0.114)	7.594 (0.520)	2.041 (0.212)	1.540 (0.260)	2.152 (0.306)	-12.77 (-1.134)	6.348 (0.490)	-17.26 (-1.149)	-6.078 (-0.795)	-19.43* (-1.775)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.111	0.185	0.250	0.184	0.196	0.189	0.106	0.132	0.093	0.106
F-Statistic	1.46	2.02	4.32	7.31	11.62	6.45	17.11	2.22	8.09	14.67
P-Value	0.2231	0.0963	0.0031	0.0000	0.0403	0.0000	0.0000	0.0544	0.0000	0.0119
Hausman test										
chi ( $\chi^2$ )					10.26					23.24
Prob					0.0683					0.0003
Breusch-Pagan LM test										
chi ( $\chi^2$ )				49.47					182.47	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

pooled OLS model. The coefficients CSRI for other models were not found to be significantly related to ROA.

The results from the non-financial sector show that models were found to be statistically significant at 1% level ( $p = 0.0000$ ) in 2009-2010, for the pooled OLS and the random effects models, at 5% level in 2011 model. The coefficients of CSRI were found to be positively and significantly related to ROA at 1% level in 2009 - 2010 and pooled OLS and at 5% level for the random effects.

#### **7.3.4 The Relationship between CSR Disclosure and Net Profit Margin (NPM) (NPM as the Dependent Variable) for Financial and Non-Financial Industries**

The results of the relationship between CSR disclosure and NPM as a dependent variable for the financial and non-financial industries are illustrated in Table 7.5. The results from the analyses are presented in the next sections.

##### ***7.3.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Lagrange multiplier test from Table 7.5 show that the variance across entities was not equal to zero ( $\chi^2 = 26.87$ , probability = 0.0000 for financial industry and  $\chi^2 = 67.49$ , probability = 0.0000 for non-financial industry). This results leads to rejection of the null hypothesis, indicating that the random effects is applicable for both sectors.

##### ***7.3.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The Hausman specification test in Table 7.5 shows that the individual effects were not correlated for the financial industry ( $\chi^2 = 7.58$ , probability = 0.1809), and lead to the acceptance of the null hypothesis. Individual effects were correlated with other regressors in the model for the non-financial industry ( $\chi^2 = 26.87$ , probability = 0.0000), and lead to rejection of the null hypothesis for non-financial industry. These results indicate that the fixed effects model is appropriate for the non-financial industry and the random effects model is suitable for financial industry.



**Table 7.5 Regression Analysis: Net Profit Margin as the Dependent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Net Profit Margin (NPM)					Non-Financial Industry Net Profit Margin (NPM)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
CSRI	34.25 (1.187)	28.09 (1.657)	9.352 (0.480)	24.15* (1.971)	3.132 (0.284)	27.97** (2.334)	11.75 (1.546)	16.56* (1.783)	22.66*** (3.711)	19.99*** (2.718)
SIZE (Log Assets)	2.116 (1.159)	2.064 (1.542)	3.677*** (3.574)	2.840*** (4.235)	-16.38* (-1.919)	3.369*** (3.300)	2.304*** (2.978)	3.211*** (3.066)	2.544*** (4.633)	2.494*** (3.384)
LEVERAGE	-0.814 (-0.963)	-1.166** (-2.163)	-1.278*** (-3.478)	-1.239*** (-4.525)	0.287 (0.416)	-3.754*** (-6.039)	-0.170*** (-5.523)	-1.318* (-1.850)	-0.371 (-1.646)	-0.301 (-1.425)
AGE	-0.0447 (-0.199)	-0.210 (-1.354)	-0.171 (-0.769)	-0.130 (-1.120)	2.843 (1.618)	-0.198 (-1.273)	0.00222 (0.0207)	0.0336 (0.265)	-0.0344 (-0.464)	-0.00266 (-0.0292)
IDIRECTOR	6.065 (0.341)	3.692 (0.280)	16.87 (0.620)	8.561 (0.825)	-3.771 (-0.432)	-7.161 (-0.270)	-19.04 (-1.011)	-37.01 (-1.112)	-22.29 (-1.449)	-14.26 (-0.833)
Constant	-44.57 (-1.356)	-30.89 (-1.117)	-75.87*** (-3.131)	-55.03*** (-4.192)	342.1* (2.014)	-66.62*** (-2.830)	-39.33** (-2.254)	-55.02*** (-2.768)	-47.03*** (-3.896)	-49.04*** (-3.170)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.085	0.178	0.200	0.137	0.092	0.212	0.113	0.166	0.103	0.173
F-Statistic	4.78	2.39	7.63	14.57	3.77	14.17	10.51	3.04	6.73	19.59
P-Value	0.0016	0.0544	0.0000	0.0000	0.0061	0.0000	0.0000	0.0115	0.0000	0.0015
Hausman test										
chi ( $\chi^2$ )					7.58					13.72
Prob					0.1809					0.0175
Breusch-Pagan LM test										
chi ( $\chi^2$ )				26.87					67.49	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### **7.3.4.3 Regression Results: NPM as a Dependent Variable**

From section 7.3.4.1 and 7.3.4.2, it can be concluded that the random effects model is appropriate for both industries. From Table 7.5 it is observed that models were significant at 1% level in 2009, 2011, using pooled OLS and the random effects, and at 5% level in 2010. The results show that there is a positive and significant relationship between CSRI and net profit margin (NPM) at 10% level for the pooled OLS model.

Table 7.5 presents the regression analysis from the non-financial industry, which indicates that all models were statistically significant at 1% level ( $p = 0.00$ ). The coefficients of CSR index were positive and significantly correlated with NPM at 1% level for pooled OLS and random effects models, at 5% level in 2009 and at 10% level in 2011.

#### **7.3.5 The Relationship between CSR Disclosure and Earnings per Share (EPS as the Dependent Variable) for Financial and Non-Financial Industries**

This section presents the regression results for the relationship between CSR disclosure and earnings per share (EPS) which defines EPS as dependent variable for firms in financial and non-financial industries. The results from the regression are shown in Table 7.6.

##### **7.3.5.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)**

The results from Table 7.6 illustrate that the Breusch-Pagan Lagrange multiplier test show that the variance was not constant ( $\chi^2 = 92.13$ , probability = 0.0000 for financial industry and  $\chi^2 = 268.80$ , probability = 0.0000 for non-financial industry). These findings led to rejection of the null hypothesis, suggesting that the random effects model is reliable for both industries.

##### **7.3.5.2 The Hausman Test: Fixed Effects Model or Random Effects Model**

The results from Table 7.6 show that individual effects were not correlated ( $\chi^2 = 2.75$ , probability = 0.7381 for financial industry). This indicates that the random effects model is appropriate for the financial industry.

**Table 7.6 Regression Analysis: Earnings per Share as the Dependent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Earnings Per Share (EPS)					Non-Financial Industry Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
CSRI	-2.428 (-0.418)	3.304 (0.290)	-7.237 (-0.723)	-2.458 (-0.495)	-2.383 (-0.599)	-4.138 (-0.782)	0.717 (0.252)	-0.994 (-0.330)	-1.327 (-0.590)	-1.956 (-1.499)
SIZE (Log Assets)	0.649 (0.885)	0.616 (0.830)	1.708*** (3.307)	1.162*** (4.413)	-1.252 (-0.440)	0.254 (0.740)	0.244 (0.646)	0.347 (1.362)	0.244 (1.306)	0.276 (1.019)
LEVERAGE	-0.117 (-0.255)	-0.0819 (-0.251)	-0.339** (-2.618)	-0.275** (-2.313)	-0.186 (-0.751)	-0.270* (-1.769)	-0.0270** (-2.109)	-0.156** (-2.369)	-0.0427* (-1.706)	-0.0103 (-1.302)
AGE	0.0995* (1.771)	0.0842 (1.475)	0.0222 (0.358)	0.0698** (2.269)	0.265 (0.760)	0.224** (2.290)	0.238** (2.313)	0.129*** (2.840)	0.197*** (3.907)	0.178*** (2.878)
IDIRECTOR	6.959 (0.551)	1.460 (0.0943)	6.811 (0.420)	4.317 (0.532)	3.476 (0.493)	-11.12 (-1.574)	-8.334 (-1.382)	-5.268 (-1.036)	-9.283** (-2.339)	-5.122 (-1.155)
Constant	-15.83 (-0.982)	-13.25 (-0.718)	-37.80*** (-2.759)	-25.52*** (-3.989)	27.27 (0.431)	-1.362 (-0.194)	-3.496 (-0.367)	-5.568 (-0.773)	-2.437 (-0.532)	-4.315 (-0.659)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.162	0.105	0.176	0.135	0.098	0.112	0.095	0.084	0.088	0.110
F-Statistic	2.09	1.92	6.00	8.55	2.46	2.80	1.89	3.56	4.63	12.46
P-Value	0.0874	0.1119	0.0003	0.0000	0.0469	0.0181	0.0981	0.0042	0.0004	0.0290
Hausman test										
chi ( $\chi^2$ )					2.75					9.40
Prob					0.7381					0.0942
Breusch-Pagan LM test										
chi ( $\chi^2$ )				92.13					268.80	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

For the non-financial sector, the Hausman specification test shows that individual effects were correlated with other variables in the model ( $\chi^2 = 9.40$ , probability = 0.0942 for the non-financial industry). This leads to rejection of the null hypothesis. This result indicates that the fixed effects model is applicable for non-financial sector.

#### ***7.3.5.3 Regression Results: EPS as a Dependent Variable***

From section 7.3.5.1 and 7.3.5.2, it can be inferred that the random effects model is suitable for both industries. Table 7.6 shows the regression results from the financial industry. The relationship between CSR and EPS was statistically significant at 1% level in 2011 and pooled OLS, at 5% level for the random effects model and at 10% level in 2009. There is no significant relationship between CSR disclosure and EPS. The results from multiple regressions for the non-financial industry show that models are statistically significant at 1% level in 2011, pooled OLS and at 5% level in 2009 and using the random effects model. The coefficients of CSR index were not found to be significantly related to EPS in all models.

### **7.3.6 The Relationship between CSR Disclosure and Tobin's Q (TBQ as the Dependent Variable) for Financial and Non-Financial Industries**

This section illustrates the relationship between CSR disclosure and Tobin's Q (TBQ) for the financial and non-financial industries when TBQ is defined as a dependent variable. The results from analysis are shown in Table 7.7.

#### ***7.3.6.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier from Table 7.7 show that the null hypothesis was rejected ( $\chi^2 = 39.55$ , probability = 0.0000 for the financial industry and  $\chi^2 = 29.71$ , probability = 0.0000 for the non-financial industry), indicating that the variance across entities was not zero. The results suggest that the random effects model is applicable for both sectors.

#### ***7.3.6.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

**Table 7.7 Regression Analysis: Tobin's Q as the Dependent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Tobin's Q (TBQ)					Non-Financial Industry Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (FE)
CSRI	2.123** (2.130)	0.700 (0.794)	0.372 (0.590)	1.083** (2.228)	1.317** (2.159)	0.180 (0.483)	-0.0650 (-0.109)	1.048 (1.368)	0.251 (0.720)	-0.0976 (-0.151)
SIZE (Log Assets)	-0.0712 (-1.043)	-0.00777 (-0.166)	-0.00721 (-0.308)	-0.0365 (-1.525)	-0.0728* (-1.745)	-0.0161 (-0.265)	0.122*** (3.374)	-0.135** (-2.133)	7.36e-05 (0.00226)	-0.903 (-1.536)
LEVERAGE	-0.0313 (-0.948)	-0.0245 (-0.973)	-0.0149* (-1.912)	-0.0203** (-2.268)	-0.000828 (-0.146)	-0.00628 (-0.461)	0.00875*** (4.946)	0.119*** (7.924)	0.0149* (1.918)	-0.00812** (-2.486)
AGE	-0.00387 (-0.570)	-0.00245 (-0.519)	-0.00440 (-0.955)	-0.00256 (-0.818)	-0.00295 (-0.636)	-0.0191*** (-2.968)	-0.0180*** (-2.685)	-0.0221 (-1.451)	-0.0171*** (-2.985)	0.270*** (3.416)
IDIRECTOR	-0.201 (-0.220)	-0.162 (-0.194)	0.390 (0.767)	-0.166 (-0.378)	-0.532 (-1.131)	1.240 (1.218)	-0.277 (-0.255)	1.944 (1.219)	1.180* (1.667)	-1.937 (-1.335)
Constant	1.842 (1.280)	0.502 (0.572)	0.315 (0.612)	1.107** (2.042)	1.970** (2.034)	0.629 (0.561)	-1.560* (-1.664)	3.049* (1.893)	0.432 (0.591)	17.22 (1.425)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.161	0.075	0.169	0.113	0.098	0.061	0.046	0.112	0.033	0.070
F-Statistic	1.98	0.75	1.73	3.52	9.68	4.18	10.69	18.93	4.72	4.52
P-Value	0.1022	0.5894	0.1506	0.0051	0.0848	0.0013	0.0000	0.0000	0.0003	0.0006
Hausman test										
chi ( $\chi^2$ )					6.66					49.68
Prob					0.2470					0.0000
Breusch-Pagan LM test										
chi ( $\chi^2$ )				39.55					29.71	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

The results from Table 7.7 show that the individual effects were not correlated with other regressors in the model. The null hypothesis was accepted ( $\chi^2 = 6.66$ , probability = 0.2470 for financial industry), so the random effects model was suitable for the financial industry. While the Hausman specification test for the non-financial industry show that the alternative hypothesis was accepted ( $\chi^2 = 49.68$ , probability = 0.0000), suggesting that the fixed effects model was applicable.

### ***7.3.6.3 Regression Results: TBQ as a Dependent Variable***

From section 7.3.6.1 and 7.3.6.2, it is confirmed that the random effects model is suitable for the financial sector and the fixed effects model is appropriate for the non-financial sector. As can be seen from Table 7.7, for the financial industry, models were found to be statistically significant at 1% level for pooled OLS and at 10% level for the random effects model. However, all models were found to be statistically significant at 1% level for the non-financial industry. The findings from financial industry revealed that the coefficient of CSRI was found to be positively and significantly correlated with TBQ at 5% level using pooled OLS and the random effects models.

From the data in Table 7.7 it is seen that the coefficient of CSRI was not significantly related to Tobin's Q using all models for non-financial industry.

## **7.4 The Empirical Results of the Impact of Financial Performance on CSR Disclosure**

This section presents the results on the association between financial performance and CSR disclosure for firms listed in the financial and non-financial industries from the years 2009 to 2011. This section defines CSR disclosure as dependent variable. The results from the Pearson correlation analysis for multicollinearity for both industries are shown in Tables 7.3 to 7.7, which indicate that multicollinearity was not found to be a serious problem. The results from the analysis are as follows:

**Table 7.8 Regression Analysis: Return on Assets as the Independent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry					Non-Financial Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (FE)
Return on Assets (ROA)	0.00379 (1.044)	0.00482 (1.425)	0.00423 (1.019)	0.00443** (2.124)	0.00147 (0.660)	0.00269*** (3.220)	0.00269*** (3.400)	0.000808 (1.194)	0.00197*** (4.392)	0.000802** (2.062)
SIZE (Log Assets)	0.0431*** (4.177)	0.0365*** (4.618)	0.0311*** (3.847)	0.0350*** (7.890)	0.0375*** (5.903)	0.0404*** (6.257)	0.0283*** (4.139)	0.0312*** (4.944)	0.0324*** (8.632)	0.0319*** (5.825)
LEVERAGE	-0.0110** (-2.529)	-0.00279 (-0.855)	-0.00236 (-0.861)	-0.00452** (-2.406)	-0.00603*** (-5.874)	-0.00170 (-0.734)	0.00134*** (6.965)	-0.00208 (-0.930)	0.000975*** (2.622)	0.000751*** (2.677)
AGE	0.00132 (0.760)	0.000723 (0.559)	-0.000953 (-0.541)	0.000407 (0.457)	0.000111 (0.0826)	0.00173 (1.630)	0.00334*** (2.757)	0.00485*** (4.202)	0.00330*** (4.929)	0.00319*** (3.380)
IDIRECTOR	0.00856 (0.0613)	0.352*** (2.800)	0.334** (2.163)	0.220*** (2.826)	0.136 (1.404)	0.0690 (0.650)	0.0592 (0.583)	-0.0475 (-0.429)	0.0257 (0.434)	0.0306 (0.613)
Constant	-0.815*** (-3.637)	-0.811*** (-5.148)	-0.667*** (-3.505)	-0.719*** (-7.408)	-0.723*** (-5.194)	-0.764*** (-5.107)	-0.527*** (-3.273)	-0.554*** (-3.803)	-0.596*** (-6.894)	-0.574*** (-4.803)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.412	0.560	0.362	0.417	0.401	0.258	0.196	0.242	0.216	0.209
F-Statistic	5.95	18.82	6.22	25.62	74.90	16.65	16.84	16.89	37.29	78.31
P-Value	0.0003	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					5.51					9.36
Prob					0.3570					0.0955
Breusch-Pagan LM test										
chi ( $\chi^2$ )				44.96					269.42	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### **7.4.1 The Impact of Return on Assets on CSR Disclosure (ROA as the Independent Variable) for Financial and Non-Financial Industries**

The result of the relationship between return on assets (ROA) and CSR disclosure for the financial and non-financial industries are presented in Table 7.8.

##### ***7.4.1.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The Breusch-Pagan Lagrange multiplier test show in Table 7.8 that the variance across entities was not constant and the alternative hypothesis was accepted (chi ( $\chi^2$ ) = 44.96, probability = 0.0000 for financial industry and chi ( $\chi^2$ ) = 269.42, probability = 0.0000 financial industry), suggesting that the random effects model is suitable for both the financial and non-financial industries.

##### ***7.4.1.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test from Table 7.8 show the individual effects were associated with other regressors in the model, which leads to rejection of the null hypothesis (chi ( $\chi^2$ ) = 9.36, probability = 0.0955 for non-financial industry). However, the null hypothesis was accepted (chi ( $\chi^2$ ) = 5.51, probability = 0.3570 for financial industry). The random effects model is suitable for non-financial industry and the fixed effects model is appropriate for financial industry.

##### ***7.4.1.3 Regression Results: ROA as an Independent Variable***

From section 7.4.1.1 and 7.4.1.2, it is seen that the random effects model is favoured over the fixed effects model. The results from Table 7.8 for the financial industry show that all models were found to be statistically significant at 1% level ( $p = 0.000$ ) for both industries.

Based on the results from the financial industry, the coefficients of ROA were positive and significantly related to CSR disclosure at 5% level using the pooled OLS model. The findings from the non-financial industry show that the coefficient of ROA had a positive and significant relationship to CSRI at 1% level in 2009, 2010 and for pooled OLS and at 5% level in the fixed effects model.



**Table 7.9 Regression Analysis: Net Profit Margin as the Independent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry					Non-Financial Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Net Profit Margin (NPM)	0.000704*	0.00156	0.000369	0.000792**	0.000291	0.000757***	0.000973	0.000760**	0.000911***	0.000396***
	(1.916)	(1.515)	(0.484)	(2.393)	-1.187	(3.089)	(1.651)	(2.043)	(4.572)	(2.641)
SIZE (Log Assets)	0.0427***	0.0342***	0.0316***	0.0344***	0.0370***	0.0411***	0.0280***	0.0299***	0.0320***	0.0322***
	(4.074)	(3.939)	(3.587)	(7.750)	-5.759	(6.320)	(3.870)	(4.732)	(8.397)	(5.884)
LEVERAGE	-0.0119**	-0.00301	-0.00385*	-0.00547***	-0.00608***	-0.00224	0.00109***	-0.00183	0.000847**	0.000772***
	(-2.393)	(-0.904)	(-1.761)	(-3.105)	(-5.839)	(-0.849)	(5.847)	(-0.900)	(2.341)	(2.900)
AGE	0.00114	0.000614	-0.00112	0.000225	4.02E-05	0.00177	0.00330***	0.00476***	0.00327***	0.00316***
	(0.656)	(0.474)	(-0.634)	(0.257)	-0.0302	(1.617)	(2.733)	(4.152)	(4.898)	(3.340)
IDIRECTOR	0.00314	0.343***	0.323**	0.214***	0.136	0.0757	0.0329	-0.0392	0.0203	0.0301
	(0.0217)	(2.790)	(2.037)	(2.688)	-1.392	(0.712)	(0.315)	(-0.354)	(0.343)	(0.614)
Constant	-0.792***	-0.752***	-0.652***	-0.687***	-0.706***	-0.762***	-0.489***	-0.523***	-0.570***	-0.575***
	(-3.552)	(-4.326)	(-2.975)	(-6.807)	(-4.935)	(-5.048)	(-2.901)	(-3.569)	(-6.482)	(-4.785)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.410	0.545	0.341	0.402	0.393	0.244	0.168	0.246	0.210	0.205
F-Statistic	7.92	19.16	6.16	27.03	72.88	16.34	14.66	17.70	36.91	81.60
P-Value	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					3.09					6.91
Prob					0.6864					0.2273
Breusch-Pagan LM test										
chi ( $\chi^2$ )				49.07					274.14	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### **7.4.2 The Impact of Net Profit Margin on CSR (NPM as the Independent Variable) for Financial and Non-Financial Industries**

This section presents the regression results from cross-sectional, pooled OLS and panel data models for the relationship between CSR disclosure and net profit margin (NPM) for the financial and non-financial industries. In this section, financial performance is defined by NPM as independent variable. The results from regression analysis are presented in Table 7.9.

##### ***7.4.2.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

Table 7.9 presents the result of the Breusch-Pagan Lagrange multiplier test. It shows that the variance across industries was not equal to zero, the null hypothesis was rejected ( $\chi^2 = 49.07$ , probability = 0.0000 for the financial industry and  $\chi^2 = 274.14$ , probability = 0.0000 for non-financial industry), indicating that the random effects model is suitable for both financial and non-financial industries.

##### ***7.4.2.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The Hausman specification test shows that the individual effects were not correlated with other regressors. The null hypothesis was accepted ( $\chi^2 = 3.09$ , probability = 0.6864 for the financial industry and  $\chi^2 = 6.91$ , probability = 0.2273 for the non-financial industry), indicating that the random effects model is more applicable for in both sectors.

##### ***7.4.2.3 Regression Results: NPM as an Independent Variable***

It can be summarised from section 7.4.2.1 and 7.4.2.2 that the random effects model is appropriate. From Table 7.9, it is seen that the regression models were statistically significant at 1% level ( $p = 0.0000$ ) for both industries. The regression results of the financial industry show that the coefficients of NPM were found to be positively and significantly correlated with CSR disclosure at 5% for pooled OLS, and at 10% in 2009. Further analysis of the non-financial industry revealed that NPM had a positive and significant relationship to CSRI at 1% level in 2009, for pooled OLS and for the random effects models, and at 5% level in 2011.

**Table 7.10 Regression Analysis: Earnings per Share as the Independent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry					Non-Financial Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Earnings Per Share (EPS)	-0.000980 (-0.393)	0.000641 (0.310)	-0.00160 (-1.178)	-0.000635 (-0.513)	-0.000938 (-1.322)	-0.00129 (-1.166)	0.000235 (0.254)	-0.000714 (-0.350)	-0.000524 (-0.636)	-0.000756 (-1.431)
SIZE (Log Assets)	0.0459*** (4.339)	0.0386*** (4.767)	0.0354*** (4.225)	0.0380*** (8.489)	0.0389*** (6.058)	0.0447*** (7.039)	0.0306*** (4.475)	0.0330*** (5.311)	0.0351*** (9.481)	0.0334*** (6.098)
LEVERAGE	-0.0128** (-2.510)	-0.00499 (-1.390)	-0.00483** (-2.219)	-0.00674*** (-3.643)	-0.00673*** (-5.639)	-0.00551** (-2.199)	0.000946*** (4.878)	-0.00298 (-1.203)	0.000497 (0.869)	0.000670** (2.021)
AGE	0.00123 (0.686)	0.000244 (0.185)	-0.00113 (-0.646)	0.000169 (0.189)	8.09e-05 (0.0597)	0.00193* (1.688)	0.00328** (2.559)	0.00493*** (4.146)	0.00341*** (4.856)	0.00332*** (3.429)
IDIRECTOR	0.0144 (0.0927)	0.363*** (2.775)	0.337** (2.186)	0.228*** (2.819)	0.140 (1.430)	0.0571 (0.538)	0.0165 (0.159)	-0.0719 (-0.664)	-0.00489 (-0.0826)	0.0247 (0.496)
Constant	-0.857*** (-3.851)	-0.827*** (-5.023)	-0.735*** (-3.489)	-0.760*** (-7.539)	-0.744*** (-5.243)	-0.827*** (-5.608)	-0.533*** (-3.241)	-0.575*** (-3.943)	-0.627*** (-7.245)	-0.597*** (-4.977)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.397	0.525	0.346	0.391	0.387	0.232	0.159	0.237	0.193	0.193
F-Statistic	6.14	14.20	6.11	24.42	67.16	13.71	10.42	16.05	31.97	72.26
P-Value	0.0003	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					1.88					3.28
Prob					0.8657					0.6570
Breusch-Pagan LM test										
chi ( $\chi^2$ )				52.01					284.92	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

### **7.4.3 The Impact of Earnings per Share on CSR Disclosure (EPS as the Independent Variable) for Financial and Non-Financial Industries**

This section presents the findings of the relationship between earnings per share (EPS) and CSR disclosure (EPS as independent variable) for the financial and non-financial industries for the year 2009 to 2011. The results from the regression analysis and specification tests are shown in Table 7.10

#### ***7.4.3.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results in Table 7.10 indicate that the variance across industries was not equal to zero. The Breusch-Pagan Lagrange multiplier test shows that the null hypothesis was rejected ( $\chi^2 = 52.01$ , probability = 0.0000 for the financial industry and  $\chi^2 = 284.92$ , probability = 0.0000 for the non-financial industry), suggesting that the random effects model is suitable for both industries.

#### ***7.4.3.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test show that individual effects were not correlated with other regressors ( $\chi^2 = 1.88$ , probability = 0.8657 for the financial industry and  $\chi^2 = 3.28$ , probability = 0.6570 for the non-financial industry). The results suggest that the random effects model is appropriate.

#### ***7.4.3.3 Regression Results: EPS as an Independent Variable***

The results from section 7.4.3.1 and 7.4.3.2 confirm that the random effects model is suitable for both industries. Table 7.10 shows the regression results from the financial and non-financial industries. All models were statistically significant at 1% level ( $p\text{-value} = 0.000$ ). The coefficients of EPS were not significantly related to CSRI in any models for both industries.

### **7.4.4 The Impact of Tobin's Q on CSR Disclosure (TBQ as the Independent Variable) for Financial and Non-Financial Industries**

The relationship between Tobin's Q (TBQ) and CSR disclosure for the financial and non-financial industries are given in Table 7.11. The TBQ was used as independent variable. The findings are shown in the following subsections.

**Table 7.11 Regression Analysis: Tobin's Q as the Independent Variable for Financial and Non-Financial Industries**

Independent Variables	Financial Industry					Non-Financial Industry				
	Corporate Social Responsibility Disclosure (CSRI)					Corporate Social Responsibility Disclosure (CSRI)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Tobin's Q (TBQ)	0.0387*	0.0269	0.0444	0.0390**	0.0434***	0.00395	-0.00102	0.00861	0.00308	0.000125
	(2.006)	(0.931)	(0.733)	(2.505)	(4.911)	(0.529)	(-0.110)	(1.292)	(0.713)	(0.0427)
SIZE (Log Assets)	0.0444***	0.0386***	0.0328***	0.0372***	0.0391***	0.0446***	0.0307***	0.0336***	0.0350***	0.0332***
	(4.309)	(4.990)	(4.263)	(8.815)	(5.963)	(7.036)	(4.472)	(5.446)	(9.400)	(6.029)
LEVERAGE	-0.0105**	-0.00430	-0.00360	-0.00550***	-0.00611***	-0.00516**	0.000949***	-0.00387	0.000473	0.000679**
	(-2.129)	(-1.262)	(-1.398)	(-3.000)	(-5.974)	(-2.115)	(4.879)	(-1.512)	(0.812)	(2.071)
AGE	0.00119	0.000360	-0.000968	0.000219	0.000139	0.00173	0.00332***	0.00499***	0.00336***	0.00319***
	(0.711)	(0.281)	(-0.559)	(0.254)	(0.108)	(1.556)	(2.697)	(4.348)	(4.950)	(3.352)
IDIRECTOR	0.0147	0.362***	0.307*	0.223***	0.153	0.0668	0.0142	-0.0844	-0.00365	0.0285
	(0.0964)	(2.894)	(1.964)	(2.768)	(1.604)	(0.622)	(0.140)	(-0.775)	(-0.0617)	(0.569)
Constant	-0.846***	-0.835***	-0.685***	-0.756***	-0.770***	-0.832***	-0.535***	-0.593***	-0.627***	-0.595***
	(-3.851)	(-5.353)	(-3.518)	(-7.923)	(-5.252)	(-5.610)	(-3.263)	(-4.092)	(-7.210)	(-4.912)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.445	0.533	0.350	0.416	0.413	0.228	0.158	0.244	0.194	0.193
F-Statistic	6.88	15.17	5.68	24.32	84.46	13.40	10.54	16.98	31.43	69.05
P-Value	0.0001	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test										
chi ( $\chi^2$ )					1.32					3.47
Prob					0.9325					0.6277
Breusch-Pagan LM test										
chi ( $\chi^2$ )				53.98					283.70	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

#### ***7.4.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

From Table 7.11, the Breusch-Pagan Lagrange multiplier test shows that the variance across entities was significant different from zero (chi ( $\chi^2$ ) = 53.98, probability = 0.0000 for the financial industry and chi ( $\chi^2$ ) = 283.70, probability = 0.0000 for the non-financial industry), leading to acceptance of an alternative hypothesis and suggesting that the random effects is more suitable than the pooled OLS model.

#### ***7.4.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test from Table 7.11 show that the individual effects were not correlated with other regressors in the model. The null hypothesis was accepted (chi ( $\chi^2$ ) = 1.32, probability = 0.9325 for the financial industry and chi ( $\chi^2$ ) = 3.47, probability = 0.6277 for the non-financial industry), indicating that random effects model is more appropriate than the fixed effects model for both sectors.

#### ***7.4.4.3 Regression Results: TBQ as an Independent Variable***

From above specification test, it can be confirmed that the random effects model is suitable. The results from Table 7.11 shows that the regression models were found to be statistically significant at 1% level ( $p = 0.0000$ ) in all models for both industries. The findings of regression analysis for the financial industry reveal that TBQ variable provides a positive and significant relationship to CSRI at 1% level for random effects, 5% level for pooled OLS and at 10% level in 2009 models. For the non-financial industry, there is no significant relationship between TBQ and CSR index in all models.

### **7.5 The Relationship between each Dimension of CSR Disclosure and Financial Performance for Financial and Non-Financial Industries**

The purpose of this section is to examine the impact of each dimension of CSR disclosure on financial performance. As described in the methodology chapter (Chapter 3) the five CSR dimensions are: environment, energy, employee,

community and products. These are considered as defined as the independent variables. The regression analysis is examined to investigate the relationship between each dimension of CSR disclosure and four financial performances (ROA, NPM, EPS and TBQ) for firms in the financial and non-financial industries respectively.

This section is organised as follows. *Firstly*, descriptive statistics and regression assumption results for both industries are elaborated. *Secondly*, the relationship between each dimension of CSR and return on assets (ROA) is presented. *Thirdly*, the impact of CSR dimensions on net profit margin (NPM) is shown. *Fourthly*, the relationship between each dimension of CSR and earnings per share (EPS) is analysed. *Finally*, the relationship between each dimension of CSR and Tobin's Q (TBQ) is shown. The findings are presented in the following section.

### **7.5.1 Descriptive Statistics for all Dimensions for Financial and Non-financial Industries**

Descriptive statistics were analysed to clarify the distribution and dispersion of each dimension of CSR disclosure. These analyses were conducted by comparing each dimension of CSR disclosure, namely environment, energy, employee, community and products. Table 7.12 shows descriptive statistics including mean, standard deviation, median, minimum and maximum value for the financial and non-financial industries. A discussion of descriptive statistics for the return on assets (ROA), net profit margin (NPM), earnings per share (EPS), Tobin's Q (TBQ), firm size (SIZE), leverage (LEV), age of firms (AGE), and the percentage of independent directors (IDIRECTOR) has already been described in section 7.2.

Table 7.12 provides descriptive statistics for each dimension of CSR disclosure for financial industry. It shows that, an average (and median), community disclosure were the highest disclosed theme at about 39.03% (42.86%), followed by employee and environment themes, which accounted for 17.62% (18.75%) and 13.24% (9.09%) respectively, whereas products responsibility disclosure was lowest disclosed theme at about 4.93% (0.00%).

Table 7.13 provides the descriptive statistics for the non-financial industry. The results show that the community theme has a mean of 35.26% and a median of 28.57%; standard deviation was 18.89%. The means of employee and environmental disclosure were 20.11% and 19.13%, respectively. The means (and median) of

products responsibility disclosure was 10.60% (0.00%). These results suggest that firms in the non-financial sector were more likely to disclose community involvement as compare to employee and environmental disclosure. However, it is found that energy dimension was the least disclosed theme for this sector.

These findings suggest that the firms in the financial industry provide more community involvement disclosures in their annual reports than employee-related activities and environmental disclosure. Some firms did not report any CSR information in their annual report (minimum value for all dimension = 0).

**Table 7.12 Descriptive Statistics of each Dimension of CSR Disclosure for Financial Industry for the Years 2009 to 2011**

Variables	CSR dimensions				
	Environment	Energy	Employee	Community	Product
<b>2009</b>					
Mean	13.83	11.59	17.26	33.85	4.78
Median	9.09	0.00	18.75	28.57	0.00
S.D.	14.31	14.43	13.32	28.79	8.63
Min	0.00	0.00	0.00	0.00	0.00
Max	54.55	50.00	43.75	85.71	20.00
<b>2010</b>					
Mean	14.03	8.70	19.29	43.48	5.22
Median	9.09	0.00	25.00	50.00	0.00
S.D.	14.68	13.02	13.43	31.00	9.83
Min	0.00	0.00	0.00	0.00	0.00
Max	54.55	33.33	43.75	85.71	40.00
<b>2011</b>					
Mean	11.86	8.70	16.30	39.75	4.78
Median	0.00	0.00	18.75	42.86	0.00
S.D.	16.80	13.02	14.10	31.57	8.63
Min	0.00	0.00	0.00	0.00	0.00
Max	63.64	33.33	43.75	85.71	20.00
<b>Total</b>					
Mean	13.24	9.66	17.62	39.03	4.93
Median	9.09	0.00	18.75	42.86	0.00
S.D.	15.22	13.48	13.58	30.51	8.98
Min	0.00	0.00	0.00	0.00	0.00
Max	63.64	50.00	43.75	85.71	40.00



Some companies reported all disclosed items in the community theme. Compared to the financial sector, firms in the non-financial industry were more likely to disclose the environmental theme, the products responsibility theme and the employee themes. However, firms in the financial industry were more tend to report energy and community theme.

**Table 7.13 Descriptive Statistics of each Dimension of CSR Disclosure for Non-Financial Industry for the Years 2009 to 2011**

Variables	CSR dimensions				
	Environment	Energy	Employee	Community	Product
<b>2009</b>					
Mean	19.39	7.69	20.99	30.26	11.90
Median	18.18	0.00	18.75	28.57	0.00
S.D.	18.47	15.53	16.23	25.83	15.66
Min	0.00	0.00	0.00	0.00	0.00
Max	81.82	66.67	62.50	85.71	60.00
<b>2010</b>					
Mean	18.74	8.12	19.90	35.68	11.49
Median	18.18	0.00	18.75	28.57	0.00
S.D.	18.73	14.98	16.22	30.20	16.60
Min	0.00	0.00	0.00	0.00	0.00
Max	72.73	66.67	56.25	100.00	60.00
<b>2011</b>					
Mean	19.25	7.61	19.42	39.85	8.41
Median	18.18	0.00	18.75	42.86	0.00
S.D.	19.54	14.18	15.95	28.87	12.64
Min	0.00	0.00	0.00	0.00	0.00
Max	72.73	66.67	56.25	100.00	60.00
<b>Total</b>					
Mean	19.13	7.81	20.11	35.26	10.60
Median	18.18	0.00	18.75	28.57	0.00
S.D.	18.89	14.88	16.12	28.58	15.12
Min	0.00	0.00	0.00	0.00	0.00
Max	81.82	66.67	62.50	100.00	60.00

The most disclosed theme for both industries were community involvement and employee disclosure, indicating that firms in both industries emphasize community, employee and environment theme over other dimensions. The products responsibility theme was the least considered amongst themes reported in annual

reports of the financial industry, whereas firms in the non-financial industry were less likely to disclose the energy information theme. This could be because business activities of firms in the non-financial industry are not polluting to the environment.

### 7.5.2 Testing for Multicollinearity

The Pearson correlation and the variance inflation factor (VIF) and tolerance were used to find multicollinearity. In this section, multicollinearity was tested to detect the correlation between each dimension of CSR disclosure (environment, energy, employee, community and product dimensions) and other variables. The results of the Pearson correlation and the significant level of each dimension of CSR disclosure and control variables are presented in **Appendix B-6.1 to B-6.4**.

Appendix B-6.1 presents the results of the correlation analysis between each dimension of CSR disclosure, financial performance and control variables for the financial and non-financial industries. The results show that some correlations were statistically significant at 1 % level for both industries. By looking at the financial industry, the correlation coefficients of environmental disclosure were significantly related to community (0.5221), energy (0.4983), products (0.4026) and employee (0.3560) disclosure. Some correlations were found to be statistically significant between energy and employee (0.3884), employee and community (0.3733), and community and products disclosure (0.4803). There are significant correlations between each dimension of CSR disclosure and other variables at 1% level for example, environment and firm size (0.4927), employee and IDIRECTOR (0.2554), community and SIZE (0.6363), product and SIZE (0.5753), and product and LEVERAGE (0.3462).

The correlation coefficients for the non-financial industry show that ROA was correlated with environment (0.1887), employee (0.1284) and community (0.2399) disclosure at 1% level. The highest correlation coefficients between each dimension of CSR disclosure was environment and community (0.5275), followed by environment and energy (0.5182), environment and employee (0.4441), employee and community (0.4186), and employee and energy disclosure (0.4175). The correlation coefficients between CSR dimension and other variables were found to be statistically significant at 1% level for instance, between environment and SIZE (0.3715), community and SIZE (0.3637), environment and AGE (0.2870), employee

and SIZE (0.2577), and energy and AGE (0.2206). The values of correlation coefficients for financial sector were lower 0.75 and less than 0.55 for non-financial sector. Thus, there is no multicollinearity in the model for both industries.

Appendix B-6.2 shows the correlation matrix between NPM, each dimension of CSR disclosure and other variables for the financial and non-financial sectors. The correlation coefficients for the financial sector show that there is a small correlation coefficient between NPM and CSR disclosure for example, between NPM and community (0.2901), NPM and environment (0.2484), and NPM and energy disclosure (0.1708). For the non-financial sector, the highest correlation coefficient was between NPM and community (0.2175) followed by NPM and environment disclosure (0.2009), and NPM and employee disclosure (0.1277). These results indicate that there is no multicollinearity in the models because the correlation coefficients were very small, lower than 0.3.

Appendix B-6.3 shows the correlation matrix for EPS and CSR dimensions for the financial and non-financial sectors. For the financial sector, the correlation coefficients between EPS and the independent variables were relatively small, such as the correlation coefficient between EPS and environment (0.1845), EPS and community theme (0.1918), EPS and community SIZE (0.3111) and EPS and AGE variable (0.2442).

**Table 7.14 Testing For Multicollinearity by Using Variance Inflation Factor (VIF) for Financial and Non-Financial Industries**

<b>Variables</b>	<b>Financial Industry VIF</b>	<b>Non-financial Industry VIF</b>
<b>Environment</b>	5.23	1.93
<b>Energy</b>	2.70	1.54
<b>Employee</b>	2.25	1.48
<b>Community</b>	2.10	1.43
<b>Product</b>	1.75	1.25
<b>SIZE</b>	1.56	1.14
<b>LEV</b>	1.45	1.11
<b>AGE</b>	1.36	1.03
<b>IDIRECTOR</b>	1.19	1.01

For the non-financial sector, the correlation coefficients between EPS and environment was 0.1011, EPS and products dimension was 0.1417, EPS and SIZE was 0.1078, and EPS and AGE was 0.2639. All of the above correlations were less

than 0.3 and statistically significant at 1% level. These indicate multicollinearity may not be a problem for the models for both industries. Appendix B-6.4 shows the correlation coefficient of TBQ and each dimension of CSR variables for financial and non-financial sectors. For the financial industry, the correlation coefficients between TBQ and products, TBQ and SIZE, TBQ and LEVERAGE, were -0.1727, -0.2003, and -0.2685, respectively. For the non-financial sector, the correlation coefficient between TBQ and AGE was -0.1253, TBQ and LEVERAGE was 0.0982, and TBQ and IDIRECTOR was 0.0010. These findings suggest that all correlation coefficient were negative and relatively low (-0.3). No multicollinearity was observed between each variable in this model.

Table 7.14 also shows the variance inflation factor (VIF) and tolerance. The results show that the VIF is lower than 6 or tolerance is higher than 0.50, which mean that no multicollinearity was found to be a problem in this analysis.

The results from Appendix B-6.1 to B-6.4 and Table 7.14 confirm that the values of correlation coefficients were low to medium, indicating that the multicollinearity is not a problem for this study.

### **7.5.3 Testing for Homoscedasticity**

As discussed in section 7.3.2, this study employed the Breusch-Pagan / Cook-Weisberg test and White's General test for detecting heteroscedasticity. The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity revealed that there is significant evidence of heteroscedasticity<sup>10</sup>. This study therefore, controlled for heteroscedasticity to provide a better fit for the model by using robust standard errors in all models.

### **7.5.4 The Relationship between each Dimension of CSR Disclosure and Return on Assets (ROA) for Financial and Non-Financial Industries**

This section presents the relationship between each dimension of CSR disclosure and ROA for the financial and non-financial industries, which defined ROA as dependent variable. The results from the analyses are as follows:

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<sup>10</sup> The results of the Breusch-Pagan / Cook-Weisberg test and White's General test for heteroscedasticity is presented in APPENDIX C-3

#### ***7.5.4.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier test are shown in Table 7.15. The results show that the variance within industries were not equal to zero (chi ( $\chi^2$ ) = 47.15, probability = 0.0000 for financial industry and chi ( $\chi^2$ ) = 182.91, probability = 0.0000 for non-financial industry). The null hypothesis was rejected, indicating that the random effects model is more applicable than pooled OLS.

#### ***7.5.4.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman specification test show that the individuals effects were not correlated with regressors in the model (chi ( $\chi^2$ ) = 12.80, probability = 0.1717 for financial industry), indicating that random effects model is suitable for financial industry. However, the fixed effects model is appropriate for the non-financial industry (chi ( $\chi^2$ ) = 21.70, probability = 0.0099).

#### ***7.5.4.3 Regression Results: ROA as A Dependent Variable***

It is summarised that the random effects model is suitable for financial and non-financial sectors. The results from regression analysis for financial industry revealed that models were statistically significant at 1% level ( $p = 0.00$ ) in 2011 and for pooled OLS, at 5% in random effects models. However, some models were not statistically significant in 2009 and 2010 models. The results show that the coefficients of community variable had a positive relationship to ROA at 1% level for random effects, at 5% level for pooled OLS and at 10% level in 2010 model. Energy disclosure was found to be positively and significantly related to ROA at 10% level in 2011. Product disclosure was found to be negatively and significantly correlated with ROA at 10% level pooled OLS model. The energy variable had a positive and significant association with ROA at 10% level in 2011.

Table 7.15 shows the results from regression analysis for the non-financial industry. Overall, the findings were found to be statistically significant at 1% level ( $p = 0.00$ ) except in 2011 model. The results show that there is a positive and significant relationship between community disclosure and ROA at 1% level for

**Table 7.15 Multiple Regression Analysis between each Dimension of CSR Disclosure and Return on Assets for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Return on Assets (ROA)					Non-Financial Industry Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Environment	-3.266 (-0.694)	9.820 (1.463)	0.406 (0.0843)	2.528 (0.900)	-1.263 (-0.624)	7.387 (1.608)	5.074 (0.919)	-1.315 (-0.230)	3.885 (1.253)	3.257 (1.153)
Energy	2.615 (0.494)	0.517 (0.0986)	13.20* (1.815)	3.328 (1.107)	-1.034 (-0.456)	0.410 (0.119)	-5.807 (-0.929)	-2.196 (-0.350)	-1.306 (-0.446)	-1.382 (-0.558)
Employee	1.387 (0.192)	-4.032 (-0.603)	-6.205 (-0.966)	-1.704 (-0.497)	-6.372* (-1.680)	0.109 (0.0227)	7.151 (1.377)	0.0163 (0.00263)	1.641 (0.535)	-1.501 (-0.517)
Community	4.791 (1.008)	7.701* (1.925)	2.843 (0.885)	5.417** (2.547)	3.817*** (2.723)	3.140 (1.149)	5.472* (1.784)	7.723** (2.192)	6.250*** (3.425)	4.869*** (2.820)
Product	0.264 (0.0255)	-6.577 (-1.005)	-10.77 (-1.028)	-8.306* (-1.852)	-2.546 (-0.656)	3.018 (0.744)	-0.103 (-0.0240)	-4.510 (-0.677)	-0.237 (-0.0885)	-0.724 (-0.349)
SIZE (Log Assets)	0.0601 (0.0806)	-0.612 (-0.863)	0.434 (0.815)	0.0452 (0.138)	-2.256 (-1.162)	0.877* (1.722)	0.186 (0.299)	1.478** (2.081)	0.697* (1.962)	1.181** (2.271)
LEVERAGE	-0.317 (-1.246)	-0.243 (-1.078)	-0.440*** (-4.065)	-0.356*** (-4.371)	-0.0383 (-0.197)	-1.198*** (-2.984)	-0.154*** (-7.341)	-0.931 (-1.580)	-0.229** (-2.290)	-0.109 (-1.516)
AGE	-0.0664 (-1.055)	-0.0982 (-1.355)	-0.0710 (-1.009)	-0.0840** (-2.282)	0.206 (0.528)	-0.0648 (-0.878)	-0.0516 (-0.551)	-0.0309 (-0.264)	-0.0430 (-0.790)	-0.0236 (-0.345)

**Table 7.15 (Continued) Multiple Regression Analysis between each Dimension of CSR Disclosure and Return on Assets for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Return on Assets (ROA)					Non-Financial Industry Return on Assets (ROA)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
IDIRECTOR	-0.815 (-0.146)	-6.816 (-1.109)	-3.536 (-0.429)	-1.521 (-0.466)	4.466 (1.061)	0.304 (0.0401)	-17.06* (-1.784)	-22.39* (-1.723)	-12.33** (-2.068)	-5.177 (-0.962)
Constant	2.744 (0.183)	20.63 (1.385)	-2.665 (-0.234)	4.235 (0.622)	51.16 (1.274)	-11.47 (-0.992)	9.898 (0.726)	-15.60 (-1.027)	-3.779 (-0.482)	-16.49 (-1.494)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.145	0.263	0.371	0.233	0.144	0.197	0.122	0.147	0.103	0.116
F-Statistic	1.11	1.57	4.77	6.44	2.53	3.64	10.58	1.96	5.83	22.67
P-Value	0.3782	0.1604	0.0003	0.0000	0.0191	0.0003	0.0000	0.0465	0.0000	0.0070
Hausman test chi ( $\chi^2$ )					12.80					21.70
Prob					0.1717					0.0099
Breusch-Pagan LM test chi ( $\chi^2$ )				47.15					182.91	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

random effects, pooled OLS model, at 5% level in 2011 and at 10% level in 2010. Other CSR dimensions were not found to be significantly correlated with ROA.

#### **7.5.5 The Relationship between each Dimension of CSR Disclosure and Net Profit Margin (NPM) for Financial and Non-Financial Industries**

The relationships between each dimension of CSR disclosure and NPM as a dependent variable for the financial and non-financial industries are illustrated in Table 7.16. The results of this analysis are presented in the following subsections.

##### ***7.5.5.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Lagrange multiplier test report that the variance across industries was not equal to zero, the null hypothesis was rejected (chi ( $\chi^2$ ) = 22.12, probability = 0.0000 for the financial industry and chi ( $\chi^2$ ) = 65.30, probability = 0.0000 for the non-financial industry), indicating that random effects is more suitable over pooled OLS for both industries.

##### ***7.5.5.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The results of the Hausman test show that individual effects were not correlated with other regressors in the model (chi ( $\chi^2$ ) = 13.40, probability = 0.1454 for the financial industry), the random effects model is appropriate. Individual effects were correlated with variables for the non-financial industry (chi ( $\chi^2$ ) = 15.86, probability = 0.0698). This result indicates that the fixed effects model is applicable for the non-financial sector.

##### ***7.5.5.3 Regression Results: NPM as A Dependent Variable***

The results from 7.5.5.1 and 7.5.5.2, suggest that the random effects model is appropriate for both industries. It is apparent from Table 7.16 that the regressions were significant at 1% level in 2010, 2011, for pooled OLS and random effects models, at 10% level in 2009 model. The results show that there is a positive and significant relationship between community disclosure and NPM at 5% level for the random effects model. The coefficient of the product dimension was found to be negatively and significantly related to NPM at 5% level in 2010 model. The environment, energy and employee had no significant association with ROA for the financial industry.



**Table 7.16 Multiple Regression Analysis between each Dimension of CSR Disclosure and Net Profit Margin for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Net Profit Margin (NPM)					Non-Financial Industry Net Profit Margin (NPM)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Environment	8.648 (0.451)	-8.545 (-0.477)	0.188 (0.0110)	5.134 (0.624)	-3.985 (-0.529)	11.00* (1.817)	6.992 (1.463)	-0.633 (-0.120)	7.892** (2.432)	6.422* (1.890)
Energy	23.96 (1.023)	10.37 (1.073)	35.33 (1.373)	15.56 (1.607)	-7.354 (-1.184)	2.396 (0.429)	-3.485 (-0.633)	-10.53 (-1.574)	-2.635 (-0.796)	-1.690 (-0.624)
Employee	-23.27 (-0.705)	20.39 (1.514)	-32.90 (-1.455)	-9.392 (-0.789)	3.706 (0.331)	-6.749 (-1.021)	0.642 (0.0909)	13.87 (1.574)	2.224 (0.522)	4.585 (0.986)
Community	21.88 (0.898)	4.769 (0.533)	8.840 (0.734)	12.81 (1.619)	7.650** (2.475)	9.757* (1.881)	3.977 (1.137)	5.584 (1.585)	7.393*** (2.899)	5.482** (2.199)
Product	14.65 (0.498)	-28.97** (-2.100)	-19.18 (-0.539)	-14.99 (-1.123)	2.564 (0.181)	14.00** (2.156)	-1.194 (-0.256)	0.166 (0.0265)	3.973 (1.195)	1.888 (0.710)
SIZE (Log Assets)	-0.225 (-0.0598)	3.751** (2.714)	3.634** (2.563)	2.469** (2.375)	-17.14** (-2.032)	3.323*** (3.190)	2.118*** (2.714)	3.190*** (2.983)	2.426*** (4.405)	2.401*** (3.225)
LEVERAGE	-0.206 (-0.141)	-1.608** (-2.660)	-1.208*** (-3.064)	-1.112*** (-3.294)	0.375 (0.562)	-3.744*** (-6.091)	-0.158*** (-5.029)	-1.362* (-1.932)	-0.357 (-1.586)	-0.292 (-1.378)
AGE	-0.0931 (-0.444)	-0.261* (-1.690)	-0.251 (-1.038)	-0.182 (-1.506)	2.520 (1.368)	-0.243 (-1.441)	0.000991 (0.00883)	0.0887 (0.631)	-0.0422 (-0.527)	-0.00444 (-0.0481)

**Table 7.16 (Continued) Multiple Regression Analysis between each Dimension of CSR Disclosure and Net Profit Margin for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Net Profit Margin (NPM)					Non-Financial Industry Net Profit Margin (NPM)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
IDIRECTOR	15.16 (0.774)	-0.286 (-0.0212)	22.25 (0.600)	9.163 (0.788)	-1.351 (-0.136)	-6.034 (-0.228)	-18.56 (-0.945)	-36.32 (-1.066)	-21.07 (-1.357)	-13.80 (-0.798)
Constant	3.096 (0.0435)	-64.58** (-2.276)	-74.46** (-2.569)	-46.48** (-2.412)	362.4** (2.185)	-65.12*** (-2.788)	-35.34** (-2.040)	-56.20*** (-2.811)	-44.81*** (-3.770)	-47.11*** (-3.079)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.122	0.243	0.288	0.161	0.105	0.226	0.118	0.174	0.107	0.179
F-Statistic	1.99	2.92	6.31	9.71	3.78	8.08	6.24	1.84	4.15	22.39
P-Value	0.0695	0.0106	0.0000	0.0000	0.0013	0.0000	0.0000	0.0644	0.0000	0.0077
Hausman test										
chi ( $\chi^2$ )					13.40					15.86
Prob					0.1454					0.0698
Breusch-Pagan LM test										
chi ( $\chi^2$ )				22.12					65.30	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

Table 7.16 shows the regression results for the non-financial industry, which indicates that models were statistically significant at 1% level ( $p = 0.00$ ) in 2009, 2010, for pooled OLS and random effects models, and at 10% level in 2011. It is shown that the coefficients of the environment dimension of CSR disclosure were positive and significantly correlated with NPM at 5% level for pooled OLS, and at 10% level in 2009 and for the random effects model. The community dimension variables had a positive and significant correlation with NPM at 1% level for pooled OLS, at 5% level for random effects, and at 10% level in 2009 model. Products disclosure was found to be positively and significantly related to NPM at 5% in 2009 model. No associations were detected between energy, employee and NPM for the non-financial sector.

#### **7.5.6 The Relationship between each Dimension of CSR Disclosure and Earnings per Share (EPS) for Financial and Non-Financial Industries**

This section shows the regression analysis from the relationship between each dimension of CSR disclosure and earnings per share (EPS), which defines NPM as the dependent variable for the financial and non-financial industries. The findings from the analyses are as follows.

##### ***7.5.6.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)***

The results of the Breusch-Pagan Lagrange multiplier test from Table 7.17 show that the variance across entities was not equal to zero. The null hypothesis was rejected ( $\chi^2 = 84.84$ , probability = 0.0000 for the financial industry and  $\chi^2 = 271.22$ , probability = 0.0000 for the non-financial industry), indicating that the random effects model is suitable.

##### ***7.5.6.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The Hausman specification test shows that individual effects were not correlated with other variables in both industries ( $\chi^2 = 11.22$ , probability = 0.2608 for the financial industry and  $\chi^2 = 9.03$ , probability = 0.4349 for the non-financial industry). The result indicates that the random effects model is appropriate.

**Table 7.17 Multiple Regression Analysis between each Dimension of CSR Disclosure and Earnings per Share for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Earnings Per Share (EPS)					Non-Financial Industry Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
Environment	-10.42 (-1.651)	10.71 (0.984)	-5.378 (-0.562)	-0.743 (-0.139)	-1.728 (-0.721)	3.912* (1.791)	0.688 (0.232)	1.899 (1.070)	2.213 (1.473)	1.025 (1.168)
Energy	5.002 (0.902)	-2.957 (-0.507)	14.18 (1.647)	2.514 (0.674)	-5.371* (-1.694)	-5.802*** (-2.664)	-2.539 (-0.821)	3.963 (1.248)	-2.546 (-1.426)	-0.903 (-0.864)
Employee	3.583 (0.452)	-12.26 (-1.270)	-3.314 (-0.368)	-0.351 (-0.0692)	-2.253 (-1.041)	0.625 (0.151)	0.808 (0.303)	-2.596 (-1.133)	-0.277 (-0.151)	-2.274 (-1.601)
Community	-2.779 (-0.488)	7.542 (1.155)	-6.254 (-0.955)	-1.205 (-0.323)	4.080** (2.036)	-2.999 (-1.268)	-1.586 (-0.686)	-2.500 (-1.477)	-2.403* (-1.825)	-2.051* (-1.848)
Product	5.370 (0.559)	-14.12 (-1.447)	-2.698 (-0.183)	-9.413 (-1.313)	1.466 (0.472)	-1.906 (-0.672)	11.02* (1.800)	1.496 (0.546)	4.331 (1.394)	5.043* (1.725)
SIZE (Log Assets)	1.150 (1.389)	-0.0571 (-0.0522)	2.393* (1.782)	1.514*** (2.812)	-1.541 (-0.576)	0.219 (0.641)	0.301 (0.934)	0.408* (1.682)	0.288 (1.608)	0.361 (1.399)
LEVERAGE	-0.277 (-0.911)	0.115 (0.249)	-0.462*** (-3.137)	-0.321*** (-3.386)	-0.157 (-0.664)	-0.230* (-1.671)	-0.0286** (-2.018)	-0.150** (-2.169)	-0.0412 (-1.571)	-0.00685 (-0.856)
AGE	0.0973 (1.647)	0.0676 (1.297)	0.0295 (0.490)	0.0527* (1.721)	0.0364 (0.101)	0.232** (2.386)	0.204** (2.433)	0.113*** (2.661)	0.189*** (3.923)	0.176*** (2.841)

**Table 7.17 (Continued) Multiple Regression Analysis between each Dimension of CSR Disclosure and Earnings per Share for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Earnings Per Share (EPS)					Non-Financial Industry Earnings Per Share (EPS)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (RE)
IDIRECTOR	6.604 (0.494)	-4.161 (-0.246)	1.270 (0.104)	3.108 (0.361)	5.914 (0.728)	-10.75 (-1.498)	-8.097 (-1.398)	-6.077 (-1.112)	-9.094** (-2.270)	-4.080 (-1.006)
Constant	-26.18 (-1.667)	3.378 (0.131)	-49.96 (-1.669)	-32.39*** (-2.719)	36.19 (0.605)	-1.043 (-0.149)	-4.930 (-0.605)	-5.859 (-0.870)	-3.402 (-0.775)	-6.498 (-1.086)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.215	0.220	0.248	0.152	0.213	0.131	0.159	0.115	0.106	0.113
F-Statistic	2.01	1.70	2.60	4.85	2.66	1.82	1.98	2.20	3.62	13.86
P-Value	0.0669	0.1261	0.0201	0.0000	0.0145	0.0667	0.0437	0.0236	0.0002	0.1275
Hausman test chi ( $\chi^2$ )					11.22					9.03
Prob					0.2608					0.4349
Breusch-Pagan LM test chi ( $\chi^2$ )				84.84					271.22	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

### **7.5.6.3 Regression Results: EPS as A Dependent Variable**

From section 7.5.6.1 and 7.5.6.2, it can be concluded that the most applicable model is the random effects model for the financial sector, and the pooled OLS model for the non-financial sector. The regression results for financial industry show that the models were statistically significant at 1% level for pooled OLS and random effects, at 5% level in 2011, and at 10% level in 2009 model. The coefficient of the energy dimension was found to be negatively and significantly correlated with EPS at 10% for the random effects model. The community dimension variables had a positive relationship with EPS at 5% level using the random effects model.

The results from multiple regressions for the non-financial industry revealed that the model were statistically significant at 1% level pooled OLS, at 5% level in 2010-2011, and at 10% level in 2009 models. The coefficients of the environment and product dimensions were found to be positively and significantly related to EPS at 10% level in 2009 and 2010 models, respectively. The energy dimension had a negative and significant association with EPS at 1% level in 2009. Community disclosure was found to be negatively and significantly correlated with EPS at 10% level for the pooled OLS model.

### **7.5.7 The Relationship between each Dimension of CSR Disclosure and Tobin's Q (TBQ) for Financial and Non-Financial Industries**

This section presents the relationship between each dimension of CSR disclosure and the Tobin's Q (TBQ) for the financial and non-financial industries. Table 7.18 shows the results from regression analyses for both industries.

#### **7.5.7.1 Examining Random Effects: The Lagrange Multiplier Test (Pooled OLS or Random Effects)**

The Breusch-Pagan Lagrange multiplier test shows that the variance across entities was not equal to zero. The null hypothesis was rejected (chi ( $\chi^2$ ) = 33.17, probability = 0.0000 for the financial industry and chi ( $\chi^2$ ) = 28.42, probability = 0.0000 for the non-financial industry), indicating that the random effects is applicable for both the financial and non-financial industries.

**Table 7.18 Multiple Regression Analysis between each Dimension of CSR Disclosure and Tobin's Q for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Tobin's Q (TBQ)					Non-Financial Industry Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (FE)
Environment	2.103 (0.983)	-0.464 (-0.543)	0.438 (0.895)	0.417 (0.733)	0.628 (1.143)	0.191 (0.491)	-0.564 (-0.984)	0.600 (0.898)	0.00223 (0.00672)	-0.632 (-1.560)
Energy	-0.247 (-0.155)	0.244 (0.646)	-0.258 (-0.429)	0.0810 (0.160)	-0.245 (-0.605)	-0.178 (-0.603)	0.609 (0.959)	-0.852 (-1.168)	-0.189 (-0.582)	0.0201 (0.0409)
Employee	0.500 (0.478)	-0.514 (-0.842)	-0.0362 (-0.0690)	0.0410 (0.113)	0.604 (1.185)	0.731* (1.819)	1.198 (1.636)	0.730 (1.144)	0.793** (2.277)	1.101** (2.129)
Community	0.924 (1.270)	0.902** (2.462)	0.194 (1.234)	0.498** (2.262)	0.208 (0.887)	-0.333 (-1.514)	-0.621* (-1.961)	-0.150 (-0.312)	-0.247 (-1.189)	-0.189 (-0.925)
Product	-4.402* (-1.751)	-0.999 (-1.622)	-0.922 (-1.227)	-1.173** (-2.500)	-0.682* (-1.780)	-0.310 (-0.984)	-0.0171 (-0.0467)	1.019 (1.195)	0.00170 (0.00665)	-0.139 (-0.356)
SIZE (Log Assets)	-0.0374 (-0.433)	-0.0307 (-0.465)	-0.00496 (-0.204)	-0.0344 (-1.213)	-0.0549 (-1.270)	-0.0156 (-0.241)	0.154*** (3.930)	-0.124* (-1.946)	0.00554 (0.163)	-0.865 (-1.477)
LEVERAGE	-0.0262 (-0.819)	-0.0198 (-0.853)	-0.0120* (-1.882)	-0.0179** (-2.216)	-0.00290 (-0.479)	-0.00485 (-0.367)	0.00677*** (3.199)	0.115*** (7.716)	0.0145* (1.896)	-0.00864*** (-2.611)
AGE	-0.0110 (-1.198)	-0.00291 (-0.615)	-0.00610 (-1.212)	-0.00453 (-1.362)	-0.00354 (-0.698)	-0.0176*** (-2.637)	-0.0160** (-2.196)	-0.0213 (-1.334)	-0.0155*** (-2.596)	0.284*** (3.420)

**Table 7.18 (Continued) Multiple Regression Analysis between each Dimension of CSR Disclosure and Tobin's Q for Financial and Non-Financial Industries**

Independent Variables	Financial Industry Tobin's Q (TBQ)					Non-Financial Industry Tobin's Q (TBQ)				
	2009	2010	2011	Pooled OLS	Panel (RE)	2009	2010	2011	Pooled OLS	Panel (FE)
IDIRECTOR	-0.666 (-0.683)	-0.301 (-0.303)	0.430 (0.762)	-0.300 (-0.623)	-0.662 (-1.353)	1.226 (1.183)	-0.565 (-0.497)	1.864 (1.236)	1.097 (1.563)	-2.108 (-1.407)
Constant	1.267 (0.682)	1.023 (0.749)	0.272 (0.491)	1.130* (1.773)	1.655 (1.626)	0.597 (0.507)	-2.178** (-2.323)	2.837* (1.791)	0.311 (0.419)	16.17 (1.346)
Observations	46	46	46	138	138	195	195	195	585	585
R-Squared	0.275	0.217	0.232	0.155	0.165	0.083	0.100	0.125	0.042	0.081
F-Statistic	1.42	1.33	1.26	2.37	9.37	2.91	8.46	11.64	4.05	2.82
P-Value	0.2174	0.2568	0.2942	0.0166	0.4038	0.0030	0.0000	0.0000	0.0000	0.0039
Hausman test chi ( $\chi^2$ )					15.05					52.88
Prob					0.0897					0.0000
Breusch-Pagan LM test chi ( $\chi^2$ )				33.17					28.42	
Prob				0.0000					0.0000	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.



#### ***7.5.7.2 The Hausman Test: Fixed Effects Model or Random Effects Model***

The Hausman specification test shows that individual effects were correlated with other variables ( $\chi^2 = 15.05$ , probability = 0.0897 for the financial industry), lead to the acceptance of null hypothesis. This suggests that the random effects model is appropriate for the financial industry. While the individual effects were not associated with other regressors, lead to rejection the null hypothesis ( $\chi^2 = 52.88$ , probability = 0.0000 for non-financial industry). This indicates that the fixed effects model is suitable for the non-financial industry.

#### ***7.5.7.3 Regression Results: TBQ as A Dependent Variable***

It can be concluded from 7.5.7.1 and 7.5.2 that the random effects model is suitable for the financial industry and the fixed effects model is appropriate for the non-financial industry. As can be seen from Table 7.18, that models for firms in the financial sector were not found to be statistically significant. There is a statistically significant at 5% level for the pooled OLS model.

All models in the non-financial industry were found to be statistically significant at 1% level. Based on the significant models for the financial industry, it can be seen from the data in Table 7.18 that the coefficient of the community dimension was positively and significantly correlated with Tobin's Q at 5% level for the pooled OLS model. The product dimension variable was found to be negatively and significantly related to TBQ at 5% level for pooled OLS models. There is no significant relationship between TBQ and environment, energy and employee disclosure.

The results of regressions for the non-financial industry revealed that the employee dimension had a positive and significant relationship to TBQ at 5% level for pooled OLS and fixed effects, and at 10% level in 2009 model. The coefficients of the community dimensions were found to be negatively and significantly correlated with TBQ at 10% in 2010. The environment, energy and product dimension were not statistically significantly correlated with TBQ.

### **7.6 Robustness Testing**

The robustness test is used to examine whether CSR disclosure levels were significantly different from the results in the previous section. This section utilises

instrumental variable estimation to examine the relationship between CSR disclosure and financial performance using FP as dependent variable for the financial and non-financial industries. To be consistent with chapter 5 and 6, this analysis applies a CSRI of the year before as an instrument variable, and uses previous year financial performance as independent variables. This study employs return on assets (ROA), net profit margin (NPM), earnings per share (EPS) and Tobin's Q as proxy for firm financial performance in separate regressions. The data in this analysis covers ninety-two observations for the financial industry and 390 observations for the non-financial industry. The results from the analyses are presented in the next sections.

### **7.6.1 The Relationship between One-Year Lagged Financial Performance and CSR Disclosure (First-Stage-OLS Estimation)**

The relationship between previous year financial performance and CSR disclosure were investigated in this section. The Pearson correlations are presented in section 7.3, which indicates that multicollinearity was a problem in the models. Table 7.19 reveals the results from the first stage regression for both industries, where CSR disclosure is a dependent variable.

#### ***7.6.1.1 First-Stage Regression (OLS Estimation) for Financial Industry***

The results for the financial industry from Table 7.19 show that all models were statistically significant at 1% level. The coefficient estimates on the lagged CSR disclosure were found to be negatively and significantly related to the levels of CSR in all models. It is found that one year lagged TBQ (0.062, p-value < 0.01) was positive and significantly associated with CSR disclosure. However, the coefficient of one year lagged ROA, NPM and EPS were not found to be significantly related to CSR disclosure.

#### ***7.6.1.2 First-Stage Regression (OLS Estimation) for Non-Financial Industry***

Table 7.19 presents the first stage regression for the non-financial industry. It is evident that all models were statistically significant at 1% level. None of the one-year lagged financial performance was found to be significantly related to CSR disclosure in all models. The coefficients of LEVERAGE variable had a positive and significant correlation with CSR disclosure in all models. Moreover, IDIRECTOR variable was positive and significantly related to CSRI at 10% level in ROA and

NPM model. However, there is no correlation between SIZE, AGE and CSR disclosure.

### **7.6.2 The Relationship between CSR Disclosure and Financial Performance (Second Stage Regression)**

The results from second stage regression between CSR disclosure and financial performance and specification test for the financial and non-financial sectors are presented in the following subsections.

#### ***7.6.2.1 Testing for Underidentification and Weak Instruments for Financial Industry***

The Kleibergen-Paap Langrange-Multiplier (LM) test (Kleibergen and Paap, 2006) and Stock-Yogo weak ID instruments test (Stock and Yogo, 2005) were employed to assess the power of identification in instrumental variables estimation.

Table 7.20 shows the comparison results from second stage of instrumental variable estimation and balanced panel data model for financial industry. The hypothesis of the Kleibergen-Paap Langrange-Multiplier (LM) test is that the matrix is rank deficient and the equation is under identified. The findings show that the values of Kleibergen-Paap LM test (ROA, 10.31; NPM, 9.74; EPS, 9.43; TBQ, 11.40), were significant to enough to reject the hypothesis at 1% level for all models. This indicates that the equation is identified.

In addition, this section utilised the Kleibergen-Paap (Cragg-Donald) Wald F-statistic (Cragg and Donald, 1993; Kleibergen and Paap, 2006) and Stock-Yogo weak ID instruments test (Stock and Yogo, 2005) to observe possible weak identification. The hypothesis is that the equation is weakly identified. Staiger *et al*, (1997) posit that if the F-statistics was more than 10, the equation is identified. The result from Kleibergen-Paap (Cragg-Donald) Wald F-statistic shows that the null hypothesis was rejected (ROA, 16.25; NPM, 14.25; EPS, 13.83; TBQ, 17.27). It implies that the instrument is identified.

Table 7.20 presents the Anderson-Rubin Wald test (Anderson and Rubin, 1949) results for the significance of the endogenous regressors in the structural equation.

**Table 7.19 First-Stage Regression of CSR Disclosure (OLS Estimation) for Financial and Non-Financial Industries**

Independent Variables	Dependent Variables: Corporate Social Responsibility Disclosure Index: CSRI							
	Financial Industry				Non-financial Industry			
	Model: ROA	Model: NPM	Model: EPS	Model: TBQ	Model: ROA	Model: NPM	Model: EPS	Model: TBQ
CSRI (lagged 1 year)	-0.506*** (-4.03)	-0.488*** (-3.78)	-0.494*** (-3.72)	-0.523*** (-4.16)	-0.319*** (-3.71)	-0.314*** (-3.57)	-0.315*** (-3.67)	-0.313*** (-3.55)
SIZE (Log Assets)	0.0453 (1.02)	0.050 (1.06)	0.0473 (1.04)	0.0391 (0.98)	0.0080 (0.27)	0.0119 (0.41)	0.0075 (0.25)	-0.0002 (-0.01)
LEVERAGE	-0.007* (-1.72)	-0.0059 (-1.64)	-0.0059 (-1.6)	-0.006* (-1.75)	0.000* (1.92)	0.0004* (1.79)	0.0003* (1.67)	.0004** (1.95)
AGE	-0.0064 (-0.39)	-0.0131 (-0.75)	-0.0112 (-0.7)	-0.0046 (-0.34)	0.0002 (0.03)	-0.0002 (-0.03)	0.0008 (0.11)	0.0003 (0.03)
IDIRECTOR	-0.273* (-1.76)	-0.2419 (-1.48)	-0.2573 (-1.63)	-0.301** (-2.05)	0.130* (1.68)	0.136* (1.72)	0.1254 (1.64)	0.1103 (1.41)
ROA (lagged 1 year)	-0.0018 (-0.9)				0.0007 (0.66)			
NPM (lagged 1 year)		0.0002 (0.55)				0.0004 (1.03)		
EPS (lagged 1 year)			0.0003 (0.10)				0.0027 (0.71)	
TBQ (lagged 1 year)				0.062*** (3.34)				0.0072 (1.77)
R-Squared	0.321	0.319	0.317	0.424	0.083	0.086	0.084	0.087
F-Statistic	8.46***	5.62***	6.91***	7.57***	6.02***	5.36***	5.11***	9.98***

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

The null hypothesis was that the coefficients of the endogenous regressors in the structural equation are jointly equal to zero ( $H_0: \beta_1 = 0$ ). The values of the Anderson-Rubin robust statistic tests from Table 7.20 were ROA, 0.17, NPM, 0.59, EPS, 0.02 and TBQ, 1.69, leading to acceptance of the null hypothesis. That is, the coefficients of endogenous regressors of ROA, NPM, EPS and TBQ in the models were jointly equal to zero and the instrument is acceptable.

To sum up, the results from the Kleibergen-Paap LM test, Kleibergen-Paap Wald F-statistics and Anderson-Rubin Wald tests for four models presented in Table 7.20 led to acceptance that  $CSRI_{t-1}$  (instrumental variable) in this study is identified and the instrument is valid.

#### ***7.6.2.2 The Findings from Instrument Variable Estimation (2SLS) for Financial Industry***

Table 7.20 also shows the results of the instrumental variable estimation (2SLS with GMM estimation). This estimation is controlled for heteroscedasticity by using robust and fixed effect estimation. The four models were estimated, where CSR has been instrumented by using one-year lagged CSRI (Z or IV). The findings show that the CSR disclosure was not found to be significantly related to financial performance in both the fixed effects model (ROA, -1.535; NPM, -5.670; EPS, -8.038; TBQ, 0.375) and 2SLS model (ROA, 3.223; NPM, -19.08; EPS, -1.629; TBQ, -1.421).

#### ***7.6.2.3 Testing For Underidentification and Weak Instruments for Non-Financial Industry***

The comparison results from the second stage instrumental variable estimation and balanced panel data model for the non-financial industry are illustrated in Table 7.21. The results of Kleibergen-Paap LM test were significant enough to reject the hypothesis (ROA, 9.94; NPM, 9.56; EPS, 9.92; TBQ, 9.53, all of them significant at 1% level), indicating that the matrix has full rank and the equation is identified.

The results from Kleibergen-Paap (Cragg-Donald) Wald F-statistic show that the null hypothesis was rejected (ROA, 13.74; NPM, 12.76; EPS, 13.47; TBQ, 12.62), for which the F-value was more than 10. It implies that there is no weak instrument in the models. In addition, the values of the Anderson-Rubin Wald test were accepted (ROA, 0.70; NPM, 1.51; EPS, 1.25; TBQ, 0.28).

**Table 7.20 Instrumental Variable Estimation (2-Step GMM Estimation) for Financial Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
CSRI	-1.535 (-0.276)	3.223 (0.454)	-5.670 (-0.283)	-19.08 (-0.776)	-8.038 (-1.322)	-1.629 (-0.162)	0.375 (0.570)	-1.421 (-1.205)
SIZE (Log Assets)	-4.509** (-2.338)	-4.692** (-1.967)	-15.12** (-2.169)	-14.55** (-2.191)	-3.234 (-1.529)	-3.497 (-1.157)	-0.246 (-1.135)	-0.193 (-0.717)
LEVERAGE	0.179 (0.888)	0.200 (0.927)	0.504 (0.717)	0.444 (0.726)	0.0787 (0.358)	0.112 (0.358)	0.0230 (1.040)	0.0153 (0.729)
AGE	0.134 (0.213)	0.244 (0.358)	-1.062 (-0.503)	-1.412 (-0.797)	-1.008 (-1.661)	-0.885* (-1.696)	-0.0246 (-0.411)	-0.0544 (-0.784)
IDIRECTOR	-4.747 (-0.631)	-4.047 (-0.761)	-4.570 (-0.169)	-6.272 (-0.375)	0.149 (0.0181)	1.017 (0.115)	0.181 (0.214)	-0.156 (-0.332)
ROA (lagged 1 year)	-0.595*** (-4.031)	-0.599*** (-4.730)						
NPM (lagged 1 year)			-0.515*** (-5.956)	-0.509*** (-10.36)				
EPS (lagged 1 year)					0.293 (1.361)	0.308 (0.982)		
TBQ (lagged 1 year)							0.118 (0.997)	0.215 (1.552)
Constant	110.8** (2.654)		394.2** (2.621)		98.05** (2.095)		6.182 (1.309)	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

**Table 7.20 (Continued) Instrumental Variable Estimation (2-Step GMM Estimation) for Financial Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
Kleibergen-Paap LM test		10.31***		9.74***		9.43***		11.40***
Anderson-Rubin Wald test		0.17		0.59		0.02		1.69
Shea partial R-Squared		24.36		23.39		23.59		29.47
Kleibergen-Paap (Cragg-Donald) F-statistic		16.25		14.25		13.83		17.27
Stock-Yogo Critical Values								
10% maximal IV size		16.38		16.38		16.38		16.38
15% maximal IV size		8.96		8.96		8.96		8.96
20% maximal IV size		6.66		6.66		6.66		6.66
25% maximal IV size		5.53		5.53		5.53		5.53
Durbin Wu-Hausman test								
Hausman test								
chi ( $\chi^2$ )	281.04***		316.02***		43.05***		14.42**	
Observations	92	92	92	92	92	92	92	92
R-Squared	0.443	0.433	0.604	0.599	0.290	0.270	0.100	-0.067
F-Statistic	5.30	7.76	10.16	39.56	2.72	1.60	0.74	0.48
P-Value	0.0004	0.0000	0.0000	0.0000	0.0262	0.1736	0.6193	0.8216

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

**Table 7.21 Instrumental Variable Estimation (2-Step GMM Estimation) for Non-Financial Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
CSRI	-4.371 (-0.666)	-23.22 (-0.833)	-2.088 (-0.196)	-42.09 (-1.217)	1.095 (0.257)	45.58 (1.115)	0.0861 (0.0890)	2.374 (0.523)
SIZE (Log Assets)	17.77*** (5.687)	17.72*** (2.765)	17.82*** (3.487)	17.92*** (2.915)	1.347 (0.666)	1.447 (0.847)	-1.405*** (-3.060)	-1.382 (-1.347)
LEVERAGE	-0.128** (-2.020)	-0.114** (-2.303)	-0.164 (-1.610)	-0.135 (-1.533)	2.53e-05 (0.000620)	-0.0314 (-0.959)	-0.0191** (-2.066)	-0.0207*** (-3.286)
AGE	-2.083*** (-2.981)	-2.076** (-2.021)	-5.046*** (-4.506)	-5.073*** (-3.676)	-0.665 (-1.505)	-0.681 (-1.381)	0.346*** (3.445)	0.346*** (2.638)
IDIRECTOR	2.523 (0.269)	4.840 (0.539)	23.17 (1.527)	28.37 (1.586)	1.489 (0.245)	-3.803 (-0.461)	-1.238 (-0.890)	-1.474 (-1.259)
ROA (lagged 1 year)	-0.359*** (-4.286)	-0.351** (-2.376)						
NPM (lagged 1 year)			0.192*** (3.795)	0.207 (1.056)				
EPS (lagged 1 year)					-0.884*** (-4.607)	-1.004** (-2.227)		
TBQ (lagged 1 year)							-0.547*** (-6.442)	-0.564*** (-3.731)
Constant	-349.0*** (-5.264)		-317.5*** (-2.934)		-15.29 (-0.356)		27.23*** (2.770)	

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.



**Table 7.21 (Continued) Instrumental Variable Estimation (2-Step GMM Estimation) for Non-Financial Industry**

Independent Variables	Dependent Variables							
	ROA		NPM		EPS		TBQ	
	Panel	2SLS	Panel	2SLS	Panel	2SLS	Panel	2SLS
Kleibergen-Paap LM test		9.94***		9.56***		9.92***		9.53***
Anderson-Rubin Wald test		0.70		1.51		1.25		0.28
Shea partial R-Squared		6.95		6.80		6.82		6.77
Kleibergen-Paap (Cragg-Donald) F-statistic		13.74		12.76		13.47		12.62
Stock-Yogo Critical Values								
10% maximal IV size		16.38		16.38		16.38		16.38
15% maximal IV size		8.96		8.96		8.96		8.96
20% maximal IV size		6.66		6.66		6.66		6.66
25% maximal IV size		5.53		5.53		5.53		5.53
Durbin Wu-Hausman test								
Hausman test								
chi ( $\chi^2$ )	377.45***		70.18***		75.51***		392.83***	
Observations	390	390	390	390	390	390	390	390
R-Squared	0.270	0.238	0.160	0.097	0.123	-0.381	0.251	0.229
F-Statistic	11.66	5.62	5.98	3.59	4.44	1.79	10.55	7.83
P-Value	0.0000	0.0000	0.0000	0.0022	0.0003	0.1034	0.0000	0.0000

Robust t-statistics are reported in parentheses

\* Indicate statistically significant at the 10% level.

\*\* Indicate statistically significant at the 5% level.

\*\*\* Indicate statistically significant at the 1% level.

The coefficients of the endogenous regressors in the models were jointly equal to zero and the instrument is valid. In conclusion, the results from the Kleibergen-Paap LM test, Kleibergen-Paap (Cragg-Donald) F-statistics and Anderson-Rubin Wald test for four models presented in Table 7.21 lead to acceptance that the  $CSRI_{t-1}$  (instrumental variable) in this section is identified and valid.

#### ***7.6.2.4 The Findings from Instrument Variable Estimation (2SLS) for Non-Financial Industry***

The findings of second stage regression with robust standard errors and control for heteroscedasticity given in Table 7.21 show that the CSR disclosure was not significantly correlated to financial performance in both the fixed effects (ROA, -4.371; NPM, -2.088; EPS, 1.095; TBQ, 0.0861) and 2SLS models (ROA, -23.22; NPM, -42.09; EPS, 45.58; TBQ, 2.374).

### **7.7 Analysis and Discussion**

The relationship between CSR disclosure and financial performance for firms in the financial and non-financial industries for the period 2009 to 2011 was discussed in this chapter. In all, twelve hypotheses were verified. The first four alternative hypotheses were tested to find the relationship between CSR disclosure and financial performance (FP), which defines CSR disclosure as independent variable (Table 7.4 – 7.7), and the second four hypotheses were developed to investigate a relationship of financial performance on CSR disclosure, when CSR disclosure was defined as dependent variable (Table 7.8 - 7.11). The last four hypotheses were examined to detect the relationship between each dimension of CSR disclosure and financial performance by using FP as dependent variables (Table 7.15 – 7.18). In order to increase statistical reliability and consistency of results, this study used pooled OLS or panel data regression (random effects or fixed effects model) to elaborate the relationship between CSR and FP for both industries. The discussions of the findings are as follows.

#### **7.7.1 The Relationship between CSR Disclosure and Financial Performance**

This section discusses the results from the relationship between CSR disclosure and financial performance measures for the financial and non-financial

industries by defining CSR disclosure as independent variable. The summary of the alternative hypotheses tested for equation 1 to 8 for the financial and non-financial industries are presented in Table 7.22. The discussions of CSR on financial performance for the financial and non-financial industries are presented in the following subsections.

#### **7.7.1.1 CSR and Return on Assets (ROA)**

The association between CSR disclosure and ROA was found to be statistically significant. The results of this study for the financial industry show that ROA has a positive relationship with CSR disclosure and CSR has a direct association with ROA. The findings lead to the acceptance of hypotheses H1A and H2A. This suggests that firms in the financial industry with higher CSR engagement have higher profitability as defined by ROA in both directions. These findings support previous research into this topic, which associates CSR disclosure and ROA. (Simpson and Kohers, 2002; Bolton, 2013; Wu and Shen, 2013; Cornett *et al.*, 2014; Ofori *et al.*, 2014)

The findings for the non-financial industry show that CSR disclosure has a positive relationship with financial performance as measured by ROA, which confirms hypotheses H1A and H2A. This lends support to previous findings in the literature. of Byus *et al.*, (2010), and Wuncharoen (2013), who demonstrated that more CSR activities were being driven by superior ROA. On the other hand, Ghelli (2013) found that there is no relationship between ROA and CSR disclosure for retail trade industry. The difference with results of Ghelli (2013) can be explained by the fact that each industry or country has different contexts, environment and stakeholders expectations, which might influence the findings.

#### **7.7.1.2 CSR and Net Profit Margin (NPM)**

The result shows a positive and significant relationship between CSR disclosure and net profit margin (NPM) in both directions, which led to acceptance of hypotheses H1B and H2B. This suggests that CSR reporting has a moderate impact on the net profit margin of financial industry. This supports previous findings in the literature of Waddock and Graves (1997) and Bidhari *et al.*, (2013), who suggest that additional CSR disclosure by banking firms will increase the growth rates of NPM.

For the non-financial industry, this study found a positive relationship between CSR disclosure and net profit margin (NPM), which led to acceptance of hypotheses H1B and H2B. This is similar to the findings of Waddock and Graves (1997), Tsoutsoura (2004) and Chen and Wang (2011), indicating that better CSR performance leads to higher profitability as measured by NPM. However, the results of the current study are in disagreement with those of Aras *et al*, (2010) and Ghelli (2013), who did not find an effect of profitability on CSR disclosure. The difference may be explained by the fact that CSR engagement is still large and dynamic for emerging market countries. Different countries have different contexts, environments and stakeholders' expectations.

#### **7.7.1.3 CSR and Earnings per Share (EPS)**

The present study was designed to determine the association between CSR disclosure and earnings per share. The results from regression for the financial industry show that there is no relationship between CSR disclosure and financial performance as indicated by earnings per share (EPS). This result is the rejection of hypotheses H1C and H2C. The results share a number of similarities with those of Carnevale *et al*, (2012) and Islam *et al*, (2012), who found that these results showed no significant relationship between CSR disclosure and EPS.

The results for the non-financial sector from Table 7.22 show that a CSR disclosure has no effect on earnings per share (EPS). The results led to the rejection of hypotheses H1C and H2C. Even though these results differ from earlier studies (Oeyono *et al*, 2011), they are consistent with those of Kwanbo (2011), who suggests that CSR disclosure does not depend on EPS. Khan (2010) and Oeyono *et al*, (2011), however, argued that there are positive and significant relationships between CSR disclosure and EPS. This inconsistency may be due to the difference in the sample size and CSR guidelines. The current study analysed from 595 observations from firms in the non-financial industry and CSR data was collected from content analysis, while Oeyono *et al*, (2011) gathered data from the top fifty firms in Indonesia and CSR index was based on Global Reporting Initiative (GRI) guidelines. It is likely therefore that differences in accounting standards and market regulations could cause different results.

#### **7.7.1.4 CSR and Tobin's Q (TBQ)**

The results for the financial sector show that the coefficient of relationship between CSR disclosure and Tobin's Q (TBQ) is positive and significant. The results are the same when CSR was used as dependent variable. The hypotheses H1D and H2D are accepted. This finding is consistent with those of Bidhari *et al*, (2013), who documented that higher CSR disclosure by the banking industry can be considered as effort to enhance the firm value as measured by TBQ.

For the non-financial sector, however, the findings reveal that there is no significant relationship between CSR disclosure and Tobin's Q, and hypotheses H1D and H2D are rejected. The results support the estimation made by Lee *et al*, (2013), indicating that CSR practices of the restaurant industry may not help firm value during favourable economic times. It may impact firms value during unfavourable economic conditions. Further tests carried out with the retail trade industry confirmed these findings (Ghelli, 2013). Ghelli argued that in the retail trade industry the relationship between CSR and TBQ was not significant. However, these findings significantly differ from previous results reported in the literature (Jo and Harjoto, 2011; Li *et al*, 2013), suggesting that when firms do well, they tend to disclose more CSR activities and have a better quality of CSR reporting. This lack of association can be justified by the sample size in this current study, and might depend on CSR measures chosen for this study.

### **7.7.2 The Relationship between each Dimension of CSR Disclosure and Financial Performance**

The summary of the results of the relationship between each dimension of CSR disclosure and financial performance for the financial and non-financial industries and the results of the hypotheses tests are presented in Table 7.23.

#### **7.7.2.1 The Relationship between Environmental Disclosure and Financial Performance**

As mentioned in the literature review, there exist several studies which found a significant relationship between environmental disclosure and financial performance mostly for firms in the financial industry (Teoh *et al*, 1998; Lyon, 2007; Zhongfu *et al*, 2011; Zhang, 2013).

**Table 7.22 Summary of the Hypotheses Tested for Hypothesis 1 and 2 for Financial and Non-Financial Industries**

Hypothesis	Relationship between two variables	Expected relationship	Financial Industry			Non-financial Industry		
			Results		Outcome	Results		Outcome
H1A	CSRI on ROA	Positive	Positive	P < 0.05	Accepted	Positive	P < 0.01	Accepted
H1B	CSRI on NPM	Positive	Positive	P < 0.10	Accepted	Positive	P < 0.01	Accepted
H1C	CSRI on EPS	Positive	Negative	P > 0.10	Rejected	Negative	P > 0.10	Rejected
H1D	CSRI on TBQ	Positive	Positive	P < 0.05	Accepted	Positive	P > 0.10	Rejected
H2A	ROA on CSRI	Positive	Positive	P < 0.05	Accepted	Positive	P < 0.01	Accepted
H2B	NPM on CSRI	Positive	Positive	P < 0.05	Accepted	Positive	P < 0.01	Accepted
H2C	EPS on CSRI	Positive	Negative	P > 0.10	Rejected	Negative	P > 0.10	Rejected
H2D	TBQ on CSRI	Positive	Positive	P < 0.01	Accepted	Positive	P > 0.10	Rejected

**Table 7.23 Summary of the Hypotheses Tested for Hypothesis 3 for Financial and Non-Financial Industries**

Dimension of CSR	Expected relationship	Financial Performance	Financial Industry			Hypothesis	Financial Performance	Non-financial Industry			Hypothesis
			Results		Outcome			Results		Outcome	
Environment	Positive	-	-	-	-	-	NPM	Positive	P < 0.05	Accepted	H1B
Energy	Positive	EPS	Negative	P < 0.10	Accepted	H1C	-	-	-	-	-
Employee	Positive	ROA	Negative	P < 0.10	Accepted	H1A	TBQ	Positive	P < 0.05	Accepted	H1D
Community	Positive	ROA	Positive	P < 0.01	Accepted	H1A	ROA	Positive	P < 0.01	Accepted	H1A
	Positive	NPM	Positive	P < 0.05	Accepted	H1B	NPM	Positive	P < 0.01	Accepted	H1B
	Positive	EPS	Positive	P < 0.05	Accepted	H1C	EPS	Negative	P < 0.10	Accepted	H1C
	Positive	TBQ	Positive	P < 0.05	Accepted	H1D	-	-	-	-	-
Product	Positive	ROA	Negative	P < 0.10	Accepted	H1A	EPS	Positive	P < 0.10	Accepted	H1C
	Positive	TBQ	Negative	P < 0.05	Accepted	H1D	-	-	-	-	-

Some of the studies did not detect any association between environmental reporting and financial performance (Abdul Rahman *et al.*, 2009; Luethge and Helen, 2012; Tilakasiri, 2012). For the financial industry, no relationships were found between environmental disclosure and ROA, NPM, EPS and TBQ. This result supports previous findings in the literature. This result indicates that environmental activities are not the first priority for banking companies because operations of financing firms have no direct impact on the environment. This reasoning is support by Suttipun and Stanton (2012c) in that banking companies were not disclosing environmental information in their annual reports. Firms in resources, consumer products and industrials industries were disclosing environmental activities.

Further for the non-financial industry, the finding was that environmental disclosure had a positive and significant correlation with NPM. This finding is in agreement with those of Hossain *et al.*, (2006), and Kimbro and Melendy (2010) whose findings show that firms which disclose more environmental information are more likely to have superior profitability. This result suggests that environmental disclosure is related to with profitability (NPM) for non-financial industry in Thailand.

#### ***7.7.2.2 The Relationship between Energy Disclosure and Financial Performance***

As reported by Worldbank (2011), Thailand need to improve energy efficiency and achieve the goals of its energy efficiency development plan. There is a need to increase the use of pricing, fiscal measures and performance-based energy-saving targets in Thai companies. As well, the Thai government has vigorously adopted strategies and financing mechanisms to promote energy efficiency. No evidence was found on the correlation between energy disclosure and financial performance (Lyon, 2007; Suttipun, 2012). The current findings seem to be consistent with the earlier research of Lyon (2007) as well as Suttipun (2012), which show that this study did not detect any evidence for the association between energy disclosure and financial performance for firms in non-financial industries. However, energy disclosure was found to be negatively and significantly correlated with earnings per share (EPS) for firms in the financial industry. This apparent lack of association can be explained by the fact that energy disclosures are less likely to occur in the financial and services sectors. The results from section 7.5.1 confirm

that energy disclosure was the least disclosed theme for the financial sector and the second least disclosed theme for non-financial industry.

#### ***7.7.2.3 The Relationship between Employee Disclosure and Financial Performance***

Human resources or employee disclosure has a vital impact on the sustainability of companies. Companies can improve ability and skills of employees by investing in human resources activities, for example by providing training programs or giving financial assistance to employee in continuing education courses, improving working condition and providing facilities, and accommodation. This may help firms to attract good employees and encourage employees to devote additional human resources to CSR activities. Prior studies have found an association between employee or human resources disclosure and financial performance (NPM and EPS), especially in banking companies (Menassa, 2010). Some studies found a negative and significant relationship between human resources and financial performance (ROA) (Khemir and Baccouche, 2010). The result of this current study shows that employee disclosure has a negative and significant relationship to ROA. Even though these results differ from some earlier studies (Menassa, 2010), they are consistent with those of (Khemir and Baccouche, 2010). The findings from Table 7.23 for the non-financial sector show a positive relationship between employee disclosure and Tobin's Q. These findings have a number of similarities with Inoue and Lee (2011) Saleh *et al*, (2011) and Jo and Harjoto (2011) findings, indicating that human resources disclosure show a positive effect on firm value or market-based performance.

#### ***7.7.2.4 The Relationship between Community Disclosure and Financial Performance***

The current study found that a community activity was the most disclosed theme for both financial and non-financial industries. Most previous studies have shown a positive and significant association between community disclosure and financial performance (Waddock and Graves, 1997; Nelling and Webb, 2009; Khemir and Baccouche, 2010; Tilakasiri, 2012). The results of this study are consistent with previous findings, which indicate that financial performance measures of firm in the financial sector have a significant relationship on the level of



community/social disclosure. This is because Thai banks might gain some benefits from reporting social activities. Bihari and Pradhan (2011) provide evidence that Indian banks tend to report more CSR activities to improve their corporate image and goodwill, which have a positive impact on their business performance.

In contrast, the results from non-financial industry show a positive and significant relationship between social disclosure with ROA and NPM, which is consistent with the study of Menassa (2010). However, community disclosure was negatively related to EPS. The current study corroborates the previous results (Waddock and Graves, 1997; Khemir and Baccouche, 2010). However, this study has not confirmed previous research on the relationship between social disclosure and EPS of Richardson and Welker (2001) and Dkhili and Ansi (2012), who found that social disclosures have a positive impact on return on equity. It is possible that there is some bias in social disclosures used in those studies because companies appear to report a positive view rather than negative news. This indicates that negative social effects were under-reported (Richardson and Welker, 2001), which affects the relationship between social disclosure and financial performance.

#### ***7.7.2.5 The Relationship between Products Responsibility Disclosure and Financial Performance***

This section aims to identify the association between products disclosure and financial performance for firms in the financial and non-financial industries. The results for the financial sector show that there is a negative and significant relationship between products responsibility disclosure and ROA and TBQ. No significant correlation was found between products responsibility disclosure and NPM and EPS. Menassa (2010) noted that product and customers disclosures have a positive impact on NPM and return on equity. The results of the current study do not appear to corroborate their conclusions. Carnevale *et al*, (2012) argued that investors might not be able to understand the information included in products responsibility reporting; they might think some disclosure items are not relevant and determine not to rate CSR values. In this respect, it seems that the information from product and customer disclosure is not always beneficial. One possible reason is that product and customer disclosure do not include any information on the future value of financial performance. In this sense, product and customer disclosure are not able to explain the impact on the financial performance.

Further, the results from the non-financial sector show some products disclosure was found to be positively and significantly related to EPS. This result is not consistent with Jo and Harjoto (2011) and further supports the concept of a positive relationship between products responsibility disclosure and firm value. On the other hand, this current study contrasts with Schreck (2011), who found that product and customer responsibility has a negative impact on TBQ and ROE. This is because CSR is a waste of resources and massive expenditure correlated with products disclosure is not accompanied by compensation returns.

### **7.7.3 The Robustness Test of the Relationship between CSR Disclosure and Financial Performance**

This study also used a robustness test using two stages least square and one-year lagged CSR disclosure as an instrument variable for both industries. The results of robustness test strongly indicate that there is a positive significant relationship between one-year lagged Tobin's Q and CSR disclosure for firms in financial industry. This is consistent with Garcia-Castro *et al*, (2010). It could be argued that when managers consider the public benefits related with CSR actions, they involve in CSR activities for which the financial costs exceed the firm value (Moser and Martin, 2012). However, there is no relationship between one-year lagged financial performance (one-year lagged ROA, NPM and EPS for financial industry) and CSR disclosures. The findings from non-financial industry show no correlations between one-year lagged ROA, NPM, EPS and TBQ with CSR disclosure. Further, it appears that current year financial performance as measured by ROA, NPM, EPS, and TBQ for both industries are not influenced by CSR activities. The findings from 2SLS model of the current study are consistent with those of Garcia-Castro *et al*, (2010) who found a neutral relationship between CSR disclosure and financial performance for both industries. These findings suggest that when the endogeneity problem is taken in to account, the relationship between CSR and FP change from significant to neutral. It seems possible that these results are due to the selection of CSR index and instrumented variables, which is not able to reflect the main CSR activities of business.

## 7.8 Summary and Conclusions

The empirical results for the financial industry indicate that CSR disclosure is significantly related to financial performance, measured as return on assets (ROA) and net profit margin (NPM). CSR disclosure has a positive and significant relationship with ROA, NPM, and TBQ. CSR disclosure has a negative effect on EPS for the non-financial industry. These results confirm the hypotheses that more CSR disclosure may impact firm profitability and firm value for the financial and non-financial industries.

Furthermore, the relationship of financial performance on CSR disclosure is shown as follows, where CSR is defined as dependent variable for the financial industry. The results show that ROA, NPM and TBQ have a positive impact on CSR disclosure. This evidence suggests that profitability of firms in the financial industry was related to the amount of CSR disclosure, while EPS might reduce the level of CSR reporting. The link between financial performance and CSR disclosure for the non-financial industry indicate that ROA and NPM are positively and significantly related to CSR disclosure. These findings suggest that profitability of firms in the terms of ROA and NPM impact CSR reporting of Thai firms.

The results of the financial industry show that the energy dimension is be negatively and significantly related to EPS, suggesting that reporting energy related information may reduce investor returns. Employee disclosure is found to be significantly related to TBQ in non-financial industry. Community disclosure has a positive impact on all financial performance measures for the financial industry, ROA and NPM for non-financial sector. This implies that disclosing community-related activities for firms will improve financial performance. It is found that there is a positive and significant relationship between CSR disclosure and EPS and TBQ for firms in non-financial sector. These findings confirm that firms in the non-financial industry are concerned about products responsibility and customer's voice, which is related to improvement in financial performance.

The results from two stage least square (2SLS) for the financial industry reveal that the previous year performance of TBQ is found to be positively and significantly related to current year CSR disclosure. In 2SLS, it is found that no relationships were detected between CSR disclosure and current year financial performance measures. The results for non-financial industry show that no

relationships were found between CSR disclosure and financial performance. These findings differ from those of OLS regression, suggesting that there is an endogeneity problem in the OLS regression.

## **CHAPTER 8**

### **SUMMARY AND CONCLUSIONS**

#### **8.1 Introduction**

This dissertation examines the nature and extent of corporate social responsibility (CSR) disclosure by public listed companies in Thailand during the period from 2009 to 2011. It investigates the relationship between CSR disclosure and firm financial performance (FP). The purpose of this chapter is to reaffirm key results as have been corroborated by evidence presented in the previous chapters as well as to elaborate its contributions and limitations.

In addition, the results are also significant in relation to the research motivations, research objectives, and research questions of this study. The findings of the first part of this study have elaborated the nature and extent of CSR disclosure of Thai listed firms (Chapter 4). As described in the methodology and data section (Chapter 3), this study has categorised samples into three groups of data- all companies, manufacturing and non-manufacturing industries, and financial and non-financial industries. The second part of this dissertation has addressed the results of the relationship between CSR disclosure and financial performance. The results are presented in Chapter 5 for all companies groups, in Chapter 6 for manufacturing and non-manufacturing industries and in Chapter 7 for financial and non-financial industries respectively. In so doing, this chapter provides the summaries in relation to all previous chapters, an overview of the main findings and discussions of this study in respect of CSR disclosure and corresponding analyses. The contributions of this study, research limitations and suggestions for further research directions are shown in the last section in this chapter.

Chapter 2 emphasises an important role of CSR disclosure in both developing and developed countries. By reviewing the literature, Chapter 2 explains the background of CSR disclosure, its theoretical underpinnings, the status of CSR disclosure in Thai context and in other countries, and its relationship with financial performance. The use of a number of theoretical perspectives in order to explain firms' the motivation to report CSR disclosure is also examined. Legitimacy theory and stakeholder theory are adopted in this study. It is explained that stakeholder theory focuses on the subject of stakeholder power, while legitimacy theory

explicitly refers to the expectations of society (Deegan, 2002). It is highlighted that the trend of CSR disclosure in Thailand is growing and focuses on economic perspectives rather than on social views with various patterns of CSR disclosure such as amount, location and form of report. Most of the prior studies on the relationship between CSR disclosure and financial performance show a positive correlation rather than a negative or neutral relationship.

Chapter 3 discusses the data and empirical models employed in this study. The study uses secondary data from SET, SEC and SET SMART database from the year 2009 to 2011. The sample covers the period after the economic recession in 2008, and consists of three groups of sample data: (1) all companies, (2) manufacturing and non-manufacturing industries, and (3) financial and non-financial industries. A total of 969 observations from different industries remained in the final sample after firms with missing annual reports were eliminated. The empirical model employed in this study focuses on the relationship between CSR disclosure and financial performance by analysing cross-section data model, pooled OLS model and panel data models.

The following section will summarise the main findings of this study as explained and discussed in Chapters 4, 5, 6 and 7. It will present the findings about the three key research questions for this study, as follows. (1) What is the current state of CSR disclosure by listed companies in Thailand? (2) Is there a relationship between CSR disclosure and company financial performance in Thailand? and (3) What is the relationship between each dimension of CSR disclosure and financial performance?.

## **8.2 The Main Research Findings**

This study has examined the extent of CSR disclosure and the relationship between CSR disclosure and financial performance of listed companies in a developing country, Thailand. The data used in this study comprises companies listed on the main board of the Stock Exchange of Thailand (SET). It excludes companies in property funds and companies delisted by 2009 and those which undertook restructuring during the period of 2009 to 2011. The final balanced panel data set consists of 323 companies, which is approximately 68.2% of all companies listed on

SET at the end of the period. The final data set consists of 969 observations for the entire sample period.

In this study, the CSR disclosure variables consist of five dimensions. These are: (1) environment, (2) energy, (3) employee, (4) community and (5) products or customer responsibility. Financial performance is measured using three accounting-based measures and one market-based measure: ROA, NPM and EPS are employed as the accounting performance indicators, while TBQ ratio is used as the market performance measure in this study. Control variables employed in the analysis are as follows: the age, size, leverage and independent director ratio of the sample firms. A summary of the main findings for this study is provided below.

### **8.2.1 The Nature and Extent of CSR Disclosure in Thailand**

The first research question focused on the nature and extent of CSR disclosure of companies in Thailand. The current practices of CSR disclosure in Thailand were examined and the results are presented in Chapter 4. The main results of this investigation showed that the amount of CSR disclosure by Thai firms slightly increased over the period from 2009 to 2011. The activity of “community involvement” was the most disclosed subject in annual reports, followed by employee information and the environmental responsibility. However, “product” information and “energy” disclosure were the least-disclosed themes, respectively. These results indicated that five categories of CSR disclosure were the most publicly-related issues and that Thai companies are more likely to disclose such community information rather than other categories.

A comparison across industries shows that the most commonly disclosed CSR theme was “community involvement”, followed by “environment”, and “employee” respectively. The findings show that the community disclosures were the most disclosed theme for all industries. This could be the reason why Thai companies are keen to disclose community relevant information, namely, to promote their social activities. However, “energy” and “product and services” were disclosed relatively rarely across industries. These results indicate that Thai companies did not give priority to the disclosure of energy and products information during the selected period. It is possible that the agenda for research and development on products and energy saving are not extensive for Thai business. The results also show that the

trend of disclosed themes in “consumer product”, “agribusiness & food”, “industrials” and “property & construction” industries have been increasing during the 2009-2011. On the other hand, the trend of CSR disclosure in “resources”, “technology”, “services” and “financials” industries decreased throughout the period. A possible explanation for the differences may be that CSR is not a systematic activity. Companies may also be not really clear on how to disclose CSR activity for each industry in annual reports. Another possible rationalisation for this is that the trends in CSR change overtime. The motivations for reporting CSR vary, and other factors appear to influence CSR disclosure.

With regard to reporting locations and methods of CSR disclosure, the findings show that listed Thai companies are likely to disclose most of their CSR activities in their annual reports in the form of narrative and photographic format rather than using narrative form combined with numerical units. However, the proportion of firms disclosing CSR with narrative and monetary units has increased. It could be that Thai companies want to promote their CSR activities by reporting the budget spending on CSR. Furthermore, by looking at the placement of narratives on CSR activities in the annual reports, the most common locations for CSR disclosure in these reports were in the sections on CSR and corporate governance. The proportion of firms disclosing CSR have increased throughout the period studied. This indicates that Thai listed companies have some understanding about where to report CSR information in the different format.

This study’s findings seem to be consistent with previous studies (Deegan, 2000; Deegan and Blomquist, 2006) which supported the application of stakeholder theory in CSR disclosure. The expectation and pressure of particular stakeholder groups can influence the level of CSR disclosure. The volume of CSR disclosure is related to expectations of stakeholders as well (Deegan, 2000).

This study also shows that employee and environmental disclosures are the second- and third- most- disclosed theme in Thailand. From the perspective of legitimacy theory, these disclosures indicate that Thai firms disclose such information to comply with employee and environmental laws and regulations to gain legitimacy. However, this study finds that energy disclosure is the least-disclosed theme for Thai companies. It is thus possible that companies in different industries are accountable to report their CSR information to legitimize their operations (Deegan and Gordon, 1996; Deegan *et al.*, 2000).



### **8.2.2 The Relationship between CSR Disclosure and Company Financial Performance for All Companies**

Chapter 5 of this dissertation examined the relationship between CSR disclosure and financial performance. The findings from this chapter show that CSR disclosure has a positive relationship with financial performance when the latter is measured in terms of return on assets (ROA) and net profit margin (NPM). This finding suggests that CSR activities are likely to be associated with better financial performance. There is a growing body of evidence that CSR activities influences economic performance of companies (Preston and O'Bannon, 1997; Waddock and Graves, 1997; Tsoutsoura, 2004; Saleh *et al.*, 2011). However, there are no relationships found between CSR disclosure and earnings per share (EPS) and Tobin's Q (TBQ) for this data group.

As elaborated in Chapter 5, this mixed relationship between CSR disclosure and financial performance for all companies in Thailand occurs due to the nature and the extent of CSR disclosure. It is possible that CSR disclosure may not be strongly related with financial performance in emerging countries where CSR engagement is relatively new. There is a view that CSR engagement is not widely used in emerging countries. Therefore, introduction of CSR related activities can have cost implication in those countries. The results show that there is no relationship between CSR disclosure and EPS and TBQ. This result suggested that better CSR disclosure did not affect earnings per share. It is plausible that the time-period for which data were available was after a global recession, at time which the relationship between CSR disclosure and earnings per share might have been affected by macro-economic conditions.

Further, the results of the relationship between each dimension of CSR disclosure and financial performance show that environmental disclosures are positive and significantly related with EPS. A positive relationship is shown with TBQ. The community disclosure is found to have positive and significant association with ROA and NPM. However, there is a negative and significant relationship between energy disclosure and EPS, community and products disclosure with TBQ. For this sample group, it can be concluded that there is a mixed relationship between each dimension of CSR disclosure and financial performance in the case of Thailand.

This could be explained by the fact that there might have been a complex relationship between financial performance and each dimension of CSR disclosure. Another possible reason is that a small degree of CSR disclosure resulted in a weak statistical association with financial performance. This is compounded by the fact that CSR disclosures are not mandatory for all publicly-listed companies in Thailand. Companies are not required to report CSR activities in their annual reports.

Results from the two stages least square (2SLS) estimation show that previous-year financial performances (in terms of ROA, NPM and TBQ) are positively and significantly related to CSR disclosure. These results suggest that when Thai companies experience greater profitability and higher Tobin's Q value in a given year, these companies are likely to engage in more CSR activities in the following year.

### **8.2.3 The Relationship between CSR Disclosure and Company Financial Performance for Manufacturing and Non-manufacturing Industries**

The results presented and discussed in Chapter 6 for the manufacturing industry, show that CSR disclosure has a positive and significant relationship with financial performance measures such as ROA and NPM. The results are consistent with the claims made by those of Ghelli (2013), Janamrung and Issarawornrawanich (2013) and Ehsan and Kaleem (2012) who suggested that CSR disclosures have a positive impact on financial performance in the manufacturing industry. This result suggests that firms in the manufacturing industry with greater CSR engagement tend to be more profitable and have higher valuation. For non-manufacturing industry, evidence shows that CSR disclosure has a positive relationship with ROA, NPM and TBQ. This study confirms that CSR disclosure and financial performance for manufacturing and non-manufacturing firms in Thailand are positively related to each other. However, CSR disclosures are negatively and significantly related to TBQ for the manufacturing industry, indicating that higher CSR disclosure may reduce the market performance of firm in the manufacturing industry. CSR disclosure did not show any significant relationship with accounting-based performance measure of EPS for both manufacturing and non-manufacturing industries. This indicates that CSR policies are not significant factors in determining EPS in the case of Thailand.

Moreover, the results from the estimation of the relationship between each dimension of CSR disclosure and financial performance of manufacturing firms show that energy disclosure has a positive relationship with ROA and NPM. Community disclosures are positively and significantly related to NPM. Products disclosure is also positively and significantly associated with EPS. However, community and products disclosures have a negative relationship with TBQ. The results of the current study are mixed. This could be explained by the fact that firms in manufacturing may focus more on energy, community and product disclosure. Such companies may disclose more CSR activities in those activities.

The negative effect of community and products disclosure on TBQ shows that companies that do more community disclosure and provide more products information may experience decreasing market valuation. The results from the non-manufacturing industry show that environmental disclosures are found to have a positive and significant relationship with ROA and NPM. Employee disclosure has a positive impact on TBQ. There is a positive relationship between community disclosure and ROA, NPM and EPS. These results indicate that with better CSR performance, firms are likely to have better financial performance. However, EPS is found to have a negative relationship with employee disclosure. This indicates that companies spend more on employee engagement, which might have impacted on the profits of companies.

In addition, results of 2SLS test show that a significant relationship exists between previous year's financial performance indicators of ROA, NPM and TBQ for manufacturing industry. These findings suggest that higher profitability and firm valuation can provide strong incentives for companies to engage in more CSR activities. For firms in non-manufacturing industry, it is found that previous year TBQ has a positive relationship with CSR disclosure. These findings suggest that previous year financial performances are related to current CSR disclosure. CSR disclosure is related to market-based performance (Tobin's Q) for both manufacturing and non-manufacturing industries. This finding validated the usefulness of instrumental variable analysis in dealing with endogeneity problem.

#### **8.2.4 The Relationship between CSR Disclosure and Company Financial Performance for Financial and Non-Financial Industries**

Results from Chapter 7 show that there is a positive relationship between CSR disclosures and financial performance (as measured by ROA, NPM and TBQ) in the financial sector. This suggests that CSR disclosure in the financial industry can be considered as due to the effort by firms to enhance their profitability and firm value. These results support previous findings (e.g. Simpson and Kohers, 2002; Bidhari *et al.*, 2013; Bolton, 2013; Cornett *et al.*, 2014; Ofori *et al.*, 2014). However, no relationship exists between CSR disclosure and earnings per share (EPS).

Furthermore, results from companies in non-financial industry show that CSR disclosure has a positive effect on ROA and NPM as well. These results indicate that that better CSR performance is associated with higher profitability as measured by ROA and NPM. However, there are no relationships found between CSR disclosure and EPS and TBQ. It is possible that CSR disclosure does not depend on EPS and TBQ. It is possible that CSR practices of non-financial industry may not help a firm's value during favourable economic times. It may impact firms' value during unfavourable economic conditions.

In addition, the results from the robustness test show that previous year TBQ are found to be positively and significantly related to CSR disclosure for firms in the financial industry. It could be argued that when managers consider the public benefits related with CSR actions, they get involved in CSR activities for which the financial costs exceed the firm value (Moser and Martin, 2012). The findings from non-financial industry showed no correlation exists between one-year lagged ROA, NPM, EPS and TBQ with CSR disclosure. It is suggested that previous year financial performance as measured by ROA, NPM, and EPS for both industries are not influenced by CSR activities.

In summary, this study shows CSR disclosures have a positive relationship with ROA, NPM and TBQ for financial industry. As well, CSR disclosures are positively and significantly related to ROA and NPM for non-financial industry. The relationship between CSR disclosure and financial performance can help to explain the significant of CSR disclosure on improving financial performance in Thailand.

### **8.2.5 The Relationship between Each Dimension of CSR Disclosure and Financial Performance**

The third research question explored in this dissertation is the association between each dimension of CSR disclosure and financial performance. This study aims at examining the association between each dimension of CSR disclosure and financial performance. Following are the major findings of the analyses.

(A) The analysis of environmental disclosure on financial performance shows that environmental disclosure has a positive association with EPS for all companies group, ROA and NPM for non-manufacturing, and NPM on non-financial firms. However, environmental disclosure was not found to be significantly related to all financial performance indicators for firms in the manufacturing and financial industries. This suggests that financial firms do not put more emphasis on environmental activities because their business operation is not related to environmental activities, while operations of companies in the manufacturing sector are related to environmental destruction activities but companies may prefer to disclose only positive information or as required by laws and regulations.

(B) The analysis of energy disclosure on various measures of financial performance shows that energy disclosure has a positive relationship with ROA and NPM of manufacturing firms. Energy disclosure is found to be negatively related to the EPS for all companies and for the financial industry. It is possible that energy disclosure appears to diminish earnings of shareholders. However, there is no relationship found between energy disclosure and all financial performance measures for non-financial and non-manufacturing industries.

(C) The analysis on employee disclosure shows that employee disclosure is found to be positively and significantly related to TBQ for all company groups and non-financial industry. This suggested that firms which invest in employee related activities can increase firm performance. On the other hand, it is found that employee disclosure has a negative relationship with EPS for firms in the non-manufacturing sector, and to ROA in the financial industry. This suggests that higher spending on

employee activities could lead to poorer financial performance indicators of ROA and EPS.

(D) It is found that community disclosure has a positive impact on ROA and NPM for all company groups, ROA and NPM for manufacturing and non-manufacturing industries, ROA, NPM, EPS, TBQ of financial industry and NPM for non-financial industry. These findings indicate that companies that performed more community activities will have higher results in financial performance. However, there is a negative relationship between community disclosure and TBQ for all company groups and the manufacturing industry. These results suggest that more community activities will reduce firm value.

(E) The results of the relationship between products disclosure and financial performance show that there is a positive and significant relationship between products disclosure and EPS for firms in non-manufacturing and non-financial industries and TBQ for non-financial industry. This suggests that companies in non-manufacturing and non-financial industry put more emphasis on responsibility to customers, products and services, resulting in better EPS and firm values. However, TBQ for all firms group, for manufacturing and for financial industries were negatively and significantly related to products disclosure.

Therefore, the negative and positive relationship of each dimensions of CSR disclosure on financial performance cannot be clearly explained. It is possible that the degree of flexibility of CSR disclosure for each company is not similar, which results in the conflicting scenarios with respect to the sign of the coefficients and the significance levels.

#### **8.2.6 The Impact of Different Firm Characteristics on CSR Disclosure**

This study also attempted to find the firm-level determinants of CSR disclosure for Thai companies listed on the SET. This study utilised some of the explanatory variables relating to firm characteristics, which include size, age, leverage and number of independent directors.

As elaborated in Chapter 5, Chapter 6 and Chapter 7, the findings show that firm characteristic variables from legitimacy theory such as firm size, firm age and the percentage of independent director variables on board are able to influence the extent of CSR disclosures across all industries at different levels. A number of variables have a positive relationship with CSR disclosure. Furthermore, some variables are found to be negatively related to CSR disclosure.

Meanwhile, firm size, firm age and a number of independent directors are observed to have a positive impact on CSR disclosure for all three groups (all firms, manufacturing and non-manufacturing industries, financial and non-financial industries) in the sample. These results indicate that older companies with large assets size and higher amount proportion of independent directors are more likely to provide a high amount of CSR-related activities, which is consistent with the results from previous studies in the literature (e.g. Deegan and Gordon, 1996; Hackston and Milne, 1996; Eljido-Ten, 2007; Nelling and Webb, 2009; Rouf, 2011; Luethge and Helen, 2012; Shubiri *et al.*, 2012; Ghelli, 2013; Li *et al.*, 2013).

This study shows that firm leverage has a mixed impact on CSR disclosure of the sample companies. It has a negative impact on firms in the financial industry, positive impact on the non-financial industry sample and no significant relationship to CSR disclosure for all sample companies, manufacturing and non-manufacturing industries. The negative impacts of leverage of the financial industry are evidence that financial businesses are highly-leveraged institutions. It is interesting that firm leverage of the non-financial sector or services industry has a positive effect on CSR disclosure. This highlights that a high level of debt is associated with higher CSR disclosure.

### **8.3 Contribution of the Study**

The theoretical and empirical analyses in the earlier chapters in this study provide a number of contributions to the theory of financial performance. This study also makes a significant contribution to the knowledge on corporate social responsibility disclosure from the context of developing countries in Thailand in the following ways.

*Firstly*, this study makes an important contribution to the literature of CSR disclosure, especially in relation to stakeholder theory and legitimacy theory. There

are a limited number of studies that examine the relationship between CSR disclosure and financial performance. Previous studies have revealed mixed results of the relationship between CSR disclosure and company financial performance.

By considering stakeholder theory, the results of this study show that the level of CSR disclosure for Thai companies slightly increased over the studied period. Thai companies disclose CSR information by focusing on five main dimensions, namely, environment, energy, employee, community and products. The most disclosed CSR information is community followed by employee and environmental information. CSR activities of companies are focused on community issues because community is considered to be the most influential stakeholders. It appears from the analysis that CSR disclosure practices of companies in Thailand respond to the interest of all stakeholders. They are operating not only with single stakeholder but they also react to the expectations of each stakeholder. These findings indicate that the main stakeholder groups gained benefits when organisations maintain the expectations of all stakeholders. In general; there is a financial benefit when organisations maintain the expectation of all stakeholders. Moreover, by looking at the trend of CSR disclosure by each industry, the findings indicate that the trend of CSR disclosure varies across the industries. This finding suggests that the different expectations from communities, employees, shareholders, government and other stakeholders may influence the CSR activities. If there is a high expectation, firms then have to respond to address the anticipation from the groups to demonstrate the importance of CSR information to stakeholders. These findings lend support to stakeholder theory that CSR information disclosed is considered by, in particular stakeholder groups. Therefore, this would appear to indicate that stakeholder theory could be used to explain the extent of CSR disclosure in Thai context.

In with to legitimacy theory, the results reveal that companies disclose a small amount of environmental information and energy policy. This suggests that firms tend to report “environment and energy” related activities required by law and regulation in order to meet requirements from government or to avoid fees and penalties. In relation to the level of CSR disclosure, it is found that firms in the resources and technology industries have a high amount of CSR disclosure in comparison to other industries. In addition, larger firms are likely to report more CSR activities than small firms. The results also show that a number of independent



directors on board of director have an impact on the level of CSR disclosure. That is, when the number of independent directors increased, firms appear to be more visible and accountable by disclosing more CSR activities. These findings support legitimacy theory's contention that companies with large size, higher number of independent directors and with greater resources and technologies may disclose CSR activities more frequently to remain legitimate in the eyes of their stakeholders. Furthermore, larger firms are more exposed in the media, and, therefore, are more likely to undertake CSR activities to cultivate their public image. Some industries receive more public attention than others which put pressures on firms in these industries to undertake CSR activities. Further, the main product of high-profile companies might have some negative qualities. It would be more difficult for them to alter existing products but less costly to employ legitimisation policies relating to changing social expectations, sensitivity, and deflecting awareness about suspect products. Additional disclosures are made by firms which have more visibility in terms of pollution or other industrial issues. The results from this study demonstrate that CSR disclosure variables have indistinguishable influences in terms of company financial performance (i.e., ROA, NPM and TBQ). This suggests that firms with higher profitability and firm value appear to disclose more CSR activities. The implication is that financial performance measures (i.e., ROA, NPM and TBQ) are vital factors that motivate managers of companies to disclose more CSR activities. Therefore, this study contributes to an empirical analysis of the application of stakeholder theory and legitimacy theory to explain CSR disclosure in Thailand.

*Secondly*, this study has contributed to a further understanding of the practices of CSR disclosure in Thai context. Most studies about CSR disclosure have been performed in developed countries, less in developing countries and many less in Thailand. The results also show significant increase in CSR disclosure in 2011 relative to such disclosure in 2009. CSR disclosure of Thai firms mostly report activities in community, employee relation and environment dimensions. The disclosure of products and energy information of Thai companies is quite limited, indicating that these two themes of CSR disclosure have not motivated Thai companies to report CSR information. This suggests that the Thai government should create more incentives (terms of tax incentives and benefits) in order for Thai companies to undertake such products and energy related CSR activities as well as disclose such activities. Furthermore, the results of this study reveal that there are no

rules and regulations established for Thai companies to implement CSR practices. Thai companies engage in CSR activities and disclose CSR on a voluntary basis. Thai companies are likely to disclose their CSR activities in narrative and photographic format. Thai listed companies are currently implementing CSR practices and disclosure by reporting in various sections in their annual reports, separated reports and other media such as brochures or websites. These results lead to different formats of CSR disclosure in annual reports provided by Thai companies. It is suggested that there is a need to develop an appropriate CSR framework to implement CSR practices and disclosure frameworks for different industries in order to raise CSR disclosure to a higher standard comparable to those in other countries in the region. These results would help the regulatory bodies in promoting greater corporate transparency in CSR disclosure and governance in developing a standard framework on CSR disclosure.

*Thirdly*, this study has made a significant contribution to methodology by constructing a CSR index, which is used to determine the level of CSR disclosure for Thai companies. The CSR index is developed by using content analysis to collect primary data for this study. The CSR framework covers five categories of companies' stakeholders. CSR practices can be measured by this CSR index. The results of this study can be beneficial in helping to understand the extent of CSR disclosure in Thailand. This study contributes to the limited studies on measuring CSR practices so far made in developing economies such as Thailand and other developing countries. Further, this is the first time that a dichotomous process has been applied in the Thai context to create CSR index. It is a unique measurement of CSR index for a specific industry and has not been utilised before in the analysis of the relationship between CSR disclosure and financial performance in Thailand.

*Fourthly*, this study provides a valuable contribution to the model of the relationship between CSR disclosure and financial performance. This study is a comprehensive examination of the relationship between CSR disclosure and financial performance of firms listed on Stock Exchange of Thailand (SET). Previous studies have been carried out by using small sample sizes, a focus on single industries and using a short time period. Therefore, this study used a larger sample size covering all industries. It also categorised the sample into all companies, manufacturing and non-manufacturing industries, financial and non-financial industries, in order to detect industry differences.

Besides the use of cross-section data, pooled OLS and panel data, the results of this study provide evidence that CSR has a positive effect on firm financial performance both using accounting definitions and market definition. The results from all companies groups show that the hypothesised variables in relation to companies' financial performance, return on assets (ROA) and net profit margin (NPM), are found to be significantly related to CSR disclosure in this industry group. For the manufacturing industry, the findings show there are positive relationships between CSR disclosure and financial performance measures of ROA and NPM, while CSR disclosures are found to have a positive relationship with ROA, NPM and TBQ for firms in non-manufacturing industry. For companies in the financial industry, the results show a positive relationship between CSR disclosures and ROA, NPM and TBQ. As well, CSR disclosures have a positive relationship with ROA and NPM for firms in non-financial industry. These results demonstrate that CSR disclosure variables from three groups of samples have indistinguishable influences in terms of company financial performance (ROA, NPM and TBQ). This suggests that firms with higher profitability and firm value appear to disclose more CSR activities. The implication is that financial performance measures (ROA, NPM and TBQ) are vital factors that motivate managers of companies to disclose more CSR activities.

This is also the first study to investigate CSR relationships in the Thai context by using two stages least square estimation. The analysis shows new findings in relation to a developing country. The findings highlight the importance of examining the impact of CSR disclosure on financial performance. The results show that previous year financial performance measures have the potential to improve CSR disclosure. The important contribution of this analysis is clearly to enhance the analysis of the relationship between CSR disclosure and financial performance in developing countries. It also contributes to the understanding of different and complex mechanisms of the relationship between CSR disclosure and financial performance. It is suggested that further studies should analyse the long-term relationship between CSR disclosure and financial performance.

*Finally*, this study makes a contribution to filling the gap in research about CSR disclosure and financial performance in a Thai context. This study provides a contribution to understanding of some firm characteristics influencing CSR disclosures. This study identifies a number of independent directors as a new

variable. The results show that the independent director ratio is found to be positively and significantly related to CSR disclosure. This suggests that a high number of independent directors will lead companies to disclose more CSR activities. This study also found that firm size and firm age have an impact on CSR disclosure. These results suggest that older companies with large assets size tend to report more CSR information. The impacts of firm characteristics on CSR disclosure have been found in other developed countries in the context of Western market economy and other developing countries, impacts which could be different from the Thailand context. This study provides a clearer image about the impacts of firm characteristics on CSR disclosure and the nature of CSR disclosure. This empirical study makes a contribution to CSR literature from the context of developing countries. It could help to improve corporate governance and social disclosure frameworks related to environmental, energy, employee, community and products or customer concepts of the developing countries in which they operate. It is important to improve future research in understanding CSR framework and the association between CSR disclosure and financial performance.

#### **8.4 Limitations of the Study**

A number of important limitations need to be considered. *Firstly*, this study examined company annual reports based on only a three-year period after the global recession from the Stock Exchange of Thailand in 2009 to 2011. Due to a lack of data availability at the time of data collection, it was not possible to include the year 2011-2013 and all companies in the sample. There are 323 companies included in the sample for each year (969 observations for three years period), and eighty-two firms listed on manufacturing industry and forty-six firms listed on financial industry.

*Secondly*, this study only focused on company annual reports, which may show an incomplete picture of CSR practice of companies in Thailand. Companies may report CSR activities in other media like CSR reports, sustainability reports, environmental reports, interim reports, newspapers, advertising, promotional leaflets, websites, or company brochures. This study is limited to the data from annual reports of Thai companies.

*Thirdly*, this study is limited to the measurement of CSR activities. Content analysis may introduce some subjectivity in the coding process. This study develops

a CSR checklist based on five categories with forty-five CSR activities to capture CSR practices from company annual reports. There is also a limit to the weights used in the calculation of CSR index. A separate weighting system for each dimension was not used. The CSR checklist may not fully capture CSR practices of Thai companies. Some companies do not have any words or sentences that match with CSR checklist items. In cases where in this study or there is no specific information about CSR activities, it could not be summarised that firms which did not report CSR practices were not involved in somewhat CSR activities. This is not absolute considering the amount of CSR disclosure.

*Lastly*, this study is limited to four financial performance indicators such as ROA, NPM, EPS and TBQ to measure firm financial performance and the effects of some control variables such as company age, company size, company leverage and independent director.

## **8.5 Directions for Future Research**

The following are some examples of issues for future consideration *albeit* not an exhaustive list.

*Firstly*, this study examines the relationship between CSR disclosures and financial performance of 323 companies listed on the Stock Exchange of Thailand (SET) between 2009 and 2011. This study focused on three groups of data in Thailand between 2009 and 2011. Future research could apply a longitudinal method by using more years' data and a larger sample size. This would increase the reliability of the results.

*Secondly*, this study focuses on Thai companies. Future research could be a comparison of a cross-sectional study Thailand and other ASEAN Economic Community (AEC) such as Singapore, Indonesia, Malaysia, Vietnam, Brunei Darussalam, Cambodia and also Bangladesh. Future studies could compare the study of developed countries and developing countries in attempts to understand the nature and extent of CSR disclosure and its relationship to financial performance. It is important to understand the extent of CSR components in other countries.

*Thirdly*, this study uses content analysis for collection data from annual reports. Future research could include other reports to investigate the extent of CSR disclosure and its relationship with financial performance. This is because companies

may report CSR activities in other media e.g. CSR reports, sustainability reports, environmental, interim reports, newspaper reports, advertising, promotional leaflets, websites, or company brochures. The information from those reports may show a more complete picture of CSR disclosure in Thai context.

*Fourthly*, this study uses CSR checklist to measure the level of CSR disclosure. The CSR checklist covers five dimensions with forty-five CSR activities which include environment, energy, employee, community and products dimensions. Future studies should employ other techniques in relation to gathering CSR practices by using content analysis, such as number of words, sentences, paragraphs or other methods. Another measurement of CSR disclosure might be used future studies in the process of collection of CSR practices of Thai companies e.g. KLD index, GRI index, DJSI etc.

*Lastly*, this study is limited to four finance performance indicators, which are ROA, NPM, EPS and TBQ. Future research could include other control variables (corporate governance variables e.g. CEO duality, audit firm size) and employ more financial performance indicators (both accounting-based and market-based performance, e.g., stock return, price earnings ratio, market to book value) to examine the relationship between CSR disclosure and financial performance.

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## APPENDIX A: CONTENT ANALYSIS (CSR-CHECKLIST)

No	Categories/Items
<b>Environmental Responsibility</b>	
1	Environmental policies or company concern for the environment (มีการกล่าวถึงนโยบายการรักษาสิ่งแวดล้อม หรือ การคำนึงหรือห่วงใยใส่ใจสิ่งแวดล้อมในการดำเนินธุรกิจ)
2	Statements indicating that the company's operations are non-polluting or that there are in compliance with pollution laws and regulations (มีข้อความที่ระบุว่า บริษัทได้มีการปฏิบัติตาม ระเบียบ กฎเกณฑ์ และกฎหมายที่เกี่ยวข้องกับการควบคุมมลพิษ หรือ การดำเนินงานของบริษัท ไม่เกิดผลกระทบหรือ มลพิษ แก่สิ่งแวดล้อม )
3	Pollution control in the conduct of business operation/Statements indicating that pollution from operations has been or will be reduced (มีการควบคุมมลพิษในการดำเนินงานของธุรกิจ / มีข้อความที่ระบุว่า มลพิษจากการดำเนินธุรกิจลดลง หรือ จะลดลง)
4	Conservation of natural resources eg. using recycling material, recycling glass, metals, oil, water, paper etc. (มีการอนุรักษ์ทรัพยากรธรรมชาติ เช่น การใช้วัสดุรีไซเคิล ได้แก่ แก้ว โลหะ น้ำ น้ำมัน และกระดาษ)
5	Prevention or repair of damage to the environment resulting from processing or natural resources, eg. Land reclamation or reforestation, Environmental protection program (มีการป้องกันหรือซ่อมแซมความเสียหายให้กับสิ่งแวดล้อม เช่น การถมที่ดิน การปลูกป่าประเภทต่าง ๆ การสร้างฝายชะลอน้ำ หรือ โครงการอนุรักษ์หรือซ่อมแซมสิ่งแวดล้อมต่าง ๆ )
6	Support for public/private action designed to protect the environment (มีการสนับสนุนโครงการอนุรักษ์ทรัพยากรธรรมชาติและสิ่งแวดล้อมที่จัดโดยภาครัฐหรือเอกชน)
7	Designing facilities that are harmonious with the environment (มีการออกแบบหรือ สร้างสิ่งก่อสร้าง สิ่งอำนวยความสะดวก ที่กลมกลืนกับสภาพแวดล้อม เช่น อนุรักษ์ตึกเก่า, ตกแต่งสวน ศิลปะ เพื่อความสวยงาม)
8	Disclosing air emission information (มีการเปิดเผยข้อมูลการปล่อย คาร์บอน ก๊าซพิษ มลพิษ การจัดการอากาศเสีย)
9	Disclosing water discharge information (มีการเปิดเผยข้อมูลการปล่อยน้ำเสียจากโรงงาน การบำบัดน้ำเสีย)
10	Disclosing solid waste disposal information (มีการเปิดเผยข้อมูล การกำจัดของเสียจากกระบวนการผลิต )
11	Award for environmental protection e.g. ISO 14001, Carbon label (ได้รับรางวัลจากกิจกรรมหรือนโยบาย ในการอนุรักษ์และ รักษาทรัพยากรธรรมชาติ และสิ่งแวดล้อม)

## Appendix A Content analysis (CSR-checklist) (continued)

No	Categories/Items
<b>Energy information</b>	
12	Disclosing company's energy policies (มีการเปิดเผย นโยบายอนุรักษ์พลังงาน หรือนโยบายด้านพลังงาน)
13	Conservation of energy in the conduct of business operations (มีการอนุรักษ์พลังงานในการดำเนินงาน เช่น ปิดเปิดไฟ เปลี่ยนหลอดไฟ)
14	Utilising waste materials for energy production (มีการนำวัสดุเหลือจากกระบวนการผลิตมาใช้ผลิตพลังงาน เช่น นำมาสร้างโรงไฟฟ้าพลังงานชีวมวล)
15	Disclosing energy savings resulting from product recycling (มีการเปิดเผย การประหยัดพลังงานจากการใช้วัสดุหรือผลิตภัณฑ์รีไซเคิล)
16	Research directed at improving energy efficiency of products (มีการวิจัยและพัฒนา เพื่อการปรับปรุงประสิทธิภาพการใช้พลังงานของผลิตภัณฑ์)
17	Award for energy conservation program (ได้รับรางวัลจาก โครงการอนุรักษ์พลังงาน ประหยัดพลังงานต่าง ๆ)
<b>Employee information</b>	
18	Complying with health and safety standards and regulations (มีการปฏิบัติตามมาตรฐานด้านสุขภาพ ความปลอดภัย กฎระเบียบที่เกี่ยวข้อง)
19	Information on education/training of employees on health and safety (มีการเปิดเผยข้อมูลการเรียนรู้ การฝึกอบรมพนักงาน สุขภาพและความปลอดภัย)
20	Information on accident statistics (มีการเปิดเผยข้อมูลสถิติการเกิดอุบัติเหตุ หรือ ไม่เกิดอุบัติเหตุ)
21	Receiving a safety award e.g. OSHAS 18000, ISO 18001, Zero accident, TLS:8001 (ได้รับรางวัล ด้านความปลอดภัย e.g. OSHAS 18000, ISO 18001, Zero accident, TLS:8001)
22	Providing low cost health care to employees (มีการเปิดเผยการสนับสนุนค่าใช้จ่ายในการดูแลสุขภาพให้พนักงาน เช่น ประกันอุบัติเหตุกลุ่ม) Employees training/Giving financial assistance to employees in educational institutions or continuing education courses
23	(มีการฝึกอบรมพนักงาน การสนับสนุนทางการเงินให้กับพนักงานในสถาบันการศึกษา หรือหลักสูตรการศึกษาต่อเนื่องทุกระดับชั้น)
24	Providing recreational activities/facilities (มีการสร้างสิ่งอำนวยความสะดวก กิจกรรมสันทนาการ เช่น สนามกีฬา ห้องอาหาร สนามเด็กเล่น)
25	Providing staff accommodation/staff home ownership schemes, food, fuel, other benefits (มีการสนับสนุนด้านที่พักให้พนักงาน อาหารกลางวัน น้ำมันรถ กองทุนสำรองเลี้ยงชีพ ประกันสังคม หรือสิทธิประโยชน์อื่น ๆ)
26	Information about support for day-care, maternity and paternity leave, holidays and vacations (มีการเปิดเผยข้อมูลสิทธิการลาประเภทต่าง ๆ เช่น ลาป่วย ลากิจ ลาคลอดบุตร ลาวาง ลาพักผ่อน เป็นต้น)
27	Disclosing policy for company's remuneration package/schemes (มีการเปิดเผยนโยบายการจ่ายค่าตอบแทนให้กับพนักงาน เช่น การขึ้นเงินเดือน การจ่ายภาษี โบนัส)
28	Information of employees share purchase schemes (มีการเปิดเผย นโยบายในสิทธิการซื้อหุ้นประเภทต่าง ๆ ของพนักงาน)
29	Providing number of employees in the company/branch/subsidiary (มีการเปิดเผย จำนวนพนักงานประเภทต่าง ๆ ในบริษัท สาขา หรือ บริษัทย่อย)
30	Providing information on qualifications and experience of employees recruited (มีการเปิดเผยข้อมูล คุณสมบัติ ประสบการณ์ของพนักงานในธุรกิจ)
31	Providing information on the stability of the workers' job and company's future (มีการเปิดเผยข้อมูลความมั่นคง ความก้าวหน้าของพนักงาน และอนาคตของบริษัท)
32	Reporting on company's relationship with trade unions/workers (มีการเปิดเผย ความสัมพันธ์ของบริษัท กับสหภาพแรงงาน หรือพนักงาน)
33	Information on recruitment/employment of minorities/women/special interest groups (มีการเปิดเผย นโยบาย การรับสมัคร การจ้างงานของกลุ่มน้อย ผู้หญิง ผู้พิการ หรือ กลุ่มอื่น)

## Appendix A: Content analysis (CSR-checklist) (continued)

No	Categories/Items
<b>Community involvement</b>	
	Donations of cash, products, or employee services to support community activities, events, arts, sports etc.
34	(มีการบริจาค เงินสด ผลิตภัณฑ์ หรือ บริการจากพนักงาน ในการสนับสนุนกิจกรรมต่าง ๆ ของชุมชน เช่น งานกีฬา ศิลปวัฒนธรรม ศาสนา การศึกษา)
35	Summer or part-time employment of students
	(มีการรับนักศึกษาฝึกงาน สหกิจศึกษา นอกเวลาหรือในภาคฤดูร้อน)
36	Sponsoring public health projects and distributing health-related information to public
	(มีการสนับสนุน โครงการให้บริการสุขภาพแก่ประชาชน หรือให้ข้อมูลสุขภาพแก่ประชาชน หรือชุมชน เช่น บริจาคโลหิต ตรวจสุขภาพ ประชาชน)
37	Funding scholarship programs or activities
	(มีการให้ทุนการศึกษาแก่นักเรียน นักศึกษา หรือ ให้ทุนในการจัดกิจกรรมนักศึกษา)
38	Sponsoring education conference, seminar, workshop or art exhibits
	(มีการให้การสนับสนุนการประชุม สัมมนา สัมมนาเชิงปฏิบัติการ หรือ การแสดงศิลปะ)
39	Aiding disaster victims (donation cash, product etc.)
	(มีการบริจาค เงินสด สิ่งของ เพื่อช่วยเหลือผู้ประสบภัยประเภทต่าง ๆ )
40	Supporting the development of community programs, events/activities, excursion
	(มีการสนับสนุนการจัดกิจกรรมของชุมชน กิจกรรมการพัฒนาชุมชน กิจกรรมการท่องเที่ยว การศึกษาดูงานในกิจการ และกิจกรรมอื่น)
<b>Products responsibility</b>	
41	Disclosing that products meet applicable safety standards
	(มีการเปิดเผยว่าผลิตภัณฑ์ของกิจการว่า มีมาตรฐาน และปลอดภัย)
42	Providing information on the safety of the firm's product
	(มีการให้ข้อมูลความปลอดภัยของผลิตภัณฑ์ของบริษัท)
43	Information on developments related to the company's products, including its packaging
	(มีการเปิดเผยข้อมูล การพัฒนาผลิตภัณฑ์ของบริษัท รวมถึงการพัฒนาบรรจุภัณฑ์)
44	Product research and development by the company to improve its products in terms of quality and safety
	(มีการวิจัยและพัฒนาด้านผลิตภัณฑ์ ที่จะปรับปรุง คุณภาพและความปลอดภัย)
45	Information on the quality of the firm's products as reflected in prizes/awards received e.g. ISO 9002, 22000, ISO/IEC 17025, GMP/HACCP/HALAL, BRC
	(มีการเปิดเผยข้อมูลคุณภาพของผลิตภัณฑ์ในบริษัท จากรางวัลที่ได้รับ )

## APPENDIX B: MULTICOLLINEARITY TESTING

### APPENDIX B-1: Correlation Coefficients Matrix for All Samples

#### APPENDIX B-1.1: Correlation Coefficients Matrix between ROA and Independent Variables in 2009-2011 Inclusive

		ROA	CSRI	SIZE	LEV	AGE
<b>ROA</b>	Pearson Correlation					
	Sig. (2- tailed)					
<b>CSRI</b>	Pearson Correlation	0.1705*				
	Sig. (2- tailed)	0.0000				
<b>SIZE</b>	Pearson Correlation	0.0338	0.4498*			
	Sig. (2- tailed)	0.2938	0.0000			
<b>LEV</b>	Pearson Correlation	- 0.1834*	0.0230	0.1441*		
	Sig. (2- tailed)	0.0000	0.4747	0.0000		
<b>AGE</b>	Pearson Correlation	0.0201	0.1772*	0.1893*	0.0478	
	Sig. (2- tailed)	0.5314	0.0000	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	- 0.0598	0.0778*	0.0905*	-0.0309	- 0.0877
	Sig. (2- tailed)	0.0629	0.0155	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.

#### APPENDIX B-1.2: Correlation Coefficients Matrix between NPM and Independent Variables in 2009-2011 Inclusive

		NPM	CSRI	SIZE	LEV	AGE
<b>NPM</b>	Pearson Correlation					
	Sig. (2- tailed)					
<b>CSRI</b>	Pearson Correlation	0.1766*				
	Sig. (2- tailed)	0.0000				
<b>SIZE</b>	Pearson Correlation	0.2031*	0.4498*			
	Sig. (2- tailed)	0.0000	0.0000			
<b>LEV</b>	Pearson Correlation	- 0.0970*	0.0230	0.1441*		
	Sig. (2- tailed)	0.0025	0.4747	0.0000		
<b>AGE</b>	Pearson Correlation	0.0791*	0.1772*	0.1893*	0.0478	
	Sig. (2- tailed)	0.0137	0.0000	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	- 0.0124	0.0778*	0.0905*	- 0.0309	- 0.0877
	Sig. (2- tailed)	0.7001	0.0155	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.

**APPENDIX B-1.3: Correlation Coefficients Matrix between EPS and Independent Variables in 2009-2011 Inclusive**

		EPS	CSRI	SIZE	LEV	AGE
<b>EPS</b>	Pearson Correlation					
	Sig. (2- tailed)					
<b>CSRI</b>	Pearson Correlation	0.1199*				
	Sig. (2- tailed)	0.0002				
<b>SIZE</b>	Pearson Correlation	0.2192*	0.4498*			
	Sig. (2- tailed)	0.0000	0.0000			
<b>LEV</b>	Pearson Correlation	- 0.0207	0.0230	0.1441*		
	Sig. (2- tailed)	0.5207	0.4747	0.0000		
<b>AGE</b>	Pearson Correlation	0.2231*	0.1772*	0.1893*	0.0478	
	Sig. (2- tailed)	0.0000	0.0000	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	0.0226	0.0778*	0.0905*	- 0.0309	- 0.0877
	Sig. (2- tailed)	0.4824	0.0155	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.

**APPENDIX B-1.4: Correlation Coefficients Matrix between TBQ and Independent Variables in 2009-2011 Inclusive**

		TBQ	CSRI	SIZE	LEV	AGE
<b>TBQ</b>	Pearson Correlation					
	Sig. (2- tailed)					
<b>CSRI</b>	Pearson Correlation	- 0.0444				
	Sig. (2- tailed)	0.1670				
<b>SIZE</b>	Pearson Correlation	- 0.1007*	0.4498*			
	Sig. (2- tailed)	0.0017	0.0000			
<b>LEV</b>	Pearson Correlation	0.0234	0.0230	0.1441*		
	Sig. (2- tailed)	0.4665	0.4747	0.0000		
<b>AGE</b>	Pearson Correlation	- 0.0671*	0.1772*	0.1893*	0.0478	
	Sig. (2- tailed)	0.0367	0.0000	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	0.0540	0.0778*	0.0905*	- 0.0309	- 0.0877
	Sig. (2- tailed)	0.0927	0.0155	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.

**APPENDIX B-2: Correlation Coefficients Matrix for Each Dimension of CSR  
for All Samples**

## APPENDIX B-2.1: Correlation Coefficients Matrix between ROA and Independent Variables for the Years 2009 to 2011 Inclusive

		ROA	Environment	Energy	Employee	Community	Product	SIZE	LEV	AGE
<b>ROA</b>	Pearson Correlation									
	Sig. (2- tailed)									
<b>Environment</b>	Pearson Correlation	0.1444*								
	Sig. (2- tailed)	0.0000								
<b>Energy</b>	Pearson Correlation	0.0716*	0.5168*							
	Sig. (2- tailed)	0.0257	0.0000							
<b>Employee</b>	Pearson Correlation	0.1104*	0.4887*	0.3868*						
	Sig. (2- tailed)	0.0006	0.0000	0.0000						
<b>Community</b>	Pearson Correlation	0.1711*	0.5624*	0.3168*	0.4321*					
	Sig. (2- tailed)	0.0000	0.0000	0.0000	0.0000					
<b>Product</b>	Pearson Correlation	0.0419	0.3083*	0.1615*	0.2368*	0.1976*				
	Sig. (2- tailed)	0.1924	0.0000	0.0000	0.0000	0.0000				
<b>SIZE</b>	Pearson Correlation	0.0338	0.4223*	0.2259*	0.2517*	0.4646*	0.1426*			
	Sig. (2- tailed)	0.2938	0.0000	0.0000	0.0000	0.0000	0.0000			
<b>LEVERAGE</b>	Pearson Correlation	-0.1834*	-0.0306	0.0556	0.0260	0.0433	0.0094	0.1441*		
	Sig. (2- tailed)	0.0000	0.3417	0.0837	0.4183	0.1779	0.7691	0.0000		
<b>AGE</b>	Pearson Correlation	0.0201	0.1773*	0.1920*	0.0435	0.1847*	0.0789*	0.1893*	0.0478	
	Sig. (2- tailed)	0.5314	0.0000	0.0000	0.1759	0.0000	0.0140	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	-0.0598	0.0805*	0.0349	0.0810*	0.0385	-0.0105	0.0905*	-0.0309	-0.0877*
	Sig. (2- tailed)	0.0629	0.0122	0.2783	0.0116	0.2308	0.7440	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.

## APPENDIX B-2.2: Correlation Coefficients Matrix between NPM and Independent Variables for the Years 2009 to 2011 Inclusive

		NPM	Environment	Energy	Employee	Community	Product	SIZE	LEV	AGE
<b>NPM</b>	Pearson Correlation									
	Sig. (2- tailed)									
<b>Environment</b>	Pearson Correlation	0.1481*								
	Sig. (2- tailed)	0.0000								
<b>Energy</b>	Pearson Correlation	0.0939*	0.5168*							
	Sig. (2- tailed)	0.0034	0.0000							
<b>Employee</b>	Pearson Correlation	0.0898*	0.4887*	0.3868*						
	Sig. (2- tailed)	0.0052	0.0000	0.0000						
<b>Community</b>	Pearson Correlation	0.2030*	0.5624*	0.3168*	0.4321*					
	Sig. (2- tailed)	0.0000	0.0000	0.0000	0.0000					
<b>Product</b>	Pearson Correlation	0.0272	0.3083*	0.1615*	0.2368*	0.1976*				
	Sig. (2- tailed)	0.3975	0.0000	0.0000	0.0000	0.0000				
<b>SIZE</b>	Pearson Correlation	0.2031*	0.4223*	0.2259*	0.2517*	0.4646*	0.1426*			
	Sig. (2- tailed)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
<b>LEVERAGE</b>	Pearson Correlation	-0.0970*	-0.0306	0.0556	0.0260	0.0433	0.0094	0.1441*		
	Sig. (2- tailed)	0.0025	0.3417	0.0837	0.4183	0.1779	0.7691	0.0000		
<b>AGE</b>	Pearson Correlation	0.0791*	0.1773*	0.1920*	0.0435	0.1847*	0.0789*	0.1893*	0.0478	
	Sig. (2- tailed)	0.0137	0.0000	0.0000	0.1759	0.0000	0.0140	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	-0.0124	0.0805*	0.0349	0.0810*	0.0385	-0.0105	0.0905*	-0.0309	-0.0877*
	Sig. (2- tailed)	0.7001	0.0122	0.2783	0.0116	0.2308	0.7440	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.



### APPENDIX B-2.3: Correlation Coefficients Matrix between EPS and Independent Variables for the Years 2009 to 2011 Inclusive

		EPS	Environment	Energy	Employee	Community	Product	SIZE	LEV	AGE
<b>EPS</b>	Pearson Correlation									
	Sig. (2- tailed)									
<b>Environment</b>	Pearson Correlation	0.1645*								
	Sig. (2- tailed)	0.0000								
<b>Energy</b>	Pearson Correlation	0.0445	0.5168*							
	Sig. (2- tailed)	0.1661	0.0000							
<b>Employee</b>	Pearson Correlation	0.0334	0.4887*	0.3868*						
	Sig. (2- tailed)	0.2994	0.0000	0.0000						
<b>Community</b>	Pearson Correlation	0.0971*	0.5624*	0.3168*	0.4321*					
	Sig. (2- tailed)	0.0025	0.0000	0.0000	0.0000					
<b>Product</b>	Pearson Correlation	0.0706*	0.3083*	0.1615*	0.2368*	0.1976*				
	Sig. (2- tailed)	0.0280	0.0000	0.0000	0.0000	0.0000				
<b>SIZE</b>	Pearson Correlation	0.2192*	0.4223*	0.2259*	0.2517*	0.4646*	0.1426*			
	Sig. (2- tailed)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
<b>LEVERAGE</b>	Pearson Correlation	-0.0207	-0.0306	0.0556	0.0260	0.0433	0.0094	0.1441*		
	Sig. (2- tailed)	0.5207	0.3417	0.0837	0.4183	0.1779	0.7691	0.0000		
<b>AGE</b>	Pearson Correlation	0.2231*	0.1773*	0.1920*	0.0435	0.1847*	0.0789*	0.1893*	0.0478	
	Sig. (2- tailed)	0.0000	0.0000	0.0000	0.1759	0.0000	0.0140	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	0.0226	0.0805*	0.0349	0.0810*	0.0385	-0.0105	0.0905*	-0.0309	-0.0877
	Sig. (2- tailed)	0.4824	0.0122	0.2783	0.0116	0.2308	0.7440	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.

#### APPENDIX B-2.4: Correlation Coefficients Matrix between TBQ and Independent Variables for the Years 2009 to 2011 Inclusive

		TBQ	Environment	Energy	Employee	Community	Product	SIZE	LEV	AGE
<b>TBQ</b>	Pearson Correlation									
	Sig. (2- tailed)									
<b>Environment</b>	Pearson Correlation	-0.0247								
	Sig. (2- tailed)	0.4434								
<b>Energy</b>	Pearson Correlation	-0.0338	0.5168*							
	Sig. (2- tailed)	0.2927	0.0000							
<b>Employee</b>	Pearson Correlation	0.0072	0.4887*	0.3868*						
	Sig. (2- tailed)	0.8220	0.0000	0.0000						
<b>Community</b>	Pearson Correlation	-0.0739*	0.5624*	0.3168*	0.4321*					
	Sig. (2- tailed)	0.0214	0.0000	0.0000	0.0000					
<b>Product</b>	Pearson Correlation	-0.0612	0.3083*	0.1615*	0.2368*	0.1976*				
	Sig. (2- tailed)	0.0570	0.0000	0.0000	0.0000	0.0000				
<b>SIZE</b>	Pearson Correlation	-0.1007*	0.4223*	0.2259*	0.2517*	0.4646*	0.1426*			
	Sig. (2- tailed)	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000			
<b>LEVERAGE</b>	Pearson Correlation	0.0234	-0.0306	0.0556	0.0260	0.0433	0.0094	0.1441*		
	Sig. (2- tailed)	0.4665	0.3417	0.0837	0.4183	0.1779	0.7691	0.0000		
<b>AGE</b>	Pearson Correlation	-0.0671*	0.1773*	0.1920*	0.0435	0.1847*	0.0789*	0.1893*	0.0478	
	Sig. (2- tailed)	0.0367	0.0000	0.0000	0.1759	0.0000	0.0140	0.0000	0.1367	
<b>IDIRECTOR</b>	Pearson Correlation	0.0540	0.0805*	0.0349	0.0810*	0.0385	-0.0105	0.0905*	-0.0309	-0.0877*
	Sig. (2- tailed)	0.0927	0.0122	0.2783	0.0116	0.2308	0.7440	0.0048	0.3364	0.0063

\* Correlation is significant at the 0.01 level.

**APPENDIX B-3: Correlation Coefficients Matrix for Manufacturing and Non-Manufacturing Industries**

**Appendix B-3.1: Correlation Coefficient Matrix between ROA and Independent Variables for Manufacturing and Non-Manufacturing Industries between 2009 and 2011**

		Manufacturing industry					Non-Manufacturing industry				
		ROA	CSRI	SIZE	LEV	AGE	ROA	CSRI	SIZE	LEV	AGE
<b>ROA</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	0.0534					0.2147*				
	Sig. (2- tailed)	0.4047					0.0000				
<b>SIZE</b>	Pearson Correlation	0.0605	0.2963*				-0.0928*	0.1598*			
	Sig. (2- tailed)	0.3446	0.0000				0.0126	0			
<b>LEV</b>	Pearson Correlation	-0.2461*	0.0993	0.0898			-0.1959*	0.036	0.2038*		
	Sig. (2- tailed)	0.0001	0.1202	0.1604			0.0000	0.334	0.0000		
<b>AGE</b>	Pearson Correlation	0.0999	0.053	-0.0415	-0.2370*		0.0011	0.2634*	0.3133*	0.0528	
	Sig. (2- tailed)	0.1181	0.408	0.5167	0.0002		0.9767	0.0000	0.0000	0.1562	
<b>IDIRECTOR</b>	Pearson Correlation	0.0043	0.1863*	0.3775*	0.0419	-0.2008	-0.0880*	0.0078	0.0691	-0.0336	-0.0274
	Sig. (2- tailed)	0.9468	0.0034	0.0000	0.5134	0.0015	0.0179	0.8344	0.0631	0.3667	0.4619

\* Correlation is significant at the 0.01 level.

**Appendix B-3.2: Correlation Coefficient Matrix between NPM and Independent Variables for Manufacturing and Non-Manufacturing Industries between 2009 and 2011**

		Manufacturing industry					Non-Manufacturing industry				
		NPM	CSRI	SIZE	LEV	AGE	NPM	CSRI	SIZE	LEV	AGE
<b>NPM</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	0.1031					0.2189*				
	Sig. (2- tailed)	0.1066					0.0000				
<b>SIZE</b>	Pearson Correlation	0.0451	0.2963*				0.1210*	0.1598*			
	Sig. (2- tailed)	0.4818	0.0000				0.0011	0.0000			
<b>LEV</b>	Pearson Correlation	-0.3377*	0.0993	0.0898			-0.1000*	0.036	0.2038*		
	Sig. (2- tailed)	0.0000	0.1202	0.1604			0.0071	0.334	0.0000		
<b>AGE</b>	Pearson Correlation	0.0659	0.053	-0.0415	-0.2370*		0.0787*	0.2634*	0.3133*	0.0528	
	Sig. (2- tailed)	0.3032	0.408	0.5167	0.0002		0.0344	0.0000	0.0000	0.1562	
<b>IDIRECTOR</b>	Pearson Correlation	0.0991	0.1863*	0.3775*	0.0419	-0.2008	-0.0611	0.0078	0.0691	-0.0336	-0.0274
	Sig. (2- tailed)	0.121	0.0034	0.0000	0.5134	0.0015	0.1008	0.8344	0.0631	0.3667	0.4619

\* Correlation is significant at the 0.01 level.

**Appendix B-3.3: Correlation Coefficient Matrix between EPS and Independent Variables for Manufacturing and Non-Manufacturing Industries between 2009 and 2011**

		Manufacturing industry					Non-Manufacturing industry				
		EPS	CSRI	SIZE	LEV	AGE	EPS	CSRI	SIZE	LEV	AGE
<b>EPS</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	0.1698*					0.0843*				
	Sig. (2- tailed)	0.0076					0.0233				
<b>SIZE</b>	Pearson Correlation	0.4272*	0.2963*				0.1271*	0.1598*			
	Sig. (2- tailed)	0.0000	0.0000				0.0006	0.0000			
<b>LEV</b>	Pearson Correlation	-0.0221	0.0993	0.0898			-0.0213	0.036	0.2038*		
	Sig. (2- tailed)	0.7299	0.1202	0.1604			0.5679	0.334	0.0000		
<b>AGE</b>	Pearson Correlation	0.1887*	0.053	-0.0415	-0.2370*		0.2588*	0.2634*	0.3133*	0.0528	
	Sig. (2- tailed)	0.003	0.408	0.5167	0.0002		0.0000	0.0000	0.0000	0.1562	
<b>IDIRECTOR</b>	Pearson Correlation	0.1876*	0.1863*	0.3775*	0.0419	-0.2008	-0.0825*	0.0078	0.0691	-0.0336	-0.0274
	Sig. (2- tailed)	0.0031	0.0034	0.0000	0.5134	0.0015	0.0265	0.8344	0.0631	0.3667	0.4619

\* Correlation is significant at the 0.01 level.

**Appendix B-3.4: Correlation Coefficient Matrix between TBQ and Independent Variables for Manufacturing and Non-Manufacturing Industries between 2009 and 2011**

		Manufacturing industry					Non-Manufacturing industry				
		TBQ	CSRI	SIZE	LEV	AGE	TBQ	CSRI	SIZE	LEV	AGE
<b>TBQ</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	-0.1486*					0.0113				
	Sig. (2- tailed)	0.0197					0.7612				
<b>SIZE</b>	Pearson Correlation	-0.042	0.2963*				-0.0795*	0.1598*			
	Sig. (2- tailed)	0.5125	0.0000				0.0325	0.0000			
<b>LEV</b>	Pearson Correlation	-0.066	0.0993	0.0898			0.0452	0.036	0.2038*		
	Sig. (2- tailed)	0.3026	0.1202	0.1604			0.2249	0.334	0.0000		
<b>AGE</b>	Pearson Correlation	0.0715	0.053	-0.0415	-0.2370*		-0.1322*	0.2634*	0.3133*	0.0528	
	Sig. (2- tailed)	0.2639	0.408	0.5167	0.0002		0.0004	0.0000	0.0000	0.1562	
<b>IDIRECTOR</b>	Pearson Correlation	0.012	0.1863*	0.3775*	0.0419	-0.2008	0.0771*	0.0078	0.0691	-0.0336	-0.0274
	Sig. (2- tailed)	0.8509	0.0034	0.0000	0.5134	0.0015	0.0381	0.8344	0.0631	0.3667	0.4619

\* Correlation is significant at the 0.01 level.

**APPENDIX B-4: Correlation Coefficients Matrix for Each Dimension of CSR  
for Manufacturing and Non-Manufacturing Industries**



### Appendix B-4.1: Correlation Coefficients Matrix between ROA and CSR Dimensions in 2009-2011 for Manufacturing and Non-Manufacturing Industries

Variables		Manufacturing Industry									Non-manufacturing Industry								
		Environ			Commu			LEVER			Environ			Commu			LEVER		
		ROA	ment	Energy	Employee	nity	Product	SIZE	AGE	AGE	ROA	ment	Energy	Employee	nity	Product	SIZE	AGE	AGE
<b>ROA</b>	Pearson Correlation																		
	Sig. (2- tailed)																		
<b>Environment</b>	Pearson Correlation	0.0159									0.2013*								
	Sig. (2- tailed)	0.8045									0.0000								
<b>Energy</b>	Pearson Correlation	0.0892	0.5768*								0.0654	0.5038*							
	Sig. (2- tailed)	0.1633	0.0000								0.0787	0.0000							
<b>Employee</b>	Pearson Correlation	0.0366	0.5893*	0.3252*							0.1320*	0.4355*	0.4085*						
	Sig. (2- tailed)	0.5677	0.0000	0.0000							0.0004	0.0000	0.0000						
<b>Community</b>	Pearson Correlation	0.0671	0.7155*	0.4336*	0.5154*						0.2058*	0.5124*	0.2733*	0.4045*					
	Sig. (2- tailed)	0.2949	0.0000	0.0000	0.0000						0.0000	0.0000	0.0000	0.0000					
<b>Product</b>	Pearson Correlation	-0.059	0.2701*	0.1604*	0.3234*	0.1571*					0.0764*	0.2933*	0.1598*	0.1837*	0.2198*				
	Sig. (2- tailed)	0.357	0.0000	0.0118	0.0000	0.0136					0.0400	0.0000	0.0000	0.0000	0.0000				
<b>SIZE</b>	Pearson Correlation	-0.0301	0.6032*	0.3384*	0.3763*	0.5516*	0.1637*				0.0533	0.3309*	0.1819*	0.1989*	0.4328*	0.1212*			
	Sig. (2- tailed)	0.6384	0.0000	0.0000	0.0000	0.0000	0.0101				0.1526	0.0000	0.0000	0.0000	0.0000	0.0011			
<b>LEVERAGE</b>	Pearson Correlation	-0.2461*	0.0585	0.0106	0.1045	0.1182	0.0565	0.1970*			-0.1959*	-0.0223	0.0673	0.0347	0.0447	0.0249	0.1667*		
	Sig. (2- tailed)	0.0001	0.3611	0.8689	0.102	0.0642	0.3778	0.0019			0.0000	0.5489	0.0704	0.3511	0.2295	0.5045	0.0000		
<b>AGE</b>	Pearson Correlation	0.0999	0.1281*	0.1532*	-0.0548	0.032	0.0033	-0.1075	-0.2370*		0.0011	0.2617*	0.2139*	0.0987*	0.2405*	0.1494*	0.3107*	0.0528	
	Sig. (2- tailed)	0.1181	0.0447	0.0162	0.3925	0.6169	0.9593	0.0924	0.0002		0.9767	0.0000	0.0000	0.0079	0.0000	0.0001	0.0000	0.1562	
<b>IDIRECTOR</b>	Pearson Correlation	0.0043	0.1781*	0.0823	0.1374*	0.1684*	0.0497	0.3461*	0.0419	-0.2008*	-0.0880*	0.0011	0.0115	0.0469	-0.0192	-0.0609	-0.0314	-0.0336	-0.0274
	Sig. (2- tailed)	0.9468	0.0051	0.1986	0.0312	0.0081	0.4374	0.0000	0.5134	0.0015	0.0179	0.9758	0.757	0.2077	0.6062	0.1016	0.3995	0.3667	0.4619

\* Correlation is significant at the 0.01 level.

## Appendix B-4.2: Correlation Coefficients Matrix between NPM and CSR Dimensions in 2009-2011 for Manufacturing and Non-Manufacturing Industries

Variables		Manufacturing Industry									Non-manufacturing Industry								
		Environ			Emplo			Commu			Environ			Commu					
		NPM	ment	Energy	ye	nity	Product	SIZE	LEV	AGE	NPM	ment	Energy	Employee	nity	Product	SIZE	LEV	AGE
<b>NPM</b>	Pearson Correlation																		
	Sig. (2- tailed)																		
<b>Environment</b>	Pearson Correlation	0.1034									0.1879*								
	Sig. (2- tailed)	0.1057									0.0000								
<b>Energy</b>	Pearson Correlation	0.0744	0.5768*								0.1027*	0.5038*							
	Sig. (2- tailed)	0.2451	0.0000								0.0057	0.0000							
<b>Employee</b>	Pearson Correlation	0.0419	0.5893*	0.3252*							0.1133*	0.4355*	0.4085*						
	Sig. (2- tailed)	0.5125	0.0000	0.0000							0.0023	0.0000	0.0000						
<b>Community</b>	Pearson Correlation	0.1247	0.7155*	0.4336*	0.5154*						0.2342*	0.5124*	0.2733*	0.4045*					
	Sig. (2- tailed)	0.0508	0.0000	0.0000	0.0000						0.0000	0.0000	0.0000	0.0000					
<b>Product</b>	Pearson Correlation	-0.039	0.2701*	0.1604*	0.3234*	0.1571*					0.0656	0.2933*	0.1598*	0.1837*	0.2198*				
	Sig. (2- tailed)	0.5423	0.0000	0.0118	0.0000	0.0136					0.0779	0.0000	0.0000	0.0000	0.0000				
<b>SIZE</b>	Pearson Correlation	0.1122	0.6032*	0.3384*	0.3763*	0.5516*	0.1637*				0.2432*	0.3309*	0.1819*	0.1989*	0.4328*	0.1212*			
	Sig. (2- tailed)	0.0791	0.0000	0.0000	0.0000	0.0000	0.0101				0.0000	0.0000	0.0000	0.0000	0.0000	0.0011			
<b>LEVERAGE</b>	Pearson Correlation	-0.3377*	0.0585	0.0106	0.1045	0.1182	0.0565	0.1970*			-0.1000*	-0.0223	0.0673	0.0347	0.0447	0.0249	0.1667*		
	Sig. (2- tailed)	0.0000	0.3611	0.8689	0.102	0.0642	0.3778	0.0019			0.0071	0.5489	0.0704	0.3511	0.2295	0.5045	0.0000		
<b>AGE</b>	Pearson Correlation	0.0659	0.1281*	0.1532*	-0.0548	0.032	0.0033	-0.1075	-0.2370*		0.0787*	0.2617*	0.2139*	0.0987*	0.2405*	0.1494*	0.3107*	0.0528	
	Sig. (2- tailed)	0.3032	0.0447	0.0162	0.3925	0.6169	0.9593	0.0924	0.0002		0.0344	0.0000	0.0000	0.0079	0.0000	0.0001	0.0000	0.1562	
<b>IDIRECTOR</b>	Pearson Correlation	0.0991	0.1781*	0.0823	0.1374*	0.1684*	0.0497	0.3461*	0.0419	-0.2008*	-0.0611	0.0011	0.0115	0.0469	-0.0192	-0.0609	-0.0314	-0.0336	-0.0274
	Sig. (2- tailed)	0.121	0.0051	0.1986	0.0312	0.0081	0.4374	0.0000	0.5134	0.0015	0.1008	0.9758	0.757	0.2077	0.6062	0.1016	0.3995	0.3667	0.4619

\* Correlation is significant at the 0.01 level.

### Appendix B-4.3: Correlation Coefficients Matrix between EPS and CSR Dimensions in 2009-2011 for Manufacturing and Non-Manufacturing Industries

Variables		Manufacturing Industry									Non-manufacturing Industry								
		Environ			Communit						Environ			Communit					
		EPS	ment	Energy	Employee	nity	Product	SIZE	LEV	AGE	EPS	ment	Energy	Employee	nity	Product	SIZE	LEV	AGE
<b>EPS</b>	Pearson Correlation																		
	Sig. (2- tailed)																		
<b>Environment</b>	Pearson Correlation	0.2361*									0.1086*								
	Sig. (2- tailed)	0.0002									0.0035								
<b>Energy</b>	Pearson Correlation	0.0467	0.5768*								0.0427	0.5038*							
	Sig. (2- tailed)	0.4657	0.0000								0.2511	0.0000							
<b>Employee</b>	Pearson Correlation	0.0565	0.5893*	0.3252*							0.0167	0.4355*	0.4085*						
	Sig. (2- tailed)	0.3776	0.0000	0.0000							0.6548	0.0000	0.0000						
<b>Community</b>	Pearson Correlation	0.1969*	0.7155*	0.4336*	0.5154*						0.0473	0.5124*	0.2733*	0.4045*					
	Sig. (2- tailed)	0.0019	0.0000	0.0000	0.0000						0.2036	0.0000	0.0000	0.0000					
<b>Product</b>	Pearson Correlation	-0.0366	0.2701*	0.1604*	0.3234*	0.1571*					0.1257*	0.2933*	0.1598*	0.1837*	0.2198*				
	Sig. (2- tailed)	0.568	0.0000	0.0118	0.0000	0.0136					0.0007	0.0000	0.0000	0.0000	0.0000				
<b>SIZE</b>	Pearson Correlation	0.3273*	0.6032*	0.3384*	0.3763*	0.5516*	0.1637*				0.1632*	0.3309*	0.1819*	0.1989*	0.4328*	0.1212*			
	Sig. (2- tailed)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0101				0.0000	0.0000	0.0000	0.0000	0.0000	0.0011			
<b>LEVERAGE</b>	Pearson Correlation	-0.0221	0.0585	0.0106	0.1045	0.1182	0.0565	0.1970*			-0.0213	-0.0223	0.0673	0.0347	0.0447	0.0249	0.1667*		
	Sig. (2- tailed)	0.7299	0.3611	0.8689	0.102	0.0642	0.3778	0.0019			0.5679	0.5489	0.0704	0.3511	0.2295	0.5045	0.0000		
<b>AGE</b>	Pearson Correlation	0.1887*	0.1281*	0.1532*	-0.0548	0.032	0.0033	-0.1075	-0.2370*		0.2588*	0.2617*	0.2139*	0.0987*	0.2405*	0.1494*	0.3107*	0.0528	
	Sig. (2- tailed)	0.003	0.0447	0.0162	0.3925	0.6169	0.9593	0.0924	0.0002		0.0000	0.0000	0.0000	0.0079	0.0000	0.0001	0.0000	0.1562	
<b>IDIRECTOR</b>	Pearson Correlation	0.1876*	0.1781*	0.0823	0.1374*	0.1684*	0.0497	0.3461*	0.0419	-0.2008*	-0.0825*	0.0011	0.0115	0.0469	-0.0192	-0.0609	-0.0314	-0.0336	-0.0274
	Sig. (2- tailed)	0.0031	0.0051	0.1986	0.0312	0.0081	0.4374	0.0000	0.5134	0.0015	0.0265	0.9758	0.757	0.2077	0.6062	0.1016	0.3995	0.3667	0.4619

\* Correlation is significant at the 0.01 level

#### Appendix B-4.4: Correlation Coefficients Matrix between TBQ and CSR Dimensions in 2009-2011 for Manufacturing and Non-Manufacturing Industries

Variables		Manufacturing Industry									Non-manufacturing Industry											
		Environ			Employee			Commu			Environ			Commu								
		TBQ	ment	Energy	e	nity	Product	SIZE	LEV	AGE	TBQ	ment	Energy	Employee	nity	Product	SIZE	LEV	AGE			
TBQ	Pearson Correlation																					
	Sig. (2- tailed)																					
Environment	Pearson Correlation	-0.0821								-0.0036												
	Sig. (2- tailed)	0.1992								0.9237												
Energy	Pearson Correlation	-0.0703	0.5768*							-0.0163	0.5038*											
	Sig. (2- tailed)	0.2717	0.0000							0.6615	0.0000											
Employee	Pearson Correlation	-0.1328*	0.5893*	0.3252*						0.0788*	0.4355*	0.4085*										
	Sig. (2- tailed)	0.0374	0.0000	0.0000						0.034	0.0000	0.0000										
Community	Pearson Correlation	-0.1275*	0.7155*	0.4336*	0.5154*					-0.045	0.5124*	0.2733*	0.4045*									
	Sig. (2- tailed)	0.0457	0.0000	0.0000	0.0000					0.227	0.0000	0.0000	0.0000									
Product	Pearson Correlation	-0.1747*	0.2701*	0.1604*	0.3234*	0.1571*				-0.0028	0.2933*	0.1598*	0.1837*	0.2198*								
	Sig. (2- tailed)	0.006	0.0000	0.0118	0.0000	0.0136				0.9397	0.0000	0.0000	0.0000	0.0000								
SIZE	Pearson Correlation	-0.1402*	0.6032*	0.3384*	0.3763*	0.5516*	0.1637*				-0.0877*	0.3309*	0.1819*	0.1989*	0.4328*	0.1212*						
	Sig. (2- tailed)	0.0279	0.0000	0.0000	0.0000	0.0000	0.0101				0.0183	0.0000	0.0000	0.0000	0.0000	0.0011						
LEVERAGE	Pearson Correlation	-0.066	0.0585	0.0106	0.1045	0.1182	0.0565	0.1970*				0.0452	-0.0223	0.0673	0.0347	0.0447	0.0249	0.1667*				
	Sig. (2- tailed)	0.3026	0.3611	0.8689	0.102	0.0642	0.3778	0.0019				0.2249	0.5489	0.0704	0.3511	0.2295	0.5045	0.0000				
AGE	Pearson Correlation	0.0715	0.1281*	0.1532*	-0.0548	0.032	0.0033	-0.1075	-0.2370*				-0.1322*	0.2617*	0.2139*	0.0987*	0.2405*	0.1494*	0.3107*	0.0528		
	Sig. (2- tailed)	0.2639	0.0447	0.0162	0.3925	0.6169	0.9593	0.0924	0.0002				0.0004	0.0000	0.0000	0.0079	0.0000	0.0001	0.0000	0.1562		
IDIRECTOR	Pearson Correlation	0.012	0.1781*	0.0823	0.1374*	0.1684*	0.0497	0.3461*	0.0419	-0.2008*				0.0771*	0.0011	0.0115	0.0469	-0.0192	-0.0609	-0.0314	-0.0336	-0.0274
	Sig. (2- tailed)	0.8509	0.0051	0.1986	0.0312	0.0081	0.4374	0.0000	0.5134	0.0015				0.0381	0.9758	0.757	0.2077	0.6062	0.1016	0.3995	0.3667	0.4619

\* Correlation is significant at the 0.01 level

**APPENDIX B-5: Correlation Coefficients Matrix for Financial and Non-Financial Industries**

**Appendix B-5.1: Correlation Coefficient Matrix between ROA and Independent Variables for Financial and Non-Financial Industries between 2009 and 2011**

		Financial industry					Non-Financial industry				
		ROA	CSRI	SIZE	LEV	AGE	ROA	CSRI	SIZE	LEV	AGE
<b>ROA</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	0.1293					0.2179*				
	Sig. (2- tailed)	0.1306					0				
<b>SIZE</b>	Pearson Correlation	-0.1638	0.4028*				0.0922*	0.2965*			
	Sig. (2- tailed)	0.0549	0				0.0257	0			
<b>LEV</b>	Pearson Correlation	-0.3388*	0.2719*	0.5178*			-0.1568*	0.0153	0.0087		
	Sig. (2- tailed)	0	0.0013	0			0.0001	0.7124	0.8328		
<b>AGE</b>	Pearson Correlation	-0.1771*	0.2916*	0.5242*	0.3382*		0.051	0.2701*	0.2121*	-0.0225	
	Sig. (2- tailed)	0.0378	0.0005	0	0		0.2184	0	0	0.5874	
<b>IDIRECTOR</b>	Pearson Correlation	0.0516	0.2896*	0.1592	-0.0277	0.1538	-0.1111*	-0.0607	-0.0569	-0.0371	-0.0929
	Sig. (2- tailed)	0.5476	0.0006	0.0622	0.7472	0.0716	0.0072	0.1425	0.1691	0.3709	0.0246

\* Correlation is significant at the 0.01 level.

**Appendix B-5.2: Correlation Coefficient Matrix between NPM and Independent Variables for Financial and Non-Financial Industries between 2009 and 2011**

		Financial industry					Non-Financial industry				
		NPM	CSRI	SIZE	LEV	AGE	NPM	CSRI	SIZE	LEV	AGE
<b>NPM</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	0.2753*					0.2210*				
	Sig. (2- tailed)	0.0011					0				
<b>SIZE</b>	Pearson Correlation	0.1838*	0.4028*				0.1007*	0.2965*			
	Sig. (2- tailed)	0.0309	0				0.0148	0			
<b>LEV</b>	Pearson Correlation	-0.0497	0.2719*	0.5178*			-0.1338*	0.0153	0.0087		
	Sig. (2- tailed)	0.5625	0.0013	0			0.0012	0.7124	0.8328		
<b>AGE</b>	Pearson Correlation	0.0394	0.2916*	0.5242*	0.3382*		0.0752	0.2701*	0.2121*	-0.0225	
	Sig. (2- tailed)	0.6466	0.0005	0	0		0.069	0	0	0.5874	
<b>IDIRECTOR</b>	Pearson Correlation	0.1459	0.2896*	0.1592	-0.0277	0.1538	-0.1128*	-0.0607	-0.0569	-0.0371	-0.0929
	Sig. (2- tailed)	0.0877	0.0006	0.0622	0.7472	0.0716	0.0063	0.1425	0.1691	0.3709	0.0246

\* Correlation is significant at the 0.01 level.

**Appendix B-5.3: Correlation Coefficient Matrix between EPS and Independent Variables for Financial and Non-Financial Industries between 2009 and 2011**

		Financial industry					Non-Financial industry				
		EPS	CSRI	SIZE	LEV	AGE	EPS	CSRI	SIZE	LEV	AGE
<b>EPS</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	0.1902*					0.0657				
	Sig. (2- tailed)	0.0255					0.1123				
<b>SIZE</b>	Pearson Correlation	0.2318*	0.4028*				0.2094*	0.2965*			
	Sig. (2- tailed)	0.0062	0				0	0			
<b>LEV</b>	Pearson Correlation	0.1313	0.2719*	0.5178*			-0.0518	0.0153	0.0087		
	Sig. (2- tailed)	0.1249	0.0013	0			0.2105	0.7124	0.8328		
<b>AGE</b>	Pearson Correlation	0.2442*	0.2916*	0.5242*	0.3382*		0.2629*	0.2701*	0.2121*	-0.0225	
	Sig. (2- tailed)	0.0039	0.0005	0	0		0	0	0	0.5874	
<b>IDIRECTOR</b>	Pearson Correlation	0.1364	0.2896*	0.1592	-0.0277	0.1538	-0.1422*	-0.0607	-0.0569	-0.0371	-0.0929
	Sig. (2- tailed)	0.1106	0.0006	0.0622	0.7472	0.0716	0.0006	0.1425	0.1691	0.3709	0.0246

\* Correlation is significant at the 0.01 level.



**Appendix B-5.4: Correlation Coefficient Matrix between TBQ and Independent Variables for Financial and Non-Financial Industries between 2009 and 2011**

		Financial industry					Non-Financial industry				
		TBQ	CSRI	SIZE	LEV	AGE	TBQ	CSRI	SIZE	LEV	AGE
<b>TBQ</b>	Pearson Correlation										
	Sig. (2- tailed)										
<b>CSRI</b>	Pearson Correlation	0.0825					-0.0065				
	Sig. (2- tailed)	0.3358					0.8755				
<b>SIZE</b>	Pearson Correlation	-0.1207	0.4028*				-0.0038	0.2965*			
	Sig. (2- tailed)	0.1584	0				0.9262	0			
<b>LEV</b>	Pearson Correlation	-0.2685*	0.2719*	0.5178*			0.0982*	0.0153	0.0087		
	Sig. (2- tailed)	0.0015	0.0013	0			0.0176	0.7124	0.8328		
<b>AGE</b>	Pearson Correlation	-0.128	0.2916*	0.5242*	0.3382*		-0.1253*	0.2701*	0.2121*	-0.0225	
	Sig. (2- tailed)	0.1346	0.0005	0	0		0.0024	0	0	0.5874	
<b>IDIRECTOR</b>	Pearson Correlation	0.0168	0.2896*	0.1592	-0.0277	0.1538	0.0910*	-0.0607	-0.0569	-0.0371	-0.0929
	Sig. (2- tailed)	0.8453	0.0006	0.0622	0.7472	0.0716	0.0277	0.1425	0.1691	0.3709	0.0246

\* Correlation is significant at the 0.01 level.

**APPENDIX B-6: Correlation Coefficients Matrix for Each Dimension of CSR  
for Financial and Non-Financial Industries**

## Appendix B-6.1: Correlation Coefficients Matrix between ROA and CSR Dimensions in 2009-2011 for Financial and Non-Financial Industries

Variables		Financial Industry									Non-financial Industry								
		ROA	Environm ent	Energy	Emple yee	Commu nity	Product	Log SIZE	LEV	AGE	ROA	Environ ment	Energy	Employee	Commu nity	Product	Log SIZE	LEV	AGE
ROA	Pearson Correlation																		
	Sig. (2- tailed)																		
Environment	Pearson Correlation	0.1068									0.1887*								
	Sig. (2- tailed)	0.2126									0								
Energy	Pearson Correlation	0.1035	0.4983*								0.0773	0.5182*							
	Sig. (2- tailed)	0.2269	0								0.0616	0							
Employee	Pearson Correlation	0.0699	0.3560*	0.3884*							0.1284*	0.4441*	0.4175*						
	Sig. (2- tailed)	0.4155	0	0							0.0019	0	0						
Community	Pearson Correlation	0.1423	0.5221*	0.1667	0.3733*						0.2399*	0.5275*	0.2958*	0.4186*					
	Sig. (2- tailed)	0.0959	0	0.0507	0						0	0	0	0					
Product	Pearson Correlation	-0.1008	0.4026*	0.046	0.1658	0.4803*					0.0539	0.2668*	0.1872*	0.1789*	0.1990*				
	Sig. (2- tailed)	0.2396	0	0.592	0.0519	0					0.193	0	0	0	0				
SIZE	Pearson Correlation	-0.1646	0.4927*	0.1825*	0.1669	0.6363*	0.5753*				0.1837*	0.3715*	0.1823*	0.2577*	0.3637*	0.0928*			
	Sig. (2- tailed)	0.0537	0	0.0321	0.0503	0	0				0	0	0	0	0	0.0248			
LEV	Pearson Correlation	-0.3388*	0.2053*	0.0782	0.0875	0.3182*	0.3462*	0.7447*			-0.1568*	-0.0287	0.0579	0.0399	-0.0099	0.0233	-0.024		
	Sig. (2- tailed)	0	0.0157	0.3617	0.3075	0.0001	0	0			0.0001	0.488	0.1616	0.3354	0.8105	0.5739	0.563		
AGE	Pearson Correlation	-0.1771*	0.2647*	0.1832*	0.0761	0.3216*	0.1346	0.4718*	0.3382*		0.051	0.2870*	0.2206*	0.1151*	0.2106*	0.1815*	0.2096*	-0.0225	
	Sig. (2- tailed)	0.0378	0.0017	0.0315	0.3749	0.0001	0.1154	0	0		0.2184	0	0	0.0053	0	0	0	0.5874	
IDIRECTOR	Pearson Correlation	0.0516	0.2663*	0.1328	0.2554*	0.2114*	-0.0115	0.1395	-0.0277	0.1538	-0.1111*	-0.0571	-0.019	-0.0006	-0.0876*	-0.0711	-0.1170*	-0.0371	-0.093*
	Sig. (2- tailed)	0.5476	0.0016	0.1204	0.0025	0.0128	0.8932	0.1026	0.7472	0.0716	0.0072	0.1675	0.6458	0.9884	0.0341	0.0859	0.0046	0.3709	0.0246

\* Correlation is significant at the 0.01 level.

## Appendix B-6.2: Correlation Coefficients Matrix between NPM and CSR Dimensions in 2009-2011 for Financial and Non-Financial Industries

Variables		Financial Industry									Non-financial Industry								
		Environm			Emple Commu			SIZE	LEV	AGE	Environ			Commu			SIZE	LEV	AGE
		NPM	ent	Energy	ye	nity	Product				NPM	ment	Energy	Employee	nity	Product			
<b>NPM</b>	Pearson Correlation																		
	Sig. (2- tailed)																		
<b>Environment</b>	Pearson Correlation	0.2484*									0.2009*								
	Sig. (2- tailed)	0.0033									0								
<b>Energy</b>	Pearson Correlation	0.1708*	0.4983*								0.0837*	0.5182*							
	Sig. (2- tailed)	0.0452	0								0.0431	0							
<b>Employee</b>	Pearson Correlation	0.0928	0.3560*	0.3884*							0.1277*	0.4441*	0.4175*						
	Sig. (2- tailed)	0.2789	0	0							0.002	0	0						
<b>Community</b>	Pearson Correlation	0.2901*	0.5221*	0.1667	0.3733*						0.2175*	0.5275*	0.2958*	0.4186*					
	Sig. (2- tailed)	0.0006	0	0.0507	0						0	0	0	0					
<b>Product</b>	Pearson Correlation	0.1088	0.4026*	0.046	0.1658	0.4803*					0.0855*	0.2668*	0.1872*	0.1789*	0.1990*				
	Sig. (2- tailed)	0.2042	0	0.592	0.0519	0					0.0386	0	0	0	0				
<b>SIZE</b>	Pearson Correlation	0.1831*	0.4927*	0.1825*	0.1669	0.6363*	0.5753*				0.2446*	0.3715*	0.1823*	0.2577*	0.3637*	0.0928*			
	Sig. (2- tailed)	0.0316	0	0.0321	0.0503	0	0				0	0	0	0	0	0.0248			
<b>LEV</b>	Pearson Correlation	-0.0497	0.2053*	0.0782	0.0875	0.3182*	0.3462*	0.7447*			-0.1338*	-0.0287	0.0579	0.0399	-0.0099	0.0233	-0.024		
	Sig. (2- tailed)	0.5625	0.0157	0.3617	0.3075	0.0001	0	0			0.0012	0.488	0.1616	0.3354	0.8105	0.5739	0.563		
<b>AGE</b>	Pearson Correlation	0.0394	0.2647*	0.1832*	0.0761	0.3216*	0.1346	0.4718*	0.3382*		0.0752	0.2870*	0.2206*	0.1151*	0.2106*	0.1815*	0.2096*	-0.0225	
	Sig. (2- tailed)	0.6466	0.0017	0.0315	0.3749	0.0001	0.1154	0	0		0.069	0	0	0.0053	0	0	0	0.5874	
<b>IDIRECTOR</b>	Pearson Correlation	0.1459	0.2663*	0.1328	0.2554*	0.2114*	-0.0115	0.1395	-0.0277	0.1538	-0.1128*	-0.0571	-0.019	-0.0006	-0.0876*	-0.0711	-0.1170*	-0.0371	-0.093*
	Sig. (2- tailed)	0.0877	0.0016	0.1204	0.0025	0.0128	0.8932	0.1026	0.7472	0.0716	0.0063	0.1675	0.6458	0.9884	0.0341	0.0859	0.0046	0.3709	0.0246

\* Correlation is significant at the 0.01 level.

### Appendix B-6.3: Correlation Coefficients Matrix between EPS and CSR Dimensions in 2009-2011 for Financial and Non-Financial Industries

Variables		Financial Industry									Non-financial Industry								
		Environ			Employee			Community			Environ			Employee			Community		
		EPS	ment	Energy	e	nity	Product	SIZE	LEV	AGE	EPS	ment	Energy	Employee	nity	Product	SIZE	LEV	AGE
<b>EPS</b>	Pearson Correlation																		
	Sig. (2- tailed)																		
<b>Environment</b>	Pearson Correlation	0.1845*									0.1011*								
	Sig. (2- tailed)	0.0303									0.0145								
<b>Energy</b>	Pearson Correlation	0.1322	0.4983*								0.0222	0.5182*							
	Sig. (2- tailed)	0.1221	0								0.5916	0							
<b>Employee</b>	Pearson Correlation	0.0539	0.3560*	0.3884*							0.0121	0.4441*	0.4175*						
	Sig. (2- tailed)	0.5299	0	0							0.7707	0	0						
<b>Community</b>	Pearson Correlation	0.1918*	0.5221*	0.1667	0.3733*						0.01	0.5275*	0.2958*	0.4186*					
	Sig. (2- tailed)	0.0242	0	0.0507	0						0.8094	0	0	0					
<b>Product</b>	Pearson Correlation	0.0807	0.4026*	0.046	0.1658	0.4803*					0.1417*	0.2668*	0.1872*	0.1789*	0.1990*				
	Sig. (2- tailed)	0.3467	0	0.592	0.0519	0					0.0006	0	0	0	0				
<b>SIZE</b>	Pearson Correlation	0.3111*	0.4927*	0.1825*	0.1669	0.6363*	0.5753*				0.1078*	0.3715*	0.1823*	0.2577*	0.3637*	0.0928*			
	Sig. (2- tailed)	0.0002	0	0.0321	0.0503	0	0				0.0091	0	0	0	0	0.0248			
<b>LEV</b>	Pearson Correlation	0.1313	0.2053*	0.0782	0.0875	0.3182*	0.3462*	0.7447*			-0.0518	-0.0287	0.0579	0.0399	-0.0099	0.0233	-0.024		
	Sig. (2- tailed)	0.1249	0.0157	0.3617	0.3075	0.0001	0	0			0.2105	0.488	0.1616	0.3354	0.8105	0.5739	0.563		
<b>AGE</b>	Pearson Correlation	0.2442*	0.2647*	0.1832*	0.0761	0.3216*	0.1346	0.4718*	0.3382*		0.2629*	0.2870*	0.2206*	0.1151*	0.2106*	0.1815*	0.2096*	-0.0225	
	Sig. (2- tailed)	0.0039	0.0017	0.0315	0.3749	0.0001	0.1154	0	0		0	0	0	0.0053	0	0	0	0.5874	
<b>IDIRECTOR</b>	Pearson Correlation	0.1364	0.2663*	0.1328	0.2554*	0.2114*	-0.0115	0.1395	-0.0277	0.1538	-0.1422*	-0.0571	-0.019	-0.0006	-0.0876*	-0.0711	-0.1170*	-0.0371	-0.093*
	Sig. (2- tailed)	0.1106	0.0016	0.1204	0.0025	0.0128	0.8932	0.1026	0.7472	0.0716	0.0006	0.1675	0.6458	0.9884	0.0341	0.0859	0.0046	0.3709	0.0246

\* Correlation is significant at the 0.01 level.

## Appendix B-6.4: Correlation Coefficients Matrix between TBQ and CSR Dimensions in 2009-2011 for Financial and Non-Financial Industries

Variables		Financial Industry								Non-financial Industry							
		Environ		Employee		Community		Product	SIZE	LEV	AGE	Environ		Employee		Community	Product
		TBQ	ment	Energy	e	nity						TBQ	ment	Energy	Employee	nity	
<b>TBQ</b>	Pearson Correlation																
	Sig. (2- tailed)																
<b>Environment</b>	Pearson Correlation	0.0581										-0.0319					
	Sig. (2- tailed)	0.4984										0.441					
<b>Energy</b>	Pearson Correlation	0.0607	0.4983*									-0.0153	0.5182*				
	Sig. (2- tailed)	0.4795	0									0.7121	0				
<b>Employee</b>	Pearson Correlation	0.0771	0.3560*	0.3884*								0.0703	0.4441*	0.4175*			
	Sig. (2- tailed)	0.3687	0	0								0.0896	0	0			
<b>Community</b>	Pearson Correlation	0.0733	0.5221*	0.1667	0.3733*							-0.0514	0.5275*	0.2958*	0.4186*		
	Sig. (2- tailed)	0.3932	0	0.0507	0							0.2145	0	0	0		
<b>Product</b>	Pearson Correlation	-0.1727*	0.4026*	0.046	0.1658	0.4803*						-0.0195	0.2668*	0.1872*	0.1789*	0.1990*	
	Sig. (2- tailed)	0.0428	0	0.592	0.0519	0						0.6372	0	0	0	0	
<b>SIZE</b>	Pearson Correlation	-0.2003*	0.4927*	0.1825*	0.1669	0.6363*	0.5753*					-0.0261	0.3715*	0.1823*	0.2577*	0.3637*	0.0928*
	Sig. (2- tailed)	0.0185	0	0.0321	0.0503	0	0					0.5291	0	0	0	0	0.0248
<b>LEV</b>	Pearson Correlation	-0.2685*	0.2053*	0.0782	0.0875	0.3182*	0.3462*	0.7447*				0.0982*	-0.0287	0.0579	0.0399	-0.0099	0.0233
	Sig. (2- tailed)	0.0015	0.0157	0.3617	0.3075	0.0001	0	0				0.0176	0.488	0.1616	0.3354	0.8105	0.5739
<b>AGE</b>	Pearson Correlation	-0.128	0.2647*	0.1832*	0.0761	0.3216*	0.1346	0.4718*	0.3382*			-0.1253*	0.2870*	0.2206*	0.1151*	0.2106*	0.1815*
	Sig. (2- tailed)	0.1346	0.0017	0.0315	0.3749	0.0001	0.1154	0	0			0.0024	0	0	0.0053	0	0
<b>IDIRECTOR</b>	Pearson Correlation	0.0168	0.2663*	0.1328	0.2554*	0.2114*	-0.0115	0.1395	-0.0277	0.1538		0.0910*	-0.0571	-0.019	-0.0006	-0.0876*	-0.0711
	Sig. (2- tailed)	0.8453	0.0016	0.1204	0.0025	0.0128	0.8932	0.1026	0.7472	0.0716		0.0277	0.1675	0.6458	0.9884	0.0341	0.0859

\* Correlation is significant at the 0.01 level.

## APPENDIX C: HETEROSCEDASTICITY TESTING

### APPENDIX C-1: Heteroscedasticity Testing for All Samples

#### A) ROA as Dependent Variable

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of ROA

$$\begin{aligned}\text{chi2}(1) &= 1.90 \\ \text{Prob} > \text{chi2} &= 0.1680\end{aligned}$$

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

$$\begin{aligned}\text{chi2}(62) &= 192.67 \\ \text{Prob} > \text{chi2} &= 0.0000\end{aligned}$$

#### B) NPM as Dependent Variable

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of NPM

$$\begin{aligned}\text{chi2}(1) &= 378.43 \\ \text{Prob} > \text{chi2} &= 0.0000\end{aligned}$$

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

$$\begin{aligned}\text{chi2}(62) &= 76.31 \\ \text{Prob} > \text{chi2} &= 0.1045\end{aligned}$$

#### C) EPS as Dependent Variable

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

$$\begin{aligned}\text{chi2}(1) &= 1396.10 \\ \text{Prob} > \text{chi2} &= 0.0000\end{aligned}$$

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 254.27  
Prob > chi2 = 0.0000

#### **D) TBQ as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

chi2(1) = 297.31  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 100.53  
Prob > chi2 = 0.0014

#### **E) ROA as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 6.19  
Prob > chi2 = 0.0129

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 130.07  
Prob > chi2 = 0.0000

#### **F) NPM as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 6.12  
Prob > chi2 = 0.0134

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity



chi2(62) = 125.70  
Prob > chi2 = 0.0000

#### **G) EPS as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity  
Ho: Constant variance  
Variables: fitted values of CSRI

chi2(1) = 4.67  
Prob > chi2 = 0.0308

White's test for Ho: homoskedasticity  
against Ha: unrestricted heteroscedasticity

chi2(62) = 123.19  
Prob > chi2 = 0.0000

#### **H) TBQ as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity  
Ho: Constant variance  
Variables: fitted values of CSRI

chi2(1) = 4.24  
Prob > chi2 = 0.0394

White's test for Ho: homoskedasticity  
against Ha: unrestricted heteroscedasticity

chi2(62) = 109.97  
Prob > chi2 = 0.0002

#### **I) Each dimension of CSR disclosure and ROA**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity  
Ho: Constant variance  
Variables: fitted values of ROA

chi2(1) = 1.70  
Prob > chi2 = 0.1922

White's test for Ho: homoskedasticity  
against Ha: unrestricted heteroscedasticity

chi2(64) = 241.96  
 Prob > chi2 = 0.0000

**J) Each dimension of CSR disclosure and NPM**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity  
 Ho: Constant variance  
 Variables: fitted values of NPM

chi2(1) = 380.44  
 Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity  
 against Ha: unrestricted heteroscedasticity

chi2(64) = 97.10  
 Prob > chi2 = 0.9646

**K) Each dimension of CSR disclosure and EPS**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity  
 Ho: Constant variance  
 Variables: fitted values of EPS

chi2(1) = 1505.96  
 Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity  
 against Ha: unrestricted heteroscedasticity

chi2(64) = 431.73  
 Prob > chi2 = 0.0000

**L) Each dimension of CSR disclosure and TBQ**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity  
 Ho: Constant variance  
 Variables: fitted values of TBQ

chi2(1) = 297.78  
 Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity  
 against Ha: unrestricted heteroscedasticity

chi2(64) = 119.87  
 Prob > chi2 = 0.5882

## **APPENDIX C-2: Heteroscedasticity Testing for Manufacturing and Non-Manufacturing Industries**

### **A) ROA as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of ROA

chi2(1) = 39.15

Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 104.38

Prob > chi2 = 0.0000

### **B) NPM as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of NPM

chi2(1) = 338.55

Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 69.53

Prob > chi2 = 0.000

### **C) EPS as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

chi2(1) = 679.13

Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 77.45

Prob > chi2 = 0.0000

#### **D) TBQ as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

chi2(1) = 256.51

Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 75.88

Prob > chi2 = 0.0000

#### **E) ROA as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 4.21

Prob > chi2 = 0.0401

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 66.10

Prob > chi2 = 0.0000

#### **F) NPM as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 4.94

Prob > chi2 = 0.0262

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 75.12

Prob > chi2 = 0.0000

### **G) EPS as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 3.33  
Prob > chi2 = 0.0680

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 77.28  
Prob > chi2 = 0.0000

### **H) TBQ as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 3.25  
Prob > chi2 = 0.0714

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 72.76  
Prob > chi2 = 0.0000

### **I) Each dimension of CSR disclosure and ROA**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of ROA

chi2(1) = 28.23  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(64) = 141.18  
Prob > chi2 = 0.0000

### **J) Each dimension of CSR disclosure and NPM**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of NPM

chi2(1) = 335.11  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity  
against Ha: unrestricted heteroscedasticity

chi2(64) = 86.05  
Prob > chi2 = 0.0344

#### **K) Each dimension of CSR disclosure and EPS**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of EPS

chi2(1) = 872.68  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity  
against Ha: unrestricted heteroscedasticity

chi2(64) = 225.06  
Prob > chi2 = 0.0000

#### **L) Each dimension of CSR disclosure and TBQ**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

chi2(1) = 231.04  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity  
against Ha: unrestricted heteroscedasticity

chi2(64) = 90.75  
Prob > chi2 = 0.0156

### **APPENDIX C-3: Heteroscedasticity Testing for Financial and Non-Financial Industries**

#### **A) ROA as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of ROA

chi2(1) = 5.25  
Prob > chi2 = 0.0220

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 99.75  
Prob > chi2 = 0.0000

#### **B) NPM as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of NPM

chi2(1) = 404.76  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 53.31  
Prob > chi2 = 0.0012

#### **C) EPS as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

chi2(1) = 450.44  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 71.40  
Prob > chi2 = 0.0000

#### **D) TBQ as Dependent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

chi2(1) = 88.60  
Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 22.82  
Prob > chi2 = 0.6430

#### **E) ROA as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 4.44  
Prob > chi2 = 0.0351

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 45.27  
Prob > chi2 = 0.0110

#### **F) NPM as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 5.18  
Prob > chi2 = 0.0229

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 37.31  
Prob > chi2 = 0.0701



### **G) EPS as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 2.14  
Prob > chi2 = 0.1435

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 37.47  
Prob > chi2 = 0.0678

### **H) TBQ as Independent Variable**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of CSRI

chi2(1) = 2.07  
Prob > chi2 = 0.1506

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(62) = 36.62  
Prob > chi2 = 0.0808

### **I) Each dimension of CSR disclosure and ROA**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of ROA

chi2(1) = 1.20  
Prob > chi2 = 0.2736

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(64) = 139.59  
Prob > chi2 = 0.0000

**J) Each dimension of CSR disclosure and NPM**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of NPM

chi2(1) = 415.27

Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(64) = 68.89

Prob > chi2 = 0.3155

**K) Each dimension of CSR disclosure and EPS**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of EPS

chi2(1) = 526.42

Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(64) = 148.98

Prob > chi2 = 0.0000

**L) Each dimension of CSR disclosure and TBQ**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of TBQ

chi2(1) = 96.21

Prob > chi2 = 0.0000

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroscedasticity

chi2(64) = 48.98

Prob > chi2 = 0.9174