Analysis of Relationship Between Corporate Social Responsibility and Corporate Financial Performance

An investigation into a group of companies listed in the Dow Jones Industrial Average index

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Abstract

Thesis Title: Analysis of Relationship Between Corporate Social Responsibility and Corporate Financial Performance — An investigation into the companies listed in the Dow Jones Industrial Average index

In the latest decades, integrating CSR into business practice has been a frequent subject, with shareholders, clients and other stakeholders demonstrating the most important concern about this problem. Although the demand for CSR is growing, companies are worried whether enhanced social performance will result in excellent economic results. Many scholars have evaluated the relationship between CSR and CFP. However, the results are not definitive, and there are a positive, negative, neutral and mixed link has been found before.

Based on stakeholder theory and CSR triple bottom line theory, this study empirically tests the relationship between CSR and CFP of 29 US listed companies during 2011-2017. The results show that when ROA, ROE and Net margin are used to measure firm performance, there is a significant and positive relationship between corporate social responsibility and corporate social performance. Finally, the empirical findings support the hypothesis that the impact of CSR on CFP varies across industries.

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List of Abbreviations

CSR — Corporate Social Responsibility

CFP — Corporate Financial Performance

ESG — Environment, Society, Governance

DJIA — Dow Jones Industrial Average index

S&P 500 — Standard & Poor's 500 Index

ROA — Return on Assets

ROE — Return on Equity

VIF — Variance Inflation Factor

Chapter 1 Introduction

1.1 Research Background

Because stakeholders have shown the greatest concern for corporate social responsibility (hereafter CSR) in recent decades, and the idea of integrating corporate social responsibility into business operations has been accepted by the business environment nowadays. (Becchetti, Ciciretti and Giovannelli, 2013). Although the economic growth has brought an increase in the wealth of people, at the same time, companies have also brought many bad influences, such as excessive exploitation of natural resources, environmental damage, climate change (Resmi, Noor Nahar Begum and Hassan, 2018). In addition, due to the intense competition and unstable business environment, companies are no longer allowed to do business only for their interests (Porter and Kramer, 2011). Therefore, it is necessary to take action to change the damaging behaviours and to protect the common interests of the community and the company (Szumniak-Sam olej, 2016).

The issues of CSR significance have emphasised by the recent scandals of companies. For example, the German auto giant Volkswagen created specialised software to trick car emissions testing. This kind of behaviour has severely damaged the image of the enterprise and destroyed the trust of consumers. Furthermore, the enterprise also suffered economic losses that the stock price fell by about one-third after the incident was exposed. From this event, it reflects that even leading companies do not meet minimum legal requirements (Flammer, 2012). Thus, companies that ignore CSR should learn from scandals and pay attention to social and environmental issues.

Despite the demand for CSR is increasing, as the main objective of a company is to maximise the shareholders' wealth (Kalyebara and Islam, 2014), thus the enterprises still need to consider whether the behaviour of CSR is related to the improvement of corporate financial performance (hereafter CFP). Therefore, the relationship between CSR and CFP has become not only an essential topic of corporate governance and management but also a popular theme of academic research projects (Galant and Cadez,2017; Szumniak-Samolej, 2016; Becchetti and Trovato, 2011).

1.2 Problem Statement

As mentioned above, the relationship between CFP and CSR has become a trendy topic in academic studies (Preston and O'Bannon, 1997). However, there is not a definitive conclusion about the relationship between them. The academic evidence classified the

relationship between CSR and CFP into positive, negative or neutral relationships (Tanggamani, Amran and Ramayah, 2018). In the recent empirical literature, a majority of studies have found that there is a positive correlation between CSR and CFP (Platonova, Asutay, Dixon and Mohammad, 2018; Rodriguez-Fernandez, 2016; Qiu Shaukat and Tharyan, 2016; Giannarakis, Konteos, Zafeiriou and Partalidou, 2016). Nevertheless, some studies have found evidence of negative CSR-CFP nexus (Rodrigo, Duran and Arenas, 2016; Hirigoyen and PoulainRehm, 2014; Lioui and Sharma, 2012). While, there is only very few studies that found neutral correlation between CSR and CFP (Soana, 2011). Therefore, there is not a unified conclusion about the relationship between CSR and CFP. A highly possible is because of the weak theoretical foundation of the CSR concept (Orlitzky, Siegel, and Waldman, 2011; Van Beurden and Gössling, 2008). Besides, the different variables used in the measurement model that results in different conclusion about the relationship between CSR and CFP (Surroca, Tribó and Waddock, 2010).

1.3 Research Objective

Most previous research projects about US companies that are the firms listed in S&P 500 index (Giannarakis et al., 2016; Servaes and Tamayo, 2013; Ghoul, Guedhami, Kwok, and Mishra,2011), which lacks the study of the listed firms in the Dow Jones Industrial Average index. Moreover, most of these studies concentrated on the period from 1990 to 2011, the most recent study is in 2014 (Parsa, Lord, Putrevu and Kreeger, 2015), and only focused on the retail and consumer industries. Therefore, how the CSR studies relate to the CFP remains an under-researched area, also, what the relationship between CSR and CFP among diverse industries is also worth to study. The objective of this study is to explore the relationship between CSR and CFP for a group of companies listed in the Dow Jones Industrial Average index. Furthermore, study whether the relationship between CSR and CFP is diverse or not among different industries.

1.4 Research Design

Due to the problem statement in section 1.2, which illustrate that the measurement issue results in the different conclusion between CSR and CFP. Therefore, this study performs the quantitative method because the quantitative design is appropriate when it is utilised to determine the elements or test hypothesis or relationships that influence the results. This part will further discuss in the methodology part.

1.5 Overview of the Research Structure

This research is categorised orderly as follows. Chapter 2 introduces the overview of the CSR concept, and a review of the relationship between CSR and CFP that obtained in the previous research project. The research question and the aim of this study are described in Chapter 3. The following chapter 4 demonstrates the methodology, including the data collection, sample description, the measurement of variables, and the regression model that this study undertakes. Chapter 5 reports the findings and results of this research and chapter 6 shows the discussion based on the results, also include the limitation and implication of this study. The last chapter exemplifies the conclusion of this study and the recommendation for future research.

Chapter 2 Literature Review

2.1 Introduction

For decades, there has been a view that enterprises should undertake some social responsibilities besides benefiting shareholders, and since the 1960s the importance of CSR has increased a lot (Carroll and Shabana, 2010). Despite there are some studies have examined the association between CSR and CFP, there is not a definitive conclusion of the relationship (Tanggamani *et al.*, 2018). Based on the relevant theoretical and empirical literature, the first section of this chapter reviews the concept of CSR and how they have been viewed in academic and practical research. The second part illustrated the CSR from the stakeholders' perspective. The interrelationship between CSR and CFP and the conclusion of the association made by the previous studies are demonstrated in the third part. The connection between CSR and CFP among different industries is exemplified in the fourth part. The final section summarises the identified gaps in current literature and the detailed planning that help to solve these problems

2.2 Overview of the Concept of CSR

Over the past half-century, there have been many academic studies on CSR (Nejati and Ghasemi, 2012). Besides the perspective of academic theory, enterprises are more proactive in carrying out CSR in their daily operations, which is resulted by the increase of the demand for environmental protection products and services which required by the environmentally sensitive consumer (Saeidi et al., 2014).

Despite a lot of research projects have been undertaken, CSR has not yet come to a unified definition, that is, the definition recognized by all scholars. (Wood, 2010). Because of the

idea of CSR is very difficult to conceptualise, and the absence of conceptual boundaries leads to different definitions (Talaei and Nejati, 2008). Therefore, the researchers believe that it is a disputed concept (Van Marwick, 2003). However, Carroll (1979) defines CSR as the company must comply with the social expectations of the economy, ethics, law and other non-profit activities. This definition is the most widely accepted and used one (IZZO, 2014; Galbreath and Shum, 2012; Shum and Yam, 2011). the reason is this definition not only systematically determines the CSR as the obligations of the community, but also distinguishes it from the net profit creation of the company, then further emphasises the difference between CSR and government social responsibility (Chen, Chang and Lin, 2012; Lozano, 2008).

The diverse opinions on CSR can be summarised as the actions undertaken by companies to meet social values and goals that transcend corporate profit motives (Oh, Hong and Hwang, 2017). Also, a common argument of the current literature is how to create value for stakeholders of companies, rather than barely focusing on shareholders and owners of the company (Peloza and Business, 2011). Moreover, Aguinis and Glavas (2012) put forward that CSR is a series of corporate actions under corporate policies and specific contexts, and combining stakeholder expectations and the triple bottom line(society, environment, governance) which is provided by Elkinyton (1998). In the daily operations of enterprises, there are some prevalent activities related to CSR, such as the development of some environmentally friendly products, make effort to reduce the production process that adversely affects the environment and ameliorate the environment of the workplace (Wang, Li and Gao, 2014).

This research considers the economic, social and environmental pillars of CSR as provided by Elkinyton (1998). Moreover, Turker (2009) also proposed that despite the responsibility to create profits is obviously different from other obligations, CSR and financial interests should be considered together, because CSR does affect not only the financial performance of a company but also a significant factor that impacts the sustainability of companies (Nejati and Ghasemi, 2012).

2.3 Stakeholders Perspective on CSR

The stakeholder is defined as an entity, usually classified as the external and internal stakeholders, whose purpose to influence enterprises (Murray and Vogel, 1997). Stakeholder theory suggests that the best long-term benefit for a company is to care about

its stakeholders because the inputs and outputs of the company depend on their stakeholders (Freeman,1984).

The theory emphasises the interrelationship between the company and its stakeholders, and its processes and outcomes are interesting (Hillman and Luce, 2001). It claims that as companies focus on attracting financial and non-financial stakeholders, they should concentrate on CSR because CSR is an essential non-financial stakeholder group. Besides, the company needs to maintain the sustainability of these two types of stakeholders (Lim and Greenwood, 2017). According to the support of relevant researchers, stakeholder theory is the dominant theory and empirical literature on the relationship between CSR and CFP (Ghoul et al., 2011). Under the increasing pressure from stakeholders, many enterprises are facing a greater sense of social responsibility and embrace the concept of CSR (Orlitzky, 2013). In addition, the stakeholder theory can be used to gain a competitive advantage by integrating social dimensions into all aspects of business processes, to achieve the development and promotion of organisational goals (Chen and Wang, 2011).

Over the past few decades, the only goal of the company is to generate profits for shareholders(Friedman, 1970). But with the change of the times, this concept gradually began to change. Interest is no longer the only goal pursued by the company. Interest relationship between stakeholders affects a wide range of interests, among which the most influential is the relationship between organization, society and environment (Russo and Perini, 2010). this perspective of shareholders on CSR shows the only way for the company to meet the expectations of the shareholder is to satisfy the requirement of other stakeholders (Jamali and Sidani, 2008). As such, it has turned out the managers' attention away from focusing only on profit maximisation (Resmi et al.,2018), while considering the interests of all individuals and groups of the company at the same time(Peloza and Shang, 2011). For example, satisfied employees will be motivated and perform their work effectively and efficiently, which will attract more satisfied customers who are willing to repurchase products and services. The customer will further recommend products and services to others, and then the satisfied suppliers will offer discounts. Therefore, CSR can not only improve the satisfaction of these stakeholders but also improve financial performance (Cadez and Czerny, 2016).

2.4 Empirical Findings on CSR-CFP Relationship

The CSR-CFP interrelationship in empirical literature includes around two core issues: the essence of interaction and the way of causality between two social structures. Even though

the investigation of these two issues began over 60 years ago, the surrounding empirical debate is still pending (Grougiou et al. 2014; Jo and Harjoto, 2011). Over time, the interrelationship between stakeholders and companies has evolved CSR into the corporate management strategy, and many companies are now absorbing this strategy to maintain competitive advantage (Resmi et al., 2018).

Some studies have shown that the company in social responsibility to improve the profitability of daily operations. Besides, if there is a positive relationship between CSR and CFP, the investment of socially responsible will have a positive impact on shareholder wealth maximisation as well(Rodriguez - Fernandez, 2016). Nyeadi, Ibrahim and Sare (2018) conduct a multi-regression study which concludes that the businesses in South Africa have a powerful positive association between CSR and CFP. Moreover, ŠKare and Golja (2012) compare the financial performance of CSR and non-CSR companies to obtain evidence of the association between CSR and CFP. The results show that the CSR companies appear more exceptional financial performance compare with the non-CSR enterprises. Also, the conclusion of the further regression analysis shows that CSR has a robust positively impact on CFP (Škare and Golja, 2012). Besides, by using the method of the questionnaire survey, Saeidi et al. (2015) investigate 1250 companies in the industries of manufacturing and consumer goods in Iran, and the results show there is a positive correlation between CFP and CSR. Similar results are found by Giannarakis et al., (2016) that among the 104 companies listed in the Standard Poor's 500 Index, there is a positive relationship between CSR and CFP. Therefore, CSR is conducive to maximise shareholders' wealth and increase the market capitalisation of the company (Qiu, Shaukat Tharyan, 2016).

Conversely, there are some studies have shown that a negative relationship between CSR and CFP, which is coherent with the idea that social responsibility results in additional cost and decreases the profitability of companies (Rodrigo et al., 2016; Hirigoyen and PoulainRehm, 2014; Lioui and Sharma, 2012). This discovery also supports the traditional view expressed by Friedman (1970), which suggests that this kind of investment behaviour is irresponsible in society because company executives have to create earnings for investors (Friedman, 1970). Therefore, the companies on being socially responsible cannot ignore the negative impact of CSR on CFP. However, some management experts argue that even at the expense of shareholders, they need to be an excellent corporate citizen. These experts firmly believe that shareholders must be ethical,

CSR is fundamental and financial performance can be sacrificed when necessary (Platonova, Asutay, Dixon and Mohammed, 2018).

There is also a neutral interrelationship between CSR and CFP that found in the empirical literature, reflecting the fact that companies do not increase profitability or make the situation worse when they assume social responsibility (Soana, 2011). Thus, the positive influence of CSR on CFP offset the negative impact. At the same time, some studies have found the reciprocal relationship between CSR and CFP, which the CSR has a positive effect on CFP and vice versa (Tanggamani, Amran and Ramayah, 2018).

Therefore, through the review of past literature, there are no conclusive results on the nature of the relationship between CSR and CFP. Some authors provide possible reasons (Surroca, et.al., 2010) that argues the theoretical basis of the CSR concept is inadequate (Orlitzky et.al., 2011). moreover, the application of related variables in diverse studies is different (McWilliams and Seigel, 2000), besides the shortage of clear direction of causality. there are some authors believe the measurement problem and sampling limits that are the main reason results in the various conclusion(Surroca et al., 2010; Van-Beurden and Gossling, 2008).

Appendix 1 summarises the main findings of the empirical literature, indicating that some studies recognise a different correlation between CSR and CFP.

2.5 The Relationship between CSR and CFP among Different Industries

In recent years, a large number of studies have focused on the impact of CSR on society, especially in some specific industries. The reason is some particular industries will have adverse effects on society, such as the manufacturing industry, oil and gas industry (Nyeadi et al., 2018; Parsa et al., 2015; Cajias et al., 2014; Tafti, Hosseini, and Emami, 2012). According to stakeholder theory, the stakeholders have different degrees of concern for CSR across different industry, but they will pay special attention to the industry caught in the scandal. Therefore, companies based on the nature of business activities need to disclose more information on CSR to meet the expectations of stakeholders at different levels (Chen et al., 2015; Sweeney and Coughlan, 2008).

Researchers have carried out relevant research on CSR performance in consumer products, manufacturing, banks and many other industries and the studies present distinct outcomes. Some research projects provide that the relationship between CSR and CFP is diverse among the different industries (Cajias et al., 2014; Inoue and Lee, 2011). Nevertheless, there is another idea that the influence of CSR on CFP is uniform over all sectors in one

industry (Chen et al., 2015). Cajias et al. (2014) indicate that CSR policies differ widely across industries, with consumer-oriented firms such as telecommunications perform better than the financial-driven sectors such as property investment.

In the case of the financial industry, Tafti et al. (2012) investigate the relationship between CSR and CFP in the banking sector by dividing CSR into four dimensions to measure. The results show the CSR has a positive impact on CFP. In addition, Turcsanyi and Saye (2013) used case studies to broaden the study of the CSR in the pharmaceutical industry, which indicates that the company can improve the transparency of producing process and it also increases the profitability of the company in the long-term. These studies can help managers decide whether to enhance corporate value and cost-effectiveness by assuming CSR. In spite of this, there is a different conclusion about the relationship between CSR and CFP in other industries that found in previous studies. In the research of companies in South Africa, the performance of CSR is positively impact CFP in the mining and oil industry. In contrast, the findings also put forward that there is a neutral association between CSR and CFP in the industry of financial service (Nyeadi, 2018). Moreover, in the sector of tourism-related industries, Inoue and Lee (2011) investigate the relationship between CSR and CFP by using aggregated CSR ratings and financial indicators of ROA and Tobin's q. The results demonstrate the relationship between CSR and CFP is not positive neither in the short-term nor long-term in the casino sector. Conversely, the finding exemplifies that CSR has a positive influence on ROA in the industry of restaurants and hotels (Inoue and Lee, 2011).

Based on the previous study, this research provides the sub-objective, which to study whether the relationship between CSR and CFP is diverse across different industries of the sample company. The detailed research question and objective of this study are discussed in the following sections.

2.6 Chapter Summary

2.6.1 Identification of Gaps in Current Literature

There are some gaps in the present literature. Firstly, the results show that there are insufficient, contradictory traditional studies on CSR-CFP interaction. Thus, more studies need to be demonstrated to obtain common ground. Moreover, due to the absence of a consistent concept of CSR, the measurement of CSR is complex (Galant and Cadez, 2017). Hybrid methods are ubiquitous in the literature and test research models for aggregating research data in many countries and different industries. Due to the different variable in

the measurement models are undertaken, thus, the various conclusions are drawn on the interrelationship between CSR and CFP (Surroca et al., 2010). Finally, the most past research projects about US companies are mainly concentrate on the firms listed in S&P 500 index (Giannarakis et al., 2016; Servaes and Tamayo, 2013; Ghoul et al.,2011), which lacks the study of the listed firms in the Dow Jones Industrial Average index. Moreover, most of these studies concentrated on the period from 1990 to 2011, the most recent research is in 2014 (Parsa et al., 2015), and only focused on the retail and consumer industries.

Therefore, how the CSR studies relate to the CFP remains an under-researched area, also, what the relationship between CSR and CFP among diverse industries is also worth to study.

2.6.2 Plan to Fill the Identified Gaps in Literature

Consistent with most studies on the interaction of CSR-CFP, this study adopted the most widely used CSR triple bottom line concept and measured the CSR performance by using the Bloomberg ESG index. Moreover, this study follows the previous research projects that regulate the relationship between CSR and CFP using an OLS regression model consistent with most study models (Rodrigo et al., 2016; Erhemjamts et al., 2013; Barnett and Salomon, 2012; Dianita, 2011). Also, this study carried out further analysis and comparison of various industries, thus filling the gap in the literature that lack of industry comparison research.

The discrepancy of the CSR-CFP interrelationship in the current studies and the conclusion of previous research projects in many fields indicate that some gaps that need to be further explored. Since some of the gaps identified in previous studies have focused on measurement issues, this study used a quantitative approach to minimise the outstanding deficiencies in previous studies. The reason is quantitative design is appropriate when it used to determine the elements or test hypothesis or relationships that influence the results. In the following chapters 3 and 4, the purpose and method of this study will be explored.

Chapter 3 Research Question and Objective

3.1 Research Objective

As introduced in chapter 2, the majority of previous research projects have shown that the relationship between CSR and CFP is positive (Platonova et al., 2018; Cadez and Czerny, 2016; Rodriguez-Fernandez, 2016; Saeidi et al., 2015). These proactive results encourage

managers to undertake their social responsibility and create a financially beneficial for investors and companies. In contrast, there are some prior studies have illustrated that CSR has a negative effect on CFP (Rodrigo et al., 2016; Hirigoyen and PoulainRehm, 2014; Lioui and Sharma ,2012). In general, there is no definitive reached on the nexus between CSR and CFP in the previous studies. Because of the shortage of persistent definition of CSR, the indicators for measuring CSR is complicated (Galant and Cadez, 2017). Another considerable reason is that there are different variables used in the measurement model, which results in the different conclusion of the nexus between CSR and CFP(Surroca et al., 2010).

Furthermore, the majority of past research projects have mainly focused the firms listed in the S&P 500 index (Giannarakis et al., 2016; Servaes and Tamayo, 2013; Ghoul et al., 2011), lack of the studies about the companies listed in the Dow Jones Industrial Average index. Moreover, the research periods were mostly concentrated from 1990 to 2011, lack of the relevant research results in recent years (Parsa et al., 2015; Servaes and Tamayo,2013; Ghoul et al., 2011). Therefore, this research aims to study the relationship between CSR and CFP in a group of companies listed in the Dow Jones Industrial Average index from 2012 to 2017.

In addition, the previous research projects have shown that CSR impacts CFP varies in industries because of the nature of industry business and the different level of stakeholders expectations (Nyeadi et al., 2018; Chen et al., 2015; Cajias et al., 2014; Inoue and Lee, 2011). Thus, the sub-objective of this research is to study whether the relationship between CSR and CFP is diverse across different industries of the sample company.

3.2 Research Question and Hypothesis development

Considering the importance of CSR incorporation in the operations of companies, the aim of this research is achieved by setting up the main research question:

Is there a positive relationship between CSR and CFP in the group of companies listed in the Dow Jones Industrial Average index?

Also, the sub-objective of this research is accomplished by the following research sub-question:

Does the relationship between CSR and CFP vary across different industries of a group of companies listed in the Dow Jones Industrial Average index?

Based on the research question and sub-question, this research provides two hypothesis that both include null and alternative hypothesis

Hypothesis 1:

H_o: For a group of companies listed in the Dow Jones Industrial Average index, there is not a positive relationship between CSR and CFP that the increase in CSR performance cannot enhance the CFP.

H_a: For a group of companies listed in the Dow Jones Industrial Average index, there is a positive relationship between CSR and CFP that the increase in CSR performance can enhance the CFP.

Hypothesis 2:

H_0: For a group of companies listed in the Dow Jones Industrial Average index, the relationship between CSR and CFP is not diverse among different industries.

H_a: For a group of companies listed in the Dow Jones Industrial Average index, the relationship between CSR and CFP is diverse among different industries.

Chapter 4 Research Methodology

4.1 Introduction

This chapter introduces the research methodology based on the literature review and the research question demonstration in the previous episodes. The purpose of this chapter is attempted to link the variables that are described in the literature with the research samples. This chapter starts with the introduction of the philosophical position of this study and the research design. In addition, the samples and data collection are described after that. Furthermore, this chapter also states the measurement of the independent variable (CSR), dependent variable (CFP) and control variables, which build up the regression model. The last section elaborates the ordinary least square (OLS) linear regression model.

4.2 Research Philosophy

Based on the causal determinism philosophy, this study proposes that CFP is affected by CSR activities. This study meets the inference of the post-positivist epistemological worldview. It believes that world knowledge can be obtained scientifically and objectively by simplifying the opinion into variables that can be evaluated with numerical measurements (Depaoli et al., 2018). This study used the quantitative method because the quantitative design is appropriate when it is used to determine the elements or test hypothesis or relationships that influence the results. Furthermore, The quantitative research method aims to test the theory utilising hypothetical descriptions and to collect and analyse numerical evidence to support or reject a specific hypothesis (Barnham, 2015).

In this research, the quantitative method will be performed through the correlation and multiple linear regression analysis to evaluate the nexus between CSR and CFP among the samples.

4.3 Research Design

Research design is a blueprint of carrying out a research study (Rahi, 2017). This study applied a descriptive study design. Descriptive statistics can summarise a large amount of quantitative information by using mean and standard deviation (Ho and Yu, 2015). Descriptive research defines the features of a phenomenon and thus gives a clear account of how views, facts and attitudes are concerned (Depaoli et al., 2018). This study also applied correlational research designs. The use of the correlation analysis is to find out the interrelationship between at least two or more elements (Koo and Li, 2016). Because of this research aims to find the correlation between CSR and CFP, thus, the correlation analysis is considered to be a suitable research design. In addition to correlation studies, this study also used multiple regression analysis to determine how variables lead to a causal effect of another variable (Saunders et al., 2009).

4.4 Samples

The original sample included a total of 30 firms listed in the Dow Jones Industrial Average Index (DJIA) over the period from 2012-2018. However, since CSR is not compulsory for firms, therefore, companies that do not publish CSR information without incorporating CSR policies into their business operations or they want to protect the privacy(Giannarakis et al., 2016). Therefore, due to CSR data is not available for Dow Inc., thus, the ultimate sample comprises of 29 companies listed in DJIA index from 2012 to 2017 because the Bloomberg online service information on CSR disclosure information is deficient in some companies in 2018.

The rationale for the samples choose is based on the absence of the study of the listed companies in the Dow Jones Industrial Average index. Most of the research about the association between CSR and CFP about US companies were paid on the companies listed in the S&P 500 Index (Giannarakis et al., 2016; Servaes and Tamayo, 2013; Ghoul et al.,2011). Moreover, the past studies about US companies were most paid on the time period from 1990 to 2011, the most recent study is in 2014 (Parsa et al., 2015), and only focused on the retail and consumer industries. Therefore, there is a shortage of the study in the relationship between CSR and CFP based on the recent data, this study aims to broaden the research to the DJIA.

4.5 Data Collection

There are three groups of data(CSR, CFP, and control variables) are collected for analysis and investigating. Data collection of CSR is from Bloomberg. Previous studies have considered the specific sources of information, such as an enterprise's official website and annual reports. Nevertheless, the calculation method is undertaken by Bloomberg is more comprehensive. This kind of approach not only considers the information publicly by companies but also conduct a Bloomberg survey that includes an evaluation of environmental, social and governance and to get an aggregated ESG score (Giannarakis et al., 2016; Eccles, Serafeim and Krzus, 2011).

CFP and control variable data are gathered from Bloomberg and the Stock Analysis database. According to the information disclosed by the company, these third-party databases collect and organize relevant data of the company. If the secondary data is taken from the large organisation and companies' financial reports publication that will increase the reliability of research (Almalki, 2016; McCusker and Gunaydin, 2015; Saunders et al., 2009). Therefore, the rationale for using the secondary data in this study because the data is from the sizeable third-party database that is widely used.

4.6 Variables Measures

4.6.1Measurement of CSR (Independent Variables)

How to measure the CSR in an accurate way has been debated for a long time, but no conclusion has yet been reached on this matter (Galant and Cadez, 2017). Many scholars suggest that it should be discreet about research methods, including the improper evaluation of CSR (Saeidi et al., 2015; Martínez-Ferrero and Frías-Aceituno, 2015). The different approaches have been utilised for measuring CSR, mainly include four branches that are content analysis, sustainability index, questionnaire, and single dimension evaluation (Nizamuddin, 2018; Galant and Cadez, 2017).

The content analysis assesses the level of CSR by counting the number of pages, sentences and words in the previous literature or in the annual report, which associates with CSR (Selcuk and Kiymaz, 2017). The content analysis assesses the level of CSR by counting the number of pages, sentences and words in the previous literature or in the annual report, which associates with CSR (Selcuk and Kiymaz, 2017). In addition, based on the content analysis to observe and comprehensive the data, in order to further process the quantitative research analysis (Galant and Cadez, 2017; Selcuk and Kiymaz, 2017). There are some studies have applied content analysis (Platonova et.,2018; Ameer and Othman, 2012;

Dianita, 2011) to quantify the CSR to study the relationship between CSR and CFP by using the regression model. Most of these methods are based on the author's standard using content analysis report to record the disclosure project of CSR. A scoring system to rank the CSR score from 1 to 5 that specify the achievement of CSR activities (Giannarakis et al., 2016; Chen et al., 2015). However, there are some constraints to this method. Firstly, a subjective method is to choose the variables to be measured. Second, the data released in the annual report may differ from the real behaviour of the company (Nizamuddin, 2018). Content analysis focuses on what a company says and what they doing. Companies may misinform prospective consumers even if they perform badly on the environmental front by displaying positive performance, and presenting optimistic forecast. The reliability of corporate environmental disclosures is therefore doubtful (Nizamuddin, 2018). As most of these methods are based on the author's standard, there will be a deviation in the process of evaluation (Bachoo et al., 2013).

The main sustainability indices for measuring CSR include MSC KLD index (Erhemjamts *et al.*, 2013); the Dow Jones Sustainability Index (Škare and Golja, 2012), which are most frequently use. Moreover, there are some third parties such as Yahoo finance, Morningstar, Bloomberg also provide the rating system based on the CSR performance of companies.

The 280 data is provided by the MSC KLD Index, which includes society, employees, environment, governance and clients, and assigns 1 or 0 points to different companies (Erhemjamts et al., 2013). However, some professional writers are also discussing inclusive views, and some writers have previously claimed that Fortune magazine has conducted effective research abroad (De laFuente Sabaté and de Quevedo Puente, 2003). Galant and Cadez (2017) believe that the Dow Jones Sustainability Index specifically includes three aspects: economic, environmental, social and environmental. This is in line with the triple bottom line theory (Elkinyton, 1998). In addition, research shows that there are a number of sub-dimensions in several dimensions, including citizenship in the enterprise, environmental reporting, and indexing of most regions and companies (Galant and Cadez, 2017; Artiach et al., 2010). However, most of these indices are only covered specific areas, for example, the MSC KLD index and Dow Jones sustainability index cover US companies most, many companies in Europe usually adopt the Vigeo index (Girerd-Potin et al., 2014). Moreover, Aras et al. (2010) put forward that a dimension of corporate social responsibility represents only one aspect and cannot be applied to all industries. Aggregating the dimensions of CSR may enable the actions to meet the needs of some stakeholders and their equity (Primc and Čater, 2015). Therefore, it may not show the real relationship

between CSR and CFP with the aggregation pillars of CSR (Mishar and Suar, 2010). In summary, all of CSR's earliest action was criticised for its faults. The KLD index has been commonly embraced in the latest centuries as a measure in CSR studies. However, the KLD database is not publicly accessible, so it is tough for stakeholders to check the accuracy of the information submitted (Berthelot et al., 2012).

Notwithstanding, the constraints of these index measurements are amended by some third rating agencies. Specifically, Bloomberg calculates the three sub-pillars of CSR disclosure, which is environment, society and governance, and comprehensive an ESG score for measuring the CSR (Eccles et al., 2011). The ESG disclosure score calculated by Bloomberg ranges from 0.1 to 100, which ranks companies based on the amount of disclosure data. Compare to previous research projects, the main merit of Bloomberg scoring system is that each company is only evaluated based on data related to its industry since each company has its own apprehension (Pan et al., 2014; Fafaliou et al., 2006). Moreover, the third-party rating quantified CSR performance can ensure an objective assessment. However, Bloomberg may lose its competitive advantage because it is easily imitated by the competitors (Delmas and Blass, 2010). The principle of the rating system of Bloomberg is *ESG disclosure score = Environment disclosure score + Society disclosure score + Governance disclosure score* (Giannarakis et al., 2016). This study adopted this method to quantify the CSR performance to assure a objective assessment.

4.6.2 Measurement of CFP (Dependent Variables)

The CFP is used as the dependent variables to test the relationship between CSR and CFP. Two common ways to evaluate CFP is accounting-based measures and market-based measures. The company's economic efficiency goal is to use accounting profitability as a benchmark (Saeidi et al., 2015). ROA, ROE and net margin are the most widely used accounting-based measurements, which are favoured by researchers in the previous studies (Lu et al., 2018; Nyeadi et al., 2018; Saeidi et al., 2015; Servaes and Tamayo, 2013; Chen and Wang, 2011). Servaes and Tamayo (2013) undertake ROA as the indicator to quantify the dependent variable (CFP), which is calculated as the ratio of net income to the total assets. Moreover, net margin is also an indicator of the profitability of a company, which is calculated as the ratio of net profit to the total revenue (Lu et al., 2018; Saeidi et al., 2015).ROE shows how efficiently businesses handle the shareholders ' capital investment, which is widely used by scholars (Nyeadi et al., 2018; Saeidi et al., 2015).

ROA, ROE and net margin generally represent a company's profitability by evaluating how effectively a company uses its resources to produce earnings. However, one of the drawbacks of accounting-based measures that executives can manipulate the level of profit by selecting accounting methods. Besides, it only considers the historical information of a firm and lacks the current indicators (Chang, Kim and Li, 2014).

On the other hand, market-based measurement seems to be more forward-looking, which is an assessment by investors of the capacity of a company to produce future economic income rather than past performance (Hou, 2019). The typical indicators of market-based assessment include market-to-book value ratio, Tobin's Q, earnings per share, which are carried out in the prior studies (Hou, 2019; Rodriguez-Fernandez, 2016; Erhemjamts et al., 2013). Nevertheless, Orlitzky et al. (2003) conducted CSR is more highly associated with CFP when using accounting-based measures rather than the market-based measures. Therefore, following the prior research, this study takes ROA, ROE and Net margin (Lu et al., 2018; Rodriguez-Fernandez, 2016; Saeidi et al., 2015; Rettab et al., 2009) as the indicators of the financial performance, also as the dependent variables in the research model.

4.6.3 Control Variables

One possible reason that results in the inconclusive finding of the nexus between CSR and CFP, which is that the researchers may not consider the control variables in the studies (Garcia-Castro et al., 2010; Surroca et al., 2010). Barnett and Salomon (2012) explain the control variables as the elements that can consistently affect the independent and dependent variables. Therefore, this study will incorporate the control variables that might affect the CSR and CFP in the research model, which identified by previous studies in the research model. The application of different control variables produce mixed conclusion, from the prior literature, the common control variables that affect both CSR and CFP, which is firm size, firm age, leverage, sales revenue and firm sectors (Lu et al., 2018; Nyeadi et al., 2018; Rodriguez-Fernandez, 2016; Giannarakis et al., 2016; Barnett and Salomon, 2012). Therefore, based on the previous studies, this research will incorporate firm size, firm age, leverage, sales revenue as control variables in the OLS regression analysis and deliberate the influence of firm industries in the regression separately.

A large number of studies have found that the firm size has a significant impact on CFP(Lu et al., 2018; Nyeadi et al., 2018; Barnett and Salomon, 2012). According to the literature review, large companies have more sources to invest in the environment and society (Inoue

and Lee, 2011). Additionally, large companies are more likely to face enormous pressure from external stakeholders and the public. Thus, large companies show more efforts for CSR (Orlitzky, 2013). However, based on the prior studies, compared with large companies, small companies have fewer CSR-related actions, and there is a correlation between company size and CSR disclosure (Hirigoyen and PoulainRehm, 2014). The firm size is measured by the book value of total asset (Nyeadi et al., 2018;Wahba and Elsayed, 2015; Karagiorgos, 2010).

As the governance problems and principles are rooted in time, the firm age is also absorbed as the control variables in the study (Halil and Hasan, 2012). Shumway (2001) suggests that the listing age should defined as the firm age, because the listing is a significant moment in the life of companies, thus the listing age is more economical. In this study, the firm age is calculated by the period from the date of listing to the year of investigation (Elsayed and Wahba, 2013). Financial leverage is a measurement of financial risk, which is evaluated by the ratio of total debt to total equity (Maqbool and Zameer, 2018; Nyeadi et al., 2018). It depicts the risk tolerance of managers that affects the attitude towards social actions (Maqbool and Zameer, 2018). Table 1 summarises the variables that utilised in this research.

Table 1 Summary of Variables

Independent Variable	CSR (Measure by Bloomberg ESG disclosure score)
Dependent Variables	Return on Equity (ROE)
	Return on Asset (ROA)
	Net Margin
Control Variables	Firm Size (book value of total assets)
	Firm Age
	Leverage(debt to equity ratio)
	Sales Revenue

4.7 Ordinary Least Square (OLS) Regression Model

This study adopted the OLS regression model to investigate the relationship between CSR and CFP, which aligns with Rodrigo et al. (2016); Erhemjamts et al. (2013); Barnett and Salomon (2012); Dianita (2011).

This study uses an OLS regression model because of the benefits over traditional regression approaches (Rodrigo et al., 2016). The equation of OLS regression model is illustrated as:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k + \varepsilon_i$$

Y is the dependent variable, which represents the indicators of CFP. X is the independent variable, which is the performance of CSR that represented by ESG disclosure score. Whereas β_0 is constant, and $(\beta_1 : \beta_5)$ are the coefficient for the independent variable. ε_i depicts the error term.

This research carried out the measurement of CSR, which is the ESG disclosure score as the independent variable. In addition, the performance of CFP is performed by ROA, ROE,

Net margin that be taken as the dependent variables to run the model with the control variables (Firm Size, Firm Age, Leverage, Sales Revenue).

The following models are to test the relationship between ESG disclosure score and financial performance (represented by ROA, ROE and Net margin) by using STATA software (Giannarakis et al., 2016; Rodrigo et al., 2016).

$$\text{ROA} = \beta_0 + \beta_1 ESG + \beta_2 LEV + \beta_3 Size + \beta_4 Age + \beta_5 Revenue$$

$$\text{ROE} = \beta_0 + \beta_1 ESG + \beta_2 LEV + \beta_3 Size + \beta_4 Age + \beta_5 Revenue$$

$$\text{Net Margin} = \beta_0 + \beta_1 ESG + \beta_2 LEV + \beta_3 Size + \beta_4 Age + \beta_5 Revenue$$

Chapter 5 Results/Findings

5.1 Introduction

This chapter presents the result of the regression analysis. Section 5.2 is an overview of the sample companies used in this paper. The results of descriptive statistics and correlation analysis are demonstrated in section 5.3 and 5.4. Section 5.5 reveals the results of regression analysis and section 5.6 performs the results of regression analysis among different industries. Section 5.7 presents the results of robustness tests in this research. Moreover, the last section introduces the limitation and implication of this study.

5.2 Overview of Sample Companies

S/N	Industry	No. of Firms	Proportion
1	Technology	5	17.2%
2	Financial Services	5	17.2%
3	Industrials	4	13.8%
4	Oil & Gas	2	6.9%
5	Consumer Services	5	17.2%
6	Health Care	4	13.8%
7	Consumer Goods	3	10.3%
8	Fixed Line Telecommunications	1	3.4%
	Total	29	100.0%

The DJIA index consists of an entire 30 companies, however, due to CSR data is not available for Dow Inc., thus, the ultimate sample comprises of 29 companies listed in DJIA index from 2012 to 2017 because the Bloomberg online service information on CSR disclosure information is deficient in some companies in 2018. Moreover, as the most the previous studies are concentrated on the firms listed in the S&P 500 Index (Giannarakis et al., 2016; Servaes and Tamayo, 2013), therefore, this study attempt to broaden the research to the DJIA. Moreover, based on the Stock Analysis database, this study classified the sample companies as eight industries. The technology, financial service and consumer

service companies compromise the majority of sample firms. The follower is the industry of industrials, consumer goods and oil and gas. Previous research projects have studied the majority of industries (Nyeadi et al., 2018; Parsa et al., 2015; Cajias et al., 2014; Alafi and Hasoneh, 2012). However, Verizon Communications Inc. as the only fixed-line telecommunications company, the data of it lacks the representativeness of the entire industry. Moreover, due to the small amount of data available for research in this industry, this may make it difficult to compare this study with other research results. The entire list of the companies is detailed in Appendix 2.

5.3 Descriptive statistics

The Table 2 shows the descriptive statistics for all of the variables applied in this research. The panel data is comprised of 29 companies over the period of 2012 to 2017 listed in the Dow Jones Industrial Average index. The descriptive statistics provides an overview of the number of observations, mean, standard deviation, minimum and maximum.

Table 2 Descriptive statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
ESG	174	44.96654	12.17208	15.7895	74.7934
ROA	174	0.081845	0.048634	-0.0019	0.237
ROE	174	0.417871	1.797614	-0.0051	23.0901
Net Margin	174	0.14301	0.088305	-0.0045	0.4548
Leverage	173	4.710736	18.78107	-15.0743	223.1092
Firm Size (trillion)	174	0.2325015	0.4507366	0.017584	2.573126
Firm Age	174	55.22414	26.10985	4	101
Sales Revenue (trillion)	174	0.0942499	0.099377	0.010421	0.500343

As shown in table 2, the mean value of the independent variable(ESG) is around 45 out of 100, as the activities of CSR is not compulsory for companies, which means the average CSR performance of selected companies that is satisfactory. This result is similar to the empirical result found by Giannarakis et al. (2016) that they found a mean value of ESG as 44 out of 100, as stated by the authors, the positive average value means that the sample firms in this study are actively incorporating CSR activities. Regarding the dependent variables, the mean value of ROA is 8.18% that can be considered most companies have a great ability to generate the profit by using the total assets as the average ROA of DJIA index companies is 8.83%. However, due to the deficit of the net income attributed to the Chevron Corporation in the fiscal year 2016, the minimum of ROA is -0.19%. Furthermore, the mean value of ROE is around 42%, which means that the average ROE of sample companies is considerable due to the ROE between 15% and 20% are considered that a

company has good ability to create earnings growth by utilising its investment (Peterson Drake and Fabozzi, 2012). Because rapid growth of Boeing Corporation from 2016 to 2017 that provides the value of ROE up to 2309%, which result in such a high average ROE of the sample companies. Moreover, the average value of the net margin is 14.3%, which indicates that the sample companies can generate an average 14% net income from each dollar of sales.

With regard to the control variables, the mean value of financial leverage is 4.7, that is a high debt to equity ratio as the optimal gearing ratio should not excess 2.0(Wild, Subramanyam and Halsey, 2007). However, due to the deficit of shareholders' equity attributed to McDonald's Corporation since the fiscal year 2016, the minimum value of leverage ratio is -15.07. Furthermore, the mean value of firm size evaluated by the book value of total assets is 0.23 trillion and the maximum value of firm size is 2.57 trillion, which illustrated by the JP Morgan in the fiscal year 2014. The large firm size and sales revenue also reflect the opinion of large companies having more resources to invest in the environment and society (Inour and Lee, 2011). In this study, the firm age is depicted by the period from the listing date to the year of analysis, and the sample companies have listed average over 55 years.

5.4 Correlation Analysis

Table 3 performs the correlation matrix of all non-dummy variables in the regression model for the sample companies in this study. Specifically, this research concentrate on the correlation between CSR (ESG score) and CFP (ROA, ROE, Net margin). Based on the theory of Pearson correlation coefficient, there is a value for measuring correlation between variables that between +1 and −1, whereas the value of 1 indicates there is a total positive linear correlation, 0 reflects there is no linear correlation, and −1 reveals there is an overall negative linear correlation(Watsham and Parramore, 2002).

Table 3 Correlation matrix

	ESG	*ROE*	*ROA*	*Net Margin*	*Leverage*	*Total Asset*	*Firm Age*	*Sales Revenue*
ESG	1							
ROE	-0.0863	1						
ROA	0.2907***	0.0231	1					
Net Margin	0.1321	-0.0639	0.4695***	1				
Leverage	-0.1169	0.9676***	-0.0334	-0.0922	1			
Firm Size	0.0553	-0.053	-0.164	0.1816	0.056	1		
Firm Age	0.1597	0.1035	-0.3182***	-0.3946***	0.0822	-0.1327	1	
Sales Revenue	0.0099	0.0041	-0.0481	-0.3487***	-0.0123	0.0701	0.1218	1

Notes： *Significant at the 0.1 level (2-tailed), **Significant at the 0.05 level (2-tailed), ***Significant at the 0.01 level (2-tailed).

Table 3 shows the correlation between each variable at a different level of statistical significance. The correlation between most variables is considered small with the value of correlation coefficient is between 0.1 to 0.3 or -0.1 to -0.3, and some variables can be regarded as nearly unrelated, and the value of the correlation coefficient is less than 0.1 or -0.1. Particularly, the correlation between ESG and ROE is negative, and the relationship is fragile (coefficient is -0.08). In contrast, there is a positive and significant correlation between ESG and ROA at 10% level of significance with the 0.29 correlation coefficient value, but the strength of this association is small due to the value of correlation coefficient is lower than 0.3. Moreover, the ESG is positive but insignificant correlated with net margin. In addition, since ESG is positively related to the size of the company (correlation coefficient =0.05) , although the correlation is not significant, it is confirmed that there are fewer CSR-related activities of small companies compared with large companies, and there is a correlation between company size and CSR disclosure (Hirigoyen and Poulain Rehm, 2014).

Furthermore, there is a positive relationship between ESG with other control variables (firm age and sales revenue), despite this relationship is non-significant, it verified the conclusion made by Wang and Bansal (2012) that it is important to incorporate control variables in studies (Inoue and Lee, 2011).

5.5 Regression Results

Before conducting the regression model, this study performed an F-test and Hausman test to determine whether the fixed effect model or random effect model should be employed in this study. Because in the regression model, this directly affects whether the variable should be considered as constant or random and further impacts the outcomes of regression results (Borenstein, Hedges, Higgins and Rothstein, 2010). The result of F-test shows in table 4 below, because the Prob > F = 0.0000 which indicates that there is statistical significance between independent and dependent variables, and the fixed effect model can be employed in this study. In order to further confirm the accuracy of F-test, this study also performs a Hausman test. The result of the Hausman test illustrates in Appendix 3, the result is Prob>Chi2 = 0.0007 that shows the p-value is smaller than 0.05, therefore this study can reject the null hypothesis that the preferred model is random effects (Mitchell, 2012). This indicates that the panel data can be processed with a fixed effect model. Moreover, due to an essential assumption of the multi-regression model that there is no relationship between independent variables (DeFusco et al., 2015). Multi-collinearity can

be determined by variance inflation factors (VIF) test. If the value of VIF over 4.0, then often regarded as there is a multi-collinearity problem exists in the regression model (Hair et al., 2010). This study performs a VIF test to determine whether a multi-collinearity issue exists in the regression model. The result shows that the value of VIF of each variable are very small, and the regression model does not have a multi-collinearity problem as the mean value of VIF is 1.05, which is smaller than the reasonable level of 4. The detailed VIF test result is demonstrated in Appendix 4.

Table 4 demonstrates the results of OLS linear regression by using ROA as dependent variables.

Table 4 OLS Regression Results with ROA as dependent variable

Panel: ROA	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
ESG	0.001641	0.000292	5.62	0	0.001065	0.002217
Leverage	0.000167	0.000188	0.89	0.376	-0.0002	0.000537
Firm Size	-0.00287	0.000783	-3.67	0	-0.00442	-0.00133
Firm Age	-0.00085	0.000138	-6.14	0	-0.00112	-0.00057
Sales Revenue	0.000903	0.003525	0.26	0.798	-0.00605	0.007862
Constant	0.066936	0.014704	4.55	0	0.037907	0.095965
F(5, 168) = 13.08		Prob > F = 0.0000			R-squared = 0.2802	

As shown in the table 4, the entire fixed effect model is significant due to the Prob>F = 0.000. Particularly, the t-value for ESG is 5.62 that the p-value > t =0, therefore there is a statistical significance between ROA and ESG at 95% level of confidence, which indicates there is a relationship exist between CSR and ROA. In addition, as the coefficient of ESG is 0.0016 that means this relationship is positive. Therefore, the CSR activities positively impact CFP. However, as the value of R-squared is 0.28 that reflects the explanation ability of this model is performed not so good, because only 28% of ROA are explained by the independent variable ESG.

Moreover, for other control variables, the firm size and firm age in the model is significant as the p-value > t =0, but there is a negative relationship between ROA and the control variables firm size and firm age.

According to the output with ROA as dependent variable, this study is able to get the first regression equation:

$$ROA = 0.066936 + 0.001641\text{ESG} + 0.000167\text{Leverage} - 0.00287\ \text{Firmsize} - 0.00085\ \text{FirmAge} + 0.000903\ \text{SalesRevenue}$$

Table 5 OLS Regression Results with ROE as dependent variable

Panel: ROE	Coef.	Std. Err.	t	P>t	[95%Conf.Interval]	
ESG	0.00502	0.002629	1.91	0.058	-0.00017	0.010209
Leverage	0.093918	0.001691	55.53	0	0.090579	0.097257
Firm Size	-0.04441	0.007052	-6.3	0	-0.05833	-0.03048
Firm Age	0.00000235	0.001242	0	0.998	-0.00245	0.002454
Sales Revenue	0.042679	0.031752	1.34	0.181	-0.02	0.105362
Constant	-0.1914	0.132465	-1.44	0.15	-0.45291	0.070113
F(5, 168)= 631.66		Prob > F=0.000			R-squared= 0.9495	

In order to further determine the accuracy of the regression result, this study performs the second equation with the ROE as the dependent variable. Table 5 performs the OLS linear regression results by using ROE as dependent variables.

As can be seen in table 5, the whole fixed effect model is significant because the Prob>F = 0.000. Specifically, the t-value for ESG is 1.91 that the p-value > t =0, thus there is a statistical significance between ROE and ESG at 95% level of confidence, which indicates that there is a relationship exist between CSR and ROE. Moreover, the positive coefficient value of ESG that illustrates the relationship between CSR and ROE is positive, in addition, as the value of R-squared is 0.95 that indicates 95% of the variance in the ROE data is because the variance of independent variable ESG, which means the explanation ability of this model is good that the relationship between CSR and ROE is strong. Therefore, it turns out that an increase in CSR performance can enhance the performance of CFP.

Based on the results with ROA as the dependent variable, this research can get the second regression equation:

$$ROE = -0.1914 + 0.00502\text{ESG} + 0.093918\text{Leverage} - 0.04441\text{FirmSize} + 0.00000235\text{FirmAge} + 0.042679\ \text{SalesRevenue}$$

Based on the analysis of OLS regression results with ROA and ROE as the dependent variable respectively, it shows that the relationship between CSR and CFP is positive. Despite the inconsistent explanation ability of the two models, but these two models are both significant. That means according to increase the CSR -related activities in operations, the companies can enhance financial performance. This study will further perform a robustness test by using a different indicator of CFP as a dependent variable that is the net margin of sample companies to further determine the accuracy of results.

5.6 Comparison in Industries

Due to the nature of business activities, companies in different industries face a different level of pressures from stakeholders and expectations of CSR investments (Chen et al., 2015). Therefore, this research classified the sample companies as eight industries to test

whether the relationship between CSR and CFP differ across different industries. This study performs OLS regressions to compare the coefficient value and the significance level of ESG in eight industries. Table 6 shows the result with ROA as the dependent variable.

Table 6 OLS Regression Results of Impact of CSR on ROA in Eight Industries

Panel: ROA	Technology	Financial Services	Industrials	Oil & Gas	Consumer Services	Health Care	Consumer Goods	Fixed Line Telecommunications
ESG	-0.0000491	0.0004669	-0.0000336	0.0062215*	-0.0014698**	-0.002616	0.0003245	-0.0816767
	(-0.07)	(0.63)	(-0.03)	(2.22)	(-2.62)	(-1.05)	(0.26)	
Leverage	-0.0026137	0.0118525***	0.0002338**	-0.2201975**	0.0007543	-0.0863166***	-0.0260614*	-0.0183572
	(-0.48)	(3.78)	(2.16)	(-3.01)	(1.24)	(-4.44)	(-1.8)	
Firm Size	-0.074471***	0.0061162	-0.0034972	-0.0308218	-0.0448924**	-0.0061102	-0.131736*	-0.0884896
	(-4.32)	(0.96)	(-0.05)	(-1.08)	(-2.33)	(-0.11)	(-1.8)	
Firm Age	-0.0003444	-0.0039145**	-0.005988***	-0.0017954	-0.0023165***	0.0032417	0.0005699	0.0936476
	(-0.69)	(-2.62)	(-4.35)	(-0.4)	(-6.56)	(0.83)	(0 . 89)	
Sales Revenue	0.1316351***	-0.2823143	-0.0332471	0.0450692***	0.0005721	0.082305	0.1512488	1.973582
	(5.98)	(-1.16)	(-0.77)	(4.63)	(0.08)	(1.2)	(1.07)	
Constant	0.1296907***	0.1656652***	0.5646115***	0.0528138	0.321101***	0.0554954	0.1203701	-1.609409
	(3.16)	(5.01)	(6.86)	(0.13)	(7.61)	(0.48)	(1.4)	
N	30	30	24	12	30	24	18	6
Adj R-squared	0.6643	0.8604	0.8604	0.9379	0.7168	0.4203	0.7448	
F-value	12.48***	29.35***	29.35***	34.21***	15.68***	4.33***	10.92***	

** p < 0.10; ** p <0 .05; *** p <0 .01. t-statistics are in parentheses.*

As shown in Table 6, when the financial performance is measured by ROA, the ESG has a positive and significant effect (β = 0.006, t = -2.22) on ROA in the industries of oil and gas, which indicates companies in oil and gas industries can enhance financial performance by increasing the CSR performance. There is a positive relationship between CSR and CFP in the industries of oil and gas. However, the ESG has a negative and significant impact (β = -0.001, t = -2.62) on ROA in the industry of consumer service, which implies that firms in consumer service industry might lower ROA to improve performance of CSR. Furthermore, the ESG has a positive influence on ROA in the industries of consumer goods and financial service (β = 0.0003, t = -0.26; β = 0.0005, t = -0.63 respectively), but the effects in these two industries are insignificant. In contrast, the ESG has a negative and non-significant influence on ROA in the industries of technology, industrials, health care and fixed line telecommunications (β = -0.00005, t = -0.07; β = -0.00003, t = -0.03; β = -0.0026, t = -1.05; β = -0.08 respectively). The findings of this study indicate that the impact of CSR on different industries are not consistent. The findings also support that companies in five industries (Technology; Industrials; Consumer Services; Health Care; Fixed Line Telecommunications) should seriously consider their policies of CSR.

The control variable, leverage has a positive and significant impact on ROA for the industries of financial service, industrials and consumer services with the value of coefficient 0.012, 0.0002, and 0.0007 respectively. In the industries of technology, oil and gas, health care and consumer goods, the leverage has a negative connection with ROA in these five industries. Size measured by the book value of firm assets has a positive and non-significant impact on ROA in the industry of financial service (size coefficient is 0.006).

Therefore, the findings support hypothesis 2 that generalised there are differences regarding the influence of CSR on CFP among different industries, which resembles the research results of Chen et al., 2015 and Cajias et al. (2014).

Furthermore, in order to further determine the accuracy of the result above, the following Table 7 illustrates the OLS regression results of the effect of CSR on ROE in eight Industries.

Table 7 OLS regression results of effect of CSR on ROE in Eight Industries.

Panel: ROE	Technology	Financial Services	Industrials	Oil & Gas	Consumer Services	Health Care	Consumer Goods	Fixed Line Telecommunications
ESG	0.0025805	0.00378***	0.0609327	0.008709	-0.00644*	-0.0043464	-0.002097	-0.2778711
	0.84	3.21	1.34	1.68	-1.73	-0.78	-0.64	
Leverage	0.1020912***	-0.0125**	0.1080062***	-0.2923*	0.0440962***	-0.130306***	-0.044796	-0.0596787
	4.63	-2.5	21.18	-2.16	10.92	-3.00	-1.18	
Firm Size	-0.189046**	-0.0327***	8.321199**	-0.06533	-0.280990**	0.0299009	-0.387836*	-0.512129
	-2.68	-3.22	2.27	-1.24	-2.2	0.23	-2.01	
Firm Age	-0.0013107	-0.0021**	-0.144290**	-0.00046	-0.009092***	0.0040436	0.0036114*	0.2550135
	-0.64	-0.88	-2.22	-0.06	-3.89	0.46	2.14	
Sales Revenue	0.33094***	1.0781**	-5.690498**	0.09182**	0.0404362	0.1304466	0.4759214	13.22806
	3.68	2.77	-2.8	5.1	0.88	0.85	1.28	
Constant	0.024124	-0.059975	5.586257	-0.10636	1.152419***	0.1545519	0.2269565	-10.69336
	0.14	-1.14	1.44	-0.14	4.12	0.6	1.00	
N	30	30	24	12	30	24	18	6
Adj R-squared	0.848	0.638	0.9715	0.9431	0.861	0.2511	0.2881	
F-value	33.37***	11.22***	157.54***	37.47***	36.92***	2.54*	2.38	

** p < 0.10; ** p <0 .05; *** p <0 .01. t-statistics are in parentheses.*

As can be seen in the table 7, when the financial performance measured by ROE, the ESG has a positive and significant effect ($\beta = 0.004$, t = -3.21) on ROE in the industry of financial service, which reflects there is a positive relationship between CSR and CFP in the financial service industry. In contrast, the ESG has a negative and significant impact ($\beta = -0.0064$, t =-1.73) on ROE in the industry of consumer service, which consists with the result of ROA as the dependent variable. Moreover, ESG has a negative and non-significant influence on ROE in the industries of health care, consumer goods, and telecommunications. Nevertheless, the ESG has a positive and insignificant effect on ROE in the industries of technology, industrials, and oil and gas.

The findings support the results of ROA as the dependent variable that there are differences regarding the influence of CSR on CFP among various industries.

5.7 Robustness Analysis

By using different measurements of financial performance that can make the findings more robust (Nyeadi et al.,2018). In general, ROA, ROE and net margin reflect the profitability of a firm by measuring how efficiency a firm use its resources to generate profits (Lu et al., 2018). Thus, this section presents the robustness of research results by using an alternative financial indicator (Net margin) to perform the OLS regression and the influence in different industries.

The following table 8 shows the results of OLS linear regression by using ROA as dependent variable.

Table 8 OLS Regression Results with Net margin as dependent variable

Panel: Net margin	Coef.	Std. Err.	t	P>t	[95%Conf.Interval]	
ESG	0.001293	0.000478	2.71	0.007	0.00035	0.002236
Leverage	-0.00025	0.000307	-0.83	0.409	-0.00086	0.000352
Firm Size	0.002924	0.001281	2.28	0.024	0.000395	0.005454
Firm Age	-0.00122	0.000226	-5.4	0	-0.00166	-0.00077
Sales Revenue	-0.02824	0.005769	-4.89	0	-0.03963	-0.01685
Constant	0.173144	0.024069	7.19	0	0.125628	0.22066
F(5, 168) =14.99		Prob > F = 0.0000			R-squared =0.3085	

As can be seen in the table 8, the entire regression model is significant due to the Prob>F = 0.000. Specifically, the t-value for ESG is 2.71 that the p-value > t =0.007, therefore there is a statistical significance between net margin and ESG at 95% level of confidence, which indicates there is a relationship exist between CSR and net margin. In addition, as the coefficient of ESG is 0.0013 that means this relationship is positive. This finding is similar with the regression results with the ROA as dependent variable. Therefore, companies incorporate the activities of CSR will positively affect CFP. However, as the value of R-squared is 0.3 that illustrates only 30% of net margin are explained by the independent variable ESG, which similar with the findings with the ROA as dependent variable. By comparing the value of R-squared in three regression models, the explanation ability of the model by taking ROE as the dependent variable is better than other two models.

The STATA output performs that for other control variables, the leverage is insignificant at the 95% level of confidence because the p-value>t = 0.4, and the leverage is negative impact net margin. The firm size, firm age and sales revenue in the model is significant, but there is a negative relationship between net margin and the control variables firm age and sales revenue. In contrast, the firm size measured by total assets that positively impact net margin.

According to the output with net margin as dependent variable, this study can obtain the third regression equation:

$$Net\ margin = 0.173144 + 0.001293\text{ESG} - 0.00025\text{Leverage} + 0.002924\ \text{FirmSize} - 0.00122\ \text{FirmAge} - 0.02824\ \text{SalesRevenue}$$

In general, through the analysis of OLS regression model with ROA, ROE and net margin as dependent variable separately. In spite of the explanation ability in each model is not consistent, but these three regression models are significant due to the Prob>F = 0.000. Therefore, the findings indicates there is a positive relationship between CSR and CFP,

which means the companies increase the performance of CSR can enhance CFP that support the hypothesis 1.

In the second robustness test, the following table 9 shows the OLS regression model results of effect of CSR on net margin in eight Industries.

From table 9, when the financial performance is measured by net margin, the ESG has a positive and significant impact on net margin in the industries of financial service (β = 0.005, t = -4.83), oil and gas (β = 0.008, t = -2.03). This is consisting with the findings of industry comparison above with ROA and ROE as dependent variable respectively, which indicates that the companies in financial service and oil and gas are more intended to participate CSR activities to enhance financial performance. This findings are similar with the research findings by Nyeadi et al. (2018) and Tafti et al. (2012).

Table 9 OLS regression results of effect of CSR on Net margin in Eight Industries.

Panel: Net magin	Technology	Financial Services	Industrials	Oil & Gas	Consumer Services	Health Care	Consumer Goods	Fixed Line Telecommunications
ESG	-0.0001633 (-0.15)	0.0053954*** (4.83)	-0.0004166 (-0.31)	0.0085236* (2.03)	-0.0034419*** (-3.98)	-0.0030962 (-0.42)	-0.000336 (-0.16)	-0.1710179
Leverage	-0.0029367 (-0.38)	-0.021355*** (-4.5)	0.000255 (1.67)	-0.4432*** (-4.05)	-0.0017782* (-1.89)	-0.1509325** (-2.6)	-0.065923** (-2.69)	-0.0378686
Firm Size	-0.0128486 (-0.52)	-0.0084063 (-0.87)	0.1068556 (0.97)	0.00772 (0.18)	0.1020188*** (3.44)	0.1708559 (0.99)	-0.0023741 (-0.02)	-0.1506175
Firm Age	-0.0008471 (-1.17)	-0.007028*** (-3.11)	-0.00787*** (-4.05)	-0.00087 (-0.13)	-0.003298*** (-6.07)	0.0018159 (0.16)	0.0024231** (2.23)	0.1962576
Sales Revenue	0.0340174 (1.07)	0.5488183 (1.49)	-0.13643** (-2.24)	0.0324497* (2.22)	-0.0698213*** (-6.51)	-0.0359686 (-0.18)	-0.0378836 (-0.16)	3.940619
Constant	0.2345278*** (3.96)	0.1846582*** (3.69)	0.7224013*** (6.21)	-0.056334 (-0.09)	0.4334375*** (6.67)	0.1956028 (0.57)	0.1072828 (0.74)	-3.232346
N	30	30	24	12	30	24	18	6
Adj R-squared	0.3856	0.7583	0.7431	0.7907	0.7859	0.4948	0.3116	
F-value	4.64***	19.2***	14.31***	9.31***	22.29***	5.5***	2.54*	

** p < 0.10; ** p <0 .05; *** p <0 .01. t-statistics are in parentheses.*

Nevertheless, consistent with the previous finding in section 5.6, the ESG has a negative and significant impact on net margin in the industry of consumer service(β = -0.003, t = -3.89), which is contrast with the research findings by Saeidi et al.(2015) that conclude the companies can increase the consumer satisfaction by enhancing CSR performance. Eventually, through the second robustness test and the analysis in section 5.6, the results can conclude that the relationship between CSR and CFP is various among different industries as they are facing different pressure from stakeholders, this result supports hypothesis 2.

5.8 Limitation and Implication

This chapter presented the results of diverse regression models that were undertaken to achieve the research objectives. The main aim of this study is to explore the relationship between CSR and CFP in selected sample companies by using the ROE, ROA, and net

margin as the dependent variable, respectively. Although the findings show that the explanation ability of models is different, the results of each regression model illustrate that there is a positive and significant association between CSR and CFP. Moreover, the sub-objective is to investigate the relationship between CSR and CFP in different industries, and the results verified the second hypothesis that the connection between CSR and CFP is various among different sectors.

However, these findings have some limitations as well. The main limitation of this study is the measurement of CFP. This study mainly uses ROA, ROE, and net margin as dependent variables to measure CFP. Some previous studies select Tobin's q and stock price as the market-based measurements to evaluate CFP (Qiu et al., 2016; Rodriguez-Fernandez, 2016; Lioui and Sharma,2012; Erhemjamts et al., 2013). However, due to the time and resources limitation, this study only undertakes accounting-based measurements as the dependent variable. However, the historical data cannot better reflect the current situation. Despite Orlitzky et al. (2003) concluded CSR is highly associated with CFP when using accounting-based measures rather than the market-based measures. Besides, the results of the study generalise that the relationship between CSR and CFP is different among different industries through the comparison of eight industries. However, due to the number of samples in each industry is small, the sample lacks representativeness to support solid research results.

Chapter 6 Discussion

6.1 Research Question and Hypothesis 1

As discussed in Chapter 2 earlier, empirical studies on the nature and intensity of the impact of corporate social responsibility activities on the financial performance of commercial companies report different conclusions. Previous empirical findings of the relationship between CSR and CFP include those with strong positive impacts(Giannarakis et al., 2016; Qiu et al., 2016; Rodriguez-Fernandez, 2016; Saeidi et al., 2015; Erhemjamts et al., 2013), those with strong negative impacts (Platonova et al., 2018; Rodrigo et al., 2016; Hirigoyen and PoulainRehm, 2014), those with neutral effects (Soana, 2011)., and those with mixed effects (Hou, 2019). Based on the outcome of regression models analysis above, the direction of the connection between CSR and CFP (ROA, ROE, and Net Margin) is positive. The first developed hypothesis for this research is illustrated again:

H_o: For a group of companies listed in the Dow Jones Industrial Average index, there is not a positive relationship between CSR and CFP that the increase in CSR performance cannot enhance the CFP.

H_a: For a group of companies listed in the Dow Jones Industrial Average index, there is a positive relationship between CSR and CFP that the increase in CSR performance can enhance the CFP.

The first hypothesis concerned about the relationship between CSR and CFP in the selected companies. The findings of this research are consistent with most of the results and add to the evidence that the link between CSR and CFP is positive. However, the explanation ability of each model is different and dependent on variables. As shown in section 5.5 and section 5.7, when ROA and net margin are used as dependent variables separately to measure the relationship between CSR and CFP, the relationship shows a positive relationship. This supports the findings of Servaes and Tamayo (2013) that CSR has a positive impact on ROA. Saeidi et al. (2015) adopted the ROA and ROE as the indicator of CFP measurement and found a similar result that the relationship between CSR and CFP is positive. Moreover, when ROE is used as the dependent variable, the outcome shows that there is a positive relationship between CSR and ROE consistent with previous studies (Lu et al., 2018; Rodriguez-Fernandez, 2016; Škare and Golja, 2012).

Notwithstanding the positive relationships between ROA, net margin and CSR performance, this paper observed that the explanation ability of these two models is weak (R2=0.28; R2=0.3 respectively). That is to say when reviewing the ROE as the dependent variable, the explanation ability of it is better than other two models because a high R2 indicates that the model can better predict the connection between the dependent and independent variable (Mitchell, 2012). However, the value of R2 cannot fully represent the good or bad of a model, and the studies should concentrate more on the model is significant or not because the R2 is not accurate when compared across models in many situations (Rights and Sterba, 2019). Therefore, as the results of each regression model illustrate that there is a positive and significant association between CSR and CFP, hence this study can conclude the CSR has a positive impact on CFP.

Hence, based on the regression analysis of the relationship between CSR and CFP, this study can conclude that CSR has a positive influence on CFP, and the companies can enhance the financial performance by increasing the CSR activities in the operations, which fail to reject the alternative hypothesis 1. This finding complies with the results of prior studies (Giannarakis et al., 2016; Qiu et al., 2016; Rodriguez-Fernandez, 2016; Saeidi et

al., 2015; Erhemjamts et al., 2013). Moreover, the research question of this study has been fully achieved according to the findings in the previous chapter.

Hypothesis 1	**Reject/Fail to reject**
H_o*: For a group of companies listed in the Dow Jones Industrial Average index, there is not a positive relationship between CSR and CFP that the increase in CSR performance cannot enhance the CFP.*	Reject
H_a: *For a group of companies listed in the Dow Jones Industrial Average index, there is a positive relationship between CSR and CFP that the increase in CSR performance can enhance the CFP.*	Fail to Reject

6.2 Research Sub-question and Hypothesis 2

As linked back to the chapter 2, based on the stakeholders' theory and the nature of the business operations, some companies are more intended to incorporate CSR activities in order to meet the expectations of stakeholders (Chen et al., 2015; Sweeney and Coughlan, 2008). Moreover, Cajias, Fuerst and Bienert (2014) indicate that the strategies of CSR vary significantly across industries. Based on the last chapter, this study obtains the same conclusion, and the second developed hypothesis for this research is demonstrated again:

H_0*: For a group of companies listed in the Dow Jones Industrial Average index, the relationship between CSR and CFP is not diverse among different industries*

H_a: *For a group of companies listed in the Dow Jones Industrial Average index, the relationship between CSR and CFP is diverse among different industries*

As the analysis in the chapter 5, the ESG has a positive and significant impact on ROA, ROE, and net margin individually in the oil and gas industry (N=2), which means a highly possible that industry of oil and gas is more intended to incorporate the activities of CSR in order to enhance the financial performance. Similar results have been found in prior research projects. In the study of companies in South Africa, the performance of CSR is positively impact CFP in the mining and oil industry(Nyeadi et al., 2018). Moreover, Cajias et al. (2014) conclude that there is a positive relationship between CSR and CFP in the oil and gas industry.

Nyeadi et al. (2018) also conclude the relationship between CSR and CFP is neutral that the CSR has no influence on CFP in the financial service industry. In contrast, Alafi and Hasoneh (2012) perform a regression analysis of the banks in Jordan that conclude the CSR positively impacts on financial performance and consumer satisfaction. The same result is found by Tafti et al.(2012) that there is a positive relationship between CSR and CFP in the sector of banks in Iran. This study obtained the similar result with the industry of financial service(N=5), despite there is a positive but non-significant relationship between CSR and ROA($\beta = 0.0005$, $t = -0.63$), the CSR has a positive and significant influence on ROE ($\beta = 0.004$, $t = -3.21$) and net margin($\beta = 0.005$, $t = -4.83$). Therefore, consistent with the previous studies, this research can conclude that there is a positive relationship between CSR and CFP in the financial service industry.

Saeidi et al.,(2015) investigate 1250 manufacturing and consumer goods companies in Iran that they found that throughout enhance customer satisfaction, the companies can increase competitiveness. Conversely, this study about the investigation of consumer goods industry (N=3) that get mixed results. When adopting the ROA as the dependent variable, there is a positive but not significant relationship between ESG and ROA in the industry of consumer goods($\beta = 0.0003$, $t = -0.26$). in spite of this, when using the ROE and net margin as the dependent variable separately, the results show that ESG has a negative and insignificant influence on the ROE($\beta = -0.002$, $t = -0.64$) and net margin($\beta = -0.0003$, $t = -0.16$) in the industries of consumer goods.

Moreover, throughout the analysis, the ESG has a negative and significant impact ($\beta = -0.001$, $t = -2.62$) on ROA in the consumer service industries (N=5), this result is similar with other two models (when taking ROE and net margin as dependent variable separately). However, this result is contrary to the previous literature. Through the questionnaire survey, there is a positive correlation between corporate social responsibility and customer willingness to pay in the US retail and consumer service industries (Parsa et al., 2015). The reason for this opposite result is most likely because the sample data is too small and lacks representativeness.

According to the investigation 2300 listed firms in the US that can be determined that the performance of CSR in the asset-driven industries such as real estate or chemical companies are lower than the performance of customer-oriented companies such as telecommunications and automobiles (Cajias et al., 2014). Furthermore, a similar result is found by Loureiro et al. (2012) that in the automotive industry, the CSR is positively affected CFP. Moreover, Qiu et al. (2016) suggest there is a positive relationship between

CSR and CFP (ROS and stock price) in the industries of health care, industrials, telecommunications, and technology. In addition, Inoue and Lee (2010) put forward that the CSR has a positive effect on CFP in the sector of the airline. In spite of this, this study acquired different findings in these industries. Throughout the analysis of this research, the ESG has a negative and non-significant influence on ROA and net margin in the industries of technology (N=5), industrials (N=4), health care (N= 4) and fixed line telecommunications (N=1). The findings is constant when the ROE is utilised as the dependent variable that the CSR is negatively and insignificantly impact ROE in the health care and telecommunications industries. The considerable reason for the distinct conclusion is the variables and methodology is different (Surroca et al., 2010), as well as the sample is small and representation of the entire industry is deficient.

Based on the discussion above, this research has attained the research sub-questions, and fail to reject hypothesis 2. That can be generalised that the relationship between CSR and CFP is diverse across different industries, which comply with the previous findings made by Chen et al., 2015; Cajias et al. (2014).

Hypothesis 2	**Reject/Fail to reject**
H_0: *For a group of companies listed in the Dow Jones Industrial Average index, the relationship between CSR and CFP is not diverse among different industries*	Reject
H_a: *For a group of companies listed in the Dow Jones Industrial Average index, the relationship between CSR and CFP is diverse among different industries*	Fail to Reject

6.3 Practical Implication

The analytical conclusion of the leading research question that rejects Friedman's (1970) argument that companies should not undertake social responsibility. This generalisation supports what the subsequent researchers have suggested. According to stakeholder theory, business activities should satisfy stakeholders and help companies create competitive advantage and improve financial performance (Nyeadi et al., 2018; Lu et al., 2018; Rodriguez-Fernandez, 2016; Škare and Golja, 2012). Therefore, companies need to incorporate CSR activities in business operations. Moreover, through the analysis of the research sub-question, although some conclusions are different with the previous research

projects, this study suggests that companies in five industries (Technology; Industrials; Consumer Services; Health Care; Fixed Line Telecommunications) should seriously consider their policies of CSR.

6.4 Limitation

The focus of this research is on listed companies in the United States. Therefore, it is not appropriate to summarise research findings and conclusions outside of US companies. The overall conclusion may be invalidated by any effort to extend the study's outcomes beyond its scope. There are many limitations on the evaluation that may further restrict its universality and credibility.

Second, as of the end of 2017, there were approximately 4,300 listed companies in the United States. However, the companies selected in this study involved only 29 US-listed companies. In the process of selecting samples, according to the literature, large companies have made more contributions to CSR related actions (Orlitzky, 2013), and this study broadens the research to the DJIA listed companies. However, the small sample may lead the research results inaccurate because of the data lack of representativeness.

Third, the data of the relevant CSRs that can be accessed constitutes a limitation to the study. In the process of data collection, because CSR is a voluntary activity, many companies do not immediately publish data on CSR (Giannarakis et al., 2016), so the study only covers a total of six years from 2011 to 2017. The reason is the absence of data for 2018, prevented the study from obtaining more immediate results. In addition, the results of the research generalise that the relationship between CSR and CFP is different among different industries through the comparison of eight industries. Nevertheless, due to the number of samples in each industry is small, the sample lacks representativeness to support solid research results.

Moreover, in the previous studies, there were some studies on CSR that were split into several dimensions to study in order to obtain more detailed research results. Tafti et al. (2012) classified CSR as four dimensions to study the relationship between CSR and CFP, the similar research methodology was adopted by Rodriguez-Fernandez(2016) that taking different rating system to evaluate CSR. Although this study is based on the triple bottom line theory of CSR (Elkinyton, 1998), the ESG data provided by Bloomberg is an aggregated data that in this study it is hard to obtain the detailed data in each dimension. Thus, research on the three components of the CSR on governance, culture and the environment is in short supply.

Finally, some prior research projects have selected Tobin's q and stock prices as market-based measures for evaluating CFP (Qiu et al., 2016; Rodriguez-Fernandez, 2016; Lioui and Sharma, 2012; Erhemjamts et al., 2013). However, Orlitzky et al. (2003) argue that CSR and CFP use accounting-based measurement are more highly relevant than the market-based approach. Therefore, due to time and resource constraints, this study only uses accounting-based indicators as the dependent variables and there is a shortage of the market-based measurement methods.

Chapter 7 Conclusion

7.1 Dissertation Conclusion

In the latest decades, combining CSR into business practice has been a frequent subject, with shareholders, clients and other stakeholders demonstrating the most important concern about this problem. Although the demand for CSR is growing, companies are worried whether enhanced social performance will result in excellent economic results. Many scholars have evaluated the relationship between CSR and CFP. However, the results are not definitive, and there are a positive, negative, neutral and mixed link has been found before.

Based on the stakeholder theory, this study explains why enterprises integrate CSR into business operations. The sample of this research comprises of data from 29 US companies from 2011 to 2017. The most frequently discussed problems from prior research are the right measurement of CSR and CFP and the choice of control variables that are essential to the study of the association between CSR and CFP. The study chose Bloomberg's total ESG score to measure CSR performance because Bloomberg's method is based on data related to the evaluation company's industry to ensure subjective quantification of CSR performance. The corporate financial performance measurement comes from Bloomberg database and the Stock Analysis database. This research uses common financial indicators ROA, ROE, Net margin, that is, financial indicators based on accounting measurement.

The analysis is divided into two parts. Firstly, this study performed a t-test and Hausman test to determine whether the model is a fixed effect or random effect, and the results of testing show that the preferred model is the fixed-effect model. Moreover, this study demonstrates a VIF examination to test an essential assumption of multiple regression model that there is no relationship between independent variables. The results of the VIF shows the selected independent variables in this study is not related to each other.

Furthermore, after the necessary test for the models, this study demonstrated the regression model to test the relationship between CSR and CFP. The results exemplify the explanation ability of each model is different when taking the various indicators of CFP to perform the regression model. In spite of this, the result of three regression models shows there is a positive and significant relationship between CSR and CFP. That suggests companies have a high possibility to enhance financial performance with excellent performance of CSR. Therefore, the main research question is achieved, and this finding supports the hypothesis 1. The results are consistent with the previous studies that made by Giannarakis et al., 2016; Qiu et al., 2016; Rodriguez-Fernandez, 2016; Saeidi et al., 2015; Erhemjamts et al., 2013, which put forward that the CSR has a positive impact on CFP.

In the second piece, the OLS linear regression results suggest that the relationship between CSR and CFP is different among the eight industries because the value of the coefficients of the independent variables (ESG) in the eight sectors are different. Therefore, the second hypothesis of the study is supported that the relationship between CSR and CFP is different among industries, which is similar with the results of Chen et al., 2015; Cajias et al. (2014). In general, the socially responsible behaviour of a company has a positive impact on the performance of the business. However, given the differences in the business activities and industry of each company, thus results in the inconsistent conclusion. In addition, due to the number of samples involved in this study is not as large as the number of samples in previous studies, it is a chance for further discussion of this subject in distinct situations and scopes.

7.2 Recommendations for future research

As discussed in the literature review in Chapter 2, despite the research on CSR and CFP in recent years is growing, it does not involve analysis of the companies listed in the Dow Jones Industrial Average index. Many early studies have examined the relationship between CSR and CFP among multiple industries. Thus, it is challenging to address the characteristics of each industry or each stakeholder group. The study also found that the relationship between CSR and CFP is different between different industries. Therefore, the study suggests the further research should on a particular sector to achieve a definitive result.

Moreover, the six years covered by this study are not sufficient to draw reliable conclusions. That suggest future research projects to collect longer analysis times that provide more effective results. Furthermore, it is recommended that future research use multi-

dimensional ratings to measure CSR to obtain a more precise outcome. According to multi-dimensional analysis, it provides highly possible that the company would know which aspects they should take more attention, and to improve financial performance further.

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Appendix

Appendix 1 The Prior Empirical Findings on the Relationship between CSR and CFP

S/N	Authors	Methodology	Industry	Context	Scope	Relationship Found
1	Becchetti, Ciciretti, Hassan & Kobeissi (2012)	Multi CAPM model, parametric/non parametric methods	Multiple, no control	Multiple countries	1990-2004	Positive
2	Servaes & Tamayo (2013)	Summary Statistics and Correlation Matrix	Multiple, no control	US	1991-2005	Positive
3	Ghoul, Guedhami, Kwok, & Mishra (2011)	Multivariate regression analysis,	Multiple, with control	US	1992-2007	Positive
4	Chen & Wang (2011)	Factor analysis, relative analysis and multi-regression	Multiple industries with control	China	2007-2008	Positive
5	Gregory, Tharyan, & Whittaker, (2014)	CAPM,Pearson Correlation Coefficients,Regression analysis	Multiple, no control	US	1992-2009	Positive
6	Saeidi, Sofian, Saeidi, Saeidi, & Saeidi, (2015)	Descriptive statistics and correlation	1250 manufacturing and consumer product firms	Iran	2014	Positive
7	Hajiha & Sarfaraz (2013)	Descriptive Statistics of the Study Variables,Hypothesis Test,Regression analysis	Multiple, no control	Tehran Stock Exchange, Iran	2008 – 2012	Positive
8	Becchetti, Ciciretti, & Giovannelli (2013)	Regression Analysis; Regression Analysis	Multiple, no control	US	1992-2011	Mixed
9	Cajias, Fuerst, Bienert (2014)	Linear regression models	2300 listed firms	US	2003-2010	Positive
10	Dianita (2011)	Ordinary Least Square regression	Multiple, no control	Indonesia	2006-2008	Negative
11	Lioui & Sharma (2012)	Fixed effects regression	Multiple, with control	US	1993-2007	Negative
12	Tafti, Hosseini, & Emami (2012)	Questionnaire	Banking	Iran	2011	Positive
13	Parsa, Lord, Putrevu & Kreeger (2015)	Questionnaire	Retail & Consumer services	US	2014	Positive
14	Inoue & Lee (2011)	multiple regression analysis; correlation coefficients analysis	Tourism related industries - Airline, Hotel, Restaurant, & Casino.	US	1991-2007	Mixed; Each dimension Had a differential effect on profitability and that such financial impacts varied across the four industries
15	Platonova, Asutay, Dixon and Mohammad (2018)	Content analysis, Pearson correlation matrix	Islamic banks	GCC region	2000-2014	positive
16	Tanggamani, V., Amran, A. and Ramayah, T. (2018)	Theoretical analysis (A review of the literature)				reciprocal relationship(Virtuous Loop)

S/N	Authors	Methodology	Industry	Context	Scope	Relationship Found
17	Lu, W., Ye, M., Chau, K. W., & Flanagan, R. (2018).	VECM model	67 construction companies	International	2006-2015	CSR programs can be detrimental to CFP in the short term but conducive to improving it in the long term
18	Rodriguez-Fernandez(2016)	multivariate regression models	Spanish firms listed in Madrid stock exchange in	Spanish	2009	Bidirectional positive
19	Rodrigo, P., Duran, I. J. and Arenas, D. (2016)	Lagged regression, content analysis	emerging market sample	Six Latin American countries: Argentina, Brazil, Chile, Colombia	2011	negative
20	Qiu, Y., Shaukat, A. and Tharyan, R., (2016)	Multi-regression model	Oil & Gas, Basic Materials, Industrials, Consumer Goods, Health Care	constituents of the FTSE350 index covering	2005-2009	Positive
21	Erhemjamts et al., 2013	OLS regressions	Multiple, no control, Covering 5,235 firms.	Multiple countries	1995–2007	positive
22	Škare and Golja, 2012	comparative analysis	45 CSR corporations listed on Dow Jones Sustainability World Index 2009/2010 and 45 non-CSR	all of the 90 corporations were selected from Fortune 500 World	2006-2008	positive
23	Luo & Bhattacharya, (2006)	confirmatory factor analysis	publicly traded Fortune 500 companies	US	2001-2004	positive
24	Rettab et al (2009)	Questionnaire	280 companies	Dubai	2008	positive
25	Alafi and Hasoneh (2012)	Statistical analysis; Pat Analysis Model	Banks	Jordan	2010	positive
26	Giannarakis, Konteos, Zafeiriou and Partalidou, 2016	fixed effects model	104 companies listed in S&P 500	US	2009-2013	positive
27	Mackey, Mackey and Barney (2007)	Supply and Demand Model	publicly traded firms	US	2005	Negative
28	Hirigoyen and PoulainRehm (2014)	Linear regression analysis and the Granger causality test	329 listed companies	United States, Europe and Asia pacific region	2009-2010	negative
29	Nor et al. (2016)	Multiple Regression analysis	top 100 company of market capitalization	Malaysia	2011	mixed
30	Hou, T.C.T., (2019)	fixed-effects regressions	firms listed on the TWSE	Taiwan	2010-2014	Mixed
31	Nyeadi, J., Ibrahim, M. and Sare, Y. (2018),	Multiple Regression analysis	First 100 largest firms listed on the JSE (Mining oil, Financial industry)	South Africa	2011-2013	Positive

Appendix 2 List of Sample Companies and Industry Classification

S/n	Company Name	Industry
1	Apple Inc	Technology
2	American Express Co	Financial Services
3	Boeing Co	Industrials
4	Caterpillar Inc	Industrials
5	Cisco Systems Inc	Technology
6	Chevron Corp	Oil & Gas
7	Walt Disney Co	Consumer Services
8	Goldman Sachs Group Inc	Financial Services
9	Home Depot Inc	Consumer Services
10	International Business Machines Corp	Technology
11	Intel Corp	Technology
12	Johnson & Johnson	Health Care
13	JPMorgan Chase & Co	Financial Services
14	Coca-Cola Co/The	Consumer Goods
15	McDonald's Corp	Consumer Services
16	3M Co	Industrials
17	Merck & Co Inc	Health Care
18	Microsoft Corp	Technology
19	NIKE Inc	Consumer Goods
20	Pfizer Inc	Health Care
21	Procter & Gamble Co/The	Consumer Goods
22	Travelers Cos Inc/The	Financial Services
23	UnitedHealth Group Inc	Health Care
24	United Technologies Corp	Industrials
25	Visa Inc	Financial Services
26	Verizon Communications Inc	Fixed Line Telecommunications
27	Walgreens Boots Alliance Inc	Consumer Services
28	Walmart Inc	Consumer Services
29	Exxon Mobil Corp	Oil & Gas

Appendix 3 Result of Hausman test

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

  Test:  Ho:  difference in coefficients not systematic

                chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =       25.18
              Prob>chi2 =      0.0007
              (V_b-V_B is not positive definite)
```

Appendix 4 Result of VIF test

Variable	VIF	1/VIF
ESG	1.05	0.949621
Firm Age	1.08	0.924675
Firm Size	1.04	0.962294
Leverage	1.03	0.968838
Sales Revenue	1.02	0.976365
Mean VIF	1.05	